CONNECTICUT COASTAL HABITAT RESTORATION REPORT

1999

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STATE OF CONNECTICUT
DEPARTMENT OF
ENVIRONMENTAL PROTECTION
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Arthur J. Rocque, Jr., Commissioner

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BACKGROUND

The State of Connecticut has a long history of habitat restoration. The Connecticut Board of Fish and Game installed tide gates in mosquito ditches in the 1930's to retain water and offset the impacts to wildlife caused by mosquito ditching. In the 1940's, eelgrass was transplanted from eastern to central Long Island Sound (LIS) coves to restore eelgrass beds that had been lost as the result of unusual climatic conditions and a blight that first occurred in the early 1930's. The passage of the Coastal Management Act in 1980 created a series of statutory goals for restoration including tidal wetlands. DEP's tidal wetland program is now 20 years old and has accomplished over 50 projects and restored over 1500 acres of degraded tidal wetlands. In 1994, DEP created one of the first restoration units in the United States with dedicated staff and specialized low ground pressure equipment for restoring wetlands at the least cost to the taxpayer. Connecticut's legislature has demonstrated a commitment to habitat restoration through the establishment of the Coves & Embayment Restoration Program in the early 1980's and then the subsequent creation of the Long Island Sound Cleanup Account in 1989 which provides dedicated funding for the restoration of coves and tidal wetlands. The impacts of dams upon fish passage, especially American shad, were identified as early as the 1860's. The first fish ladder was built on the Derby dam in 1870. Since that time Connecticut has been continuously addressing the need to restore riverine migratory corridors. Presently, the lead division is the Fisheries Division of DEP. However, the Water Management Bureau has several programs related to dams and dam safety that make significant advances in the restoration of anadromous finfish.

Many of these ongoing programs are identified in the Management and Conservation of Living Resources and Their Habitats chapter of the Long Island Sound Study (LISS) Comprehensive Conservation Management Plan. Federal agencies such as the U.S. Fish & Wildlife Service, U.S. EPA, National Marine Fisheries Service, U.S. Army Corps of Engineers and Natural Resources Conservation Service provide varying levels of funding and support for habitat restoration in Connecticut. However, the EPA – Long Island Sound Office provided funding for staff in 1996 to NY DEC and CT DEP to develop a habitat restoration plan for the Sound. In 1997, the Policy Committee of the LISS supported the recommendation to continue to fund these staff positions recognizing that the single greatest need in this field was to have dedicated staff to assist in identifying and designing restoration projects and pursuing federal restoration funds. For amongst the federal agencies listed above, there are more funds available for restoration in the Sound than could ever be funded by the LISS.

The 1997 LISS Habitat Restoration Initiative 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.
- Use partnerships to accomplish the restoration objectives and to leverage limited state, local, and federal funds.

1999 PROGRESS REPORT

Connecticut's habitat restoration approach is to develop restoration teams with appropriate expertise for each of the major habitat types. The Tidal Wetland Restoration Team was created in 1998. The Riverine Migratory Corridor Team was created in the fall of 1999. The teams identify priorities and work plans for each calendar year.

The following sections report restoration progress for tidal wetlands, riverine migratory corridors and submerged aquatic vegetation.

TIDAL WETLAND RESTORATION

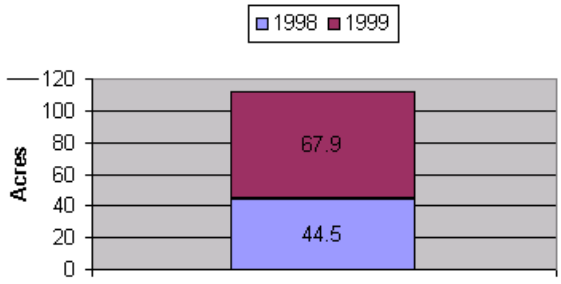
Table 1 is a list of 1999 tidal wetland restoration projects. The first 14 projects listed in Table 1 were part of the original work plan, while the following seven projects, reported as "unsolicited proposals", were added during the year. The project activity column identifies the proposed work actions (e.g., preliminary engineering, design, construction) to be completed in 1999.

The following five projects were completed in 1999:

Mill Meadows, Old Saybrook	17.0 acres
Hammonasset State Park, Madison	11.0 acres
Hammonasset State Park, Madison	2.5 acres
Davis Pond, East Lyme	4.8 acres
East River, Guilford	32.0 acres

Information about each of the above projects can be found on pages 4-8.

Total acres for these wetland restoration projects are 67.9. Completed project acreage for 1998 and 1999 are presented in the following figure:



This page highlights the progress and problems for some of the ongoing projects listed in the work plan while pages 4-8 have descriptions of the five tidal wetland restoration projects that were completed during calendar year 1999.

Several projects are being funded through the Department of Transportation's Intermodal Surface Transportation Efficiency Act (ISTEA). While it was anticipated that design contracts would have been signed for these projects by the end of the year, staff placed most of their work effort in advancing the Old Field Creek project in West Haven. Implementation delays are due in large part to the complex nature of DOT's procedures and review processes and the difficulty of attempting to hybridize the contract requirements of two different state agencies. Despite these administrative hurdles, the Mill Meadows project was constructed. ISTEA only requires 20% state match and to date, CT DEP is still the only state in the nation to use these funds for wetland restoration.

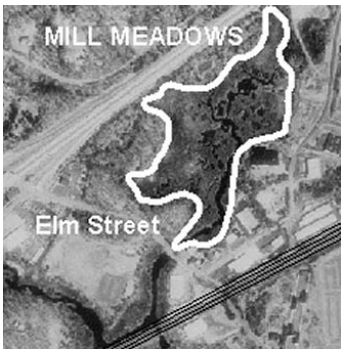
The preliminary design phase for Sybil Creek in Branford was revised and submitted to the Connecticut Department of Transportation for approval. The plans were approved and DEP will be scheduling the required public information meeting in 2000.

OLISP staff received a request to investigate a drainage problem at one of the potential wetland restoration sites identified in the Habitat Restoration GIS as Beamon Creek in Old Saybrook. Historically, this marsh was drained by a tide gate. The tide gate was removed in the 1980's and the resulting return of tidal flows has allowed partial restoration of the wetland. The existing culvert system is too small, is several hundred feet long and the high upstream elevation does not permit the marsh to drain properly. The low tide position is very high and is contributing to the conversion of vegetation to pools. As replacement of the culvert with an appropriate sized culvert could exacerbate flooding of low-lying properties, OLISP asked Milone & MacBroom Engineering to examine the site and prepare a scope of work for a preliminary engineering study.

The City of Norwalk has received a grant for design and construction activities for Wilson Cove, Norwalk. As the City did not have the total amount of funds required for construction, OLISP applied for and has received preliminary approval for $40,000.00 of Section 319 funds. The DEP Wetland Restoration Unit has agreed to undertake the construction for certain project components which will help to reduce the projects overall costs.

During the period from 1998-1999, the U.S. Army Corps of Engineers (ACOE) conducted a reconnaissance project and first determined that tidal wetland restoration and riverine migratory corridor projects were eligible activities. Then a series of potential restoration sites were identified and the ACOE developed scopes of work and cost estimates. Due to mandatory federal requirements and the small scale of these projects, the estimated costs were deemed too high and it was determined that these projects could be implemented through other programs at significantly lower costs.

MILL MEADOWS, OLD SAYBROOK



State: Connecticut
Town: Old Saybrook
Restoration Type: Tidal Wetlands
Acres: 17 acres

Cause of Degradation: This restoration site was first identified through a Coastal America partnership project with Connecticut DEP and Connecticut DOT. The investigation determined that the culvert connecting this wetland to the Oyster River was undersized and causing a depression of the high water elevation by over 1 ½ feet. Furthermore, research has shown that the marsh had once been drained by a tide gate which explains the low marsh elevations (i.e., subsidence) upstream of the culvert. DEP applied for Intermodal Surface Transportation Efficiency Act[1] funds through CT DOT for design and construction. Milone & MacBroom Inc. developed final design plans that would restore tidal flows to the wetland while providing flood protection to adjacent low-lying properties.

Project Description: The project consisted of the installation of a second culvert (30" diameter) to compliment the flows through the existing (24" diameter) culvert. A new concrete vault chamber was built to house an adjustable slide/flap gate. The gate can be manually lowered in advance of a forecast coastal flood so as to not increase tidal flooding of low-lying properties. BlastAll, Inc did the installation and the work was completed in fall 1999.

Mill Meadows culverts, project culvert on right.

Partnership: Funding for the project was provided by CT DOT's ISTEA Enhancement Funds (80%) and DEP's Long Island Sound Cleanup Account. Partners include the Town of Old Saybrook, CT DOT, EPA (Long Island Sound Study), CT DEP- OLISP and Inland Water Resources Management Division and Coastal America. The project had the support of all adjacent property owners.

Note: A detailed report can be found at the EPA River Corridor and Wetland Restoration web page: http://www.epa.gov/owow/wetlands/restore/rpd-2.htm Select the state of Connecticut and follow the links to Mill Meadows.

[1] This is only the second wetland restoration in the country to use ISTEA funds, the first was in Milford, CT.

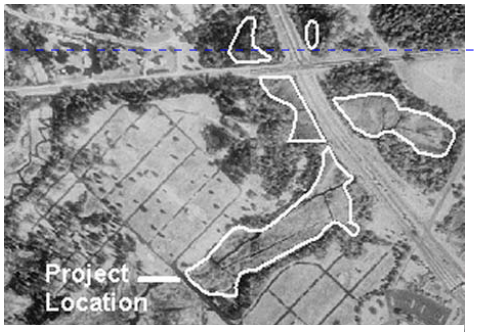
HAMMONASSET STATE PARK – TOM'S CREEK

State: Connecticut
Town: Madison
Restoration Type: Tidal Wetland
Acres: 11 acres

Cause of Degradation: An undersized culvert under a park road reduced essential tidal flows to the upstream wetlands and has allowed for the expansion of the invasive plant, *Phragmites australis*.

Project Description: The existing 48" diameter culvert was replaced with an 84" diameter culvert. A private contractor did the construction work for DEP.

Project Partners: CT DEP Parks Division and Office of Long Island Sound Programs and EPA-Long Island Sound Study.



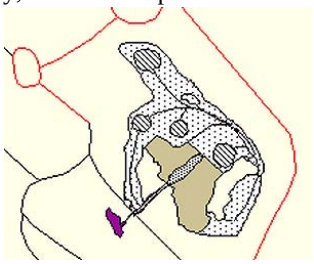
Shown here are the 5 wetland areas that are located upstream of the park road where a large culvert was installed.

Comment [rr1]:

HAMMONASSET STATE PARK, MADISON

State: Connecticut
Town: Madison
Restoration Type: Tidal Wetland and Coastal Sandplain

Cause of Degradation: During the 1950's, portions of the Hammonasset wetlands were used as disposal areas for sandy sediment that was dredged from the nearby Clinton Harbor. Low earthen dikes were constructed around certain wetland areas and the sand was hydraulically pumped to the Park. At this particular location, certain areas of the wetland were converted to upland supporting grasses and red cedar, while others still remain or became degraded salt marsh. More recently, the invasive plant common reed (*Phragmites australis)* colonized most of the degraded wetland portions.



Project Description: Restoration of approximately 5 acres of tidal wetland was accomplished through the removal of 1 to 3 feet of sandy dredged sediment (stippled areas in the drawing to the right). Four ponds (diagonal lines) will be constructed and a network of meandering creeks will be installed to provide adequate tidal flushing. During this calendar year 2.5 acres of wetland were restored. A portion of the excavated sands will be placed and graded on the adjacent upland and then planted with warm season grasses, especially little bluestem.

Partners: U.S. Fish & Wildlife Service, DEP Wetland Habitat and Mosquito Management, DEP – Office of Long Island Sound Programs, EPA – Long Island Sound Study and 319 Program, Ducks Unlimited, and CT Waterfowlers Association.

Photo shows the area of buried wetland that was excavated in the summer 1999. Note the contrast between the dry upland sands on the fringe and the darker soils of the wetland. A shallow pond is present in the background. Salt marsh grasses will colonize these soils and within several years, most of the site will support vegetation.

EAST RIVER, GUILFORD

State: Connecticut
Town: Guilford
Restoration Type: Tidal Wetlands
Acres: 32 acres

Photo showing a ditch segment that is plugged with soil from a nearby pond. Plug is in the foreground.

Cause of Degradation: This wetland, as with most coastal wetlands, has been ditched and drained for mosquito control. Ditching promotes the loss of shallow pools and pannes, the creation of drier plant communities and the elimination of deep ponds. The loss of these habitats was responsible for declines in avian use especially waterfowl, shorebirds and wading birds. While it has been 15 years since the cessation of maintenance ditching, no restoration of deep ponds is occurring and pannes/pools return only gradually.

Project Description: This project was conducted on wetland owned by DEP known as the East River Wildlife Management Area. To restore ponds, pannes and shallow pools, a series of ponds were 'constructed' at strategic locations so that the excavated soil could be used to plug the end of mosquito ditches. The ditch plugging will raise the water table in the marsh, which creates shallow ponds and plant communities typical of unditched tidal marshes. DEP's Wetland Habitat and Mosquito Management completed the work activities.

Photo shows a newly constructed pond.

Partners: US Fish & Wildlife Service, US EPA Long Island Sound Study and CT DEP's WHAMM and OLISP.

DAVIS POND

State: Connecticut
Town: East Lyme
Restoration Type: Tidal Wetland
Acres: 4.8 acres

Cause of Degradation: Several years ago, the undersized culverts at Shore Road were replaced with suitably sized culverts. This action is having a positive effect upon wetland habitat between Shore Road and Manwaring Road. However, the wetland between Manwaring Road and Davis Pond (see figure to the right) is not flooded frequently despite the large culverts under Manwaring Road. The upstream segment of the Manwaring/Shore Road wetland has been determined to be too narrow to pass the necessary tidal flows to the upstream project area.

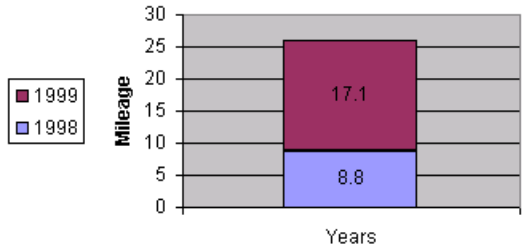
Project Description: Enlarge the upstream-most 800' of tidal channel (to the east of Manwaring Road) to a width of 4 feet to increase the amount of tidal water entering the project wetland located between Manwaring Road and Davis Pond.

Partners: Department of Environmental Protection Wetlands Habitat and Mosquito Management (lead), and Office of Long Island Sound Programs and EPA Long Island Sound Study.

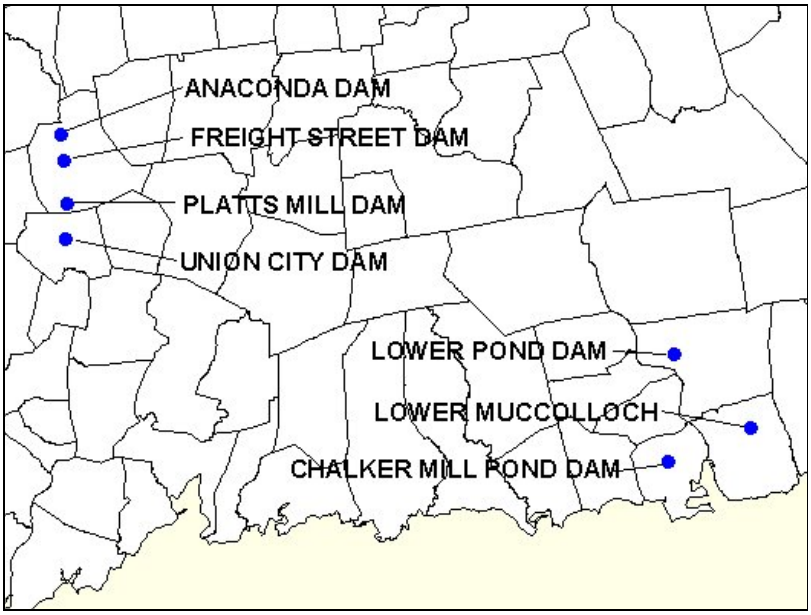
RIVERINE MIGRATORY CORRIDOR PROJECTS

Although the official Riverine Migratory Corridor team did not meet until the fall of 1999, DEP Fisheries and Water Management had a number of anadromous fish restoration projects underway. These projects, all of them completed by the end of the year, are outlined in Table 2 and described in detail on the following seven pages.

The ten-year goal (1998 - 2007), for this habitat type is 100 river miles. River mileage for projects completed in 1998 and 1999 are presented in the following figure:



The distribution of the 1999 anadromous fish restoration projects is shown below. These projects were undertaken through existing DEP programs, namely the Water Management Bureau and Fisheries Division.



ANACONDA DAM

State: Connecticut
Town: Waterbury
River: Naugatuck River
Restoration Type: Riverine Migratory Corridor
River Miles: 6.8 miles
Completion Date: March 1999

Cause of Degradation: Timber Crib Dam which obstructs fish passage.

Project Description: Complete removal of the dam was planned but an ice flow removed a portion. An emergency mobilization was undertaken to remove the rest of the dam and reduce the threat of downstream flooding. This project was implemented as part of a comprehensive Naugatuck River program and as part of a supplemental environmental project for the City of Waterbury.

Partners: Department of Environmental Protection's Water Management Bureau-Planning & Standards Division (lead) and Fisheries Division, and the City of Waterbury.

Beneficiary Species: American shad, blueback herring, sea lamprey, sea-run brown trout, American eel, as well as many non-migratory riverine species such as trout, smallmouth bass, and minnow.

UNION CITY DAM

State: Connecticut
Town: Naugatuck
River: Naugatuck River
Restoration Type: Riverine Migratory Corridor
River Miles: 2.5
Completion Date: July 1999

Cause of Degradation: Dam which obstructs fish passage

Project Description: Complete removal of the dam was done as part of a comprehensive Naugatuck River program. Supplemental environmental project for the City of Waterbury.

Partners: Department of Environmental Protections Bureau of Water Management – Planning & Standards Division (lead) and Fisheries Division, and the City of Waterbury.

Beneficiary Species: American shad, blueback herring, sea lamprey, sea-run brown trout, American eel, as well as many non-migratory riverine species such as trout, smallmouth bass, and minnow.

PLATTS MILL DAM

State: Connecticut
Town: Waterbury
River: Naugatuck River
Restoration Type: Riverine Migratory Corridor
River Miles: 2.9 miles
Completion Date: August 1999

Cause of Degradation: Dam which obstructs fish passage.

Project Description: Expansion and formalization of existing breach to expedite fish passage. Project was undertaken as part of a comprehensive Naugatuck River program and a supplemental environmental project for the City of Waterbury.

Partners: Department of Environmental Protection Water Management Bureau – Planning & Standards Division (lead) and Fisheries Division, and the City of Waterbury.

Beneficiary Species: American shad, blueback herring, sea lamprey, sea-run brown trout, American eel, as well as many non-migratory riverine species such as trout, smallmouth bass, and minnow.

FREIGHT STREET DAM

State: Connecticut
Town: Waterbury
River: Naugatuck River
Restoration Type: Riverine Migratory Corridor
Completion Date: September 1999
River Miles: 2.9

Cause of Degradation: Dam which obstructs fish passage on a seasonal basis.

Project Description:
Complete removal of the dam as part of a comprehensive Naugatuck River program and supplemental environmental project for the City of Waterbury.

Partners: Department of Environmental Protection Water Management Bureau - Planning & Standards Division (lead) and Fisheries Division, and the City of Waterbury.

Beneficiary Species: American shad, blueback herring, sea lamprey, sea-run brown trout, American eel, as well as many non-migratory riverine species such as trout, smallmouth bass, and minnow.

LOWER POND DAM

State: Connecticut
Town: Lyme
River: Joshua Creek
Project Type: Riverine Migratory Corridor
River Miles: 0.5 miles
Completion Date: August 1999

Cause of Degradation: Dam which obstructs fish passage.

Project Description: Install a steeppass extension onto the lower end of the existing pool and weir fishway. The existing pool-and-weir fishway was built a number of years ago and successfully passed alewives into Lower Pond. However, the entrance of the fishway was too high for fish to enter at low tides, so the fishway only passed fish at high tides. The current project purchased a pre-fabricated section of steeppass fishway and bolted it onto the lowermost section of the pool-and-weir fishway as a downward extension to allow fish to access the fishway at all tides.

Partners: DEP Fisheries Division (lead), Connecticut River Watershed Council, Lyme Land Trust, Natural Resource Conservation Service's Wildlife Habitat Improvement Program

Beneficiary Species: Alewife and Sea-run Brown Trout

LOWER MCCOLLOCH DAM

State: Connecticut
Town: Old Lyme
River: Rowland Brook
Restoration Type: Riverine Migratory Corridor
River Miles: 0.5
Completion Date: August 1999

Cause of Degradation- Dam blocks the migratory path of anadromous alewife.

Project Description- A pool-and-weir fishway was built inside of a concrete culvert downstream of the dam and underneath a bridge. A series of six notched weirs allow fish to swim over the top of the dam and into the pond, which is excellent spawning and nursery habitat.

Partners- DEP Fisheries Division and David and Jean McColloch (landowners).

Beneficiary Species- Alewife and American eel.

CHALKER MILLPOND DAM

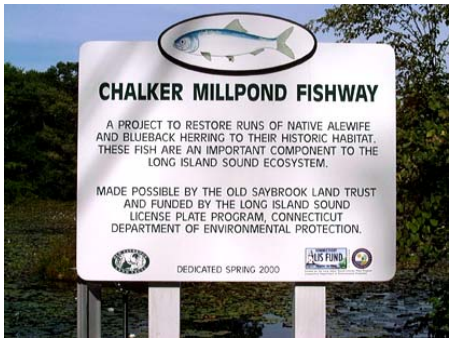
State: Connecticut
Town: Old Saybrook
River: Chalker Millpond stream
River Miles: 1
Completion Date: 1999

Cause of Degradation: Dam blocks the migratory path of anadromous alewife.

Project Description: Construct a pool and weir fishway at a 2' high dam owned by Old Saybrook.

Beneficiary Species: Alewife and blueback herring.

Partners: DEP Fisheries Division (lead), Town of Old Saybrook, Old Saybrook Land Trust, LIS License Plate grant.

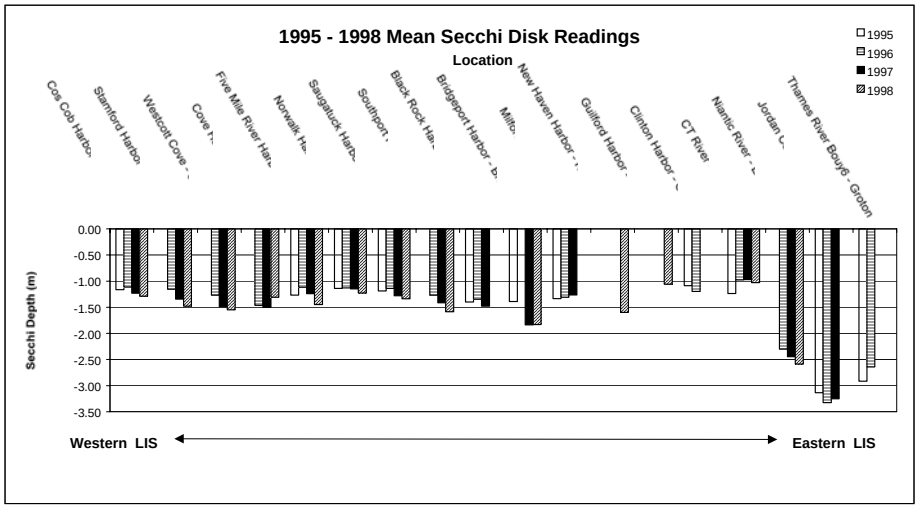


SUBMERGED AQUATIC VEGETATION

New scientific investigations in southern New England are assessing the impact of benthic algae communities on eelgrass populations. Nitrogen enrichment from point and nonpoint sources are often responsible for increasing algae (i.e., planktonic and macrophytes) that can reduce light availability to eelgrass. It appears that the higher the benthic macrophyte canopy height the greater the impact upon eelgrass production. Recent reports for the Little Narragansett Bay, which has experienced significant eelgrass declines, may be the result of increased benthic algae production. The likely source of nitrogen enrichment is the Pawcatuck Sewage Treatment Plant. Over many years, scientists at Connecticut College have observed estuarine algae gradually replace eelgrass as the dominant plant in wracklines on the Barn Island marshes.

Through DEP's Long Island Sound Research Fund, scientists determined the minimum water quality requirements for eelgrass. Ideally, these criteria would be used to evaluate the suitability of nearshore waters for their ability to grow eelgrass. Unfortunately, there are no nearshore water quality investigations that are compiling the necessary data to evaluate this suitability and identify appropriate times to commence eelgrass restoration projects. Given the numerous failures of eelgrass restoration projects and the great expense associated with those projects, DEP has chosen to not invest in planting/transplanting projects until adequate water quality data are compiled.

In the absence of funding to conduct nearshore water quality investigations, the Office of Long Island Sound Programs has implemented a volunteer secchi disk project, which provides a surrogate measure of light availability. Those data are consistent with the distribution of present day eelgrass and show that light availability west of the Connecticut River is low and likely not capable of supporting eelgrass.



The East Lyme-Waterford Shellfish Commission has an objective of restoring eelgrass beds in the Niantic River. When eelgrass is abundant, this embayment supports the highest populations of bay scallops in Long Island Sound. Long-term declines of eelgrass in the river are believed to be the result of increased nitrogen enrichment. It may well be that nitrogen enrichment provides the stress to eelgrass that allows the blight to become active. Several years ago, the Commission reported significant increases of eelgrass in the river. However, that was only a short-term recovery likely due to the combination of cool winter and spring temperatures and high precipitation. At lower salinities, it appears that the blight is suppressed and eelgrass production is higher.

INVASIVE AQUATIC PLANTS

In 1998, OLISP learned about the presence of a highly invasive plant known as water chestnut (*Trapa natans*) along the Connecticut River in Holyoke, Massachusetts. This plant can be highly invasive in fresh and slightly brackish tidal coves as evidenced by the populations on the Hudson River in New York. OLISP discussed control strategies with the U.S. Fish & Wildlife Service, which is a partner in the conservation of the lower Connecticut River from Long Island Sound to Portland, an area designated as a "Wetland of International Importance." In 1999, the Service began a water chestnut control program in Holyoke. That summer, DEP discovered the first population of water chestnut in Keeney Cove in Glastonbury and immediately implemented a control project to remove all of the chestnut. In August, an estimated 9 acres of chestnut were found in the nearby Hockanum River in East Hartford. Unfortunately, this population was discovered too late to implement a harvest since the plants had already released the mature fruits. OLISP staff organized surveys of the Connecticut River to make certain no additional populations were present and compiled a 1 page, two-sided handout in hopes that the public could help to locate new populations and immediate control measures could be initiated. The US Fish & Wildlife Service provided funding for the printing of the handouts. OLISP staff prepared and submitted an application to the Silvio O. Conte Fish & Wildlife Refuge for funding to support the control of water chestnut on the Hockanum River. Also, OLISP staff assisted this Refuge in their application for an invasive aquatic plant control proposal to the National Fish & Wildlife Foundation.

Water chestnut plants shown covering large areas of the Hockanum River.

It is now believed that the source of the Connecticut infestations is not by means of water transported plants, from Holyoke to Connecticut, but rather by means of waterfowl such as Canada Geese. The spines of the fruits have numerous, small retrorse barbs that allow the fruit to become lodged in the feathers of waterfowl. In 2000, the DEP will hire a contractor to use an aquatic weed harvester to mechanically remove the water chestnut from the Hockanum River. DEP will hand-pull plants from Keeney for a second year.

TABLE 1: 1999 ANNUAL LIS HABITAT RESTORATION WORKPLAN

TIDAL WETLANDS

SITE NAME	RANK	ACTIVITY	LEAD	NOTES	STATUS (11/29/99)	ACRES
Sybil Creek, Branford	H	Complete Final Design Advertise for Construction	OLISP	ISTEA/LISCA	Preliminary design has been completed; public information meeting being scheduled for December	55
Mill Meadows, Old Saybrook	M?	Select a contractor and construct project	OLISP	ISTEA/LISCA	BlastAll Inc was selected as the project contractor; work completed 11/99	17
Old Field Creek, West Haven	M	Design - finalize scope of work; execute contract	OLISP	ISTEA/LISCA	Scope of work finalized, reviewing budget	7.6+
Cove River, West Haven	M	Design - finalize scope of work; execute contract	OLISP	ISTEA/LISCA	Scope of work finalized	49.4
Hammock River, Clinton	H	Design - finalize scope of work; execute contract	OLISP	ISTEA/LISCA	Scope of work finalized	201
Bridgeport Airport	H	Design - finalize scope of work; execute contract	OLISP	ISTEA/LISCA	Received revised scope of work; will be scheduling site visit with contractor to finalize scope	11
Hammonasset State Park - Tom s Creek	M	Apply for Permits Construct	DEP Parks	State Funds/LISCA	Permit issued, work completed 11/99	11.6
Hammonasset - East	M	Construct	WHAMM	319/LISCA/USFWS/DU/CT Waterfowl Assoc.	50% complete; balance to be completed in winter 2000	2.5 acres
West River, New Haven	H	Preliminary Engineering	OLISP	COE/LISCA	Project with COE has been tabled due to cost	63+
Sluice Creek, Guilford	M	Preliminary Engineering	OLISP	COE/LISCA	Project with COE has been tabled due to costs.	
Lighthouse Point Park, New Haven	H?	Preliminary Engineering	OLISP	COE/LISCA	Project with COE has been tabled due to costs.	5

Niantic River, Waterford	M	Preliminary Engineering	OLISP	COE/LISCA	Project with COE has been tabled due to costs.	
Bride Brook, East Lyme	H	Finalize Preliminary Engineering Report	OLISP	COE Section 22/LISCA	Final report being completed by COE.	58.6
Davis Pond, East Lyme	M?	Final Design, Secure Permits, and Construct	WHAMM	LISCA	Completed 12/99	4.8
Great Meadows, Stratford	H	Issue Permits, begin restoration of 4 sites totaling 40 acres	Stratford Develop. Corp.	Wetland Compensation for Stratford Development	Permits have been issued – sediment testing is required.	40
ADDITIONAL SITE INVESTIGATIONS						
Beamon Creek, Old Saybrook	M	Public request to inspect flooding issues	OLISP	Inspection determined that culvert is undersized and set too high – wetland doesn't drain well – water table too high.	Inspected the site and asked Milone & MacBroom to prepare a scope of work for preliminary investigation. Scope has not yet been received.	11.8
Quinnipiac River Marsh, Hamden		Develop ditch plugging/pond construction design, obtain permits.	WHAMM		Design has been completed and permits have been secured. Construct in 2000	
Nott Island, Essex		Phragmites control; apply for permits for ditch plugging/pond construction	WHAMM	Conte USFWS; Duck Stamp; Ducks Unlimited, CT Valley Shore Waterfowlers	*Phragmites* control completed, permits received; work to commence in winter 2000	30
Popes and Long Islands, Stratford		Herbicide, pond construction and plug; apply for permits.	WHAMM	DOT funds; Duck Stamp, NFWF	Design completed and permits have been issued.	42
Wilson Cove, Norwalk		Apply for 319 funds to supplement funding secured by City of Norwalk	City of Norwalk; OLISP for 319 funds	319 Funds; NFWF funds (obtained by City)	DEP approved $40,000 funding. WHAMM will conduct a portion of the work. Requires final approval by EPA; permits to be submitted in 12/99; Construct in 2000	5
East River, Guilford		Pond construction and ditch plugging	WHAMM		Completed 4/99	32 acres

TABLE 2: 1999 ANNUAL ANADROMOUS FISHERIES RESTORATION WORKPLAN

FISH PASSAGE

SITE NAME	RANK	ACTIVITY	LEAD	NOTES	STATUS (12/31/99)	MILES
Anaconda Dam (Naugatuck River, Waterbury)	H	Complete removal of the dam was planned but an ice flow removed a portion. Emergency mobilization was done to remove the rest to reduce threat.	Water Mgmt-P&S	Part of the comprehensive Naugatuck River program and a mitigation agreement with City of Waterbury involving the STP.	Completed in March.	6.8
Union City Dam (Naugatuck River, Naugatuck)	H	Complete removal of the dam.	Water Mgmt-P&S	See above	Completed in July.	2.5
Platts Mill Dam (Naugatuck River, Waterbury)	H	Expansion and formalization of existing breach to expedite fish passage.	Water Mgmt-P&S	See above.	Completed in August.	2.9
Freight St. Dam (Naugatuck River, Waterbury)	H	Complete removal of the dam.	Water Mgmt-P&S	See above.	Completed in September	2.9
Lower Pond Dam (Joshua Creek, Lyme)	L	Install a steeppass extension onto the lower end of the existing pool & weir fishway.	Fisheries Division	Partnered with Conn. River Watershed Council, Lyme Land Trust, & NRCS-WHIP	Completed in August. Will be operated for first time in April, 2000.	0.5
Lower McColloch Dam (Rowland Brook, Old Lyme)	L	Install a pool & weir fishway at a 4-foot. high dam.	Fisheries Division	Assisted private landowner.	Completed in August. Will be operated for first time in March, 2000.	0.5
Chalker Millpond Dam (Chalker Millpond Stream, Old Saybrook)	M	Construct a pool & weir fishway at a 2-foot high town-owned dam.	Fisheries Division	Funded by OLISP LIS license plate grant. Partnered with Town and Land trust.	Completed. Will be operated for the first time in April 2000.	1