



SOUND OUTLOOK

A NEWSLETTER OF THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION
EXPLORING LONG ISLAND SOUND – ISSUES AND OPPORTUNITIES

The Connecticut River: Centerpiece of our State

The Connecticut River’s diverse role in defining the character and culture of Connecticut and much of the rest of New England is revealed in the interpretation of its Native American name, *Quinetucket* – “long tidal river.” However, while its watershed drains a large part of four states, and even extends into the Canadian province of Quebec, the river’s identity as a coastal resource may be less obvious to some.

The Connecticut River south of the town of Chester can be defined as an estuary, where fresh water and sea water mix, while the river ecosystem is influenced by oceanic tides as far north as the Enfield Dam, close to the Massachusetts border. This connection to Long Island Sound and the ocean beyond influences the ecology of the Connecticut River. The gradient in salt content within the estuarine waters of the river is evidenced in the transition from salt marsh to brackish marsh and then to freshwater tidal wetlands, and in the diversity of the wildlife populations that utilize those habitats. The river functions as a migratory corridor for anadromous fish that winter in the Sound or the open Atlantic and spawn in upstream waters.

The quality of these resources is protected by the relative absence of development at the mouth of the river, owing to its naturally shallow depth and dynamic sedimentary processes. Human impacts on this habitat, at one time resulting principally from inadequately treated upstream sanitary and wastewater discharges, have largely been eliminated through successful regulatory and remedial efforts. As a result, this remarkable resource has received regional and national recognition in recent decades. In 1994, the marshes of the lower, tidal Connecticut River were recognized as Wetlands of International Importance under the Ramsar Convention, signed in Ramsar, Iran in 1971. The Connecticut River’s nomination was sponsored by DEP, the U.S. Fish and Wildlife Service and The Nature Conservancy (Connecticut Chapter). The area was also designated one of 40 Last Great Places by the Nature Conservancy in 1994. In 1998, significant conservation work in the river culminated in the establishment of the Silvio O. Conte National Fish and Wildlife Refuge, extending the length of the river. In the same year, the Connecticut River received American Heritage River designation through the U.S. Environmental Protection Agency in recognition of its economic and cultural history, as well as its natural resource value.

The following articles provide additional information about many of the aspects of the Connecticut River described above. Read on to learn about continuing efforts to protect its character and quality, and opportunities to explore its unique history and environment.

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Connecticut Sea Grant Projects Renew Recognition of Ramsar Wetlands

Connecticut Sea Grant, with the support of Connecticut DEP, recently received a grant to raise public awareness of the significance of the Connecticut River estuary and tidal wetlands complex as it relates to the 1994 designation of Ramsar Wetlands of International Importance and to World Wetlands Day. The Ramsar wetlands encompass a total of almost 16,000 acres of salt, brackish and freshwater marshes, public trust waters, beaches and dunes, and upland habitats extending from the river's mouth north to the town of Portland. This is the most pristine large-river tidal marsh system in the Northeast, providing essential habitat for numerous federally- and/or state-listed rare and endangered species, including shortnose sturgeon, piping plover and Puritan tiger beetle. Waterfowl concentrations in this section of the river, especially American black duck, are regionally significant, and important anadromous fish restoration initiatives, including those for American shad and Atlantic salmon, are ongoing in the river. World Wetlands Day is observed in February each year to commemorate the Ramsar Convention, and to raise public awareness of wetland values and benefits.



The Connecticut River and the tidal wetlands of Lord Cove in Lyme and Old Lyme.

Listed below are grant activities that have helped to inform the public, especially local officials, teachers and students, within the Ramsar project area about these critical resources. Educating these important groups – present and future decision makers, respectively – is key to the long-term conservation and preservation of the Connecticut River ecosystem.

- Natural history cruises for public officials and middle and high school teachers on the lower Connecticut River, led by professional marine science educators from Project Oceanology, during Spring 2008. Project Oceanology, located in Groton, has provided collaborative marine science and environmental education programs since 1972.

- Educational programs, run by Project Oceanology during Spring 2008, for one class of 25 students from each town within the Ramsar area. Students learned about both the biotic and abiotic resources of the river.
- A poster contest for middle and high school students within the Ramsar area towns that will incorporate the significance of the Connecticut River estuary as a Ramsar site and its connection to World Wetlands Day. The winning poster will be distributed to Ramsar area schools to celebrate World Wetlands Day, February 2, 2009.
- Production of a power point program, available on CD, about the habitats and living resources of the lower river. The CD will be distributed initially to middle and high school science teachers in the Ramsar towns, and will be available to other educators upon request.

Additional grant activities available to the public, as well, are:

- Two public evening lectures, to be held at the Connecticut DEP Marine Headquarters in Old Lyme, focusing on the Connecticut River estuary and its significance from an international perspective. The lectures will highlight the geologic processes (June 5, 2008) and ecology (June 19, 2008) of the river. Both lectures will run from 7:00 to 8:00 PM.

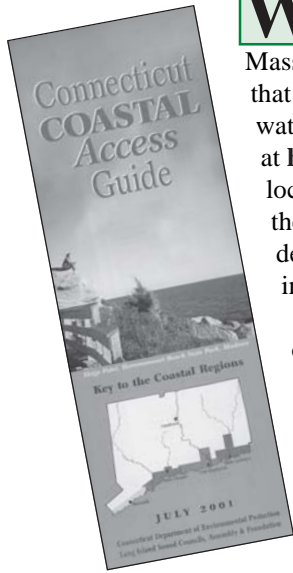
Other grant partners include: Project Oceanology; Connecticut DEP, Office of Long Island Sound Programs; The Nature Conservancy (Connecticut Chapter); the Silvio O. Conte Fish and Wildlife Refuge; and the Fish and Wildlife Service's Southern New England – New York Bight Coastal Ecosystems Program. For more information about these grant activities, including access to the CD and attendance at the lectures described above, please contact Dr. Juliana Barrett at 860-405-9106 or juliana.barrett@uconn.edu.

If you did not receive this issue of *Sound Outlook* in the mail and would like to be placed on the mailing list, please send your name and address to: *Sound Outlook*, Connecticut DEP, Office of Long Island Sound Programs, 79 Elm Street, Hartford, CT 06106-5127; or email your address to juliet.bryan-powell@ct.gov.



Ramsar Wetlands site marker.

SPOTLIGHTED Coastal Access: The Connecticut River -- Something for Everyone



Would you like to get a closer look at the Connecticut River? Every town and city from Long Island Sound to the Massachusetts border has boat launch ramps or observation areas that provide opportunities to view the river or to get out on the water. DEP's online *Connecticut Coastal Access Guide*, available at <http://www.lisrc.uconn.edu/coastalaccess>, lists access sites located within Connecticut's Coastal Boundary, which extends up the river as far as the towns of Lyme and Chester, including those described below. The website provides directions and information about parking and other site amenities.

Within the Coastal Boundary towns are numerous sites that offer both passive and active recreational opportunities, some of which have been highlighted in previous issues of *Sound Outlook*. The beauty of the river, its tidal marshes and wildlife, and the surrounding landscape can be viewed from the Baldwin Bridge Scenic Overlook in Old Saybrook, the Great Island observation platform in Old Lyme and the Town Dock in Deep River. Unique opportunities for comfortable strolling, wildlife observation and fishing are available

along Old Saybrook's half-mile long South Cove Causeway and at Ferry Landing State Park in Old Lyme, site of DEP's Marine Headquarters, where a 1,000 foot-long boardwalk extends to the mouth of the Lieutenant River.



Fishing from South Cove Causeway, Old Saybrook.




Public walkway at Town Dock, Deep River.

The towns of Essex, Old Saybrook, Lyme and Old Lyme maintain multiple unpaved access points for launching canoes and kayaks, many of which are linked by established canoe/kayak trails (see *Sound Tips* on page 4). Once on the water, Hurd, Gillette Castle and Selden Neck State Parks provide riverside camping facilities - campers must arrive and depart by boat. Information about camping policies and reservation procedures are available on the DEP State Parks webpage at www.ct.gov/dep/stateparks. The historical and cultural aspects of the Connecticut River can be experienced at the Connecticut River Museum in Essex, Gillette Castle State Park in East Haddam, and aboard the Essex Steam Train and Riverboat, operated by the Valley Railroad Company. (Hurd State Park and the Steam Train are not listed in the *Connecticut Coastal Access Guide*.)



Riverside campsite at Selden Neck State Park, Lyme.

So take time this summer, or at any time of the year, to get to know one of our state's greatest assets - the Connecticut River. 

LOOK OUT for upcoming events!!

Norwalk Maritime Aquarium

10 North Water St., Norwalk, CT
Call 203-852-0700 x2206 for information, times, costs and registration.

Marine Life Study Cruises

Saturdays and Sundays in June; daily in July and August.

Collect and study marine life in Norwalk Harbor aboard *RV Oceanic*. Passengers must be 42 inches tall.

Sound Scientists - Summer Camps

Grades 1-4; One-day, one-week, and two-week long programs.

Sample themes: *Ocean World; Coastal Critters; Water Wonders; Sound Art & Science; Sharks & Fish; Otterly Awesome Animals; Junior Marine Biologists.*

Connecticut Audubon Coastal Center

Milford Point, Milford, CT
Call 203-878-7440 for information, times, and required registration.

Seining in the Sound

Wednesday, June 18

Use nets to catch and observe the animals that live in LIS before releasing them to their habitat.

Family Canoe Program

Saturdays and Sundays in June, July and August

Guided tour of Charles E. Wheeler Salt Marsh. Time and route weather dependent - call to confirm.

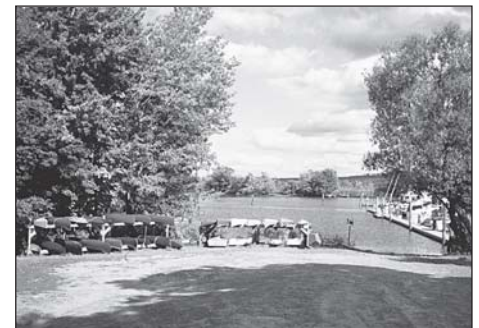
Coastweeks Events

Sat., Sep 20: International Coastal Clean-up Day. Call Save the Sound, 1-888-SAVE LIS.

Sat., Sep 27: National Estuaries Day; visit <http://www.estuaries.gov/>

Please be sure to check the Calendar of Events listed on DEP's website:

www.ct.gov/dep



Car-top boat launch and canoe storage at Bushnell Park, Essex.

Putting Your LISF Plate Money to Work: Tidewater Institute Benefits Connecticut River Estuary Region

In October 2004, the Long Island Sound Fund awarded \$6,951 to the newly formed Tidewater Institute (TI), a non-profit organization working on natural resource conservation in the Connecticut River estuary. Building on that initial grant, TI has since launched many outreach and education programs designed to provide resources to, and to encourage collaborative decision-making among, land use agencies at all levels in the lower Connecticut River towns. In particular, working in tandem with the Connecticut River Gateway Commission – a regional land use authority – and the Connecticut River Estuary Regional Planning Agency (CRERPA), TI is able to leverage the resources and expertise of all three organizations.



Vernal pool adult education class conducted by Tidewater Institute.

TI offers field-based workshops, classes, talks and curricula focusing on estuarine ecology, and together with its partners, has generated a number of publications and opportunities for local commissions and organizations. Several notable examples include:

- TI conducted a Land Use Leadership Alliance (LULA) workshop series, providing land use leaders in the Tidewater area with an opportunity to learn about land use law, mediation and negotiation techniques, and natural resource based planning.
- Through an EPA grant and in partnership with CRERPA and the Gateway Commission, TI conducted an extensive study of riparian buffers along the lower Connecticut River, creating a detailed record and maps of the lower Connecticut River vegetated riparian zone. The information from this project is used to identify riparian habitat restoration opportunities.
- TI utilized a National Fish and Wildlife Foundation grant to implement the “Ground-Truthing Project.” The goal of this effort was to create a regional open space map to guide land protection and stewardship efforts in the lower Connecticut River. Project partners included DEP’s Office of Long Island Sound Programs, DEP’s Greenways program, CRERPA, and Connecticut Forest and Parks Association.
- TI contributed to a summer ecology program for children ages 12 to 14 at the Connecticut River Museum, with funding assistance from the Edna B. Sussman Fund and Yale. In addition to a weeklong educational “River Keepers” outdoor program, TI created a Connecticut River ecology curriculum guide for the museum to be used as a resource for secondary school teachers.



Land Use Leadership Alliance (LULA) workshop conducted by Tidewater Institute.

- TI gives Tidewater Talks on topics as varied as Children and Nature, the Biological Impacts of Light Pollution, and Green Landscaping; working with nature for a healthier backyard. Audiences include Land Trusts, Garden Clubs, home-schoolers and the general public.

Tidewater Institute continues to provide education and outreach to bring people together for the purposes of fostering better understanding of and protection for the Connecticut River estuary. For more information about the Tidewater Institute, contact Judy Preston at 860-395-0465 or www.crerpa.org/tidewater.html.

Sound Tips

Explore the River... Up Close and Personal

Perhaps the most unique way of getting to know the Connecticut River is by following any or all of the four canoe/kayak trails that traverse the estuary. Located separately in the towns of Old Saybrook, Old Lyme, Essex and Deep River, the trails will take you past busy recreational harbors and into quiet tidal coves. You will find almost unlimited opportunities for scenic photography and wildlife observation. Taken round-trip, the trails range from approximately 6 to 9 miles in length, however each trail is also segmented into convenient, shorter loops.

Trail guides are available on the Connecticut River Estuary Regional Planning Association (CRERPA) website at www.crerpa.org - search under *River and Sound* for the individual guides. Laminated printed copies of all but the Old Saybrook guide may be obtained by calling J. H. Torrance Downes of CRERPA at 860-388-3497. Each trail guide includes a detailed canoe/kayak route map, with directions and parking information, and features numbered and annotated points of interest to be found along the trail.

Purchase of a LIS License Plate supports the LIS Fund



As of March 31, 2008:

- Plates sold: 138,610
- Funds raised: Over \$4.85 million
- Projects funded: 300

The LIS Fund supports projects in the areas of education, public access to the shoreline, habitat restoration, and research.

For information on ordering a Long Island Sound license plate, call 1-800-CT-SOUND.

View past issues of *Sound Outlook* on the DEP website at www.ct.gov/dep/lis

SPOTLIGHTED Coastal Resource: The Connecticut River Runs Through It

The native inhabitants of New England, as often noted, accurately characterized what we now call the Connecticut River as “the long, tidal river.” The ebb and flow of the tides are felt all the way from Long Island Sound north to the Enfield dam, a distance of approximately 60 miles. The Dutch explorer Adriaen Block in 1614 named the watercourse De Versche Riviere or Fresh River, evidence reflecting our present-day knowledge that the river contributes 70% of the fresh water that flows into Long Island Sound. For these reasons, among others, the Connecticut River is literally the centerpiece of our state and of the Long Island Sound watershed.

As the largest river in New England, the Connecticut runs 410 miles in length and drops more than 2,600 feet in elevation as it flows south from its source at the Fourth Connecticut Lake in northern New Hampshire, passing through Vermont and Massachusetts en route to its mouth at Old Saybrook. Other than the Susquehanna River, which drains parts of three Mid-Atlantic states, the Connecticut River carries the largest volume of water of any river on the East Coast of the United States north of Georgia. Monitoring studies by the U.S. Geological Survey have determined that the average annual flow of the river is 137,600 gallons per second or more than 434 billion gallons per year. All this water flows out of 11,250 square miles of land known as the Connecticut River watershed (or drainage basin). There are 38 major tributaries in the watershed, and a total of more than 20,000 miles of perennially flowing streams.

The sediment that is carried into the mainstem of the river by all of these tributary streams, and then downstream toward Long Island Sound, creates numerous sand bars and deposits throughout the river’s length. Griswold Point, the long, dynamic sand bar at the river’s mouth has historically provided an obstacle to navigation and an impediment to development –consequently, the Connecticut is one of the few large rivers in the region without a major city near its mouth. Likewise, the sand

bars that form within the river corridor during the spring freshet constantly shift as currents ebb and flow, thus impacting both recreational and commercial navigation. The river must be dredged periodically to ensure safe and continuous navigational access. The excavated sediments, after careful analysis of chemical content by DEP and federal regulatory agencies, are deposited within depressions in the river or at approved disposal sites in the Sound.

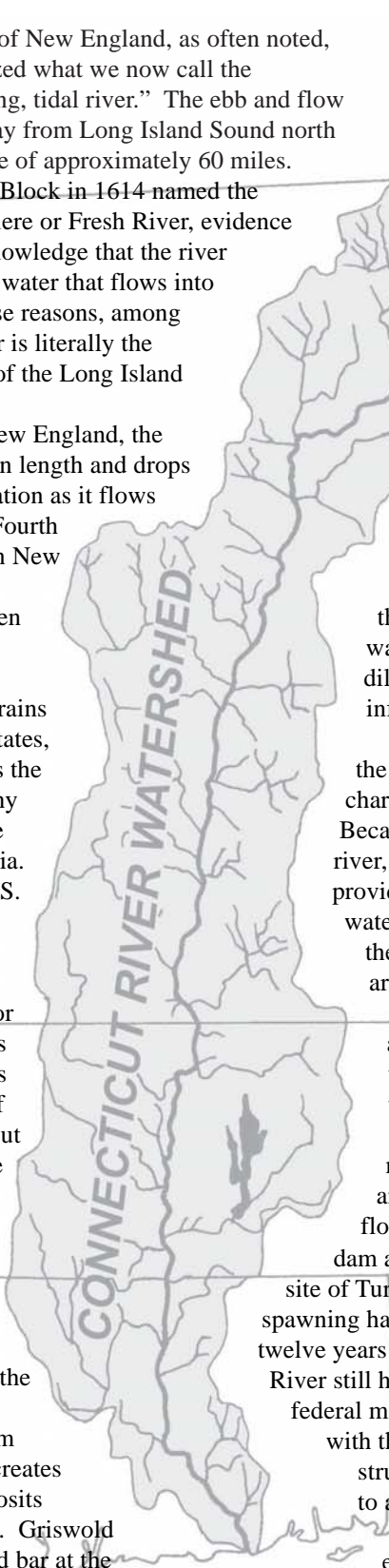
The boundary between freshwater and salt water migrates within the lower 17 miles of the Connecticut River in response to seasonal changes in the volume of fresh water discharge. During periods of spring runoff, the river mixing zone is dominated by fresh water; during summer and fall low-

flow periods, salt water from the Sound may extend upstream to the town of Deep River. The maximum salinity recorded near the mouth of the river is 26-28 ppt (parts per thousand), in comparison to 35 ppt salinity found in the open waters of the Atlantic Ocean. This difference reflects the overall dilution of ocean water in Long Island Sound by cumulative riverine inflow.

The shores of the Connecticut River from Wangunk Meadows in the town of Portland downstream to Long Island Sound are characterized by many acres of salt, brackish and fresh tidal wetland. Because of the general lack of development within this reach of the river, many of these wetland acres remain largely undisturbed, providing high quality habitat for fish and wildlife, including migratory waterfowl. Numerous environmental organizations have recognized the extraordinary value of these resources, as noted in our cover article.

The Connecticut River historically provided migratory routes for a variety of finfish, including Atlantic salmon, shad and herring, that spawned in its upper reaches. Some of these species suffered the effects of industrialization within the watershed from the 1700s through the 1900s when dams were built both on the mainstem of the river and on many tributaries, affecting those anadromous pathways. Dams also affected water quality, water flow, and other river characteristics. Construction of a 16-foot high dam at Miller’s Run in 1798 on the river’s main stem near the present site of Turners Falls, Massachusetts, blocked the access of salmon to spawning habitat in the upper portion of the watershed; as a result, within twelve years there were no salmon found in the river. Today, the Connecticut River still hosts 16 dams on its main stem, however, thanks to state and federal management actions, water quality in the river has improved and, with the removal of many dams and the installation of fish bypass structures at others, spawning habitat is again being made available to anadromous fish.

In summary, while the Connecticut River has experienced an evolution in uses and impacts since the dawn of European settlement, it remains a natural resource of unparalleled value and benefit to Connecticut and all of New England. It is today a destination for residents, recreationists and naturalists. Come and enjoy it! 🌿





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Then & Now: Water Quality in the Connecticut River

During the early to mid 20th century, rivers in New England were among the most polluted in the United States due to the large volumes of untreated municipal and industrial sewage released directly to surface waters. The Connecticut River was no exception. By 1897, the quantity of raw sewage being discharged into some streams within the river's watershed had "become unbearable" according to a presenter at a 1965 meeting of the Connecticut Society of Civil Engineers. When Connecticut adopted its state Clean Water Act in 1967, the Connecticut River was known as the "best landscaped sewer in the nation."

A number of initiatives, including the Connecticut Clean Water Act of 1967 and the Federal Water Pollution Control Act of 1972, led to improvements in the water quality of the Connecticut River and other watercourses. The State's water quality goal for the Connecticut River is to achieve standards of class B in riverine waters and class SB in coastal areas. Class B waters are designated as habitat for fish and other aquatic life and wildlife, and for recreation, navigation, and industrial and agricultural water supply. Class B criteria include good esthetics, dissolved oxygen concentrations not less than 5 mg/L, and bacteria levels within established ranges for healthy waters. Class SB waters are also suitable for marine fish habitat and for commercial shellfish harvesting.

Monitoring conducted by DEP and the U.S. Geological Survey and Connecticut DEP in the Connecticut River since 1969, show that water quality in the main stem of the river has improved substantially during that period. For example, total phosphorous decreased from 0.15 mg/L in the late 1960s to about 0.05 mg/L in 2001, while the concentration of dissolved oxygen in the river trended upward from the late 1960s to the late 1980s. Many of these improvements can be attributed to successful management actions taken over the last 40 years. While problems related to combined sewers still remain in some large urban areas in Massachusetts and Connecticut, all municipal wastewater treatment plants meet required secondary treatment levels, and many now include improved nitrogen removal. 

Visit the DEP website at www.ct.gov/dep.

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