



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

First Watershed Report Released

The DEP Water Management Bureau's Watershed Management Program has released the South Central Coast Major Basin Overview, the first of a series of reports that will describe the health and resources of Connecticut's major drainage basins, or watersheds. The overview is a compilation of key resource information intended to inform the public about current water management issues found in this Basin. The overview will help interested municipalities and watershed organizations to prepare detailed management plans for smaller regional and sub-regional watersheds within the Basin.

The South Central Coast Major Basin covers an area of 513 square miles in the south central part of Connecticut. It comprises numerous small coastal drainage basins from the Wepawaug River in Milford east to the Oyster River in Old Saybrook, including the Quinnipiac River watershed, all of which drain to Long Island Sound. The major basin occupies only 10% of the state's land surface but supports 18% of its population. This high population density, coupled with extensive transportation and urban infrastructure, causes impacts on the Basin's numerous water resources.

The overview includes assessments of surface and ground water quality, point source and nonpoint source pollution, public water supplies, flooding, fisheries management and restoration, watershed initiatives and interstate issues. For example, approximately 25% of the more than 300 square miles of estuarine waters located within the Basin only partially support aquatic life uses due to episodes of hypoxia (low dissolved oxygen). Estuarine water quality is also affected by elevated bacteria levels that prohibit the direct harvest of shellfish.

The major basin overviews expand upon the Unified Watershed Assessments prepared in 1998 by DEP and the U. S. Department of Agriculture's Natural Resources Conservation Service. The overviews are another step in the DEP's ongoing efforts to evaluate resources and problems within Connecticut's watersheds, share environmental information with the public, and set priorities for improved management of water resources. For more information about the DEP's Watershed Management Program, contact Sally Snyder, South Central Coast Major Basin Watershed Coordinator, at (860) 424-3869 or by email at sally.snyder@po.state.ct.us.

		
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Aquaculture – A Growing Industry

The population of the earth is projected to swell to 3.24 billion by July 2002, creating a corresponding demand on the world's food supply. With many traditional fisheries peaking or already overfished, aquaculture has become an important means of increasing global seafood supplies. Simply put, aquaculture is the "farming" of aquatic or marine organisms including finfish, shellfish and aquatic plants.

Harvesting of shellfish in Long Island Sound pre-dates the European settlement of New England. Archeological digs in Connecticut and New York provide evidence that native Americans harvested clams, oysters, mussels and scallops for food, and used shells for jewelry, tools and trade. Historically, the retrieval of shellfish was conducted manually in shallow areas. More recently, the use of shellfish dredges has allowed access to deeper waters. Dredges, which resemble farmers' plows with baskets attached, are towed behind boats, skating along the bottom to collect shellfish on leased shellfish beds.

Shellfish aquaculture is becoming more prevalent throughout the Sound as



Common Oyster,
Hard-shelled Clam, Blue Mussel

advances in gear technology, including bottom cages, submerged racks or nets, and floating gear, have enabled aquaculturists to increase the return on their investment in seed stock. Operators can realize a nearly 100% return using modern equipment, compared to an estimated 10 to 20% return when collecting shellfish by dredge. In addition, by keeping shellfish in nets or cages, loss of stock to predators is reduced.

An environmental advantage of the new gear is that it minimizes the impacts caused by dredges, including damage to eelgrass beds and other nearshore resources. For example, the Mohegan Tribe recently proposed a large-scale aquaculture venture, raising oysters and

hard clams in eastern Long Island Sound, that would employ bottom cages and submerged longlines in some locations. These devices have mesh bags and ropes on which the shellfish grow suspended in the water column. As this issue went to

press, the Tribe's application was under review by the U. S. Army Corps of Engineers.

The installation of aquaculture structures must be authorized by the state. Activities on leased shellfish beds require a permit from the Department of Agriculture, Aquaculture Division, while operations elsewhere are permitted by DEP. As the interest in and demand for aquaculture grows, balancing the needs of the industry with other uses of the Sound is of critical importance. For more information on commercial shellfishing in Connecticut, contact the Department of Agriculture, Aquaculture Division, at (203) 874-0696 or by email at dept.agric@snet.net.

Mapping The Coast – You Can Help!

Described below are two exciting programs designed to improve our knowledge of coastal resources. One has been completed and fulfills a long-standing need in Long Island Sound. The other is now under way and offers an opportunity for you to become involved. Read on ...

REVISED MAPS TO AID IN OIL SPILL RESPONSE

The National Oceanic and Atmospheric Administration's Office of Response and Restoration (ORR) recently published new Environmental Sensitivity Index (ESI) maps for Connecticut, updating the original 1984 edition. The revised maps use uniform resource mapping conventions to facilitate the rapid deployment of oil spill response teams and equipment, and to minimize impacts during cleanup operations.

Using digital basemaps provided by DEP, Research Planning, Inc. of South Carolina remapped shoreline segments in consultation with DEP staff. The maps include data on geology, habitats, birds, plants, fish, reptiles and state owned lands.

Each shoreline type is assigned a numerical rating indicative of its relative environmental sensitivity.

The digital map data will be incorporated into an Oil Spill Geographic Information System that the DEP Office of Long Island Sound Programs is developing for the Oil and Chemical Spills Division. To learn more about ESI maps, go to ORR's website:

<http://response.restoration.noaa.gov/esi/esiintro.html>.

NEW MAPPING INITIATIVE SEEKS YOUR INPUT

Ralph Lewis, state geologist and supervisor of the Connecticut State Geological and Natural History Survey, was recently appointed to the Ocean Studies Board of

the National Research Council. The Board advises the federal government on issues concerning ocean science, engineering, and policy essential to the understanding and protection of coastal and marine environments and resources.

The Ocean Studies Board is currently conducting an assessment of "National Needs for Coastal Mapping and Charting." On behalf of the Board, Ralph is interested in the suggestions of Sound Outlook readers about local or regional mapping needs. Specifically:

- If the nation were to embark on a new initiative to map the coast and adjacent waters out to a depth of 100 feet, what onshore and offshore areas should be mapped?
- What types of cultural, economic, infrastructure, resource (or other) data should be included, and at what scale(s) should they be mapped?

Please email your response to Ralph at ralph.lewis@po.state.ct.us. Thank you for your assistance!

SPOTLIGHTED Coastal Access: Norwalk Islands

Are you looking for an adventure this summer? Discover some of the wonders of Long Island Sound along the newly established Norwalk Islands Canoe and Kayak Trail. The trail leads you to Sheffield, Shea and Grassy Islands, sites #18, 20 and 36 in the *Connecticut Coastal Access Guide*. Boats may be launched from Calf Pasture Beach Boat Launch, which is Site #35 in the Access Guide.

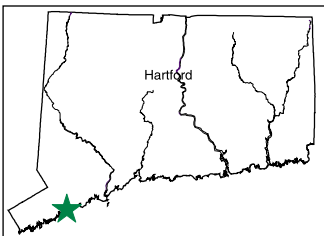
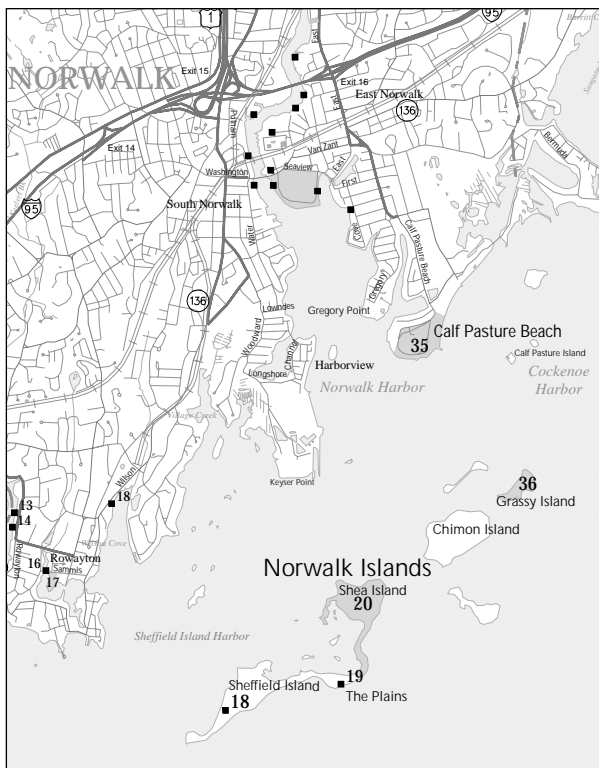
The islands are the remnant of a glacial terminal moraine, rocks which were deposited at the southernmost edge of the ice sheet that covered Connecticut 17,000 years ago. The coastline of Grassy Island is mostly gravel and fine sand and provides sheltered landing areas. Shea Island's shoreline, by contrast, is strewn with rocks and boulders. Both islands are owned by the City of Norwalk and are open to the public. Overnight camping is allowed with a permit.

Sheffield Island, the largest in the group, is part of the Stewart B. McKinney National Wildlife Refuge. It is closed most of the year to protect the many birds that nest along its rocky shore, and has become a regular wintering ground for harbor seals. The Sheffield Island Lighthouse is maintained and operated seasonally as a museum by the Norwalk Seaport Association. Tours and use of the picnic area and grounds are available during the summer for a nominal charge;

information is available at www.seaport.org. Access to Chimon Island, which is not presently listed in the Access Guide, is restricted from April 1 to August 15 because of the bird nesting season.

A laminated trail guide, funded by the Long Island Sound License Plate Program, describes a number of safety precautions that paddlers must follow when touring the islands. The guide includes instructions for obtaining island camping permits. To obtain a copy, contact the DEP Store at (860) 424-3555 or (860) 424-3692 or the South Western Regional Planning Agency (SWERPA) at (203) 316-5190.

To get to Calf Pasture Beach, take Exit 16 off I-95 and follow East Street south to Calf Pasture Beach Road. There is a \$15 entrance fee for non-residents during the beach season. For a free copy of the *Connecticut Coastal Access Guide*, call the DEP at 860-424-3034 or e-mail coastal.access@po.state.ct.us.



LOOK OUT for upcoming events!!

June: Rivers Month

July: Osprey young begin to fly.

Save the Sound Sea Camp

Day Camp for ages 6-11, weekly

July-August

Hands-on activities, field trips. Call 1-888-SAVE LIS for information and registration.

Mystic Marinelife Aquarium

Day Camps and Overnight Camps for

ages 5-17, weekly July-August

Child and Family Day Programs

Explore marine life and habitats in the field and classroom. Call 860-572-5955, Ext. 220 for information and registration.

Norwalk Maritime Aquarium

Marine Life Study Cruises

July 1 - Labor Day, 1:00 pm daily.

2 1/2 hour cruise aboard R/V *Oceanic*; observe marine life, explore habitats of LIS. Charter cruises available for schools, summer camps, Scouts, etc., Call 203-852-0700, ext. 2206 for information and registration.

DEP Educator Workshops

WET & WILD on Long Island Sound

August 20-23: "Our Rivers, Our Future" Kellogg Environmental Center, Derby. Interdisciplinary workshop on watersheds and river systems. Call 203-734-2513 for more information.

Late August: Plovers and terns begin southward migration.

August – September: Sea turtles move into LIS. Boaters please watch for them!

September 21 -October 7: Coastweeks!

September 21: *International Beach Clean-up Day*
Call Save the Sound, 1-888-SAVE LIS, for information.

September 22: *Row on the Mystic River*

2,000 meter regatta for racing shells and traditional pulling boats. Call CT Sea Grant, 860-405-9141, for information.

September 29: National Estuaries Day

Please be sure and check the Calendar of Events listed in DEP's website:
www.dep.state.ct.us

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 e-mail your address to laurie.valente@po.state.ct.us.

- PUTTING YOUR LIS PLATE MONEY TO WORK - Pond Lily Fishway Opens

A new fishway over the Pond Lily Dam on the West River in New Haven, funded by a \$19,000 Long Island Sound Fund grant to the New Haven Land Trust, was opened in 2001. The continuing Northeast drought delayed use of the fishway last year, but following recent spring rains, alewives are now making their way into the pond. The project represents a major step toward the DEP's 10-



Pond Lily Fishway, New Haven

year goal of restoring 100 miles of river habitat for anadromous fish (fish that live in salt water, and migrate upstream to freshwater areas to spawn). The fishway is owned by the Land Trust.

The fishway provides fish access to more than two miles of critical upstream spawning habitat for alewives and blueback herring (whose depleted populations have recently been restricted from recreational fishing in Connecticut) as well as sea-run brown trout and sea lamprey. Restoration of these fish species to the West River will provide broad ecological benefits to Long Island Sound, including an important food source for wildlife such as striped bass, bluefish, otters, osprey, gulls, terns, herons, kingfisher and more.

This project is particularly significant because it is the first fishway constructed in an urban area where many people will be able to observe migrating fish, providing a great environmental education opportunity. The project includes a public observation platform and interpretive signs to inform the public about the importance of these fish and their lifecycles. For more information about fishways in Connecticut, contact Steve Gephard of the DEP Fisheries Division at

(860) 434-6043.

For more information about the Long Island Sound license plate program, please contact the Long Island Sound Fund Coordinator, Kate Hughes, at (860) 424-3034, by e-mail at kate.hughes@po.state.ct.us, or visit our website at www.dep.state.ct.us/olispl/liceplate.htm.

Purchase of an LIS License Plate supports the LIS Fund



As of March 31, 2002:

- Plates sold: 114,618
- Funds raised: Over \$4 million
- Projects funded: 204

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.

A New SOUND OUTLOOK!

We are pleased to introduce a revamped *Sound Outlook*. Beginning with this issue, we will celebrate the seasons in color: green for our June issue, orange in October and blue in February. We hope our brighter, more colorful format will catch your eye and spark your interest in the many important issues and events concerning Long Island Sound.

Sound Tips

Wildlife Watching Code of Ethics

Our coastal marshes, floodplains, coves, inlets and rivers are valuable habitats where migratory birds and mammals feed, rest and raise their young. These wild animals are stressed by the presence of boaters, including canoeists and kayakers, who they perceive as predators. Please observe the following rules when viewing wildlife along Connecticut's shore:

- ✓ In late spring and summer stay out of small marsh creeks and respect nesting and nursery areas posted with "Off Limits" signs.
- ✓ In early spring and fall do not disturb feeding shorebirds; they are storing critical fat to fuel their long migratory journeys.
- ✓ Keep your distance – use public viewing platforms and binoculars or a spotting scope.
- ✓ Move slowly and quietly. Paddle quietly and drift with the current. Do not view wildlife face-on; they are threatened by such human behavior.
- ✓ Do not disturb or litter wildlife habitat areas.
- ✓ Do not handle or move wildlife.
- ✓ KEEP DOGS LEASHED WHEN ON BEACHES!

This information is explained in more detail in the brochure *Sharing the Waterways*, written by Patty Pendergast and funded by the DEP Long Island Sound License Plate Program. For a copy, contact the Connecticut Ornithological Association (COA) at www.ctbirding.org, or Kate Hughes of DEP at kate.hughes@po.state.ct.us. For more information about birdwatching in Connecticut, contact COA.

Clean Boater Program Launched!

The DEP's Boating Division and Office of Long Island Sound Programs introduced the Clean Boater Program in 2002. This outreach component of the Clean Marina Program will help boaters reduce their impacts on the Sound.

Environmental impacts associated with recreational boating activities are related to discharges of oil and fuel, sewage, solid waste and marine debris resulting from vessel operations and maintenance. The Clean Boater program teaches boaters simple and inexpensive ways to protect our waters. Two educational publications, a "Clean Boating Tips" weatherproof card and a guidebook titled "Clean Boating in Connecticut – Action Guide for Boaters," will be distributed during the 2002 boating season.

The Clean Boater Program also promotes the use of clean marine engines. The DEP is partnering with the

Connecticut Marine Trades Association (CMTA) and the U.S. Environmental Protection Agency, New England Region, to encourage boaters to purchase low-pollution marine engines.

DEP seasonal staff, known as dockwalkers, will visit marinas and boat launches this summer to talk with boaters about preventing pollution and protecting the marine environment. To receive a copy of the Action Guide for Boaters, the Clean Boating Tip Card, or information about clean engines contact Kim Czaplá at 860-434-8638 or e-mail kim.czapla@po.state.ct.us. For more information about the Clean Marina Program, contact Elke Sutt at 860-424-3034 or e-mail elke.sutt@po.state.ct.us.

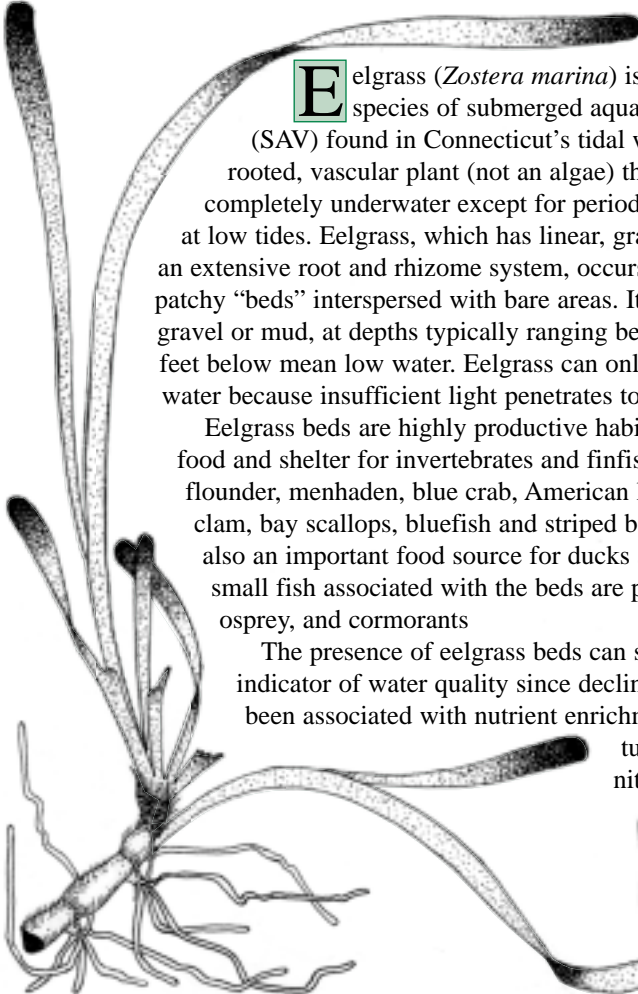
NO DISCHARGE AREA PROPOSED FOR WATERS IN THE STONINGTON AREA

The DEP is preparing an application to designate Stonington Harbor and the Connecticut portions of the Pawcatuck

River and Little Narragansett Bay as the first EPA approved No Discharge Area in Connecticut. The application will be submitted to the EPA this summer. If approved, this designation will prohibit the discharge of all boat sewage to these waters and complement the existing EPA No Discharge Area designation of Rhode Island coastal waters.

The discharge of untreated boat sewage is currently prohibited in all of Connecticut's coastal and inland waters. The establishment of the No Discharge Area will further prohibit the discharge of treated boat sewage from Type I and Type II Marine Sanitation Devices (MSDs). Educating boaters about the impacts of boat sewage discharge to coastal waters, together with the prohibition of such discharges, will result in water quality improvements and public health benefits. For more information, contact Rick Huntley at (860) 424-3034 or e-mail rick.huntley@po.state.ct.us.

SPOTLIGHTED Coastal Resource: Eelgrass



Eelgrass (*Zostera marina*) is one of several species of submerged aquatic vegetation (SAV) found in Connecticut's tidal waters. It is a rooted, vascular plant (not an algae) that grows completely underwater except for periods of brief exposure at low tides. Eelgrass, which has linear, grass-like leaves and an extensive root and rhizome system, occurs in meadows or patchy "beds" interspersed with bare areas. It grows in sand, gravel or mud, at depths typically ranging between 2 and 12 feet below mean low water. Eelgrass can only grow in shallow water because insufficient light penetrates to greater depths.

Eelgrass beds are highly productive habitats. They provide food and shelter for invertebrates and finfish such as winter flounder, menhaden, blue crab, American lobster, hard-shell clam, bay scallops, bluefish and striped bass. Eelgrass is also an important food source for ducks and geese, while small fish associated with the beds are prey for terns, osprey, and cormorants

The presence of eelgrass beds can serve as an indicator of water quality since declines in eelgrass have been associated with nutrient enrichment and increased turbidity. Excess nitrogen in the water

can stimulate the growth of algae and phytoplankton which shade eelgrass. At the same time, eelgrass takes up certain nutrients and contaminants, and helps oxygenate the water column. Dense beds may buffer water currents, thus reducing shoreline erosion and resuspension of bottom sediments.

Beginning in 1931, eelgrass experienced a massive die-off, referred to as "wasting disease," along the Atlantic coasts of Europe and North America. That decline may have been related to changing climatic conditions. Populations rebounded somewhat from Stonington west to Clinton after the 1930s, but not along the western Connecticut coast where its return may be limited by higher nitrogen levels and the wider tidal range in that area.

Eelgrass is protected under the Connecticut Coastal Management Act, which also promotes restoration of the resource. Management measures to protect eelgrass include upgrading septic systems, reducing the use of chemical fertilizers, controlling topsoil runoff, restricting fishing practices and recreational boating activities that would damage beds, managing waterfowl to control overfeeding by geese and swans, and elevating docks, floats and piers to reduce shading of eelgrass beds.

For more information about eelgrass, please contact Harry Yamalis at the DEP Office of Long Island Sound Programs, 860-424-3034, or by email at harry.yamalis@po.state.ct.us.





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How's the Water?

As we continue our series on metals in Long Island Sound, we look in this issue at lead. Lead occurs naturally in sea water at concentrations of approximately 0.03 parts per billion (ppb). Although lead ranks about 25th in abundance of dissolved metals in sea water, it can potentially affect human health. Infants and children are especially sensitive to lead exposure, which can lead to both mental and physical impairment.

Lead input to the marine environment increased during the industrial revolution as lead contained in water supply pipes leached into sewer systems and was discharged into rivers. Lead-based paints, also disposed of through sanitary sewers, further contaminated surface waters. Beginning around 1930, the use of leaded gasoline further increased both atmospheric lead levels and deposition of the metal to ocean waters.

Since the elimination of lead-based paints and leaded gasoline in the 1970s, the potential for exposure to lead has declined. Also, less lead now enters the environment as a result of the greater regulation of industrial wastewaters through the State and Federal "Clean Water Acts" passed, respectively, in 1967 and 1972. Today, lead input occurs primarily through atmospheric discharges associated with smelting operations, coal combustion, and cement production.

Dissolved lead is not present at elevated concentrations in the water column of Long Island Sound. However, sampling conducted for the federal Environmental Protection Agency's National Coastal Assessment in 2000 found that lead in the sediments of the Sound averaged 51 parts per million (ppm) in the Western Sound, 28 ppm in the Central Basin and 22 ppm in the Eastern Basin. These findings show sediment lead levels increasing from east to west, likely associated with patterns in population and industry. It is expected that as lead inputs to the environment continue to decline, so too, will the concentration of the metal in LIS sediments. 

How Are We Doing?

Are we addressing the issues that concern you about Long Island Sound? Do you have a suggestion for an article or column? Send your comments and ideas to: Tom Ouellette, Editor, Sound Outlook, Connecticut DEP, Office of Long Island Sound Programs, 79 Elm Street, Hartford, CT 06106, or by email to tom.ouellette@po.state.ct.us.

Visit the DEP website at www.dep.state.ct.us.

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