SOUND OUTLOOK

A NEWSLETTER OF THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

EXPLORING LONG ISLAND SOUND – ISSUES AND OPPORTUNITIES

What's the Big Deal About Docks?

In some contexts, people consider private residential docks to be a normal and characteristic part of the coastal landscape, and cannot understand why they must undergo an often long and arduous DEP permit review process. In other cases, people consider docks a threat to public values and the environment, and cannot understand why DEP issues permits for them at all. What's the real story? Like other coastal activities, the construction and use of private residential docks can create a range of impacts depending both on site-specific factors and the perspective of the observer.

As discussed in previous issues of *Sound Outlook*, the area waterward of the high tide line in the tidal, coastal and navigable waters of the State is held in trust by the State for use by the general public. At the same time, waterfront owners enjoy "littoral" or "riparian" rights which allow them access to waters adjacent to their property. Subject to regulation by the State, a waterfront owner, by virtue of that right, may construct a dock extending into public waters for his or her private benefit, so long as the dock does not unreasonably interfere with the public's rights of boating, fishing, shellfishing, and traveling through the public trust area, or result in significant adverse impacts to the coastal environment.

Riparian access can be regulated and, if appropriate, restricted by the State. In Connecticut, permits have been required for docks and other in-water structures since 1939. Today, the State's coastal permit program, which is implemented by DEP's Office of Long Island Sound Programs (OLISP), strives to minimize encroachment of coastal structures into the public trust area, as well as adverse impacts on coastal resources. Potential adverse impacts include shading of tidal wetlands and submerged aquatic vegetation, interference with navigation, and effects on fish and other living marine resources, as well as cumulative and secondary impacts caused by an accumulation of docks. To meet these goals, DEP's policy guidelines state that a fixed pier extending to mean low water, a ramp and a 10 foot x 10 foot float constitute reasonable riparian access in most cases. There are, however, situations where docks must be larger due to water depths and other site-specific resource conditions. There are also locations where no dock at all is suitable due to environmental constraints.

OLISP's goal is to strike a balance between the public trust and the private right of access. Staff will work with local communities and interested parties to address continuing issues associated with private residential docks. For more information on dock permitting, contact OLISP at (860) 424-3034 to ask for a copy of the new Residential Dock Guidelines brochure or to speak to a member of the permit staff.

Inside

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River Herring Fisheries Closed to Protect Stocks

As many fishermen and other observers know, the DEP has prohibited the taking of alewives and blueback herring in Connecticut waters due to continuing population declines. The department is investigating the reasons and remedies for those declines, while continuing ongoing efforts to restore access to river habitat for both species.

Alewives (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*), known collectively as river herring, are anadromous species that enter Connecticut rivers each spring to spawn. While each species has a unique life history, they are difficult to distinguish visually. Alewives migrate to quiet upstream waters to spawn in March and April, while blueback herring ascend streams in May and June to spawn in flowing waters. Both species grow to 10 to 12 inches long, and provide important forage for a multitude of animals in both fresh and salt waters, including osprey and striped bass.

During the 1970s and 1980s, the number of blueback herring that migrated up the Connecticut River and were transported over the Holyoke, Massachusetts dam in the automated fish lift at that location, grew from a few thousand to over 600,000 per year. In the 1990s, however, those numbers crashed. This past spring only 1,939 blueback herring were counted in the Holyoke lift, and the Connecticut blueback run, statewide, was practically non-existent in many streams - the worst on record. The causes for this decline aren't entirely clear, but certainly the large number of striped bass that now occur in Connecticut waters is a factor. "Stripers," whose present success is due to the long-term, interstate stock recovery program for that species, consume large numbers of river herring. There may be other, as yet unidentified causes for the river herring decline, as well. On the positive side, Connecticut's alewife runs during spring 2002 were stronger than have been observed in recent years.

Alewife *(alosa pseudoharengus)*

DEP's Inland Fisheries Division has worked to restore river herring runs statewide for a number of years. The DEP has removed dams, built fishways, and transplanted alewives from one stream to another in order to restore runs to upstream portions of watersheds and increase the number of river herring in Connecticut waters. However, due to the continuing dramatic decline in numbers, the DEP in March 2002 prohibited the taking of all river herring by all methods, at any time, anywhere in the state. Although there is no evidence that fishing in Connecticut waters was the primary cause for the decline, the DEP is taking a precautionary approach and eliminating all controllable sources of mortality. Accordingly, while the fisheries closures will be reconsidered over the coming winter, they are likely to be extended throughout the 2003 fishing season.

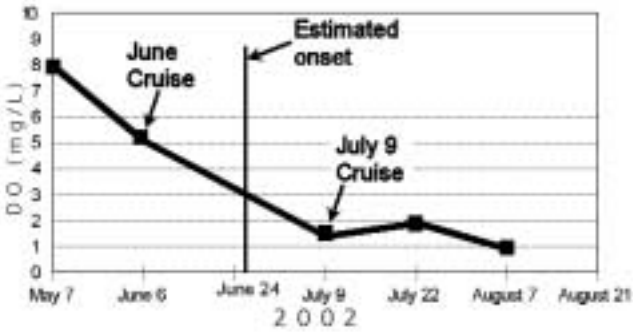
For more information about river herring and the closures, contact Steve Gephard of the DEP Inland Fisheries Division at (860) 434-6043.

Long Island Sound 2002 Hypoxia Report

Long Island Sound has been monitored for both the onset and extent of hypoxia (low dissolved oxygen or DO) since 1987. During the summer of 2002, hypoxic conditions are estimated to have begun around June 24. The earliest previous onset occurred in 1994 on July 1. The date of hypoxia onset is that on which DO falls to 3.0 milligrams per liter (mg/L) as shown on the graph at right. Data analysis has also indicated that there appears to be a cyclic pattern for both early onset and duration of hypoxia, with peaks occurring during 1988-89, 1993-94, 1998-99, and now again in 2002 (a pattern of about every 4 years).

Dissolved oxygen levels below 3.0 mg/L were first observed during the DEP's July 9, 2002 monitoring cruise in the Narrows portion of the western Sound, between New York's Westchester and Nassau Counties. A value of 2.3 mg/L was recorded north of Glen Cove, NY, while sampling stations at Smithtown Bay and between Columbia Island and Sands Point, NY were found to have DO levels of 1.6 mg/L and 1.4 mg/L respectively.

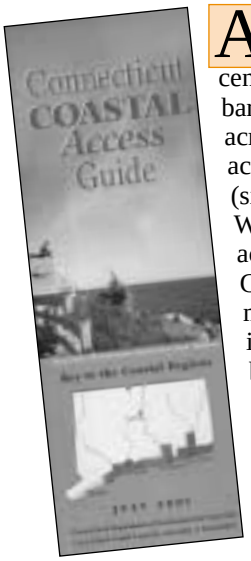
The area of western LIS in which DO levels dropped below 3.0 mg/L was estimated to be 139 square kilometers (km^2) on July 9, increasing to 336 km^2 by August 7. DO levels below 1.0 mg/L, a very serious condition for aquatic organisms, were recorded in an area encompassing approximately 108 km^2, the largest since 1994 (73 km^2). The August 5-8 cruise found DO to be as low at 0.56 mg/L in the western Sound north of Oyster Bay, NY. As this issue went to press, data were being evaluated to determine when the summer's hypoxia event, which appears to have been driven by the season's hot weather, could be expected to end.



Although the 2002 event certainly ranks as one of the Sound's more serious hypoxia episodes, it is expected that the nitrogen controls being put into place by the DEP will help to reduce the impacts of such fluctuations in the future.

For more information on hypoxia in LIS, contact Mark Parker, Bureau of Water Management, at 860-424-3276 or by e-mail at **mark.parker@po.state.ct.us**.

SPOTLIGHTED Coastal Access: Milford Point

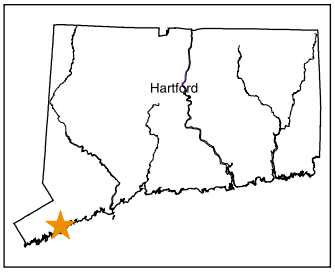


Are you looking for an interesting place to watch wildlife in its natural habitat? If you've never been to Milford Point, located along the central Connecticut shoreline, you're in for a treat. Milford Point is a barrier beach bounded by Long Island Sound to the south and by an 840-acre salt marsh and the Housatonic River to the north. A number of public access facilities are located at the Point, including Waterview Landing (site #98 in the *Connecticut Coastal Access Guide*) and Charles Wheeler Wildlife Management Area (#99), both of which provide car-top boat access, as well as the McKinney National Wildlife Refuge (#100) and the Connecticut Audubon Coastal Center (#101). In addition to the healthy marsh complex, Milford Point also features significant beach, dune and intertidal areas all of which are critical habitats for migratory coastal birds.

Of special interest is the Connecticut Audubon Coastal Center, a family-oriented environmental education facility. An observation platform from which visitors may view birds and other wildlife is located adjacent to the marsh. A boardwalk across a dune and another viewing platform on the beach offer visitors spectacular views of the Sound and the nearby intertidal flats where shorebirds can be seen foraging for food. The observation platforms feature educational signs about Milford Point's varied habitats and the birds that use them, including piping plover and least tern, two threatened species that are present during the spring and summer months.

Milford Point's abundant resources are also a boon to area scientists. Dr. Carmela Cuomo of Yale University's Department of Geology and Geophysics is presently investigating the organisms living on the beach at the Point and their relationship to migratory shorebird foraging activities. This study was funded, in part, by the Long Island Sound Fund. The information gained by Dr. Cuomo's study will complement another LIS Fund shorebird study being conducted by the Manomet Center for Conservation Sciences, in Manomet, Massachusetts. Researchers at the Center are assessing critical migratory shorebird habitats along Connecticut's coast, including Milford Point.

So if you'd like to learn more about an area that offers both scenic seascapes and significant scientific value, spend a day exploring Milford Point. Directions to the four access sites at the Point are shown on the map inset at left. 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**.



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**.

LOOK OUT for upcoming events!!

Long Island Sound Research Conference, co-sponsored with the New England Estuarine Research Society (NEERS)
Thurs.-Fri., Oct. 24-26
UConn, Avery Point Campus, Groton
Phone Susan McNamara, 860-405-9166, or Pat Kremer, 860-405-9140, to register

Connecticut Coastal Audubon Center, Milford Phone (203) 878-7440 to register.

Seashells on the Seashore
Sat., Oct. 19, 2:00 p.m.
Discover different shells at Milford Point beaches.

Terrapins: Turtles of the Salt Marsh
Sat., Nov. 2, 2:00 p.m.
Learn how turtles that live in Milford Point wetlands prepare for winter.

Watching Waterfowl
Thurs., Nov. 14, 7:30 p.m. (slide lecture);
Sat., Nov. 16, 8:30 a.m. (field trip)
Identify and discuss the habits of ducks and water birds that visit Milford Point during fall migration.

DEP Fall Educators' Workshop
WET & WILD on Long Island Sound
Fri., Nov. 22: 9:00 a.m.-4:00 p.m. $35.00
Kellogg Environmental Center, Derby
CEU's available. Phone 203-734-2513, to register.

Norwalk Maritime Aquarium
Winter Creature Cruises
Selected weekends, November-March
View seals and winter waterfowl.
Phone 203-852-0700 x 2206 for information and reservations

November: Harbor seals arrive in LIS from northern New England.
Winter flounder move into shallower water.

December: Bald eagles return to Connecticut for the winter. Call 1-800-368-8954 after December 8th for reservations at the Shepaug Eagle Observation Area.

January: LIS License Plate Request for Proposals will be mailed and posted on DEP website. Contact Kate Brown, DEP, Office of Long Island Sound Programs, (860) 424-3034 for more information.

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

Long Island Sound Fund 2002 Grant Awards

On May 15, 2002, the Long Island Sound (LIS) Fund Advisory Committee voted to award $390,573.32 in grants for 23 projects to help preserve and protect Long Island Sound. The projects were selected through a competitive grant process, and only the best proposals were funded. Highlights of the approved projects include:

Education and Outreach:

- Establishment of two underwater State Archaeological Preserves for the "Aunt Polly" and "Lightship 51" shipwrecks, and creation of educational brochures (see photo).
- Installation of interpretive signs at Fort Saybrook Monument Park in Old Saybrook and Calf Pasture Beach in Norwalk.
- Creation of a Long Island Sound educational curriculum at an after-school program for Hispanic youth in New Haven.

Public Access:

- Creation of a new waterfront park adjacent to Mill Cove in Ledyard with walking trails, interpretive signs and benches.
- Installation of a specialized deck crane to enable disabled individuals to access the Schooner *Quinnipiack*.

Habitat Restoration:

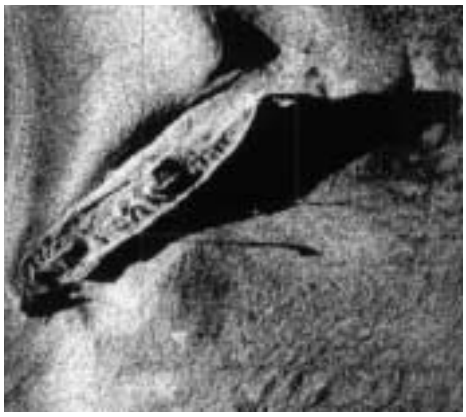
- Removal of invasive plants at Bluff Point Natural Area Preserve and Pattagansett marsh, and creation of an educational brochure.
- Construction of a fishway and eelpass at the Ingham Hill Pond Dam in Old Saybrook to restore anadromous fish and American eel passage to upstream spawning and habitat areas.
- Installation of an osprey platform and perch pole in the Quinnipiac River Marsh and creation of a waterproof guide.

Research:

- A grant to Sacred Heart University to study population dynamics of Long Island Sound horseshoe crabs.
- A grant to the University of Connecticut to conduct study of the effects of artificial lighting on beach-nesting birds.
- A grant to Yale University to test the use of isotopic signatures to identify sources of nitrate to Long Island Sound.

The DEP is looking forward to working with the successful applicants. Connecticut residents can show their support for future projects by purchasing a Preserve the Sound license plate, acquiring a People's Bank LIS credit card, or by making a direct contribution to the Fund. LIS license plates can also be purchased as gifts.

Information and order forms for purchasing LIS license plates can be obtained by calling 1-800-CT-SOUND or by writing to Long Island Sound License Plate, 60 State Street, Wethersfield, CT 06161-6001. For more information about the program, please contact the Long Island Sound Fund Coordinator, Kate Brown, at (860) 424-3034, by e-mail at **kate.brown@po.state.ct.us**, or visit our website at **www.dep.state.ct.us/olisp/licplate.htm**.



Sidescan sonar image of Lightship 51, *located in 190 feet of water near Cornfield Point, offshore of Old Saybrook. Image by Peter H. Johnson, Connecticut Underwater Advisory Committee.*

Purchase of an LIS License Plate supports the LIS Fund

As of August 31, 2002:

- Plates sold: 116,998
- 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.

Sound Tips

Cold Weather Boating: Warnings and Hints

Winter boating season is here. For a safe experience on the water, follow these warnings and hints:

Warnings

- Hypothermia can occur in water as warm as 70 degrees. Below 50 degrees, it takes only minutes to lose manual dexterity and become unable to rescue yourself.
- Cold shock causes a gasp reflex, the sudden and involuntary intake of breath that occurs when you unexpectedly fall into cold water with no protection. If your face is under water during that reflex, you will drown instantly.
- Wind chill, dampness, and fatigue can cause long-onset hypothermia. Watch for shivering, a blue tinge to the lips, and loss of dexterity in fingers.

Hints

- Dress for the cold with a wicking layer next to the skin, insulating layer(s) (preferably fleece) and a protective layer (preferably a wet suit or a dry suit). Include head and neck protection. Avoid cotton, which absorbs and holds cold water next to the skin. Proper clothing will prevent cold shock and delay hypothermia.
- Wear a life jacket - a requirement under law for children younger than 12 year round and for all canoeists from October 1-May 30. Look at outdoor sports shops for one that is comfortable to wear for your water sport.
- Boat with a buddy. Self-rescue in cold water becomes very difficult very quickly.
- Stay with the boat. Get out of the water if at all possible.
- Learn the HELP and HUDDLE positions to conserve body heat when you are immersed in cold water waiting for rescue.

For more information about boating safety at any time of the year, contact the DEP Boating Division at 860-434-6043.

Attention Land Use Commission Members

Need a refresher in coastal site plan review? Interested in the State's coastal nonpoint source pollution control program? Want to better protect migratory fish habitat, tidal wetlands, and submerged aquatic vegetation? Great, because we've got a workshop for you. OLISP staff and our partners would be happy to conduct an individual workshop in your town, or a regional workshop for several towns, on these important and exciting topics. Please contact Mary-beth Hart or your OLISP coastal liaison at 860-424-3034 for more information or to schedule a workshop.

SPOTLIGHTED Coastal Resource: Coastal Hazard Areas

Coastal hazard areas deserve special attention as we approach the winter season. These are lands that are likely to be inundated during a 100-year frequency coastal storm event as determined by the Federal Emergency Management Agency (FEMA). Coastal hazard areas include lands such as beaches, dunes and bluffs that are exposed to the full force of storms and their resulting erosion and wave scour, as well as areas that border embayments, tidal rivers and other low-lying areas subject to storm-related flooding.

Inspectors assess damage to a seawall and pavement along Chapman Road, in Westbrook, caused by Storm Beth in 1992.

In all of these settings, lives and property may be endangered by rising floodwaters or eroding shores. These potential hazards are greatest during the fall hurricane season and in winter months when strong northeast winds often persist for days at a time, piling storm tides against the shoreline of Long Island Sound. The most recent example of such an event is Storm Beth, which damaged or destroyed more than 1,300 homes and caused an estimated $4.3 million in property damage along the Connecticut coast in December 1992.

The DEP works with coastal municipalities to reduce potential storm-related casualties through application of the coastal hazard area policies of the Connecticut Coastal Management Act (CCMA). The Act promotes nonstructural solutions to coastal flood and erosion problems, except where structural alternatives are necessary, and when there is no feasible, less environmentally damaging alternative, to the protection of existing inhabited structures, infrastructural facilities or water-dependent uses. Non-structural measures include relocation of buildings out of flood zones, elevation of homes above the base flood level, and break-away walls in basement areas. These actions allow the unimpeded flow of storm water, whereas structural controls like seawalls and jetties often reflect storm waves and exacerbate erosion and shoreline damage.

Non-structural measures help to maintain the natural relationship between eroding and depositional coastal landforms, thereby minimizing erosion and sedimentation problems. The CCMA also strives to maintain, enhance and restore, where feasible, natural patterns of water circulation and tidal exchange through implementation of non-structural flood controls.

For more information about coastal hazard areas, please contact Tom Ouellette at the DEP Office of Long Island Sound Programs, 860-424-3034, or by email at **tom.ouellette@po.state.ct.us**.

"They Paved Paradise, Put Up a Parking Lot…

…and the result was poor water quality." Maybe that's not quite how the song goes, but it turns out that Joni Mitchell's "Big Yellow Taxi" was onto something back in 1970. Today the relationship between water quality and land use is much better understood. Among the primary sources of nonpoint pollution, and greatest contributors to water quality impairment, are parking lots, buildings, and other "impervious" areas that prevent rainwater and snowmelt from seeping into the ground. As a result, surface waters run off of paved surfaces, pick up pollutants such as oil, grease, nutrients, sand and litter, and carry them into lakes, streams, rivers, and ultimately Long Island Sound.

Studies have shown that when 10 percent of any given watershed is converted to impervious cover, streams in that watershed begin to show signs of impairment, such as loss of sensitive aquatic insects. Once 25 percent of the watershed becomes impervious, the water resources almost always exhibit degradation, from diminished habitat diversity to the inability to support aquatic life or recreational use.

Impervious cover isn't the only land use factor affecting water quality. Both new and existing development, such as residential subdivisions and dairy farms, can also contribute pollutants that adversely affect both groundwater and surface water resources.

What can we do to address the nonpoint sources of pollution associated with land use? First of all, don't let paradise be paved - work instead with your community's town planner and other land use authorities to revise zoning and subdivision regulations and the plan of conservation and development to keep as much area naturally vegetated as possible during development. Where parking is needed, encourage the use of pervious surfaces like gravel to facilitate the infiltration of surface water. Support and encourage the use of other low-impact development techniques, such as narrower roadways and vegetated roadside infiltration swales instead of curbs and catch basins. Contact zoning enforcement officials when you see muddy stormwater running off a construction site. Help identify these and other existing impervious areas in your community that could benefit from the installation of Best Management Practices to treat stormwater before it leaves the site.

For more information about how land use patterns affect water quality and how nonpoint source pollution is being addressed in Connecticut, contact Mary-beth Hart of the DEP Office of Long Island Sound Programs at 860-424-3034 or by email at **mary-beth.hart@po.state.ct.us**.

New Dock Brochure Expands OLISP Series

The Office of Long Island Sound Programs has published a new brochure, *Residential Dock Guidelines*. This is the latest in a continuing series of illustrated informational pamphlets describing varying aspects of Connecticut's Coastal Management Program. The other brochures are: *Connecticut's Coastal Management Program*, *Connecticut's Coastal Habitat Restoration Programs*, *Connecticut's Coastal Permit Program*.

The Residential Dock Guidelines brochure will help residents who want to construct a recreational dock to understand the state's resource concerns, use policies, permit requirements and application review process.

All of the brochures are available by mail from OLISP. To request one or all of them, contact Linda Lis at 860-424-3043 or by email at **linda.lis@po.state.ct.us**.

Connecticut Department of
Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

How's the Water?

Copper is most familiar to us in its solid form as our smallest unit of currency, the penny. In the marine environment, copper occurs in dissolved form. The natural concentration of copper in seawater ranges from 0.1 - 3.0 part per billion (ppb), while natural levels in marine sediments average 1.0 part per million (ppm). In Long Island Sound, the Connecticut Water Quality Standard for dissolved copper is 2.4 ppb.

Copper in small quantities is essential to marine life, including aquatic plants in which it plays an important role in photosynthesis and respiration. In crustaceans, such as shrimp, lobster and crabs, copper helps deliver oxygen to organs and tissues. However, too much copper may damage fish gills, liver, and kidney or cause neurological damage. Exposure of adult mummichogs and Atlantic silversides to 0.5-5.0 ppm aqueous copper hinders their ability to sense the presence of enemies, prey, and even mates.

Copper enters the marine environment both naturally and from human activities such as metal processing and paint manufacturing. Copper also leaches into coastal waters from copper piping used in plumbing systems, through wastewater discharges and from anti-fouling paint applied to many boat hulls. However, copper in the water column is very transient, fluctuating rapidly over time as a result of dilution from water currents and precipitation. By contrast, it binds more readily to particulate solids that settle to the bottom of LIS as sediment. Copper in sediment is not harmful to fish that swim in the Sound.

Sediment samples taken from LIS in the early 1990s confirm the higher incidence of copper near more populated areas. Sediment copper levels ranged from 1,770 ppm in and around Bridgeport Harbor, to 423 ppm around New Haven Harbor, and 125 ppm near New London. Likewise, sediment copper levels in the middle of the Sound varied from 85 ppm in the west to 3.0 ppm in the east. Municipal and industrial pollution controls instituted since 1967 have reduced copper concentrations in Connecticut rivers and streams. Consequently, as shown by National Oceanic Atmospheric Administration data, copper levels in mussels at nine sites around LIS have either remained constant or decreased since 1986.

Help Protect LIS This Winter

Use sand for traction on walkways and driveways. If possible, sweep up the sand during dry days, put it in a container and reuse it for the next snow or ice event.

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

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