

SOUND OUTLOOK

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

Connecticut's Coastal Nonpoint Source Pollution Control Program Receives Federal Approval

In November 2003, the program developed by the Connecticut Department of Environmental Protection (DEP) to protect coastal waters from nonpoint sources of pollution received full approval from the federal Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA). Nonpoint source (NPS) pollution is the pollution picked-up and carried by rain and melting snow from diffuse sources including lawns, parking lots, farms, and city streets, and ultimately discharged into wetlands, watercourses, and coastal waters. NPS pollution includes excess nutrients, sediments, oil, heavy metals, bacteria, and viruses harmful to the environment and people.

Connecticut's Coastal Nonpoint Source Pollution Control (CNP) program was developed in response to Section 6217 of the federal Coastal Zone Act Reauthorization Amendments of 1990, which required states with federally approved coastal management programs to develop CNP programs. Section 6217 identified six categories of NPS pollution to be addressed by CNP programs: agriculture, forestry, urban, hydromodifications (e.g., dams), marinas and recreational boating, and the NPS pollution caused when wetlands are impaired and unable to attenuate pollution.

Connecticut's CNP program is a "networked" program because it relies on several state and local authorities to implement certain practices. These programs include local planning, zoning, and inland wetlands authorities; soil erosion and sediment control requirements; state Public Health Code requirements; state regulatory programs for structures, dredging and fill, tidal wetlands, inland wetlands and watercourses, dams, and stream channel encroachments; and the state's broad water pollution control authorities.

The program received "conditional approval" from EPA in 1998. Within five years, the DEP met the specified conditions, some of which focused on septic system issues, including the need for more comprehensive management programs, while another identified the need to better manage stormwater at marinas.

Over the next ten years, the CNP program will be implemented within a management area established by DEP. The CNP management area is based, in part, on the presence of impervious cover in urban areas and on proximity to Long Island Sound. Because the CNP program relies on existing land use authorities, towns located in the management area will not be subject to additional mandates, but must continue their ongoing efforts to control NPS pollution.

This issue of *Sound Outlook* focuses on Connecticut's CNP program and highlights some of the things the program does to benefit both the Sound's living resources and its users. For more information on the program, contact Mary-beth Hart at 860-424-3034 or by email at marybeth.hart@po.state.ct.us. To view NOAA's Final Approval Findings for Connecticut's CNP program, select www.ocrm.nos.noaa.gov/pdf/6217ct_fnl.pdf.

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Reducing Nonpoint Source Pollution at Marinas -- One BMP at a Time

In 1993, the federal Environmental Protection Agency (EPA) identified marinas and recreational boats as potential, but not major, sources of nonpoint source (NPS) pollution to the nation's coastal waters. According to the EPA, potential pollutants from marinas include: nutrients and pathogens (boat sewage, pet waste, fertilizer); sediments (parking lot runoff and shoreline erosion); fish waste; petroleum hydrocarbons; toxic metals; and liquid and solid wastes. Because marinas are located at the water's edge,



Using dustless vacuum sanders purchased with a Clean Marina Small Grant, staff and customers at Christolm Marina in Chester kept over 9 pounds of sanding dust out of the environment last spring.

routine maintenance activities, when improperly managed, can directly impact the health of a marina basin and the surrounding waters.

Marina and boatyard operators across Connecticut are taking proactive steps to reduce their impact on coastal water quality by incorporating best management practices (BMPs) into their standard operating procedures. BMPs are activities or structures that manage pollutants either by stopping them at their source, intercepting them, or

treating them before they enter a receiving waterbody. The Connecticut Clean Marina Program, implemented as part of Connecticut's Coastal Nonpoint Source Pollution Control (CNP) program, certifies marinas, boatyards, and yacht clubs that voluntarily implement BMPs above and beyond those required strictly for regulatory compliance. BMPs employed at marinas may include using absorbent pads to catch drips and spills while changing oil and/or while fueling, conducting hull maintenance activities while protected from the elements, using dustless vacuum sanders and/or tarps while preparing hull surfaces, collecting waste oil and antifreeze from customers, and providing bags for the proper disposal of pet waste. The *Connecticut Clean Marina Guidebook* identifies possible BMPs for managing nonpoint source pollution at marinas. To obtain a copy, call Elke Sutt, Clean Marina Program Coordinator at 860-424-3034 or by email at elke.sutt@po.state.ct.us.

The DEP Office of Long Island Sound Programs has money available on a limited basis to help marinas, boatyards and yacht clubs reduce NPS pollution. This money is available on a first-come, first-served basis for eligible projects. DEP will reimburse marinas for up to 75% of the total cost of the purchase and installation of pollution prevention equipment. Interested marina operators should contact Elke Sutt as listed above.

Managing Stormwater Pollution as a Point Source in Connecticut

Stormwater discharges are generated by runoff from impervious areas such as paved streets, parking lots, and building rooftops during rainfall and snow events. Stormwater often contains pollutants in quantities that adversely affect water quality. Elsewhere in this issue, we've identified some of the ways Connecticut controls runoff as a nonpoint source of pollution. In this article, we discuss Connecticut's experience in managing stormwater as a *point source* discharge, i.e., pollution that originates from a well-defined source such as an outfall pipe.

Connecticut has long been a national leader in water quality management. In 1967, the Connecticut legislature passed the "Clean Water Act" inaugurating Connecticut's modern water pollution control program. In 1971, the Connecticut Department of Environmental Protection (DEP) was created, combining several existing commissions and agencies to more effectively address environmental issues. The Federal Water Pollution Control Act, modeled in part on Connecticut's Clean Water Act, was passed in 1972 and amended in 1977 as the Clean Water Act (CWA). The CWA created a National Pollutant Discharge Elimination System (NPDES) authorizing the U. S.

Environmental Protection Agency (EPA) to administer a permit program and state authorization process for control of point source stormwater discharges. Connecticut DEP began issuing NPDES permits in 1974.

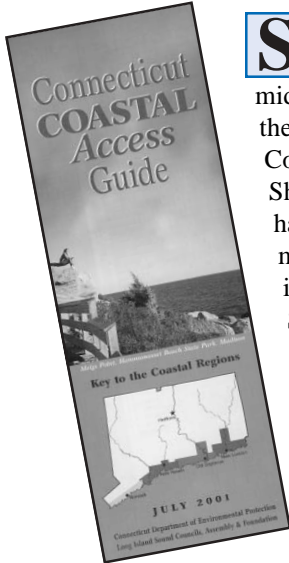
The CWA was amended in 1987 to require the establishment by EPA of phased NPDES requirements to control stormwater discharges. Connecticut's Phase I Stormwater General Permit Program, approved by EPA in March 1992, included the development of General Permits for stormwater associated with specific industrial activities, commercial facilities occupying five acres or more of contiguous impervious surface, and construction activities resulting in the disturbance of five or more acres of total land area. Municipalities with separated storm sewers and populations over 100,000 are also covered under the general permit. The Phase I permits require the development of stormwater management or pollution prevention plans for the development activities listed above, as well as stormwater monitoring of industrial sites.

In 2002, DEP developed new General Permits to meet the requirements of EPA's NPDES Stormwater Phase II Rule.

Among these is the Municipal Separate Storm Sewer System (MS4) General Permit, which is anticipated to cover 130 municipalities in Connecticut with populations over 50,000 or a density of at least 1,000 people per square mile. DEP expects to issue the MS4 General Permit in 2004, to be accompanied by municipal training workshops. MS4 permittees must develop, implement, and enforce a stormwater management program to reduce the discharge of pollutants from the MS4. The program must include a Stormwater Management Plan addressing public education; public involvement and participation; non-stormwater discharges; construction activities that result in land disturbance of one acre or more; stormwater runoff from new development and redevelopment projects that disturb one acre or more; and pollution prevention for municipal operations projects that disturb one acre or more.

The DEP is continuing its efforts as well as helping the public to do its part to address these problems. For additional information about these stormwater general permit programs, visit the DEP web site at www.dep.state.ct.us/wtr/index.htm and www.dep.state.ct.us/pao/general_fact/listgen.htm.

SPOTLIGHTED Coastal Access: Sherwood Island State Park – Parking Lot Reconstruction

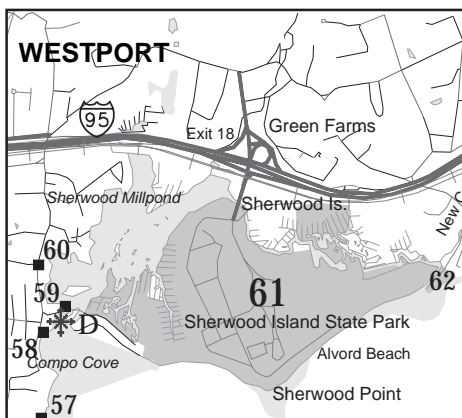
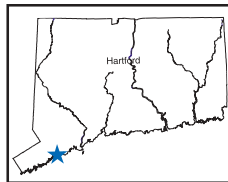


Sherwood Island State Park in Westport (site #61 in the *Connecticut Coastal Access Guide*) offers both an attractive mid-winter coastal destination and an interesting demonstration of the Department of Environmental Protection's (DEP's) successful Coastal Nonpoint Source Pollution Control (CNP) program. Sherwood Island is Connecticut's oldest state park. It is handicapped accessible, with a picnic area and views of tidal marshes, sandy beaches and intertidal flats. Seasonal activities include birding, fishing, shellfishing, hiking and walking. Swimming is available during warmer months.

Visitors were, however, once faced with a sea of broken pavement in the park's primary beach parking area. In the summer of 2001, DEP undertook activities to improve the use and safety of the parking lot, while also protecting the adjacent salt marsh from nonpoint source pollution. A new parking lot design was needed to prevent both freshwater (i.e., rainwater) runoff and polluted runoff caused by vehicular use and the many Canada geese that were drawn to large ponded areas in the lot. Freshwater dilutes salt concentrations necessary to sustain native marsh vegetation. Hydrocarbons from vehicles impair water quality, while nutrients from waterfowl wastes cause excessive enrichment of surface waters. The new parking area was designed to reduce and treat such runoff before it is discharged to the marsh.

Asphalt use in the new lot is limited to driveways and parking lanes to significantly reduce overall runoff volumes. Parking spaces are constructed of stone and pitched toward parallel dry creeks, which form parking lot islands (see photo below). Each creek was constructed by placing a perforated pipe within a sand base, and was then vegetated. Stormwater that runs off the asphalt is filtered by the sand and vegetation, and is also retained in the sand below the stone parking spaces. Water discharged from the dry creeks is distributed with a wide level spreader through an upland grass buffer, thus preventing it from concentrating at one discharge point and causing further potential water quality degradation. These improvements will result in little or no discharge to the marsh following most storms. Bridges and porous unit-paver walkways were installed for visitors to cross the creeks and parking lot, improving safety by funneling foot traffic to well-defined areas.

This project demonstrates that stormwater Best Management Practices (BMPs), which improve environmental conditions and enhance function and esthetics, can be successfully designed into large construction projects. For more information about this project, contact John Gaucher at 860-424-3034 or by e-mail at john.gaucher@po.state.ct.us. To reach Sherwood Island State Park, take Exit 18 off I-95. 🐦



Left to right: pervious stone parking spaces, dry creek, asphalt parking lane



Sherwood Island State Park, Westport

LOOK OUT for upcoming events!!

Norwalk Maritime Aquarium Programs

Call 203-852-0700, Ext. 2206 to register.

Winter Creature Cruises

Feb. 1 – Apr. 11, Saturdays and Sundays

View seals, waterfowl and other LIS wildlife.

Fintastic Holiday Day Off

Feb. 13

Program includes hands-on animal encounters.

Winter Vacation Adventures program

Feb. 16 – 20

Day camp program explores our watery world.

Marine Life Study Cruises

Apr. 3 – May 30, Saturdays and Sundays

Collect marine life in LIS; learn aquatic sampling techniques.

Mystic Marineline Aquarium Programs

Call 860-572-5955 Ext. 520 to register.

Family Programs - Critters and Crafts

February Saturdays: Rocky Shore Animals

March Saturdays: Lobster "Tales"

Marine Explorer Camp

Feb. 18-20

Investigate the underwater world, learn about marine animal rescue.

Winter Childrens' Programs (ages 2-5)

Feb., March weekday mornings

(schedules vary, call for information)

Dance and Sing with the Fish

Feb. 19, 6:30-8:00 PM

Chris Rowlands: Educational entertainment about the oceans.

Earth Day Celebration

April 24-25

Wetlands Month Celebration

May 29, 11 AM – 3 PM

March: Migrating osprey return to Connecticut.

Long Island Sound License Plate Program

March 17, 4:30 PM: Deadline for submission of grant applications. Call Kate Brown at 860-424-3034 for information.

April: Striped bass migrate north to Connecticut waters.

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

www.dep.state.ct.us

Septic Systems: Out of Sight, But Not Out of Mind

Subsurface sewage disposal systems (SSDS), more commonly known as septic systems, can be extremely effective at treating domestic wastewater (toilet, laundry and kitchen waste, and wash water). Of course, this effectiveness depends on how well the system is designed, constructed, and located during installation, and how well it is operated and maintained once it's in the ground.

Connecticut's Coastal Nonpoint Source Pollution Control (CNP) program contains provisions to maximize the effectiveness of (SSDS). The Departments of Environmental Protection (DEP) and Public Health have worked together and with local and regional departments of health to identify management needs and to make improvements in the Connecticut Public Health Code's Regulations and Technical Standards for SSDS.

For example, one tool available to municipalities is the establishment of "decentralized" wastewater management districts (as opposed to the "centralized" management conducted at sewage treatment facilities). The creation of such

a district would enable municipal water pollution control agencies to work cooperatively with local or regional health departments to implement standards for evaluating and upgrading existing SSDS. This could include removal of cesspools, steel septic tanks, and leaching systems located too close to groundwater.

In 2002, the DEP Office of Long Island Sound Programs awarded a municipal planning grant to the Town of Westbrook's Water Pollution Control Commission to prepare an onsite wastewater management plan (OWMP). The plan will provide the basis for a local management program to properly monitor and maintain SSDS by addressing ongoing system maintenance and system upgrades, record keeping, and property owner education. The project will serve as a model for other municipalities in developing their own OWMP's.

These are a couple examples of Connecticut's efforts to better manage SSDS. For more information about these initiatives, contact Mary-beth Hart at 860-424-3034 or marybeth.hart@po.state.ct.us.

Coastal Municipal Planning Grants Awarded

For the second consecutive year, the Department of Environmental Protection's (DEP's) Office of Long Island Sound Programs (OLISP) was able to pass along federal funding from the National Oceanic and Atmospheric Administration's Office of Coastal Resource Management to assist local coastal planning efforts concerning issues such as stormwater management planning, open space, waterfront redevelopment, and watershed management. Fifteen proposals were submitted by municipal and regional agencies. OLISP notified the following applicants in January 2004 that their grants had been approved:

- Clinton, to update its Municipal Coastal Programs;
- Deep River, to undertake a Harbor Management planning process;
- East Lyme Harbor Management and Shellfish Commission, to develop a GIS-based program to coordinate moorings and shellfish leases;
- Stonington, to investigate establishment of a municipal stormwater utility;
- Stratford, to implement a waterfront development plan; and
- Westbrook, to continue development of an on-site wastewater management plan for its coastal area.

OLISP looks forward to working with the recipient towns to complete these projects, which will enhance local capacity to balance resource protection with appropriate waterfront development. For more information about the municipal grant award process, contact David Blatt at 860-424-3034 or by email at

david.blatt@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 email your address to laurie.valente@po.state.ct.us.

Purchase of an LIS License Plate supports the LIS Fund



As of December 31, 2003:

- Plates sold: 122,557
- Funds raised: Over \$4.3 million
- Projects funded: 246

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

Attention, Septic System Owners...

Remember, everything that goes down your drain or gets flushed away will end up in your septic tank or the soil in your yard. The following tips will help to prevent problems before they "bubble up."

- Know the location of, and keep heavy vehicles off of the area above, your septic tank and leaching field.
- Don't plant trees or shrubs near leaching fields - their roots can clog the drain lines.
- Don't use septic tank additives, enzymes, or commercial cleansers. They are unnecessary and may transport solids from the tank to the leaching field, causing clogs and blocking drainage.
- Use chlorine bleaches and disinfectants sparingly - they can destroy the bacteria in your septic tank.
- Don't use garbage disposals; they contribute unnecessary solids and grease to your septic system that can harden and cause obstructions.
- Conserve water to avoid overloading the system. Use low-flow plumbing fixtures, repair leaking toilets and dripping faucets, run dishwashers and washing machines only when full, stagger showers and dishwashing, and distribute laundry loads throughout the week.
- Don't use toilets as trash cans.
- Inspect your septic tank yearly and have a reputable contractor remove sludge and scum every three to five years. This helps ensure that there is enough space in the tank for wastewater, and prevents solids from escaping into the leaching system.

Adapted from *Sound Advice, A Long Island Sound Resident's Guide to Reducing Water Pollution at Home*, Long Island Sound Study, 2002. For a copy contact Mark Parker at 860-424-3276 or by e-mail at mark.parker@po.state.ct.us.

Putting Your LIS Plate Money to Work Rain Garden Demonstration Project Underway

In 2002, the Long Island Sound Fund provided a \$24,686 grant to the University of Connecticut to install and monitor a rain garden at the Haddam Cooperative Extension Center in Haddam, Connecticut. A rain garden is a strategically placed vegetated area, designed to absorb runoff from impervious surfaces, especially from residential roofs. The plants in the garden remove nutrients such as nitrogen and other contaminants, reducing the load of pollutants that would otherwise enter local waterways and Long Island Sound. DEP's section 319 Nonpoint Source Pollution Control grant program provided an additional \$16,000 to augment the monitoring portion of the project.

Roof runoff from the Cooperative Extension Center building is piped to the rain garden, while effluent is collected in a subsurface pump chamber before draining to surrounding property (see photos at right). Both the influent and effluent are regularly monitored to assess reduction in concentrations of nitrogen and phosphorus. Monthly composite water samples are tested for copper, lead and zinc, and grab samples are analyzed

for fecal coliform bacteria. Rain garden soils, mulch and plants are evaluated comparatively over time for nitrogen, phosphorus and metal accumulation.

Many of the pollutants that rain gardens are designed to treat originate from power plant and automobile emissions and are carried long distances by wind and weather before settling on roofs and other impervious surfaces throughout Connecticut. Researchers hope that this study will show the effectiveness of rain gardens in reducing this type of "nonpoint" source pollution.

Results of the study will be presented through on-site demonstrations, peer-reviewed literature, and workshops at the Haddam Cooperative Extension Center. It is anticipated that rain gardens will have broad application in Connecticut, providing an aesthetically pleasing way to solve some of our most difficult water quality problems. For more information about this ongoing demonstration project, contact Dr. John Clausen at UCONN 860-486-0139. For information about DEP's 319 Nonpoint Source Pollution Control program, contact Stan Zaremba at 860-424-3730 or by e-mail at stanley.zaremba@po.state.ct.us



Influent is piped to rain garden from building roof



Effluent is collected and monitored in subsurface pump chamber

@po.state.ct.us. For information about the Long Island Sound Fund, contact Kate Brown, at 860-424-3034 or by email at kate.brown@po.state.ct.us

SPOTLIGHTED Coastal Resource: Vegetated Buffers

Interceptions. To a football fan, few things are more exciting than a beautiful interception. In your dreams, don't you see yourself in midair making that incredible catch?

Think outside the gridiron for a moment, and consider some other great interceptors—vegetated buffers. These strips of undisturbed land adjacent to a waterbody or wetland trap and treat pollutants, making "game winning" interceptions all the time. Imagine the headline: "POLLUTANTS BLOCKED—WATERBODY PROTECTED! Environmentalists everywhere go wild."

As the cornerbacks of the natural world, buffers intercept a multitude of pollutants—excess nutrients, sediments, bacteria, pathogens and pesticides. Dense vegetation slows down the overland flow of stormwater, allowing suspended solids to settle out. Pollutants, once trapped, are incorporated into plants, soil and microorganisms before they can reach surface

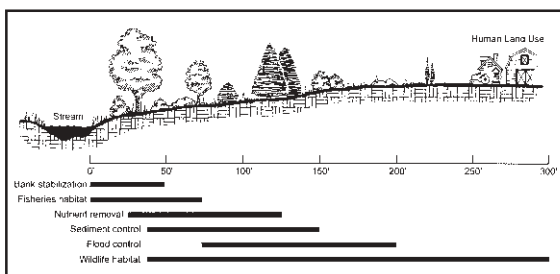
waters. Buffers also moderate water, temperature, provide wildlife habitat, and protect against flooding.

Vegetated buffers are a relatively low cost and low maintenance way that both homeowners and developers can reduce the impacts of nonpoint source pollution. Buffers work effectively in either a natural state or when artificially planted with native, non-invasive vegetation. Generally, the effectiveness of a buffer increases with its size. Large buffers (e.g., 100 feet wide or greater) provide the best protection, but even a narrow buffer (15 to 30 feet wide) can be effective under

certain conditions.

The Department of Environmental Protection (DEP) encourages coastal municipalities to incorporate into zoning regulations resource setbacks or buffers between development and sensitive coastal resources. Many municipalities, have, in fact, already done so. If you are a coastal homeowner, make buffers your field goal. Sit back and enjoy the great interceptions.

For copies of OLISP's *Tidal Wetlands Buffer Guidance Document*, or more information on buffers, contact Margaret Welch at 860-424-3034.



Adapted from Fact Sheet No. 1, "Introduction to Riparian Buffers," *Riparian Buffers for the Connecticut River Watershed*, Connecticut River Joint Commissions, 1998.




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How's the Water? -- Floatable Debris

The trash and litter that are commonly found drifting in coastal waters and bays or washed up on the beach is called "floatable debris." Floatable debris is the most visible sign of pollution in Long Island Sound. It is not only unsightly, but can be dangerous to wildlife that ingest or become entangled in it. Floatable debris is also a nuisance and hazard for boaters - floating line can foul propellers and plastic bags can block an engine's cooling water intake, resulting in engine overheating. Sadly, this problem has been around since colonial times and has grown as the human population has increased. Our habit of carelessly throwing trash on the ground has not been helped by the ever-increasing number of roads that facilitate the delivery of litter to the Sound during rainstorms.

The American Littoral Society and Save the Sound coordinate Coastal Cleanup days at beaches around LIS during their annual September "Coast Weeks" celebrations. During the September 2002 cleanup, volunteers in Connecticut and New York cleaned 82 miles of beach and collected over 82,000 pounds of debris. Cigarette butts, food wrappers, and bottle caps and lids account for more than 60% of all marine debris collected. Each year from 1998 to 2002 cigarette butts far outnumbered any other kind of debris collected. This problem may be growing, as a record amount of debris was collected in 2003 despite a reduction in the miles of beach cleaned. However, there is more that can be done. Citizen education and activism are crucial components of long term trash reduction. To learn how you can participate in annual Coastal Cleanup days, call Save the Sound at 1-888-SAVE LIS. 

ATTENTION LAND USE OFFICIALS:

OLISP staff are available to conduct municipal or regional workshops on Connecticut's Coastal Nonpoint Source Pollution Control (CNP) program and your town's role in controlling nonpoint source pollution. Contact Mary-beth Hart at 860-424-3034 or marybeth.hart@po.state.ct.us to schedule a workshop.

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

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