



# Sound *UPDATE*

Newsletter of the Long Island Sound Study

WINTER 2009

## Creating Sustainable Infrastructure at the National Level

By Mark Tedesco

As a nation, we have built an extensive network of infrastructure to provide drinking water and to treat wastewater. Much of the wastewater infrastructure in the US was built in the 30 years after World War II. These investments in infrastructure reversed our Nation's centuries-long trend of degraded water quality. Now, an arriving wave of infrastructure rehabilitation and replacement needs have to be faced over the next several decades.

How great is the need? The American Society of Civil Engineers graded the condition of the Nation's wastewater infrastructure a D- in its 2009 Report Card. This was the lowest grade given among 15 categories of infrastructure. And the cost? Every four years the EPA conducts a survey on the amount of money needed to control pollution in order to meet environmental and human health objectives of the Clean Water Act. The 2004 Report estimated that meeting nationwide needs for wastewater pollution control would cost \$202.5 billion. This amount includes \$134.4 billion for wastewater treatment and collection systems, \$54.8 billion for combined sewer overflow corrections, and \$9.0 billion for stormwater management. These numbers will surely go up when EPA completes the 2008 survey.

How do we meet the challenge of sustainable infrastructure? Locally, maintaining and improving water quality requires upgrading wastewater treatment plants to remove nitrogen, correcting combined sewer overflows, and rehabilitating sanitary and stormwater

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**Reduce runoff on your property, see page 8.**



Christopher Zurcher, CT Env. Headlines

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*Sound Update provides readers with news about the Sound and the Long Island Sound Study.*

## Investing in Clean Water

Investing in clean water is not only good for Long Island Sound, but also for the economy as new jobs are produced to create sustainable infrastructure. Green improvements to infrastructure—our roads, buildings, storm drains, and sewage treatment plants—can reduce the amount of polluted runoff and untreated sewage that reaches the Sound. This issue of *Sound Update* outlines the need for sustainable infrastructure and highlights successful projects throughout our watershed. We also touch on new, green techniques to reduce polluted runoff and some everyday ways you can help!

systems. Clean water does not come cheap. The local need alone will cost billions of dollars and additional funding will be needed to close the gap. Wastewater infrastructure management must also be improved through practices like asset management and environmental management systems. Consolidation of operations and public/private partnerships can also reduce overall costs. Setting rates to reflect the full cost of service can help utilities capture the actual costs of operating water systems, raise revenues, and provide incentives to conserve water.

But investments to rehabilitate existing wastewater infrastructure alone are not enough. New development simply cannot impose the same burden on the environment as past development if we expect a different environmental outcome for our streams and rivers, and for the Sound. We must develop and grow in ways that generate less polluted runoff and require less demand for wastewater treatment. Green infrastructure, such as green roofs, trees and tree boxes, rain gardens, and porous pavements, can be both a cost-effective and an environmentally-friendly approach to reduce stormwater. These infrastructure improvements will also allow water to filter into the ground, which will reduce excess flows entering combined sewer systems. Education and market incentives to encourage more efficient use of water will reduce the demand for and cost of treatment. All these approaches can be integrated in comprehensive watershed protection approaches.

In combination, sustainable and green infrastructure practices can minimize the cost of meeting water quality goals. In turn, the economy and environment would benefit by having more waters that are safe for swimming and recreation, shellfish harvest, and that support healthy aquatic life. Recognizing these benefits, the proposed economic stimulus package targets a portion of the funds toward wastewater infrastructure and green technologies. This will create good jobs and provide a long term benefit to the environment and provides a unique opportunity to invest in and raise awareness about the Nation's wastewater infrastructure.

*Tedesco works for the Environmental Protection Agency and is the Director of the Long Island Sound Study.*

## Clean Water & Green Jobs: Confronting New York's Clean Water Infrastructure Crisis Head On

By *Dereh Glance*

It's no secret: clean water infrastructure—the pipes and treatment plants—is aging and failing, jeopardizing public health, degrading water quality, and further stressing important ecosystems including Long Island Sound. In the summer, Sound beaches are too often closed due to sewage and stormwater pollution. A sewer line in Cos Cob, Connecticut broke in mid-December 2008 and resulted in over 28 million gallons of raw sewage contaminating the Sound. This tragedy underscores the desperate need to re-invest in our dilapidated infrastructure to protect public health and water quality. In addition to water quality and recreational benefits, investing in clean water infrastructure creates jobs and yields sizable economic benefits.

Federal investment in clean water infrastructure has been on a steady decline, shifting financial burdens to already cash-strapped local municipalities. Since 2004, federal support for New York's vital wastewater infrastructure has decreased by 50% and federal investment in state drinking water infrastructure has decreased by 40%. Meanwhile, clean water infrastructure needs continue to escalate. In a recent study, the NYS Department of Environmental Conservation and NY Department of Health have identified that over \$36 billion is needed to address failing sewage treatment plants and pipes and over \$38 billion is needed for New York to ensure safe and reliable drinking water to the public.

To meet this challenge, Governor David Paterson spearheaded the creation of the Clean Water Collaborative—a broad-based effort tasked with addressing New York's clean water infrastructure crisis by working to restore federal investment and increase public awareness. Co-chaired by Ross Pepe, President of the Construction Industry Council and Building Contractors Association, and Robert F. Kennedy Jr., Chairman of the Waterkeeper Alliance, the Clean Water Collaborative includes leaders of local government associations, the business community, water professionals, environmental and conservation organizations, state agencies, the legislature and the Governor's office.

Investing in clean water infrastructure is a wise investment, especially in these financially challenging times. It is estimated that every \$1 billion invested by the federal government creates between 30,000 and 47,500 jobs. In the near term, collaborative members are working to secure funding in the federal economic stimulus package to fund "shovel ready" clean water projects, including 412 wastewater projects and 497 drinking water projects that serve more than 11 million New Yorkers. Over the long term, the Collaborative will be working to increase public awareness of the crisis, identify opportunities for water conservation and green infrastructure strategies, and restore consistent federal investment to ensure the maintenance and performance of clean water infrastructure.

Although our water infrastructure is in disrepair, it is too often "out of sight, out of mind" until tragedies occur. You can champion clean water infrastructure by contacting your Senators and Congressional Representative in support of including clean water infrastructure in the economic recovery package and asking the federal government to restore funding for low interest loans and grants to local municipalities. Learn more about the Collaborative and the wastewater and drinking water needs assessment at <http://www.citizenscampaign.org/cleanwaterjobs>.

*Glance is the Executive Program Director for Citizens Campaign for the Environment and a member of the New York Clean Water Collaborative. She serves as a Board Member and Treasurer of the national Clean Water Network.*

# Connecticut's Clean Water Fund: Creating Jobs and Building a Clean Water Legacy

By Leah Schmalz

Thirty years ago, the federal government and the state of Connecticut promised citizens clean and healthy water. The goal was to stop two billion gallons of raw sewage from entering our waterways each year by separating combined sewer overflows. Nearly a decade ago, the same entities aimed to restore Long Island Sound by removing 60% of the nitrogen from sewage treatment plants by 2014.

Despite years of great progress, the Clean Water Fund, the primary mechanism for paying for those wastewater treatment and sewer projects in Connecticut, began to fall apart when the legislature began shifting money away from the Fund in 2002.

Failure to adequately invest in the Clean Water Fund began to snowball with potentially catastrophic results. In 2005, raw sewage flooded the basements of Hartford residents and the number of beach closings due to bacterial contamination throughout the state increased by nearly 10 percent from the previous year. The following year, inadequate funding for nitrogen reductions forced the CT Department of Environmental Protection (DEP) to permit the discharge of more than 1.5 million pounds of nitrogen into Long Island Sound than was originally allowed under existing permits. These events caused a delay in the cleanup of the Sound and stressed the importance of a well-financed Clean Water Fund that protects the public's health.

Reading the writing on the wall—that failure to make and maintain these investments could result in sewage-laden waterways and a delay in Long Island Sound's clean-up—an unlikely coalition of engineers, unions, environmentalists, fishing industry, and municipalities united with the DEP, local officials, and the public to shift money back to the Clean Water Fund and ensure that the state did not have to wait one year longer for the clean water it deserved. In 2007, Connecticut invested in 8,000 new jobs, beaches safe for swimming, edible oysters, and a solid shot at eliminating the "dead zone" in western LIS, an area of low dissolved oxygen and subsequently little aquatic life. By allocating \$180 million in general obligation bond funded grants and \$415 million in revenue bond funded low-interest loans to municipalities for fiscal years 2008 and 2009, the State Legislature and Governor began to rebuild its clean water legacy.

But the battle is not yet won. The previous allocation kept alive a vision of clean rivers, safe waters, and a healthy Long Island Sound, but this funding is only for two years. As the state looks to develop the 2010 and 2011 budget, it faces the grim reality that the allotment was only a first step on the road to recovery; it was not enough to complete the state's long list of ready-to-go projects, much less the new projects waiting in the wings. The next two-year budget will require \$260 million in general obligation bonds to keep progress in meeting these basic clean water and human health objectives moving.

While budgetary news seems to worsen by the minute, there is a ray of light at the end of a very dark tunnel. The Clean Water Fund not only creates the healthy environment necessary to maintain commercial fisheries and tourism, it also provides for the public works investments that create thousands of jobs to bolster Connecticut's economy. Simply put, Clean Water Funding makes Connecticut a healthy place to live and do business. It is not just an investment in Long Island Sound, but also an investment in our economy's future.

*Schmalz is the Director of Legislative and Legal Affairs for Save the Sound, a program of Connecticut Fund for the Environment.*



**This rain garden** handles roof runoff from the athletic complex on the University of Connecticut campus. This building is certified by the Leadership in Energy and Environmental Design (LEED) program for high performance green buildings.

## Attention: Annual Citizens Summit

### Investing in Clean Water for Sound health, jobs and the economy

On Friday, March 6, the 19th annual Long Island Sound Citizens Summit will be held at the Holiday Inn Hotel & Conference Center in Bridgeport, Connecticut. The conference will bring together national and regional experts from government and the private sector to discuss clean water infrastructure needs nationally and for the Long Island Sound region, and identify what's needed to build the partnerships necessary to meet that need.

Register at [http://www.longislandsoundstudy.net/events/LISWA\\_Brochure09.pdf](http://www.longislandsoundstudy.net/events/LISWA_Brochure09.pdf) or contact Kierran Broatch of Save the Sound at (203) 787-0646 ext. 113 or [kbroatch@cfenv.org](mailto:kbroatch@cfenv.org) for more details.

# PLANYC 2030: Rising to the Challenge of Tomorrow

By Larissa Graham

On Earth Day 2007, Mayor Bloomberg released PlaNYC, a comprehensive sustainability plan for New York City's future. The Plan focuses on five areas: land, transportation, energy, climate change, and water. With respect to Long Island Sound, one of the most important goals of this Plan is to improve water quality, particularly in the East River.

Instead of having separate infrastructure for sewage pipes and storm sewers, in New York City, like many older cities, these two systems are combined. In dry weather, virtually all of NYC's sewage is treated. However, during storm events, the sewers are overloaded by rain water and the overflow (also known as combined sewer overflow) is released with minimal treatment into coastal waters. Depending on the tide, this untreated water can flow into the western portion of Long Island Sound via the East River, a strait that connects the New York-New Jersey Harbor and Long Island Sound.

New infrastructure upgrades have increased the capture rate of overflow water during storm events from 30% to 70% since 1980. PlaNYC will further improve water quality by implementing infrastructure upgrades, preventing stormwater from entering the system, and expanding, tracking, and analyzing new Best Management Practices (BMPs).

To continue implementing infrastructure upgrades, PlaNYC will develop Long-Term Control Plans to expand the capacity of wastewater treatment plants, reduce combined sewer overflow (CSO), and develop other enhancements, such as netting facilities

*Graham works for New York Sea Grant as the Outreach Coordinator for the Long Island Sound Study.*

to catch floating debris and other trash. The City will also expand wet weather capacity at treatment plants to maximize the volume of water these treatment plants can process during storms. If successful, it's estimated that these upgrades will reduce the CSO discharges by more than 185 million gallons per day during rainstorms.

PlaNYC will prevent stormwater from entering the system by increasing the use of High Level Storm Sewers, which capture 50% of rainfall before it enters the pipes and carry it directly to waterways to reduce the amount of water that flows through the CSO. The Staten Island Bluebelt, an ecologically-sound and cost-effective stormwater management program, will also be expanded (for more information on the Staten Island Bluebelt, visit [www.nyc.gov](http://www.nyc.gov)).

A task force will be created to discuss ways to incorporate BMPs into the design and construction of projects and pilot projects that have been developed in other areas, including creating a mollusk habitat pilot program, planting trees with improved pit design, and creating vegetated ditches along highways. As part of BMPs, NYC will undertake 40 new Greenstreets over the next 25 years and provide incentives to buildings that install green roofs.

With the innovative ideas outlined in the Plan, NYC is rising to the challenges of the future and working to keep waterbodies, such as Long Island Sound, clean for future generations.

**On the Web...**  
To read more on PlaNYC, visit [www.nyc.gov/planyc](http://www.nyc.gov/planyc)

## LISS Funds Projects to Reduce Polluted Runoff

The Long Island Sound Study, in partnership with the National Fish and Wildlife Foundation, provided over \$900,000 to state and local government and community groups in 2008 under the Long Island Sound Futures Fund. Three of the funded projects focused on improving infrastructure in order to reduce polluted runoff.

**Citywide Greenroof Pilot Project:** The New York City Department of Parks and Recreation was awarded \$50,000 to install a 12,000 square-foot green roof projected to capture 300,951 gallons of stormwater annually. The intensive green roof will be used as a pilot demonstration area to be reproduced in other parks buildings.

**Housatonic Estuary Low Impact Development:** Housatonic Estuary Low Impact Development Partners in CT was awarded \$35,000 to establish a Low Impact Development (LID) partnership among builders, property managers and public agencies to reduce stormwater runoff into Long Island Sound.

**Mattituck Creek and Inlet Stormwater Reduction:** The Town of Southold, NY was awarded \$48,100 to remove and replace the current surface of a public boat ramp with permeable pavement, construct a small treatment wetland and develop public education materials about the project focused on reducing nonpoint source pollution into Mattituck Inlet.

*The Request for Proposals for 2009 Long Island Sound Futures Fund is available at [www.nfwf.org/lisff](http://www.nfwf.org/lisff). Proposals are due 03/13/2009.*



Kara Bonsack, NEMO

**Green roofs**, such as this one at the Centerbrook Architects building in Essex, CT, are planted with vegetation. These plants keep the building cool and absorb rainwater to reduce polluted runoff.

# History of Clean Water/Jobs Coalition and Current Efforts

By Nancy Seligson

The Clean Water/Jobs Coalition initially grew out of a Long Island Sound Watershed Alliance conference on a frigid, winter day in 1991. Hundreds of laborers and union members turned out to picket, concerned that environmental regulations to cap nitrogen discharges at 1990 levels would hamper development and therefore limit or reduce construction jobs.

During the conference, it was quickly determined that the effort to decrease nitrogen levels would require upgrading sewage treatment plants. Contrary to the coalition's fears, these upgrades would result in major construction work that could provide thousands of jobs to the region.

This was back in 1991, during a downturn in the economy and employment. The same is true for today. Removing nitrogen is still the top priority for restoring Long Island Sound, and upgrading sewage treatment plants would still create thousands of jobs.

After the conference, several environmental, construction, and labor union groups met to discuss their shared goals of improving the Sound and creating jobs. The Clean Water/Jobs Coalition was formed to work together to secure federal and state funding for sewage treatment plant upgrades.

This unusual alliance of environmentalists, construction industry members, and laborers walked the halls of Washington to call for funding and legislation to restore the Sound's water quality, protect its open spaces and ecologically significant sites, and provide reasonable access for its full enjoyment. This formula would benefit the economy and the ecology of the Long Island Sound region and seemed a win-win situation.

The Coalition met with the Connecticut (CT) and New York (NY) federal delegation and Congressional members on the Appropriations Committee. The federal representatives said that they were happy to see us working together, but there was no money to be had. The federal representatives also wanted to see the states of NY and CT put money up first. NY, through its 1996 Clean Water Clean Air Bond Act, and CT, through its Clean Water Fund have put up millions of dollars for cleaning up Long Island Sound. Since 1991, we have visited Washington DC every year and met with Congressional representatives to push for funding legislation to restore Long Island Sound and the economy.

In 2000, the Long Island Sound Restoration Act was passed and authorized \$40 million annually to rehabilitate and retrofit sewage treatment plants and meet nitrogen reduction goals for the Sound. The Coalition also worked to create the Long Island Sound Stewardship Act. This Act was passed in 2008 and authorizes \$25 million annually for the protection of open space, recreational areas and significant ecological sites on the shores of the Sound. Although the authorization levels for the bills are significant, the appropriations levels have not been. The Long Island Sound Study has received between \$2 and \$7 million a year, much more is needed.

## NOAA Liaison Hired to Protect LIS Fisheries

Dr. Julie Rose will start as the new National Oceanic and Atmospheric Administration (NOAA) liaison to the Long Island Sound Study on February 16. Dr. Rose is completing a post doctoral fellowship with the Woods Hole Oceanographic Institution on the effects of climate change on plankton ecology and food web dynamics. She will use her expertise to create programs to improve water and habitat quality and enhance and manage fishery resources in Long Island Sound. This will be a key element to enhancing ecosystem-based management in Long Island Sound. The position established through an Interagency Agreement between EPA and NOAA-Fisheries is supported with funding from the Long Island Sound Study.



The Clean Water Jobs Coalition newsletter from 1996 highlights voter support for the NY Bond Act, a \$1.75 billion environmental plan to restore the environment and spark economic activity.

After almost 20 years, many groups throughout CT and NY are still working together to obtain funding to restore Long Island Sound and the economy. The Long Island Sound Study Citizens Advisory Committee recently created a \$1.92 billion economic recovery investment package for Long Island Sound that was sent to federal representatives from NY and CT. The package outlines timing, costs, and 19,310 jobs that would be created by investment in sewer infrastructure, improving public access to the Sound, and restoring traditional oyster and lobster industries. This package will serve as the platform for the next Clean Water/Jobs Coalition trip to Washington DC in February 2009.

Seligson is a Councilwoman for the Town of Mamaroneck and also serves as co-chair for LISS's Citizens Advisory Committee.

# Queens Botanical Garden Manages Rainwater

By Nicole De Feo

Rain is a welcome visitor to any garden. At the Queens Botanical Garden, the presence of water triggers a celebration of the connections among people, plants, and culture; connections that are at the heart of the Garden's vision and mission. With the adoption of its master plan in 2001, the Garden let water act as an inspiration for the redevelopment of its 39-acre site in downtown Flushing. All aspects of the new gardens and buildings welcome water to the landscape—weaving water features throughout the gardens for visitors to enjoy and keeping stormwater on site through networks of swales and native plantings, while honoring the cultural uses of water. With the first phase of the master plan nearing completion, the Garden is well on its way to meeting its ambitious goal of 100% onsite stormwater management which will lessen the burden on New York City's struggling combined sewer overflow system.

The Leadership in Energy and Environmental Design (LEED) Platinum-rated Visitor & Administration Center is the focal point for the first phase of the master plan. The Visitor Center is a goldmine of sustainable design; blurring the distinction between the landscape and building. This building harnesses renewable energy from solar panels and geothermal heating and cooling, and utilizes a green roof and landscapes for stormwater management. A pilot project for the new, high-performance building guidelines from the City of New York's Office of Sustainable Design within the Department of Design and Construction, it preceded both Mayor Bloomberg's PlaNYC 2030, and his Design Excellence program. The Center has garnered local, national, and international acclaim for its commitment to sustainability and design.

Walking up to the new Visitor Center, it becomes clear how water has influenced the design of the building and its surrounding landscapes. A rain-fed watercourse greets visitors both entering the Garden from Main Street and entering the building itself. The terrace of the Center is sheltered by a large, zinc-tiled rainwater canopy that collects rainwater and frames an elegant waterfall at the edge of the terrace for visitors to enjoy during a rainstorm. The rainwater is then captured and filtered naturally in a cleansing biotope layered with sand, expanded clay and gravel, and marsh plants that all act to filter out nutrients before the water is pumped to a fountain near the Main Street entrance. Rainfall in excess of the capacity of the circulating watercourse is captured underground in a large concrete cistern, used as a reserve for the watercourse when rainfall seasonally declines. Rainfall is also managed by the 30,000 native plants in the gardens surrounding the building, a large bioswale (or water retention area), and the green roof above the auditorium.

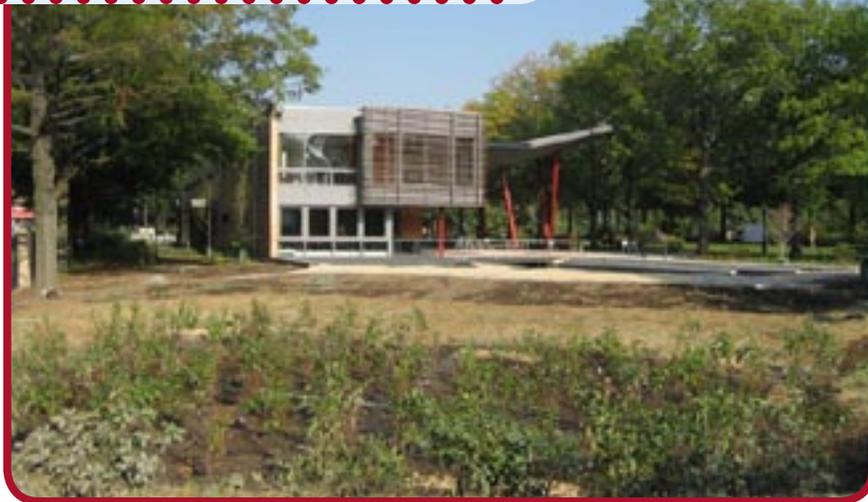
## On the Web...

For more on the Queens Botanical Garden Visitor Center's master plan and green roof monitoring project, visit <http://www.queensbotanical.org>



**The green roof** and garden of native plants at the Queens Botanical Garden serves as an example of sustainability for visitors. Both features were designed by Conservation Design Forum.

Nicole De Feo, Queens Botanical Garden



Nicole De Feo, Queens Botanical Garden

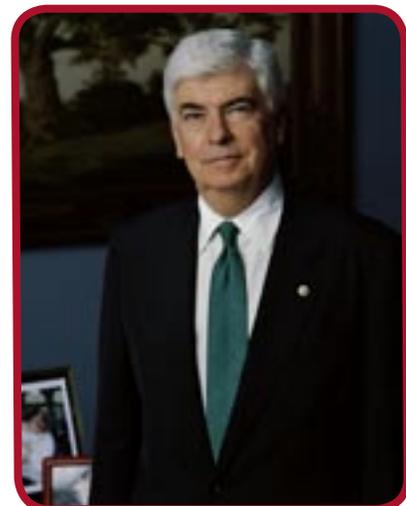
**This bioswale**, or planted rainwater retention area, is a critical landscaping element for meeting the Garden's goal of 100% onsite storm water management. The Visitor and Administration building, also shown here, was designed by BSKS Architects.

The gently-sloping green roof above the auditorium invites visitors to explore the mix of sedums, flowering natives, herbs and pollinator species that not only protect the waterproofing membrane, but also act to absorb stormwater and mitigate temperature extremes. In collaboration with the Center for Climate Systems Research at Columbia University and the NASA Goddard Institute for Space Studies, the Garden is collecting data on how well the green roof is retaining stormwater and curbing temperature fluctuations due to the evapotranspiration of the plants.

*De Feo is the Capital Projects Coordinator at the Queens Botanical Garden in Flushing, NY.*

# Senate Member Profile: Chris Dodd

**Position:** U.S. Senator for Connecticut  
**Party:** Democrat  
**First elected:** 1974  
**Now serving:** 5th term  
**Education:** University of Louisville School of Law  
**Birthplace:** Willimantic, CT



Senator Dodd's office

**Q:** What are the issues related to Long Island Sound (LIS) that most concern you?

**A:** Anyone who lives in our area knows that Long Island Sound is a remarkable natural treasure and extremely important to Connecticut's economy. But for all its natural beauty, we constantly have to work at all levels—federal, state, and local—to protect and defend it. That means remaining vigilant in fighting environmentally harmful projects such as Broadwater's Liquefied Natural Gas terminal and the Islander East pipeline.

In particular, I am extremely concerned about the effects of nonpoint source pollution on the health of Long Island Sound. Deteriorating pipes and wastewater treatment plants in Connecticut and New York cause large amounts of untreated sewage and stormwater to end up in Long Island Sound which could lead to serious problems for the Sound's fragile ecosystems and public health in the region. Clearly, improving our state's clean water infrastructure must be a priority.

**Q:** How have you been supporting the protection of LIS?

**A:** Throughout my three decades in public service, I have fought to preserve this important natural resource. Though there is more to be done, I was proud to work with my colleagues in the Connecticut Congressional delegation and many state officials to successfully block construction of the proposed Broadwater Liquefied Natural Gas Storage and Regasification Facility.

For years, I have also fought to increase funding for the Long Island Sound Restoration Act and the Long Island Sound Stewardship Act. Both of these programs have provided critical resources to the states of Connecticut and New York for the preservation and restoration of the Sound's shorelines and tidal marshes. I have also strongly supported increased funding for the Clean Water State Revolving Fund (CWSRF). For years, the CWSRF has helped capitalize wastewater management projects, nonpoint source pollution control initiatives, and other state-funded water quality projects that have a direct impact on the health of Long Island Sound. In addition to helping us be better environmental stewards, these projects create critically needed construction jobs at a time when our economy is mired in a recession.

**Q:** How important are improving the nation's infrastructure for clean water and developing new green technologies?

**A:** Today, there is virtually no reason not to employ green technology to meet our wastewater infrastructure challenges. The need is obvious; aging infrastructure directly affects the water quality in our rivers, streams and the Long Island Sound. Much of today's infrastructure has exceeded its life expectancy. Deteriorating pipes, outdated treatment plants and other critical components involved in wastewater disposal put the health and safety of the public and many fragile ecosystems at risk. For example, older cities such as Hartford, New Haven, and Bridgeport are dependent on wastewater infrastructure that was built more than a century ago. As a result, large amounts of untreated sanitary sewage combine with stormwater runoff and ultimately end up in the Long Island Sound. In the Hartford region alone, approximately one billion gallons of combined wastewater and stormwater are released into area waterways annually. It is critical we repair or replace any infrastructure that fails to protect public health and the environment. We cannot afford to jeopardize the progress we have made to clean up the Sound.

But as we seek to meet our nation's infrastructure needs, we have an incredible opportunity to harness new green technology that will meet the challenge of safeguarding the environment. Already, with creativity and cooperation, many communities in Connecticut are working to utilize green technology. For example, the city of Stamford has launched a project to turn waste from treatment plants into a renewable energy source. By using biomass technology, this green initiative produces electric power for the region with zero-emissions. The Department of Energy has identified the Stamford project as a great model for other communities to follow. By resolving Connecticut's infrastructure issues and employing green innovation, we can ensure that the natural beauty of the Sound will be preserved for future generations to come and turn some of our biggest challenges into opportunities.

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# “What Can I Do?”

## Simple ways to reduce runoff from your property.

### 1 Become an advocate for low impact development.

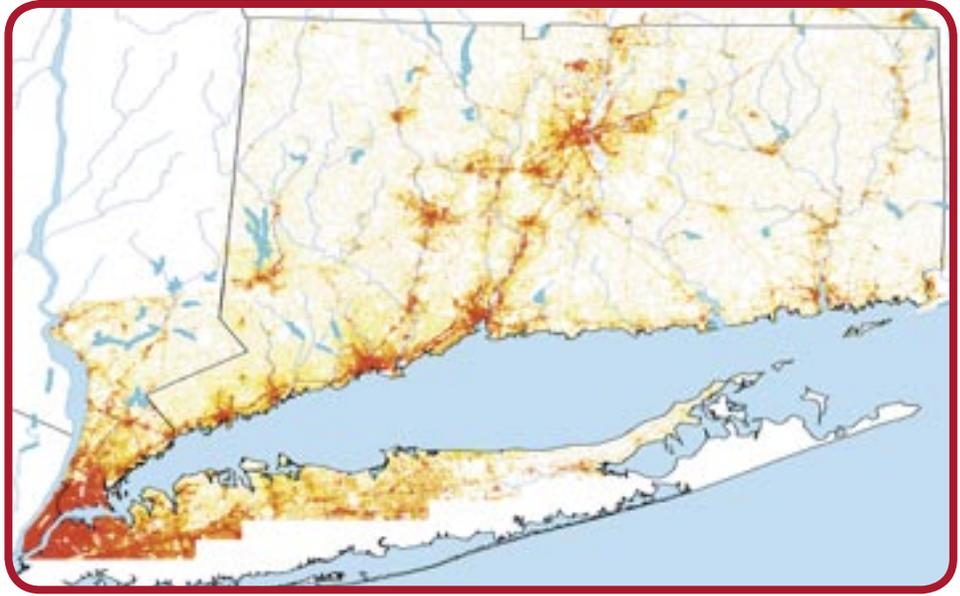
Learn more about low impact development and how it might best work in your community. The Nonpoint Education for Municipal Officials (NEMO) Program has lots of great information on their website ([www.nemo.uconn.edu](http://www.nemo.uconn.edu)) to help you get started!

### 2 Modify your driveway.

NEMO’s research shows that residential driveways make up about 15% of all impervious surfaces in Connecticut. To reduce runoff, you can modify your driveway by removing the center, replacing the bottom of your driveway with a grate, or constructing your driveway out of paving stones, porous asphalt, or permeable concrete.

### 3 Install a rain garden.

Rain gardens receive runoff water from roofs and other hard surfaces (such as driveways) and allow the runoff to naturally soak into the ground. This process filters out pollutants that are carried with the rainwater that washes off your lawn, rooftop and driveway. Rain gardens come in many sizes and are easy to build and maintain! For more information, listen to EPA’s webcast on rain gardens ([www.epa.gov/watershedwebcasts](http://www.epa.gov/watershedwebcasts)).



Center for Landuse Education and Research, UCONN

**Impermeable surfaces** (or hard surfaces) are wide-spread in both Connecticut and New York. The red indicate land that is 90-100% covered with hard surfaces. In these areas, green infrastructure and low impact development are particularly important because rainwater cannot naturally filter into the ground.

**5 Reduce the slope of your yard.** If your yard has a severe slope, the soil will have a hard time absorbing water even during moderate storms. Install berms to slow runoff on steep slopes and vegetated swales to absorb water.

**6 Grow native plants instead of lawn.** Lawns don’t absorb and retain water well, especially during heavy rains. Native plants, such as shrubs and wildflowers, tend to develop more extensive root systems that take in and hold water much better than lawns. They also require less maintenance than a lawn does. See our Fall 2008 issue for a list of plants native to our area!

**7 Plant a tree.** Trees’ immense root systems effectively absorb water over a large area and their canopies slow the fall of rainwater. Plant trees on your property and in your neighborhood and take care of the ones that already exist. For new home constructions, leave trees in place if possible.

### Sign up for Sound BYTES!

The Long Island Sound Study is now producing Sound BYTES, an electronic newsletter that highlights upcoming events and current projects. Sign up for Sound BYTES under the heading “E-newsletter” on our website at: [www.longislandsoundstudy.net](http://www.longislandsoundstudy.net).

### 4 Use the water from your roof.

Direct your downspouts toward a vegetated area, such as your garden or lawn. If you are worried about the risk of soggy yards or basement flooding, install rain barrels to collect the water so you can save some rain for a sunny day.

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