PROTECTING AND RESTORING AMERICA'S GREAT WATERS: THE LONG ISLAND SOUND

(111–67)

HEARING

BEFORE THE

SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

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October 5, 2009

SUMMARY OF SUBJECT MATTER

TO: Members of the Subcommittee on Water Resources and Environment

FROM: Subcommittee on Water Resources and Environment Staff

SUBJECT: Hearing on "Protecting and Restoring America's Great Waters: The Long Island Sound"

PURPOSE OF HEARING

The Subcommittee on Water Resources and Environment will meet on Tuesday, October 6, 2009, at 11:00 a.m., in room 2167 of the Rayburn House Office Building to receive testimony from representatives from the United States Environmental Protection Agency (EPA), the New York State Department of Environmental Conservation, the Connecticut Department of Environmental Protection, and other interested parties. The purpose of this hearing is to understand the current state of the Long Island Sound (the Sound), assess the reasons for continued impairments, and consider policy recommendations to achieve full restoration of the Sound.

BACKGROUND

This memorandum summarizes the state of the Long Island Sound and current efforts to protect and restore its ecosystem. The Long Island Sound Study is a Clean Water Act section 320 National Estuary Program, and is the coordinating body for these efforts. Additionally, the Study has separate program authorization and additional funding under section 119 of the Clean Water Act. EPA funds and administers the Long Island Sound Study, and operates a Long Island Sound program office to coordinate the restoration efforts between itself, the States of New York and Connecticut, and various interest groups and stakeholders in the region. The Long Island Sound Study completed a Comprehensive Conservation and Management Plan in 1994, which identified seven issue areas that must be addressed to achieve complete restoration of the Sound: low dissolved oxygen (hypoxia); toxic contamination; pathogen contamination; floatable debris; habitat management; land use and development; and public education.

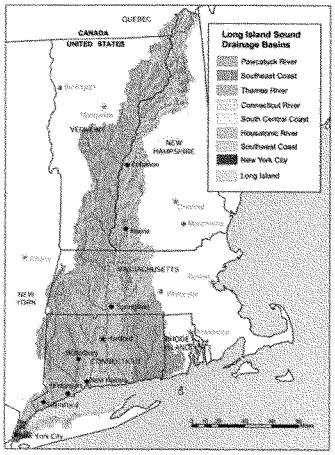
The Long Island Sound

The Long Island Sound is one of the nation's largest and most diverse estuaries. Estuaries are bodies of water that receive both freshwater inflows from rivers and saltwater inflows from oceanic tides. As such, estuarine environments are among the most diverse and productive on earth.

The Long Island Sound has a total area of 1320 square miles, and a coastline that stretches more than 600 miles. The Sound is largely located between Long Island in New York and the State of Connecticut. It receives its tidal inflows from the Atlantic Ocean and ninety percent of its freshwater from three major rivers: the Connecticut, the Housatonic, and the Thames. The estuary is essential for many types of plant and animal life, including oysters, lobsters, and more than 120 species of fish.

The Long Island Sound's watershed is the geographic area from which water ultimately drains into the Sound (*see figure below*). The watershed includes all or parts of six states: Connecticut, New York, Rhode Island, Massachusetts, Vermont, and New Hampshire. Eighty percent of the freshwater that enters the Sound drains the upstream states of Massachusetts, New Hampshire, and Vermont, none of which sit directly on the Sound.

Figure: Long Island Sound Watershed



Source: Connecticut DEP

The region immediately surrounding the Long Island Sound is one of the most densely populated urban areas in the United States. An estimated eight million people live within the Long Island Sound watershed, and roughly 20 million people live within 50 miles of the Sound. Several major cities lie directly on the Sound, including Stamford, Bridgeport, and New Haven in Connecticut, as well as the boroughs of Queens and Brooklyn within New York City.

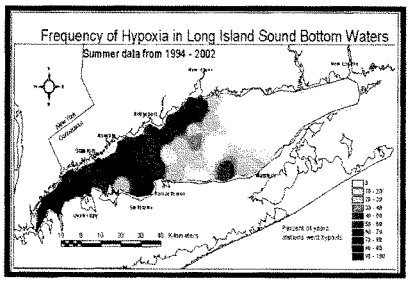
The Long Island Sound provides huge economic benefits to the region. Activities that take place on or around the Sound, including fishing, boating, and recreation, bring in an estimated $5.5 billion to the local economy.[1] The economic benefits of many of these activities are dependent on the overall health and viability of the Sound itself.

The State of the Long Island Sound

The Long Island Sound is under stress, primarily due to the effects of urbanization within the Long Island Sound watershed. As a result, the Sound suffers from degraded water quality, loss of habitat, and reduced fish and shellfish populations.

Hypoxia in the Long Island Sound: The most serious water quality problem in the Long Island Sound is hypoxia, a condition that occurs when a body of water is depleted of oxygen to a point that it threatens the ability to sustain aquatic life. Hypoxia is most often caused by excess nutrients, such as nitrogen or phosphorus, which fuel the growth of algae. The subsequent process of algae decomposition removes dissolved oxygen from bottom waters, which starves plants and animals of needed oxygen.

Excess nitrogen causes periods of severe hypoxia every year in the Sound, usually in the late summer months. While some nitrogen run-off occurs naturally, human activities in the watershed account for an estimated 400 percent increase over natural nitrogen loadings.[2] In 2007, hypoxia in the Sound lasted 58 days and, at its peak, affected 162 square miles, an area that is four times the size of Manhattan.[3] While hypoxia has been less severe in the past decade, the duration of time that it usually lasts has actually gotten longer. Hypoxic conditions tend to occur most frequently in the western portion of the Sound, near New York City (*see figure below*).[4]



Source: Connecticut DEP

[1] U.S. Environmental Protection Agency: *Long Island Sound Facts, Figures, and Maps*, http://www.epa.gov/ne/eco/lis/facts.html#maps (last visited Sept. 28, 2009).
[2] Long Island Sound Study: *Sound Health 2008*. http://www.longislandsoundstudy.net/soundhealth/index.htm, (last visited Sept. 28, 2009).
[3] *Id.*
[4] According to Connecticut Department of Environmental Protection staff, evidence from internal studies have shown that the longer average duration of time that hypoxia lasts each year may be due to the impacts of climate change, which have altered the hydrodynamic character of the Sound. Other evidence also suggests is that nitrogen loadings have not yet met a threshold reduction level needed to facilitate widespread recovery in the Sound.

Sources of Nitrogen to the Long Island Sound: The States of Connecticut and New York completed a Total Maximum Daily Load analysis (TMDL) in 2001, and are now in the process of updating it to better define nitrogen loading estimates to the Sound (*see figure below*). The TMDL is a calculation that determines waste load allocations for point sources and load allocations for nonpoint sources. As such, it does not take into account the substantial nitrogen load reductions that wastewater treatment plants have made.

According to draft data for the revised TMDL, which is due to be released in 2010, baseline discharges from wastewater treatment plants are the largest single source of nitrogen to the Sound. These discharges make up 65 percent of the total load, and contribute 41,271 tons of nitrogen per year. Combined sewer overflows (CSOs) make up another one percent of the nitrogen load, which occur during storm events when stormwater exceeds the volume capacity of a combined sewer system. This causes both raw sewage and the excess stormwater to be discharged without adequate treatment.

Atmospheric deposition makes up 18 percent of the nitrogen load to the Long Island Sound.[5] Atmospheric deposition is a process by which airborne nitrogen and other pollutants settle directly onto the surface of a water body (direct deposition), or reach a water body indirectly through deposition onto land surfaces and subsequent run-off during wet weather events (indirect deposition).

Urban runoff, which includes both nonpoint urban runoff and regulated stormwater runoff, makes up an estimated total of 8 percent of the nitrogen load to the Sound. Urban runoff increases as land becomes developed, which displaces absorbent surfaces with impervious ones such as roads, bridges, and buildings, which do not absorb water.

Impairment of the Long Island Sound from urban runoff occurs when precipitation runs off of impervious surfaces in the watershed into streams or makes its way into storm drains, transporting pollutants such as fertilizers, pathogens, pesticides, and debris along with it.[6] Because the Long Island Sound watershed is so urbanized, the Sound is especially susceptible to urban runoff. In fact, developed land makes up more than 20 percent of the parts of Connecticut and New York that drain into the Sound, and impervious surfaces make up almost 10 percent of the land cover.[7]

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[5] Indirect atmospheric deposition is a component of runoff from forests, agriculture, and impervious surfaces, as well as regulated stormwater discharges. According to the revised TMDL, direct atmospheric deposition makes up 8 percent of the nitrogen load to the Sound, and indirect atmospheric deposition makes up the additional 10 percent of the nitrogen load from atmospheric deposition, for a total of 18 percent.

[6] Long Island Sound Study- Center for Land Use Education and Research: *Long Island Sound Region Impervious Surfaces Mapping Project*, http://clear.uconn.edu/projects/imperviouslis/project.htm

[7] *Id.*

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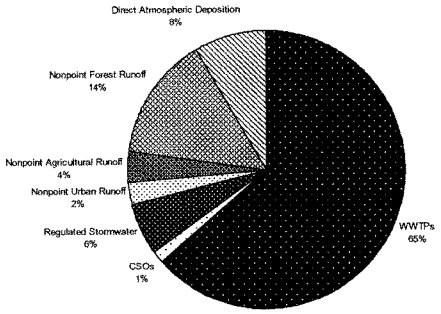
Figure: Sources of Nitrogen to the Long Island Sound within the Long Island Sound Watershed[8,9]



Source: Connecticut DEP

Toxic Contaminants in the Long Island Sound: Impairment of the Sound by toxic contaminants, such as Polychlorinated biphenyls (PCBs), mercury, and other heavy metals, stretches back to the industrial revolution. Due to a combination of increased regulations and a decline in manufacturing, point source discharges have steadily decreased since the 1970s.[10] However, other sources continue to impair the Sound, such as legacy sediment contamination and mercury that enters the Sound from atmospheric deposition. Mercury levels in the Sound have declined, but are still present at more than 300 parts per billion in sediments in parts of the western Sound. Mercury at this level can cycle up through the food chain in increasing amounts and accumulate in fish tissues at levels that are potentially dangerous for human consumption. As a result of this contamination, Connecticut and New York have consumption advisories in place for striped bass, bluefish, crabs, and lobsters. Additionally, emerging sources of toxic contamination, such as endocrine-disruptors

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[8] These figures are based on data for the revised TMDL, due for release in 2010. This TMDL will provide a more accurate model than the 2001 TMDL for the waste load allocations and load allocations for the entire Long Island Sound Watershed.

[9] Direct atmospheric deposition occurs when nitrogen falls directly on the surface of Long Island Sound. Nonpoint forest runoff, nonpoint agricultural runoff, nonpoint urban runoff, and regulated stormwater include an indirect atmospheric deposition load to Long Island Sound. This is a result of nitrogen that is deposited in the watershed and washes off the land to the Sound. Total direct and indirect sources of atmospheric nitrogen comprise 18% of the total nitrogen load delivered to Long Island Sound.

[10] Long Island Sound Study: *Sound Health 2008 Environmental Indicators*, http://www.longislandsoundstudy.net/monitoring/indicators/index.htm (last visited Sept. 28, 2009).

from household cleaning products and pharmaceuticals, have started to show up in certain types of fish.[11]

Pathogens in the Long Island Sound: Pathogens, which are disease-causing bacteria and viruses, are another pollution problem in the Long Island Sound. Over the past three decades, increased regulations and better technologies have corresponded with significant improvements in fecal coliform levels New York's harbors.[12] However, concentrations of pathogens spike right after storm events, as a result of stormwater runoff and the occurrence of combined sewer overflows.[13] In 2007, there were still more than 800 beach closure days along the Long Island Sound, and 59 chronically closed beaches that were closed three or more days per year.[14]

Loss of Habitat in the Long Island Sound: As a result of pollution in the Long Island Sound, much of the natural habitat has been lost. Loss of habitat, which provides essential feeding, breeding, and nesting grounds for wildlife, is a serious threat to the overall health of an ecosystem. Two of the most important types of habitat in the Sound are tidal wetlands and eelgrass, which are declining in terms of both total area and overall functionality.

Tidal wetlands provide habitat for much of the Sound's wildlife, and additionally are important both to protect land from flooding and to filter out pollutants before they enter the Sound. However, about 25-35 percent of the Long Island Sound's wetlands were filled or destroyed by the 1970s, before the Clean Water Act was passed.[15] Today, there are roughly 12,000 acres of tidal wetlands in the Sound, but this area is decreasing. One contributing factor may be sea level rise due to climate change; over the past century, sea levels in the Sound have been rising in the New York metropolitan region at an average rate of about an inch per decade.[16]

Eelgrass is an underwater grass that grows along the coast and provides essential habitat for many species of fish, which are also a food source for many of the migratory birds that pass through the Sound. Eelgrass is rebounding in the Eastern Sound, but has virtually disappeared in many parts of the Western Sound. Excessive algae growth and hypoxia, which starve eelgrass of oxygen and sunlight, is thought to be the main cause of this loss.[17]

Reduced Fish and Shellfish Populations in the Long Island Sound: The Long Island Sound has also seen a dramatic decline of many of its fish and shellfish populations. This is a serious threat to both the Sound's ecosystem and the regional economy. Warm-water species of fish, such as moonfish and the northern sea robin, have increased in the Sound, but cold-water species of fish, like the winter flounder, have declined dramatically. In the early 1980s, recreational fishing landed more than one million catches of the winter flounder, but in 2007, only 5,000 of the fish were caught and landed.[18] At the same time, average water temperatures in the Sound have become

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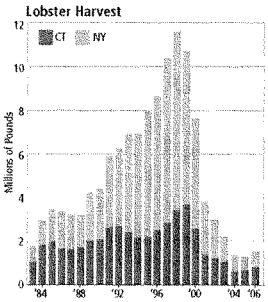
[11] Long Island Sound Study: *Sound Health 2008.*
[12] New York City Department of Environmental Protection: *New York Harbor Water Quality Report.* http://www.nyc.gov/html/dep/pdf/hwqs2008.pdf Accessed 28 September 2009 (last visited Sept 28, 2009).
[13] Long Island Sound Study: *Sound Health 2008 Environmental Indicators.*
[14] *Id.*
[15] Long Island Sound Study: *Sound Health 2008.*
[16] *Id.*
[17] *Id.*
[18] *Id.*

warmer, having increased by an average of 2° F between 1979 and 2002.[19] This is thought to be a result of global climate change.

Shellfish, such as oysters, lobsters, and clams, are one of the most important resources for Long Island Sound's fishermen, but in recent years, have come under great stress. Lobsters are the most extreme example of this trend. In 1997, they had a peak harvest value of $40 million, but in the years following a massive die-off in 1999, the value of the catch was reduced to less than $7 million.[20] As a result of the die-off, annual catches of almost 12 million pounds of lobster were reduced to less than two million pounds, and continue to show little sign of recovery (*see figure below*).[21]

Figure: Lobster Harvests, 1984-2006



Source: Long Island Sound Study

The drop-off in lobster catches has virtually destroyed a once-thriving industry and deprived thousands of lobstermen in New York and Connecticut of their livelihoods. According to the National Oceanic and Atmospheric Administration (NOAA), roughly 70 percent of lobstermen in the Western Sound had lost their entire fishing income in the year after the 1999 die-off, while the remainder of lobstermen lost between 30 percent and 90 percent of their income.[22]

The direct cause of the lobster die-off was determined to be parasitic infection by microscopic paramoebae. These micro-organisms had previously inhabited the Long Island Sound without infecting lobsters. A report conducted by NOAA concluded that the lobsters became susceptible to the parasite due to sustained, hostile environmental conditions, which included higher than average water temperatures, hypoxia, and urban runoff containing high levels of mosquito-control pesticides. These conditions weakened the lobsters' immune systems, and eventually led to the die-off.[23]

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[19] *Id.*

[20] National Oceanic and Atmospheric Administration, New York Sea Grant: *Responding to a Resource Disaster: The American Lobster in the Long Island Sound, 1999-2004*, http://www.seagrant.sunysb.edu/lobster/pdfs/LobsterResourceDisasterSummary06.pdf (last visited Sept. 28, 2009).

[21] Long Island Sound Study: *Sound Health 2008*.

[22] National Oceanic and Atmospheric Administration, New York Sea Grant: *Responding to a Resource Disaster: The American Lobster in the Long Island Sound, 1999-2004*.

[23] *Id.*

Efforts to Restore the Long Island Sound:

Efforts to restore the Long Island Sound have focused mainly on hypoxia because it is understood by the Long Island Sound Study to be the most pressing problem. To this end, the Long Island Sound Study, which is the coordinating body for the States of Connecticut and New York, has made headway. However, significant water quality issues remain that threaten the health and viability of the Sound. Congress has supplemented the Long Island Sound Study program with authorization and funding for the Long Island Sound Restoration Act and the Long Island Sound Stewardship Act.

The Long Island Sound Study: To address the water quality challenges in the Long Island Sound, Congress authorized the Long Island Sound Study under section 119 of the Clean Water Act to develop and coordinate restoration efforts in the Sound, which also receives additional funding under section 320 National Estuary Program in the Clean Water Act.

The Long Island Sound Study is made up of an EPA Long Island Sound program office, a Policy Committee comprised of EPA regional administrators and the environmental commissioners for Connecticut and New York, and a Management Committee comprised of representatives from all interested parties. The Long Island Sound Study also includes a Citizens Advisory Committee, a Science and Technical Advisory Committee, and Technical Work Groups that contribute to the goals of the Study. EPA's program office is responsible for distributing all federal funding and administering the program.

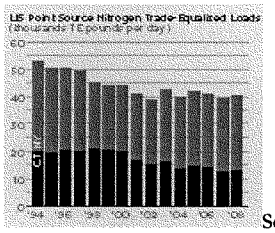
The Long Island Sound Study completed a Comprehensive Conservation and Management Plan (CCMP) in 1994. This plan outlines seven issue areas in the Sound: low dissolved oxygen (hypoxia), toxic contamination, pathogen contamination, floatable debris, habitat management, land use and development, and public education. The Long Island Sound Study has decided to focus most efforts and resources on hypoxia.

The Study adopted a phased approach to reduce nitrogen loads. Phase I, initiated in 1990, capped nitrogen loadings from wastewater treatment plants to the Sound. Phase II began with the release of the CCMP in 1994, and initiated low-cost actions to reduce nitrogen loadings to the Sound. However, since these actions would not be enough to eliminate severe hypoxia in the Sound, the Long Island Sound Study adopted Phase III in 1998, which called for a 58.5 percent reduction target for nitrogen loads from human sources to the Sound by 2014. The Phase III plan is based on a Total Maximum Daily Load analysis completed by the Connecticut Department of Environmental Protection and New York State Department of Environmental Conservation, and was approved by EPA in 2001.

To achieve the ambitious goals of the 2001 TMDL, New York and Connecticut initiated programs to achieve significant nitrogen reductions from their wastewater treatment plants, which are the biggest sources of nitrogen to the Sound. Connecticut established a Nitrogen Credit Exchange program: an innovative nitrogen trading strategy that incentivizes cost-effective nitrogen reductions based on market forces. New York adopted a different approach and issued a single general permit for its treatment plants. This process allows for informal trading among the New York facilities that discharge into the Sound, as long as water quality standards continue to be met.

Nitrogen loadings to the Sound have been reduced by more than 20 percent, the equivalent of about 13,000 trade-equalized pounds of nitrogen per day, since the Long Island Sound Study initiated its phased nitrogen management plan in 1990 (*see figure below*).[24]

Figure: Nitrogen Load Reductions in the Long Island Sound



Source: Long Island Sound Study

Connecticut is on schedule to meet its nitrogen reduction goals by 2014. New York City and Westchester County are running behind schedule due to complexities in their renovations, and have been given an extension to achieve their goals by 2017. The rest of New York is currently on schedule to reach its nitrogen reduction goals by 2014.[25]

The Long Island Sound Study is now looking to strengthen its nitrogen reduction efforts and engage upstream states in the plan. According to Connecticut Department of Environmental Protection staff, more must be done to address nitrogen inputs from urban runoff and atmospheric deposition, and upstream states in the watershed must be engaged if overall goals for the Sound are to be met. To address some of these challenges, the Study plans to initiate a Phase IV of its nitrogen management plan by 2010, and a revised TMDL is also due to be released in 2010.

Under the 2001 TMDL, a 25 percent aggregate reduction from baseline point source nitrogen discharge levels is required from Massachusetts, Vermont, and New Hampshire to meet goals for the Long Island Sound. While not formally based on the 2001 TMDL, they have achieved a 36 percent aggregate reduction as a result of their own efforts, although data indicates that this reduction may be overestimated.[26] However, preliminary data for the updated TMDL shows that greater reductions will need to be achieved to meet goals for the Sound. Recently, upstream states have started to be more engaged in the Long Island Sound Study's efforts. Massachusetts requested and was granted membership to the Long Island Sound Study Management Committee in 2007. EPA has also begun implementing some requirements in Massachusetts and New Hampshire for

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[24] Long Island Sound Study: *Sound Health 2008.*

[25] Long Island Sound Study: *Protection and Progress Biennial Report,* http://www.longislandsoundstudy.net/pubs/reports/biennial0708.htm (last visited Sept. 28, 2009).

[26] It is not possible to accurately determine upstream nitrogen reduction levels of an initial lack of adequate monitoring data to establish baseline nitrogen levels. Based on conversations with Connecticut Department of Environmental Protection staff, the baseline was probably set too high because they used design flows for the treatment plants, but most facilities are currently overdesigned and under capacity. When the baseline is set artificially high, and the actual discharge of nitrogen is much less, states appear to have accomplished greater reductions than they actually achieved.

monitoring and plant assessments, with a goal of capping nitrogen loadings from wastewater treatment plants to the Sound from those states.

In addition to its efforts to reduce hypoxia in the Sound, the Long Island Sound Study also facilitates habitat restoration efforts. So far, the Study has used Federal, state, and local funding to restore nearly 600 acres of natural habitat to the Long Island Sound and 90 miles of migratory corridors. The Study has held events and conferences to increase public education and awareness and has provided hundreds of thousands of dollars in grants to restoration projects.

Connecticut's Nitrogen Credit Exchange: To achieve the goals of the TMDL, Connecticut established the Nitrogen Credit Exchange program in 2002. This program is a market-based nitrogen trading scheme for Connecticut's publicly-owned treatment works (POTWs). Connecticut is now on target to meet its 2001 nitrogen reduction goals by 2014.

Under the current 2001 TMDL, Connecticut is required to meet a 64 percent reduction target for its 79 POTWs. Under the Nitrogen Credit Exchange program, POTWs can trade nitrogen credits to achieve nitrogen reduction goals. Trading ratios are applied to these credits based on the size of the facility and their proximity to the Long Island Sound. As a result, market forces have pushed the reductions to facilities most responsible for the hypoxic impact in western Long Island Sound. Connecticut has now achieved 75 percent of its target reductions for the TMDL, and is on schedule to achieve the full reductions by 2014.[27]

The Nitrogen Credit Exchange has proven to be a cost-effective method to achieve Connecticut's nitrogen reduction goals. To attain the 2014 goal, the capital costs for its 79 POTWs will be approximately $400 million.[28] According to Connecticut Department of Environmental Protection staff, had the trading scheme not been in place and all 79 facilities were required to install individual nitrogen removal upgrades, the capital cost would have reached between $700- and $800 million. This represents a total savings of $300- to $400 million overall for Connecticut's POTWs.

The Long Island Sound Stewardship and Restoration Acts: Congress has supplemented the Long Island Sound Study with two other programs: the Long Island Sound Restoration Act, created in Title IV of the Estuaries and Clean Waters Act of 2000 and reauthorized in 2005; and the Long Island Sound Stewardship Act of 2006. The Long Island Sound Restoration Act authorized up to $40 million per year for distressed communities to fund upgrades to their sewage treatment systems in order to achieve greater nitrogen removal levels. The Long Island Sound Stewardship Act authorizes up to $25 million per year in funding through 2011 for land acquisition, habitat protection, and expanded public access in designated "stewardship sites." EPA's Long Island Sound program office receives this funding and distributes it to the Long Island Sound Study, which acts as the coordinating and implementing body for these programs.

Appropriations for the Long Island Sound Stewardship Act and the Long Island Sound Restoration Act have historically been combined into one request, and have never been fully funded at their authorized levels. The fiscal year 2009 appropriation for both programs was $3 million. The administration's fiscal year 2010 request for combined programs is also $3 million.

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[27] This is according to Connecticut Department of Environmental Protection staff.
[28] This is based on estimates by Connecticut Department of Environmental Protection staff.

WITNESSES

Mr. Mark Tedesco
Director
Long Island Sound Office
United States Environmental Protection Agency

Commissioner Amey Marrella
Connecticut Department of Environmental Protection

Mr. Peter Scully
Regional Director
Long Island Sound Regional Office
New York State Department of Environmental Conservation

Ms. Jeanette A. Brown, P.E., D.E.E.
Executive Director
Stamford Water Pollution Control Authority

Ms. Leah Schmalz
Director of Legislative and Legal Affairs
Save the Sound at Connecticut Fund for the Environment

Ms. Adrienne Esposito
Executive Director
Citizens Campaign for the Environment

Mr. Nicholas Crismale
President
Connecticut Commercial Lobsterman's Association

PROTECTING AND RESTORING AMERICA'S GREAT WATERS: THE LONG ISLAND SOUND

Tuesday, October 6, 2009

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The Subcommittee met, pursuant to call, at 11:00 a.m., in Room 2167, Rayburn House Office Building, Hon. Eddie Bernice Johnson [Chairwoman of the Subcommittee] presiding.

Ms. JOHNSON. I would like to call this Subcommittee to order. This morning we will be holding a hearing on Protecting and Restoring America's Great Waters: The Long Island Sound.

Good morning. Today's hearing will focus on both the current state of Long Island Sound and ways to strengthen Federal programs to address continuing impairments to the Sound. I expect that today's hearing will help the Subcommittee in its efforts to reauthorize the Clean Water Act, section 119—the Long Island Sound Study Program.

The Long Island Sound is one of the Nation's largest and most diverse estuaries, home to many types of fish and wildlife, including oysters, lobsters and over 120 species of fish. The Sound is also an incredibly important economic driver for the region, bringing in an estimated $5.5 billion annually for the more than 20 million people who live within 50 miles of its waters.

The Sound provides a robust commercial fishing industry as well as a popular destination for recreational boating, fishing, and swimming.

However, the Long Island Sound suffers from impairment. Every summer, the Sound experiences harmful algae blooms. These create large dead zones that starve the Sound's plant and animal life of the oxygen they need to survive. In 2007, the area of the dead zone was four times the size of Manhattan. The dead zone in the Sound is caused by excessive loads of nitrogen, a nutrient that fertilizes the waters and causes the growth of excess algae. The decomposition of this algae consumes oxygen resulting in dead zone areas.

The majority of nitrogen loadings come from wastewater treatment plants located within the Sound's watershed, which stretches upstream, all the way to Massachusetts, New Hampshire and Vermont; but these wastewater treatment plants are not the whole picture in terms of nitrogen pollution in the Sound.

Urban runoff is a large and growing contributor of nitrogen and other pollutants to the Sound. The Long Island Sound is located in one of the most densely urbanized areas of the country. More than 20 percent of the land in the Long Island Sound Study area is currently developed. Developed land creates impervious surfaces such as roads, bridges, buildings, which does not allow for the infiltration of precipitation into the soil. Instead, precipitation runs off these surfaces and into streams or storm drains, picking up pollutants such as fertilizers, heavy metals and pathogens with it.

There are other major sources of nitrogen to the Sound that must still be addressed. These include atmospheric deposition, combined sewer overflows and agricultural runoff. One damaging result of the dead zone in the Sound is the loss of eelgrass, which is the essential habitat for many types of fish in the Sound. Eelgrass in the western Sound has virtually disappeared. These conditions were also determined to have contributed to the massive lobster die-off that took place in 1999, which decimated both the Sound's lobster population and the regional lobster industry. As a result, annual lobster catches of 7 to 12 million pounds were reduced to less than 1 million pounds.

The Sound also experiences frequent beach closures along its shores due to high levels of pathogens that are transported into the Sound's water after storms through combined sewer overflow events. Additionally, despite the dramatic reductions in toxic discharges to the Sound, atmospheric deposition and legacy contamination of sediment cause toxic contamination to the waters of the Sound. New York and Connecticut must still maintain consumption advisories for several types of fish because they are unsafe for humans to eat on a daily basis.

It is because of these challenges that we are holding this hearing on the Long Island Sound.

We have made significant progress in upgrading wastewater treatment plants in Connecticut and New York and in reducing the nitrogen loadings to the Sound. However, the Sound will not be fully restored unless there is more done to address the remaining problems. Chief among these problems are urban runoff and the integration of upstream States into the current program.

I welcome our witnesses today, and look forward to hearing your testimony. Our ultimate goal is to use your suggestions and recommendations to create a Federal program that would better facilitate the restoration of the Long Island Sound. I thank you for being here this morning.

I now yield to the Subcommittee Ranking Member, Mr. Boozman of Arkansas.

Mr. BOOZMAN. Thank you very much, Madam Chair.

The Subcommittee is meeting today to hear testimony about a longstanding program under the Clean Water Act that is aimed at helping to restore and protect the Long Island Sound. Long Island Sound is unique, and is a highly productive estuary that is important to the ecological and economic bases of our Nation.

Fisheries, wildlife, recreation, and tourism are heavily dependent on a healthy Long Island Sound and other estuarine systems. Yet, despite its values, most estuaries in the United States, including Long Island Sound, are experiencing stress from physical alteration

and pollution, often resulting from development and rapid population growth in coastal areas.

In the 1980s, Congress recognized the importance of and the need to protect the national functions of our Nation's estuaries. As a result, in 1987 Congress amended the Clean Water Act to establish the National Estuary Program. The National Estuary Program identifies nationally significant estuaries that are threatened by pollution, land development and overuse, and it provides grants that support the development of the Comprehensive Conservation and Management Plan to protect and restore them. The program is designed to resolve issues at a watershed level, integrate science into the decision-making process, foster collaborative problem-solving, and involve the public.

Unlike many EPA and other Federal programs that rely on conventional top-down regulatory measures to achieve environmental goals, the National Estuary Program uses a framework that focuses on stakeholder involvement and interaction in tailoring solutions for problems that are specific to that region in order to achieve estuarine protection and restoration goals.

Since its inception, the National Estuary Program has been a leading example of a collaborative institution designed to resolve conflict and to build cooperation at the watershed level. Today the National Estuary Program is an ongoing, non-regulatory program that supports the collaborative, voluntary efforts of stakeholders at the Federal, State and local levels to restore degraded estuaries.

Currently, Long Island Sound is a part of the National Estuary Program, and it is implementing restoration plans developed at the local level through a collaborative process.

The National Estuary Program has been beneficial in improving and protecting the condition of the estuaries in the program, and the program shows that a collaborative, voluntary approach can provide an alternative to the sole reliance on traditional command and control mechanisms.

I look forward to the testimony of our witnesses today, and look forward to hearing about the progress of the Long Island Sound program and how the National Estuary Program is working and about ways to improve the program in the future.

Thank you very much, Madam Chair.

Ms. JOHNSON. Thank you very much.

Are there other opening statements?

Mr. BISHOP. Madam Chair, I thank you for holding this hearing. I represent the eastern end of Long Island, and the entire northern border of my district is the Long Island Sound, so it is a subject of great importance to me, to my constituents and to all of the residents of Long Island.

The Long Island Sound and its watershed have sustained New York and Connecticut communities for hundreds of years. An estimated 8 million people live within the Long Island Sound watershed. Roughly 20 million people live within 50 miles of the Sound. Businesses dependent on the health and viability of the Sound account for an estimated $5.5 billion in economic activity annually.

However, as our region has grown, so has the degradation of our precious water resources. Like so many other bodies of water

across the Nation, for years the Long Island Sound was exploited not only for its resources but also as a dumping ground for waste.

Many of our panelists today will underscore the sensitivity of the Sound and how it can be irreparably harmed, either directly through carelessness or indirectly through point and nonpoint source pollution and other factors.

Mr. Crismale's testimony is especially troubling as he recalls the 1999 lobster mortality event and how the degradation of the Sound as a resource has fundamentally altered the lobster and fishing communities that surround the Sound.

In my opinion, the character of eastern Long Island was built upon the fishing industry, aquaculture and the rural environment, and it is the very reason that we draw so many visitors today. It is this culture, based on our water resources, that supports our small businesses and that provides the bedrock of our local economy. If we allow the Sound to further deteriorate, the very nature of what makes eastern Long Island the destination for so many will also deteriorate and will be very difficult, if not impossible, to rebuild.

In many ways, the Sound has been fortunate. Congress and the surrounding States recognize its importance to the region's environmental, social and economic health. Building upon the goals of the Clean Water Act, the efforts of the Long Island Sound Study and the inclusion of the Sound into the national estuary system have driven decisions about how we care for this abundant yet delicate resource.

Madam Chair, it is my hope that this hearing will bring attention to the innovative strategies that have been implemented by Federal, State and local entities to protect the Long Island Sound. I want to thank today's panelists for all they do to protect the Sound, and I look forward to their testimony.

I yield back.

Ms. JOHNSON. Thank you very much.

The other Member, Mr. Hall, is recognized.

Mr. HALL. Thank you, Madam Chair.

Just briefly, I thank you and the Ranking Member for holding this hearing. I look forward to the testimony of our witnesses.

When I was a young boy, I was taught to sail by my father, and we sailed up and down Long Island Sound on our summer vacations many times. I remember times when there were floating patches of sewage out in the middle of nowhere, where you are practically out of sight of land. This was during some of the worst times of contamination.

Just as with the Hudson River which runs through my district today—another estuary in need of constant maintenance and help—when we clean up one type of pollution, which is kind of like playing whack-a-mole, you discover there is another source that comes along. You discover chemical pollutants or the atmospheric deposition of pollutants which needs to be guarded against.

I completely concur with my colleague Mr. Bishop's comments that this is not only a source of tourism, which is an important part of our economy, but that the health of our bodies of water, especially our major estuaries, will be and are indicators of the health of this planet, and of our country and its citizens.

With that, I yield back, and look forward to the testimony of our witnesses.

Thank you, Madam Chair.

Ms. JOHNSON. Thank you very much.

Our witnesses now can take their seats at the table.

Our first witness this morning is Mr. Mark Tedesco, who is director of EPA's Long Island Sound Office.

Next to testify is Commissioner Amey Marrella. She is here today representing the Connecticut Department of Environmental Protection.

Our third witness, Mr. Peter Scully, is the regional director of the Long Island Sound Regional Office with the New York State Department of Environmental Conservation.

Following Mr. Scully is Ms. Jeanette Brown. Ms. Brown is executive director of the Stamford Water Pollution Control Authority, located in Stamford, Connecticut. She is also the vice president of the Water Environment Federation. Ms. Brown testified before this Committee earlier this year, and we welcome her back.

Our next witness is Ms. Leah Schmalz. She is the director of legislative and legal affairs with Save the Sound. Save the Sound is associated with the Connecticut Fund for the Environment.

Our sixth witness this morning is Ms. Adrienne Esposito. Ms. Esposito is executive director of the Citizens Campaign for the Environment, out of Farmingdale, New York.

Our final witness this morning is Mr. Nicholas Crismale who is the president of the Connecticut Commercial Lobstermen's Association.

So I thank all of you for attending today's hearing. We look forward to your insights on the issues affecting the Sound. Your full statements will be placed in the record, so we ask you to try to limit your testimony to about 5 minutes as a courtesy to the other witnesses.

TESTIMONY OF MARK TEDESCO, LONG ISLAND SOUND OFFICE, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY; COMMISSIONER AMEY MARRELLA, CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION, HARTFORD, CONNECTICUT; PETER SCULLY, REGIONAL DIRECTOR, LONG ISLAND SOUND REGIONAL OFFICE, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, STONY BROOK, NEW YORK; JEANETTE A. BROWN, P.E., D.E.E., EXECUTIVE DIRECTOR, STAMFORD WATER POLLUTION CONTROL AUTHORITY, STAMFORD, CONNECTICUT; LEAH SCHMALZ, DIRECTOR OF LEGISLATIVE AND LEGAL AFFAIRS, SAVE THE SOUND AT CONNECTICUT FUND FOR THE ENVIRONMENT, NEW HAVEN, CONNECTICUT; ADRIENNE ESPOSITO, EXECUTIVE DIRECTOR, CITIZENS CAMPAIGN FOR THE ENVIRONMENT, FARMINGDALE, NEW YORK; AND NICHOLAS CRISMALE, PRESIDENT, CONNECTICUT COMMERCIAL LOBSTERMAN'S ASSOCIATION, GUILFORD, CONNECTICUT

Ms. JOHNSON. Mr. Tedesco, you may proceed.

Mr. TEDESCO. Thank you, Madam Chair and Members, for the opportunity to address the Subcommittee this morning.

Professor Glenn Lopez of Stony Brook University called Long Island Sound ″the Nation's first 21st century estuary.″ That resonated to me. What it suggests is that the changes that have gone on in the Long Island Sound watershed over 400 years are the same changes that many other systems' estuaries across the country have experienced or will experience. Long Island Sound, in essence, going through a cycle of agricultural development, industrial development, and urban and suburban development has seen many of the changes, again, that are occurring and that will occur in other systems. A positive aspect, I believe, is that some of the innovation and commitment that has been applied to Long Island Sound also provides some direction for how to approach issues elsewhere in the country.

I am director of EPA's Long Island Sound Office. We are located in Stamford, Connecticut. Our job as directed under the Clean Water Act is to coordinate the Management Conference, a bi-State partnership in Long Island Sound, and to support the implementation of the comprehensive management plan for the Sound.

To do it, we take a comprehensive and inclusive approach. We look at Long Island Sound as an ecosystem, unhindered by political boundaries. We recognize that human use is a vital component of that system and that science must inform all of our work. We work through partnerships and collaboration, and we bring together the skills and resources of sister Federal agencies, State and local agencies, the private and nonprofit sectors, and our research institutions to develop a shared vision of where Long Island Sound should go, again based on sound science.

What are some of the key activities that we support?

We have State and Federal staff dedicated to Long Island Sound, working on many of the issues. We support research and monitoring to understand the status and trends in habitat and water quality and to connect these trends to causes. We support the implementation of water quality and habitat restoration, watershed planning, nonpoint source pollution abatement, and land protection activities, and we support an active education and outreach program to involve local communities.

Let me mention briefly some of the tangible benefits from investments that have been made in the restoration of Long Island Sound. The discharge of toxic contaminants in the Sound's watershed, as reported in the toxic release inventory, have decreased by 90 percent since 1998. As a result of those decreases, we are seeing lower levels of many toxic contaminants in the sediments, in the fish and shellfish of Long Island Sound.

A recent example—work supported by the Long Island Sound Study and work conducted by both the State of Connecticut and the State of New York—sampled striped bass and bluefish, and found that PCB levels have decreased by 50 percent compared to levels of the 1980s, and these data have been used by both State health departments to update finfish consumption advisories for Long Island Sound.

Clearly we have identified the problem of nutrients to Long Island Sound. They have been greatly reduced through a nutrient production program, and there have been innovative approaches in New York and Connecticut: in New York, the bubble strategy for

aggregating permit reductions; and, in Connecticut, a Nitrogen Credit Exchange Program.

There has been progress in habitat restoration, in restoring meadows of eelgrass to Long Island Sound and an understanding of broader changes of development throughout the watershed.

Let me just touch on some of the key challenges that are ahead. One is certainly that we have the challenge of further reducing of pollution in light of continued development, increases of population in the watershed and continued development, and, clearly, limited resources at all levels of government. This is going to require us to focus on the most cost-effective ways to reduce nitrogen to Long Island Sound.

Continued implementation in Connecticut and New York will need to be expanded to include the upland States of Massachusetts, New Hampshire and Vermont. We will need to incorporate those additional sources into a total maximum daily load that establishes load allocations for nitrogen reduction to Long Island Sound, and we will need to clearly stick to fundamentals in maintaining investments in the region's water infrastructure, and we will also need to continue to foster a climate of innovation.

There are some clear examples: the National NonPoint Education for Municipal Officials. The program actually started in the State of Connecticut through a Long Island Sound Study-funded project. There are the water quality trading programs both in New York and Connecticut, that I am sure our other panelists will talk further about, that will potentially save hundreds of millions of dollars and still help achieve nitrogen reduction goals.

One avenue that we are quite interested in pursuing is looking at expanding the trading concept to include further additional States within the watershed, but also expand the concept to include what we call ″bio-extraction technologies″ to remove nitrogen from the Sound. The concept is using filter feeders, like oysters or seaweed, that can be harvested from the Sound; and, through the active culture, we can help support water-dependent jobs in Long Island Sound. We can improve the ecosystem through the functioning of these elements, as well as remove nutrients from Long Island Sound in a cost-effective manner. We have an international conference coming up, actually this December, to bring leading experts throughout the world to discuss this potential application for Long Island Sound.

We are also working to integrate efforts to address climate change impacts to Long Island Sound, and we will continue to work with our sister Federal agencies, bringing staff into the program and making sure that we are integrating water quality habitat and management of living resources.

I will just mention that one last item is a suggested technical fix to section 119 of the Clean Water Act, and that would be to add the word ″cooperate″ so that it would read: It would allow EPA to cooperate and coordinate activities and implementation responsibilities with other Federal agencies.

This would give us specific legislative cooperative authority for Federal interagency agreements, again, to improve the efficiency and effectiveness of the program.

I want to thank you, the Committee, for the opportunity. EPA believes it is vitally important to the economy of the region and to the ecology of the Sound, its habitats and living resources, as well as its users, to reauthorize appropriations for section 119 of the Clean Water Act. The EPA clearly believes that the partnership, the innovation and the commitment I have characterized in the Long Island Sound Study have brought positive environmental results.

I will be happy to answer questions at the end of all the panelists' comments. Thank you for your time.

Ms. JOHNSON. Thank you very much.

You almost doubled your time. We do read your statements, so you do not have to read them in their entirety, but if you could give us a strong summary, we would appreciate it.

Ms. Marrella.

Ms. MARRELLA. Good morning, and thank you, Madam Chair, Ranking Member Boozman, and Members of the Subcommittee.

My name is Amey Marrella, and I serve as commissioner of the Department of Environmental Protection. I appreciate this invitation to speak to you about Long Island Sound.

I am pleased to report that Connecticut DEP and our Long Island Sound Study partners have made great strides in managing the Sound despite resource limitations and the unparalleled difficulty to the task. Sometimes signs of progress come in unusual ways.

This past June, a pod of nearly 200 bottlenose dolphins passed through the Sound for the first time in at least 30 years. We think this is an important symbol of the Sound's improved water quality. There is widespread agreement that water quality is a primary issue of concern to the health of the Sound, and hypoxia is our primary water quality challenge. I was asked today to speak to Connecticut's trading program as a means to reduce nitrogen, the pollutant most responsible for hypoxia.

In Connecticut, our nitrogen trading program has accelerated progress with sewage treatment plant nitrogen control, while minimizing cost. We placed our municipal sewage treatment plants under a single general permit, and then required the aggregate discharges from all the plants to meet a nitrogen reduction target. An individual plant can meet the allotted reduction either through actual reduction or by purchasing credits generated by another facility.

The trading program also recognizes that the impact of a plant's nitrogen discharge depends on the plant's proximity to the Sound. Trading ratios recognize that 100 pounds of nitrogen discharged in Greenwich will have a 100 percent impact on the hypoxic zone, while 100 pounds discharged in Hartford will have one-fifth the effect following natural attenuation.

Trading thus provides a financial incentive for nitrogen reduction at plants whose discharge most directly impacts oxygen levels. Overall, we estimate that trading will save $300 to $400 million in construction costs when fully implemented in 2014 compared to the individual permit approach.

In addition to hypoxia, other difficult and costly management issues facing the Sound include beach and shellfish bed closures

after rain events, which can only be addressed by addressing stormwater; land use patterns that impair the biological health and productivity of our ecosystems; requiring new land management techniques such as green infrastructure and low-impact development; the need to preserve and to protect undeveloped land; the need to negotiate protocols and processes for the environmentally responsible management of dredge sediments.

Finally, underscoring the complexity of the Sound is the potential effects of climate change with its predictions that climate change will bring increased temperatures, increased water levels and more severe storm events.

In summary, there is much we have done and much that remains for us to do. The Long Island Sound Study has been an excellent forum for collaboration among the States, Federal agencies and the public, providing funding and motivation. Your support has been instrumental to our progress, and we ask for continued support from this Subcommittee and Congress to help us build on our progress in protecting and improving Long Island Sound for dolphins and people alike.

Thank you very much.

Ms. JOHNSON. Thank you very much.

Mr. Scully.

Mr. SCULLY. Good morning.

Chairwoman Johnson, Ranking Member Boozman and distinguished Members of the Subcommittee, on behalf of New York Governor David A. Paterson and Department of Environmental Conservation Commissioner Pete Grannis, thank you for the opportunity to testify before you today on New York State's efforts to protect and restore Long Island Sound.

I am the director of the Long Island Regional Office of the New York State Department of Environmental Conservation. My testimony today will address the actions which New York State has taken, in concert with our counterparts in Connecticut and USEPA, to restore the Sound. I will also address the State's recommendations for actions—which we encourage the Subcommittee to consider—to enhance our efforts to restore the Sound's water quality and bountiful natural resources.

The achievements we have made to date have occurred under the auspices of the Long Island Sound Study, a 24-year cooperative project that is part of the National Estuary Program. The study culminated with the approval of the Comprehensive Conservation and Management Plan for the Long Island Sound, a blueprint to improve the health of the estuary.

The CCMP identified seven priority areas for implementation in the Sound: load dissolved oxygen, or hypoxia; toxic contamination; pathogens; floatable debris; health of living resources and their habitats; land use; and public outreach and involvement.

As one of the CCMP's key actions, municipalities which abut the Sound must upgrade their wastewater treatment facilities to virtually eliminate nitrogen discharges, which cause hypoxia, which impairs the feeding, reproduction and growth of aquatic life.

Contaminated sediments impair resources, and make it more difficult to dispose of dredged material. Long Island Sound beaches are periodically closed, along with 73 percent of New York's produc-

tive shellfish beds, because of high levels of pathogens, potentially disease-causing organisms that reach the Sound through stormwater.

New York State, county and local governments anticipate spending an estimated $1.1 billion on wastewater treatment upgrades in addition to the millions already invested. State and local funds also are being used to restore aquatic habitats, control nonpoint sources of pollution, acquire valuable open space, provide access, and to undertake many other essential projects, but New York cannot restore Long Island Sound alone.

We appreciate our partnership with the USEPA, other Federal agencies, our counterparts in Connecticut, local governments, not-for-profit organizations, and most importantly, a very committed citizenry.

In 2000, Congress approved the Long Island Sound Restoration Act so that the Federal Government could share in New York and Connecticut's commitment to the Sound. LISRA funds can be used for a wide variety of projects, including habitat protection and restoration, sewage treatment plant upgrades, program management, monitoring, education, research, and special projects.

New York appreciates the commitment Congress has demonstrated to the Sound, in particular, the advocacy of Congress Members Israel, Bishop and Lowey, Senator Schumer and Senator Gillibrand. We are grateful for USEPA's consistent efforts to provide funding for Sound projects. Without continued congressional advocacy for this important estuary, however, we fear that efforts to restore Long Island Sound will continue to limp along.

The issues I have raised, while important, are subsumed by the critical issue of sea-level rise and its potential impacts on Long Island's natural resources, water supplies and communities. Sea-level rise is contributing to saltwater intrusion into Long Island Sound's sole-source aquifer, which the entire region relies upon for its drinking water. Sea-level rise may determine future wastewater treatment needs. To prevent groundwater degradation, for example, it may be necessary to upgrade existing sewage treatment plants and to construct new plants to eliminate the use of aging and failing septic systems.

While we need Federal support for wastewater treatment upgrades to reduce discharges to the Sound, it is also critically important to address stormwater discharges that have resulted in the closure of shellfish beds. Federal assistance is needed to restore habitats of this biologically productive region, such as tidal and freshwater wetlands, shellfish spawner sanctuaries, and to mitigate barriers to fish passage. Invasive species also must be targeted.

Finally, I want to briefly mention LISRA's sister statute, the Long Island Sound Stewardship Act. It was enacted to identify, protect and enhance special places around Long Island Sound. LISSA acknowledges the necessity of the Federal role in protecting habitats along the Sound, not only to preserve environmental quality but to ensure public access to it. To date, LISSA has not been as effective as its sponsors envisioned. New York believes that amendments could be made to streamline this law and possibly fold it into LISRA. We defer to the Subcommittee to determine whether

it would be feasible to consolidate both of these laws under one umbrella.

Thanks again for this opportunity to address you today.

Ms. JOHNSON. Thank you very much.

Ms. Brown.

Ms. BROWN. Good morning, Madam Chair Johnson, Ranking Member Boozman and the other Subcommittee Members.

My name is Jeannette Brown, and I am the executive director of the Stamford Water Pollution Control Authority, one of the largest wastewater utilities in Connecticut. I am also vice president of the Water Environment Federation, which is devoted to the preservation and enhancement of global water environment.

I am honored to be here today to discuss the Connecticut Nitrogen Credit Trading Program and its impact on the water quality of Long Island Sound.

Since the late 1980s, I have spent a great deal of time working on ways to optimize nitrogen removal at wastewater treatment plants, not only to benefit Stamford and Long Island Sound but also the wastewater community at large, and I have served on the Nitrogen Credit Trading Board since its inception.

When the trading program was proposed, several municipalities in Connecticut were opposed to it. Many did not understand the concept of the trading program. Some wanted a free market system rather than a State being the bank. The Connecticut Conference of Mayors conducted several meetings between municipal government leaders, treatment plant managers and the State environmental agency. Through those meetings, a better understanding of the program arose, and municipal leaders began to understand the potential value of the program.

The Stamford treatment plant receives wastewater from Stamford but also from the neighboring town of Darien, and we serve a population of about 100,000. In December of 2001, we began a project to upgrade and expand the treatment plant at a cost of $105 million, of which approximately $50 million was devoted to nitrogen removal. Stamford discharges to the area in Long Island Sound known as the ″hotspot,″ the most impaired region. Our mayor, Dan Malloy, felt it was critical to the health of Long Island Sound that we proceed with the upgrade quickly, and the major selling point to our governing boards was the nitrogen trading program and the fact that we would receive revenue to help offset our user charge.

The Stamford treatment upgrade was completed in late 2005. By mid-2006, we were removing considerable amounts of nitrogen. So far, we have been able to offset some of the incremental costs of nitrogen removal by selling nitrogen credits—45 percent offset in 2006, 58 in 2007, and 73 percent in 2008. Between 45 and 73 percent of the incremental costs of operation and maintenance for nitrogen removal is covered by the revenue obtained by selling credits. Now, that is just the incremental O&M costs, and it does not reflect the total cost.

This is very significant, however, when you understand that we would have been required to remove nitrogen whether or not there was a trading program. After working with the trading program for the past 7 years, I am totally supportive of the program, not just

because we are a big seller of credits, but the program is an economical and fair way of meeting water quality standards. It is important to understand that municipalities have to comply with environmental regulations whether or not they can afford to do them. In Connecticut, the treatment plants are required to remove nitrogen, and soon many of them may be required to remove phosphorus. Upgrading treatment plants is expensive, and there is limited grant money available to help offset improvements. Even with grants, there is still significant debt service.

The trading program allows officials and towns to evaluate the cost of upgrading versus the cost of continually purchasing credits. In some cases, town officials are putting off upgrades for a short period of time—5 years. In other cases, they determine that it is more economical to purchase credits long term. To this point, I have been focusing on point sources, but there is a major concern about how we deal with nutrients and pollutants being carried by nonpoint sources.

This is a critical issue that does not have an easy fix, and will cost significant amounts of moneys. Many times, impaired bodies of waters cannot be helped by regulating the wastewater discharges, but because most of the pollutant comes in through stormwater discharges, stormwater management is very expensive and complex. Trading programs may play a big part in managing stormwater discharges of nutrients also.

It is important to have highly trained regulators, engineers and operators, and the Water Environment Federation is taking a very active role in training engineers and regulators. We are currently doing a document for EPA, talking about nutrient removal at secondary treatment plants, and we are also providing training documents for operators who have to operate the treatment plants and for designers who design the plants.

As you can see, I strongly believe that Connecticut's training program is a cost-effective and administratively viable approach to addressing nitrogen discharges from wastewater treatment facilities.

As vice president, I will note that beyond Connecticut Long Island Sound, watershed base trading is a potentially cost-effective and efficient approach to achieving and maintaining water quality goals and providing net water quality benefits to pollutant load reductions. It is very important that we consider trading programs when we are looking at the overall health of bodies of water such as Long Island Sound.

Thank you.

Ms. JOHNSON. Thank you very much.

Ms. Schmalz.

Ms. SCHMALZ. Good morning, Chairwoman Johnson, Ranking Member Boozman, Congressman Bishop, and distinguished Members of the Subcommittee. I am honored to be here today, and thank you for taking this time to consider the reauthorization of the Long Island Sound Restoration Act.

Since we cannot take you on an historic sailing expedition aboard New Haven's tall ship, I thought a few snapshots might help you experience the degree modern technology will allow the Sound's wonder and culture as I highlight some of the challenges still plaguing our great water body.

In 1994, the region rallied around the sixth goal captured in the Comprehensive Conservation and Management Plan. The Long Island Sound Restoration Act has come to be the premier tool in that CCMP's implementation toolbox. Section 119 is a solid statute that is, at once, broad, providing the needed flexibility to adapt and change resource management course as research around Long Island Sound develops, and it is specific enough to ensure restoration efforts continue to be measurable.

However, there are four broad areas we perceive as hindrances to addressing water quality issues still impacting Long Island Sound: funding, enforcement, bi-State legislative coordination, and an aging management plan.

For the last 10 years, section 119 has authorized $40 million each year for activities associated in the furtherance of the CCMP. Unfortunately, the historical record also indicates that only a small fraction of that figure is ever allocated with the highest appropriation in 2005 yielding less than a sixth and the lowest in 2007 yielding less than a 30th. Even more, section 119 is identified as a source to fund expensive sewage treatment plant nitrogen reductions.

While Connecticut has employed clean water fund reinvestment and an innovative nitrogen trading program, it has a staggering $5 billion sewage infrastructure need over the next 20 years. In New York, the situation is more alarming. With only a modest State allocation in 1996, the entire burden of required upgrades in New York City and Westchester County, if and when they are accomplished, will fall squarely on the shoulders of residents.

Full LISRA funding for each of the next 5 years, paired with ongoing State investments, could substantially dent the upgrade price tag and provide for progress in other CCMP-related efforts.

Equally important and inextricably linked to adequate funding is adequate compliance and enforcement. Currently, the best laid plans are merely that—plans. While binding interim milestones, incorporated into a CCMP, are an option to ensure enforceability, the teeth for the Long Island Sound plan are derived from the various statutory and regulatory programs used to regulate existing facilities and projects or to evaluate new activities that could impact the Sound's watershed. It is the way we use and enforce those basic Federal, State and local laws that will dictated the timing and sufficiency of the Long Island Sound cleanup.

Unfortunately, enforcement becomes tougher as State budgets get tighter and agency staffing shrinks. In the last 2 years alone, Save the Sound has been forced to initiate legal enforcement actions against five industrial polluters in Bridgeport, Connecticut.

Even more troubling is the lag in reducing nitrogen loadings that appear to be surfacing. In New York City and Westchester County, consent orders have potentially granted a 3-year TMDL compliance extension. In Connecticut, limited clean water funding led to a reissued and relaxed nitrogen general permit. Section 119 specifies that ongoing special emphasis in granting be given to four key areas. Unfortunately, support of ongoing enforcement programs seems to have gotten the short shrift.

While compliance and enforcement are critical, they are only as good as the underlying laws. In a water body co-owned by two

States, regulatory parity is essential. Section 119 requires that State legislatures be convened to assess potential coordinated legislative efforts.

Just last year, New York and Connecticut did come together. Legislators discussed clean water funding at the Long Island Sound summit, but those efforts are limited and voluntarily attended.

A true bi-State, if not multi-State legislator committee is needed, not only one that will identify existing differences in State environmental quality statutes, stormwater programs, fisheries management, and coastal policies, but one that will have the power and wherewithal to map and enact coordinated legislative policy.

Lastly, the CCMP should be a living document, one that can and does adapt to changing or improved science. It has worn well with age, but there is need for review, refresh and recommitment. Within this context, the Citizens Advisory Council is embarking on sound vision, an effort to create a unified picture of our progress: what we have spent, where it has gone, the new issues that have arisen, what our next steps are, and what it might take to get to the envision. While section 119 requires that modifications to the CCMP be reported to Congress, it does not prescribe any mandated revisitation.

The management conference should be commended for recognizing the need to retrace the region's steps. However, a provision requiring a designium review and a revision of the CCMP would simultaneously create accountability, transparency and a consistent venue to incorporate adaptive management lessons.

It is true that challenges remain. However, in the last 5 years of LISRA, the region has made great strides. Stormwater pilot programs and miles of newly restored fish runs in Connecticut and two prominent cases of hard-fought coastal policy defenses in New York remind us that this is a region filled with innovation and willpower. If it can be done, it will be done; and we are confident that the reauthorization of LISRA will guide us through the key years of the CCMP and TMDL implementation.

Thank you very much for your time.

Ms. JOHNSON. Thank you very much.

Ms. Esposito.

Ms. ESPOSITO. Good morning, Members of Congress. Thank you very much for holding this hearing.

My name is Adrienne Esposito. I am the executive director of Citizens Campaign for the Environment. We are a bi-State organization with six offices throughout New York and Connecticut and 80,000 members.

I am going to just make three points. I do not want to be redundant. You have heard a lot. I think the point here is: What can you do? Well, thank you for asking. We do have some suggestions.

The first thing we need to talk about is funding. As you may know, two Federal laws allow there to be $65 million per year allocated to our Long Island Sound restoration programs. The Stewardship Act allows up to $25 million, and the Long Island Sound Restoration Act allows up to $40 million. These are not arbitrary numbers, but rather, these numbers were identified from the need.

What is the need to carry on those programs? Well, the need is $65 million per year. Ah, yes, but what have we received? Not that. In 2006, we were allocated $2.2 million; in 2007, $2.7 million, and in 2008, $5.5 million. We are receiving between 2 and 4 percent of the identified need.

Some Members of Congress recently in the U.S. Senate have said to me, Adrienne, why haven't we done better with restoring the Sound?

I said, Give us more. You will get more.

That is really the truth, but there is a bigger truth, and that is that the year-to-year way that funding is allocated acts as a roadblock to initiating some of the long-term projects that are needed to restore the Sound. From year to year, we do not know how much money we are getting. In some years, it was threatened we were not getting any at all; and when you do not know if you are going to get between $2 million or $5 million or $6 million, it is hard to start programs and projects that will take 4 and 5 years for the results to come in if you do not know if you are going to have funding 4 or 5 years down the line.

So we are asking Congress for two things. One is we need more money, but we also need for you to think differently about how you allocate money for our great water bodies. We need it in 3 to 5 years of increments, not year to year, because that has acted as a roadblock to the larger holistic programs that need to be implemented.

The second thing I want to talk about is lobsters. Why, you may ask? Well, the reason is that every water body has that one species that identifies and characterizes the water body. For that and for Long Island Sound, that is lobsters. I am sure Mr. Crismale will talk about that, being a lobsterman. But we want to say that the Federal Government, unfortunately, has been absent in the restoration of the lobster population, with the exception of funding that was provided in 1999 or the year 2000.

Maine has a successful V-notch program. New York has nothing. Connecticut, to their credit, has worked to emulate Maine's V-notch program and to put some local characterization on it. Every year, we battle in Connecticut to get the money for the V-notch program. It is in the budget. It is out of the budget. It is in the budget. It is not an expensive program; $300,000-$400,000 per year is needed for 3 consecutive years. New York does not have this program. We cannot V-notch half the lobsters that are on the Connecticut side and do nothing on the New York side. It does not work that way.

I hope you will agree with me when we say lobsters move, and they do not pay attention to the political boundaries. We need one V-notch program that will allow for the females to be thrown back into the water for 3 consecutive years so we can build up our lobster population. In the heyday, it was $40 million of resources. We believe this would not be an expenditure of funds but, rather, an investment of funds from our Federal Government.

The last thing I just want to mention that no one has mentioned yet is that the one thing the Federal Government can do is have a large-scale, cohesive, comprehensive, bi-State, public education campaign. It is not just the government's responsibility to care for

and protect the Long Island Sound. We have a job, too. The public needs to be enlisted, and yet they have not been so.

Let me just tell you that the Long Island Sound Study released a public perception survey back in 2006. It is not very good news. What the results found is that 90 percent of residents agree that humans severely are abusing our environment, but yet only 70 percent of the residents felt that they did anything that abused the environment, that they did nothing. So 70 percent felt that it wasn't their fault, it was the other people's fault. They also found that there wasn't anything that they could do to improve the quality of water on Long Island Sound, but their neighbors could do things that would improve the water.

So we are getting it a little bit as members of the public, but the public is not really engaged in how they can help and how their actions are meaningful in the protection of the water body. So whether it is not using fertilizers, not using unnecessary pesticides, disposing of waste—whether it is cigarette butts or the ubiquitous plastic bag—these are all things that people can be doing to enlist in protection of the Sound, and yet the message is not getting through.

Westchester County has done some good educational components, and so have many of the nonprofit sector, but really we need some Federal leadership in this area as well. Other great water bodies have this. The Chesapeake has unified messaging. We do not have that for the Long Island Sound.

So, if I had to choose three things, I would say to you we need consistent funding for 3- to 5-year intervals. We need a V-notch program that is sponsored by the Federal Government which helps our lobstermen and our lobster populations, and we need to engage and enlist the behavior of the public to change and become stewards of the water body.

Thank you for the opportunity to comment.

Ms. JOHNSON. Thank you very much.

Mr. Crismale.

Mr. CRISMALE. Good morning, Madam Chairman and Members of the Committee. I want to thank you for this opportunity to speak before your Committee this morning.

My name is Nicholas Crismale. I live in Guilford, Connecticut, and I have been a commercial lobsterman and shell fisherman in Long Island Sound for 37 years. I have so much to say and so little time to say it. In the interest to avoid a redundancy of my testimony, I would just like to highlight a few points.

Prior to a significant mortality event in 1999, the lobster fishery was the most important commercial fishery in Connecticut and Long Island Sound. In 2000, just after the mortality event in the fall of 1999, the U.S. Department of Commerce declared the lobster fishery in Long Island Sound a commercial fishery failure due to a resource disaster.

The general consensus of the Long Island Sound lobstermen was the mortalities were related to water quality and to the spraying of mosquito control pesticides during the West Nile virus crisis in the fall of 1999.

Following this mortality event, an initial assessment of the economic and human impact was conducted by Human Ecology Associ-

ates in January of 2000, and it found that approximately 70 percent of the western Sound lobstermen had lost 100 percent of their fishing income in the following year, and the remainder lost 30 to 90 percent of their income. The study also noted that, because of the severity and suddenness of the die-off, the lobstermen found it difficult to switch to other fisheries or to new vocations.

The basic fishing infrastructure of lobster wholesalers, bait dealers, equipment suppliers, restaurants, were all impacted. And to this day, the few remaining lobstermen have to travel out of State to get bait and supplies.

At present, the few remaining lobstermen in Long Island Sound are not optimistic about their future in the lobstering industry. What is happening to our lobster now is something that is pretty specific to Long Island Sound. You are not going to find some of these problems that we now experience in other northern waters, for example.

A recent study done, the economic assessment of a Connecticut commercial lobster fishery done by the Connecticut Sea Grant Program—and I just received this, so it was not in my testimony, and it was several survey questions. I just want to focus on survey question number 11, which asks: What do you envision for your fishery in 5 to 10 years?

The response of the majority of the fishermen was that most of the respondents felt that the industry would be extinct in 5 to 10 years or that it would continue to deteriorate.

The lobster from the eastern end of Long Island Sound continue to see a large percentage of their catch with shell disease. At times, 40 to 50 percent of their catch is affected. It is a disease whereby the lobster develops lesions and pitting on the carapace, caused by external bacteria that digest the minerals in the lobster's shell. Lobstermen believe that the coincidence of the continued use of chitin inhibitor pesticides to control moths and the compromising of the lobster's immune system prevent the lobster from producing the enzymes necessary to produce chitin, which is needed to harden its shell, not to mention the economic issue of attempting to sell a shell-diseased lobster to a wholesaler. They are not very appetizing looking creatures for a customer's dinner plate.

Preliminary data from a University of Connecticut researcher shows that female lobsters have a higher rate of incidence of shell disease in that affected females carrying fertilized eggs under their tails may molt prematurely before the eggs are released, ending any chance of larval survival.

Municipalities continue to use the pesticide methoprene to control mosquito larvae. They actually have programs where slow-release briquettes are placed in drainage basins to kill mosquito larvae. What happens is the pesticide eventually makes its way to Long Island Sound. This chemical is designed to kill mosquito larvae, which, very much like lobster larvae, the chemical impacts it. It does not discriminate between the anthropoids.

The lobster resource has all but disappeared from the near-shore areas of the central Long Island Sound basin. Since 1972 up until 1999, I and fellow lobstermen remember setting traps within a stone's throw of the shore areas, and now find the lobster popu-

lation has moved off to the areas more center to the Sound from the shoreline.

The Atlantic States Marine Fisheries Commission has determined that the southern New England lobster stock is depleted. However, overfishing is nonexistent, which can only lead to the conclusion that the stock is being impacted by water quality issues which are impacting the ecosystem; but this same determination of the ASMFC does not address the collateral impacts of water quality but, rather, chooses to implement regulations limiting the lobsterman's catch, which is already below the sustainable economic level of the fisherman.

What we will lose will be the true stewards of Long Island Sound—the lobstermen who fish their area-specific waters yearlong and who are the first to observe changes to the Sound and the ecosystem. In the last few years, the fish trawling industry has been all but eliminated, and the fresh fish brought in daily by these boats to local Connecticut ports is gone.

As we develop aquaculture programs in schools and encourage our children to seek involvement in the fishery, it is our obligation to ensure that those opportunities exist for them in the future. One has only to read ″Our Stolen Future″ by Theo Colburn and John Myers to be reminded how fragile our ecosystem is. And if we neglect action now, we will have eliminated our children's opportunities in these fields.

In closing, I believe we need broad acceptance of the fact that the sources of the problem are extremely difficult ones to address and will require sustained collaboration between administrative and regulatory agencies, legislatures, coastline residents, boaters, recreational and commercial fishermen, and those with commercial interests. Difficult choices will have to be made by surrounding communities, farming and other entities that impact sewage and nonpoint source water runoff if we are to sustain the ecosystem necessary to retain Long Island Sound's viability. I fear that Connecticut may get an unpleasant surprise one spring, finding that the fragile Sound that they look so forward to enjoying every year can no longer be utilized because we may breach the threshold at which the Sound can sustain living aquatic life.

I would like to leave you with one thought. When those pilgrims landed and Plymouth Rock, you don't think they survived on turkeys that they found on the beach that winter. They were lobsters.

Thank you very much, Madam Chair, and Members of the Committee.

Ms. JOHNSON. Thank you very much. I am going to yield to Mr. Hall for his questions. I know you have to leave.

Mr. HALL. Thank you, Madam Chair.

And thank you all for your testimony. I am also familiar with New Bedford, Massachusetts' problems with PCB contamination and their lobster population. And I guess I would concur with Ms. Esposito's comments about the need for an education program, which all of your agencies or nonprofit organizations can help with, and we in government at all levels of government need to help with.

This weekend I was fortunate to be able to announce, along with our State and D.C. officials, the planning of two stormwater control

runoff, filtration and retention programs that are being funded with stimulus dollars that came from the Federal Government to the State government through the counties and to the towns, one in Orange County, which runs ultimately into the Hudson, and one in Dutchess County. My hometown in eastern Dutchess County has a 10-mile river running through it that actually runs into Connecticut and winds up in Long Island Sound more directly. I have many questions, and more than we have time for, but I would ask first of all, maybe starting with Ms. Esposito, A, how do we go about getting people to realize that each individual, their family, and their children are a part of the ecosystem? This is not a situation where it is just a matter of lobstermen losing their livelihood; it is that we ultimately are all drinking the same water. In this past appropriations cycle, for the first time in the 2 years and 9 months that I have been here, the number one item we have been asking for has been water, either clean drinking water or wastewater treatment. And so you know, we are starting, even though it is further away from the Sound, to realize that whatever we put in the water, whether it is lawn chemicals or whatever we flush down our septic systems or municipal sewage treatment, sooner or later it all winds up in the same body of water. The water cycle continues on, and includes micro-contaminants, like the insecticides that we just heard about and prescription drugs and caffeine and acetaminophen and everything else. We never thought that we could affect the oceans in the manner we are. This is not even to mention what is precipitating out of the atmosphere. So how can we all collaborate to better inform the public that we are all literally connected and living in this environment together with the lobster? You know, our brother and sister lobster?

And second, how does this affect, or how does the projected sea level rise, this I guess would go to Mr. Scully and Mr. Tedesco first, how would we be affected by and how should municipalities plan for the projected sea level rise--say the medium scenario, not even the worst case scenario? I am hearing some pretty scary numbers in terms of infrastructure going underwater, boardwalks and promenades and shoreline, you know, towns where they beautified their waterfront and put restaurants and shops in pretty close to the water level. And what is likely to happen to them, not to mention railroad beds and highways? So this is part of the education process that needs to go on. It is not just education regarding contamination of the water, but all of us being involved in preventing the worst case climate change from happening so we don't see that level of sea level rise. And the same question to as many people as can answer in the next 38 seconds.

Ms. ESPOSITO. Well, I will just start with the public education question which you asked. And I would say, I mean, as a grassroots specialist for the last 25 years—I started when I was 10—I can tell you that the most challenging thing to do is to change public behavior. It is very difficult. However, it also reaps the best and the biggest rewards, because then you have sustained change.

And right now, we don't have any specific messages that we are giving to the public in a cohesive, collaborative manner throughout the Long Island Sound watershed. So to answer your question succinctly, I didn't mean to imply it would be easy, but I do mean to

imply it is doable, that we would have to have messages, much like a marketing campaign, that would empower the public to know that their actions matter and their actions do actually impact, either beneficially or adversely, the water quality in the Long Island Sound.

So we would need one message throughout the whole watershed, including New York and Connecticut, which is why I think we need some Federal guidance on this to have one message, to have one set of actions people can do that we start with. And once that starts to permeate and filter into the public action, we can expand it. But we need to start somewhere.

Mr. HALL. Madam Chair, if I may, could Mr. Scully and Mr. Tedesco answer briefly?

Ms. JOHNSON. Does someone else have a response?

Mr. SCULLY. Thanks for the opportunity. I can't say it any more succinctly what Adrienne said about the public education aspects of it that you correctly raise. With regard to the sea level rise concern that you raise, I think that is a daunting challenge. In New York, our State legislature created a Sea Level Rise Task Force that generated a report for policymakers to consider. It addresses all of the issues that you had raised—and they are daunting—about the implications of sea level rise and how the there are implications for every level of government and infrastructure along the waterfront, whether it be wastewater treatment or other. The significance of the economic implications having to redo infrastructure, it is just daunting.

So I think that—I have no real answer other than to say policymakers and government officials on all levels I think have a responsibility to try and keep that issue and the need to plan ahead front and center. And that is not going to be an easy thing to do, because as you know, particularly in a time of fiscal crisis, getting policymakers to focus on those types of issues, long-term planning as opposed to the crisis of the day, is inherently difficult and something we need to, as environmental agencies, try to keep focused on.

Ms. JOHNSON. Thank you very much.

Mr. Boozman.

Mr. TEDESCO. Just real briefly, change is here. Sea level is rising. Water temperatures are increasing. Some key things that we need to focus on are in the context of protecting habitat. We need to protect land that is upland of some critical tidal wetlands along the Long Island shoreline so that we can allow migration of these wetlands. We need to monitor changes in Long Island Sound so we can anticipate the types of changes and potential impacts that would occur. And we have a sentinel monitoring program being established to help us better forecast the kinds of changes that will occur in Long Island Sound. And third, we do need to have planning across Federal, State, and local levels. We have a project working with the State of Connecticut for the City of Groton to develop a climate change adaptation plan across all levels of government, working very closely on the local level, that could be a model then for other municipalities in Connecticut and in New York.

Mr. HALL. Thank you, Madam Chair.

Ms. JOHNSON. Thank you very much.

Mr. Bishop.

Mr. BISHOP. Thank you very much, Madam Chair, and thanks to all of the panelists for both your excellent testimony and also for the work that you have put in for a great long time in terms of improving the Sound.

My first question is for Mr. Tedesco and Mr. Scully. We know at least two things. We know that the majority of the nitrogen loading in the Sound comes from discharges from wastewater treatment plants, and we also know that a great many of our wastewater treatment plants are in need of upgrade or repair. And so my question is what, if any, coordination is there between the Long Island Sound Study office and the New York State Environmental Facilities Corporation, which as you know controls and allocates the funding for wastewater infrastructure projects? Peter, if we could maybe start with you and then Mr. Tedesco.

Mr. SCULLY. An honest answer, Congressman, is that I am not familiar with what level of coordination there is between the Long Island Sound Study and EFC. But clearly, it falls to us at DEC to implement the TMDL and the permit modifications for the wastewater treatment plants. So we are very much on top of that aspect of the wastewater treatment plant piece of this. And we know where the economic needs are in terms of phase two upgrades for some of the facilities. And we have been supportive of efforts by those owner-operators to obtain whatever financial assistance they can through EFC. I can't tell you what level of coordination there is between the Long Island Sound Study office. Mr. Tedesco may be able to do that.

Mr. BISHOP. Mr. Tedesco?

Mr. TEDESCO. I think one of the positive outcomes of the regulatory organization under the TMDL that has been established is that the priorities of the Long Island Sound Study have been incorporated fundamentally within the clean water programs of both New York and Connecticut. So speaking of New York, the needs regarding Long Island Sound are incorporated within the statewide need assessment in New York so that priorities are reflected within the Environmental Facilities Corporation funding. Some recent examples of that are some of the recent stimulus funding was directly applied to Long Island Sound, and it points out then the close cooperation—this was an example of both the Greenpoint plant in eastern——

Mr. BISHOP. Greenport.

Mr. TEDESCO. Greenport, pardon, Greenport in eastern Long Island Sound, as well as facilities in Westchester County, and also some of the facilities in New York City, where those funds were targeted at some of the wastewater treatment plant upgrades necessary for nitrogen removal.

Mr. BISHOP. With reference to the Greenport plant, let me just make a point. The stimulus has been roundly criticized by a great many. Greenport is a community with a year-round population of 2,200 people. They have their own wastewater treatment facility. They were under a court order to improve it. Through the stimulus package, they were able to get close to $4 million to upgrade that plant. It does not take a genius to figure out what the tax impact on 2,200 families would be of a $4 million obligation. This is an ex-

ample of the stimulus being used to both improve our environment and to relieve local tax burden. Quite the contrary from the way the stimulus has been presented.

Second question, I am running out of time, both the States of Connecticut and New York have made significant investment in improving and maintaining the quality of Long Island Sound. Both the States of Connecticut and New York, particularly New York, are in serious financial difficulty. Let me start with you, Commissioner Marrella. How do you anticipate the ability of your state to continue to fund Long Island study projects?

And then, Mr. Scully, if you could talk with respect to New York.

Ms. MARRELLA. Thank you for the opportunity to discuss that topic. I am actually very pleased to report that Connecticut is quite committed to clean water. Even in these tight times, we have continued with bond authorizations that are substantial for clean water improvements. We have general obligation bonds in fiscal year 2010 for $65 million and $40 million and fiscal year 2011 as well as revenue bonds of $80 million each year. That contrasts with the last recession cycle, where it went down to zero. So I think the commitment is there. And thanks to in large part our nonprofit organizations, who have continued to make clear how important this is. So I am confident that while the dollars won't be as substantial as they have been in the past, they are continuing, which is extraordinary in these economic times.

Mr. BISHOP. Thank you.

Madam Chair, could Mr. Scully just have 10 seconds?

Mr. SCULLY. I think I would generally echo what the commissioner said. There is no indication at all the State of New York would back away from its longstanding commitment to the Long Island Sound. One can't predict really what the budget situation will be like in the coming weeks and days ahead, but I think that as a State the administration is firmly committed to continuing its role.

Mr. BISHOP. Thank you very much.

Thank you for the indulgence, Madam Chair.

Ms. JOHNSON. Thank you. Mr. Tedesco, would you describe any relationship, formal relationship that you might have with Massachusetts, New Hampshire, and Vermont, in currently reducing the water quality impairments in the Sound?

Mr. TEDESCO. Currently, they have been working very closely with us. We have staff in all three States that have been working on a Connecticut River work group. They all do contribute nutrient pollution to Long Island Sound through the Connecticut River. Massachusetts also through the Thames and Housatonic Rivers. There are going to be some tough decisions ahead. They do contribute. They need to be part of the solution. And they need to be incorporated into a comprehensive program.

At the same time, they look—they have a host of other water quality needs, their own coastal waters, their own drinking water. And we need to develop a program that meets Long Island Sound's needs but takes into account, again, some of the flexibility needed to do it in a cost-effective, sensible manner. And as suggested, there are opportunities to try to expand the pollutant trading program so that, again, we make investments as wisely as possible, af-

fect the sources that have the greatest impact, allow them to be partners but in a way that makes economic and environmental sense.

Ms. JOHNSON. Thank you.

Mr. Scully, in your testimony, you noted that a number of Federal programs exist to support the restoration of the Sound. Are the Long Island Sound Restoration Act, the Long Island Sound Stewardship Act and the Clean Water Act's, section 119 and section 320 programs, fully seamlessly integrated? If not, should there be some other action to achieve this integration?

Mr. SCULLY. In my comments I spoke about the potential for consolidating two of the statutes into a single piece of legislation, something that the State would ask the Committee to consider. Past that, I am not familiar enough with it to make any specific recommendation.

Ms. JOHNSON. If there was a program that included Massachusetts, Vermont, and New Hampshire, do you feel we would have a comprehensive approach, or a single program, that everyone followed?

Mr. TEDESCO. Madam Chair, certainly I think, again, we need to have all States, all contributing sources at the table and contributing. It is no different than the challenge that I know you are familiar with in the Chesapeake Bay, where again a five-State solution is needed. For Long Island Sound, a five-State solution is needed as well.

Ms. JOHNSON. Thank you.

Ms. Esposito, on page 5 of your testimony, you state that there is no cohesive stormwater management plan for the entire Sound watershed. Would you describe what you had in mind that might achieve that?

Ms. ESPOSITO. Well, the first thing that comes to mind is that right now the stormwater management plans are really implemented by the local municipalities, whether it be a village or a town or the county. And it is really done kind of in a hodgepodge, mishmash fashion. And funding is applied for by the State. The State then allocates the funding. And then there is not even, for instance, Madam Chairwoman, a yearly report that would tell us what programs were implemented, where stormwater filtration devices were put in, and what kind of impact they have had.

We used in our testimony a model program in Norwalk which we felt reaped great results and can provide those results on a scientific basis. So I guess to answer your question, we would say that at least we could start with a yearly report telling us where stormwater filtration devices have been implemented, what kind of green infrastructure has been used to avoid the need for stormwater filtration devices, and what are the plans for next year. Even if we had that, it is a start. But right now, because of the localized municipal implementation, it is extremely difficult to get a handle on an overall stormwater program or programs that are being used right now for Long Island Sound.

Ms. JOHNSON. Thank you very much.

Congressman Boozman.

Mr. BOOZMAN. I guess the follow up to that would be—well, first of all, it seems like, as I said in the opening, there are some things

that you guys are doing really well. And we want to compliment you on that. I am going to ask about the TMDL, because it seems like that is one of the things that is working well. This, though, what you are referencing about doesn't seem to be working well. You know, if you have got reporting problems and things, and I will be honest, that is something that you mention that money is a challenge. I know it is in the States. It is a great challenge here also. And it has been a challenge for you, even in good times, relatively speaking. So I think probably the reality is that is going to continue to be the case. Not that you don't have very sympathetic ears.

But the other, you know, this is a difficult problem. I mean, that sort of thing is something that maybe you need to look to some of the other watersheds as to how they have come about and solved, you know, that problem of kind of getting everybody on the right page. Again, that is just local politics, and that is very, very difficult.

Tell me about the TMDL. Again, we have heard testimony from many watersheds and things and this and that. Your all's seems to be working. Why is it working better than some of the other areas that we have heard about?

Mr. TEDESCO. If I could just start, really, the State of New York and Connecticut deserve a lot of credit. The Long Island Sound TMDL is still the most comprehensive, complex TMDL in the Nation to my mind. It may be eclipsed shortly by one being developed for Chesapeake Bay, but the States of New York and Connecticut had the foresight to realize that that was a necessary approach, and to complete that in 2000. And it has been the guidepost then that can be translated into an enforceable program that sets clear expectations. We do—it has been pointed out by other panelists, it is not a solution for every challenge, and that there are many sources that are unregulated that do require educational approaches, local level commitment. And we need to remain focused on those elements and to improve the accountability structure so that we do know how well we are progressing toward elements that are not so easily regulated and enforced.

Mr. BOOZMAN. Is there any willingness—and this kind of goes back to the others—is there any willingness to expand, you know, have more, oh, a wider variety in regard to point and nonpoint in that regard? Are you getting a lot of push back? There was probably initial push back from the very start, wasn't there, you know, as did you this? But it does seem to be working.

Ms. MARRELLA. If I could, Madam Chair, I just would speak to the fact that definitely there was substantial push back, as Ms. Brown testified, from municipalities when they were brought under the trading program in Connecticut. A lot of conversation helped us to get to the right end point. There have begun to be discussions about whether additional sources should come under the trading program. That is just a start.

But one of the things I am most excited about, as was mentioned, which is a way to use oysters, seaweed, others as commercially viable options that can be natural ways to reduce nitrogen in the Sound, at the same time providing an agriculture, an aquaculture opportunity for the folks in Connecticut and New York.

Mr. BOOZMAN. Very good.

Mr. SCULLY. If I could mention, the only thing I would add is you would envision that the most significant concern of local government officials who are responsible for the wastewater treatment plant upgrades would be the economic implications of that. And in New York, using the 1996 Clean Water Clean Air Bond Act, what the state did was use a carrot and a stick approach, basically explained to folks that these modifications are required to protect the Sound but at the same time making substantial grant awards to the people who are responsible for making the upgrades. And as we move now to focus on stormwater as the next big challenge, I think we are going to be facing those same types of concerns. And that is the reason we raised stormwater as the next big challenge. The implications for local government are also significant.

Ms. BROWN. I would like to just pick up on something that Commissioner Marrella said, because I think it is really significant. For a long time developers did away with salt marshes and wetlands. Those wetlands not only allowed for natural nutrient removal, sediment traps, pathogen traps, and nurseries for fishermen. And I think that is one of the big things that needs to be looked at is restoration of salt marshes and critical areas like that.

Mr. BOOZMAN. Good. Well, thank you very much. I have enjoyed the testimony and really gotten a lot out of it.

You know, something that we might do, Madam Chair, fearless leader, we really have, you know, we have had a lot of different testimonies now from lots of different watersheds. We might consider at some point having some sort of a conference, you know, on getting them together and getting us together with them. And like I say, I am always struck one area seems to be doing such a good job and then struggling in another area. If we could get everybody sitting around the same table maybe talking about some of these things, it might be a good thing to do.

Ms. JOHNSON. Thank you.

Ms. ESPOSITO. Could I just comment on that?

Mr. BOOZMAN. Yes.

Ms. ESPOSITO. I wanted you to know, in case you were unaware, to date, the environmental community already has had a conference, working to come up with ideas to address America's great water bodies. And we are in the very beginning stages of working across the Nation, from Puget Sound to the Everglades to Long Island Sound, of bringing together the nonprofit communities that have worked to restore and preserve the great water bodies.

So to do it in collaboration with you would be most ideal, I think beneficial, and would really help to move all of our agendas forward, which is eventually to restore and protect these water bodies. So I would encourage you to do so. Thank you.

Ms. JOHNSON. Thank you very much. Let me just ask each of you to comment on what you would like to see, or what policy changes would you like to see us make as we consider reauthorizing the Clean Water Act as it relates to the Long Island Sound program?

Mr. TEDESCO. Madam Chair, I already mentioned in my testimony one which seems like a very minor fix, but it points to the need that the solution, as mentioned by some of the other panelists, has to be integrated in that we need to work effectively across

many Federal agencies. So that little fix that I had suggested in terms of expanding the cooperative authorities to make sure that we have the ability to work effectively with other Federal agencies so that we are focusing on clean water, restored habitats, and healthy and vibrant living resources together is what is needed to really restore Long Island Sound.

Ms. MARRELLA. Thank you, Madam Chair.

I would just like to piggyback on Ms. Esposito and say that I fully support the funding to the $65 million figure, as well as multi year funding. And I also would support bringing the other States to the table that impact the Sound. They do not have as much daily responsibility, but they certainly contribute. So a forum for that discussion would be helpful.

Ms. JOHNSON. Thank you.

Mr. SCULLY. I agree with the commissioner's comments. We do think that the—you know, these are regional programs that are ground-up in nature, and that the real critical need for the program, which is working, is resources, and resources that are repeating over a multiyear period, as has been suggested by Ms. Esposito, because some of the research needs to take place over several years or it would have no value. So finding a way to address that multiyear need I think would be critical.

Ms. BROWN. I would like to see funding for public education and mandates for public education. As was stated earlier, the public does not many times understand the impact that they have on a body of water. And if we could mandate somehow that communities must introduce public education programs in order to be eligible for whatever I think is a very critical item. And to the conference, I am sure the Water Environment Federation would be very happy to help put something together. I think it is a great idea.

Ms. SCHMALZ. I think I would reiterate the multistate approach to the watershed. I think the Long Island Sound Study has done a fantastic job of trying to incorporate watershed management in Long Island Sound between New York and Connecticut, and reaching up into the reaches, and I think it is about time that those States step up and join the party.

Ms. ESPOSITO. Three things. I, agree multistate involvement; it is called ecosystem-based management. Our Nation is moving towards ecosystem-based management, which means a holistic approach for our oceans and our estuaries. Long Island Sound could be a leader in this.

Number two, again with the public education, I agree, but it needs to be cohesive. It needs to be a cohesive message to maximize public involvement. Handing out a brochure just doesn't cut it.

And the third one of course is 3- to 5-year blocks of funding so that the large tasks can be completed from beginning to end and have meaning and substance in the restoration process.

Mr. CRISMALE. I can only speak on behalf of the lobster industry in Long Island Sound. We do have agencies that can take care of the Long Island Sound restoration, but what I am interested in is Long Island Sound V-notch program. The industry has put together along a collaborative effort with legislatures, industry, and departments, the DEP in Connecticut, a great program, an unprecedented

program throughout New England that has been monitored by other fisheries.

I am a member of the Lobster Institute, on the advisory panel, and they closely monitored this. Unfortunately, we didn't receive the funding in time. But this has an education component. I mean, we had the kids on the boat. And this is where education begins. You want to educate the public, then let's educate the students. And where to best do this is in our aquaculture schools. We put the kids on the boat. They provide much-needed information to DEP and the DEC to make administrative decisions. This program, for $300,000, we were looking for. We needed this program. I know it is a lot of money in this economic climate, but look at the value you are getting for it: sustainability for an industry, an education component, and much-needed information to make the proper decisions for our fisheries in Long Island Sound. Thank you very much.

Ms. JOHNSON. Thank you very much. Let me say thanks to all of you for coming. We will be happy to receive any additional information that you might have.

And I would really request that you let us see the final document, Ms. Esposito, of the group's recommendations.

Ms. ESPOSITO. Okay. Great.

Ms. JOHNSON. Thank you so very much for coming. Committee adjourned.

[Whereupon, at 12:30 p.m., the Subcommittee was adjourned.]

STATEMENT OF
THE HON. JOHN BOOZMAN
HEARING ON

"PROTECTING AND RESTORING AMERICA'S GREAT WATERS: THE LONG ISLAND SOUND"

OCTOBER 6, 2009

- The Subcommittee is meeting today to hear testimony about a long-standing program under the Clean Water Act that is aimed at helping to restore and protect the Long Island Sound.

- Long Island Sound is unique and a highly productive estuary that is important to the ecological and economic bases of our nation.

- Fisheries, wildlife, recreation, and tourism are heavily dependent on a healthy Long Island Sound and other estuarine systems.

- Yet, despite its value, most estuaries in the United States, including Long Island Sound, are experiencing stress from physical alteration and pollution, often resulting from development and rapid population growth in coastal areas.

John Boozman

- In the 1980s, Congress recognized the importance of, and the need to protect, the natural functions of our nation's estuaries.

- As a result, in 1987, Congress amended the Clean Water Act to establish the National Estuary Program.

- The National Estuary Program identifies nationally significant estuaries that are threatened by pollution, land development, and overuse, and provides grants that support development of Comprehensive Conservation and Management Plans to protect and restore them.

- The Program is designed to resolve issues at a watershed level, integrate science into the decision-making process, foster collaborative problem-solving, and involve the public.

- Unlike many EPA and other federal programs that rely on conventional "top-down" regulatory measures to achieve environmental goals, the National Estuary Program uses a framework that focuses on stakeholder involvement and interaction in tailoring solutions for problems that are specific to that region, in order to achieve estuarine protection and restoration goals.

- Since its inception, the National Estuary Program has been a leading example of a collaborative institution designed to resolve conflict and build cooperation at the watershed level.

- Today, the National Estuary Program is an ongoing, non-regulatory program that supports the collaborative, voluntary efforts of stakeholders at the Federal, State, and local level to restore degraded estuaries.

- Currently, Long Island Sound is a part of the National Estuary Program, and is implementing restoration plans developed at the local level through a collaborative process.

- The National Estuary Program has been beneficial in improving and protecting the condition of the estuaries in the Program, and the Program shows that a collaborative, voluntary approach can provide an alternative to a sole reliance on traditional, command-and-control mechanisms.

- I look forward to the testimony of our witnesses today and hearing about the progress of the Long Island Sound program and how the National Estuary Program is working and ways the Program can be further improved.

OPENING STATEMENT OF
THE HONOROABLE RUSS CARNAHAN (MO-03)
HOUSE TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

Hearing on
Protecting and Restoring America's Great Waters: The Long Island Sound
Tuesday, October 6, 2009
2167 Rayburn House Office Building

Thank you, Chairwoman Johnson and Ranking Member Boozman for holding this hearing to understand the current state of the Long Island Sound and ways to strengthen federal programs to address continuing impairments.

The Long Island Sound is surrounded by some the most densely populated across the country. As a result, the Sound is unique from many other estuaries because it primary impairments are due to the urban communities surrounding it. As a result, we must have a unique approach to the restoration the Sound which takes these challenges into account. The EPA working closely with both New York and Connecticut has made progress in developing a region specific plan for restoration of the Sound. The Long Island Sound Study authorized by the Clean Water Act to develop and coordinate restoration efforts in the Sound.

One of the main focuses of the Long Island Study has been hypoxia, which remains the most serious water quality program in the Sound. Hypoxia is caused by excess nutrients such as nitrogen. As a result of this excess nitrogen the Sound experiences periods of severe hypoxia annually. Most of this excess nitrogen in the watershed is a direct result of human activities. In fact, it is estimated that human activities in the watershed account for more than 400 percent increase over natural nitrogen loadings. There is still work left to be done to reduce hypoxia in the Sound.

Finally, it is critical to address the impact global climate change is having on the Sound. Much of the decrease we see in the Sound's wetlands can be contributed to global climate change. Additionally, as a result of climate change there has been a decline many of its fish and shellfish populations. In the 1980s, recreational fishing landed more than one million catches of winter flounder. However, in 2007 this number was only 5,000.

In closing, I want to thank our witnesses for joining us today and I look forward to hearing their testimony.

Statement of Rep. Harry Mitchell
House Transportation and Infrastructure Committee
Subcommittee on Water Resources and Environment
10/6/09

--Thank you Madam Chairwoman.

--The Long Island Sound is an estuary that is clearly under great stress.

--Tidal wetlands and eelgrass are declining, and the loss of habitat is having a negative impact on the local ecosystem.

--Many fish and shellfish populations have declined dramatically. This is especially true when it comes to lobsters. Whereas nearly a decade ago, we saw annual catches of nearly 12 million pounds of lobster, today we're down to nearly 2 million pounds.

--I look forward to hearing from our witnesses today about what we can do to improve the health of the Long Island Sound. At this time I yield back.

James L. Oberstar

STATEMENT OF
THE HONORABLE JAMES L. OBERSTAR
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
HEARING ON THE PROTECTION AND RESTORATION OF AMERICA'S GREAT WATERS:
THE LONG ISLAND SOUND
OCTOBER 6, 2009

Thank you, Madam Chairwoman, for holding today's hearing on efforts to restore one of America's great waters – the Long Island Sound.

The Long Island Sound, fed by tributaries of New York, Connecticut, Vermont, New Hampshire, Rhode Island, and Massachusetts, is one of America's great water bodies. Nestled between coastal Connecticut and the northern shores of Long Island, the Sound is a place of recreation for the 20 million ~~individuals that~~ people who live within 50 miles, as well as a center of recreational and commercial fishing from many of its seaports and harbors.

The Sound, sadly like many of its estuarine brethren, also serves another role: as the terminal outfall for the collective stormwater and wastewater systems of the associated watershed. The Long Island Sound distinguishes itself from many other estuaries in that its impairments are primarily dominated by urban inputs. Where a watershed like the Chesapeake Bay is impaired due to a whole host of factors – agricultural, urban and suburban runoff, and wastewater – the Sound's impairments are much due to the highly populated urban centers that ring the Sound. As such, remedies and approaches for restoring the Sound must be cognizant of, and applicable for this specific estuary.

The U.S. Environmental Protection Agency, in close tandem with the States of New York and Connecticut has already started down this path of region-specific solutions towards restoring the Sound. In 1994, the Long Island Sound Study

National Estuary Program formally submitted its collaborative management plan. The importance of this effort was underscored earlier this decade when Congress enacted Section 119 of the Clean Water Act, authorizing a Long Island Sound program. The authorization for this program expires in 2010. Our Committee now has an opportunity to determine what has worked in the implementation of Sections 320 and 119, and to build upon successes. And we must continue forward as the disturbing facts remain that the waters of Long Island Sound are warming, that its valuable lobster populations continue to decline, and that hypoxia has yet to fully unclench its suffocating grasp.

A new concern facing the Long Island Sound is the impact of climate change. As with many elements of global warming, the impacts are multi-faceted. In an immediate sense, the sea temperature of the Sound increased by an average of 2 degrees Fahrenheit between 1972 and 2002. This warming not only impacts the aquatic ecosystems of the Sound, but it also can result in an increased propensity towards hypoxic conditions. Climate change, too, can also result in increased sea level rise which will not only overcome coastal habitats, but will also result in salt water intrusion that will affect drinking water supplies, and will also threaten our precious coastal infrastructure: ports, roads, and water treatment facilities. The Long Island Sound Study is one of a handful of estuaries chosen by EPA to be part of their Climate Ready Estuary Program. I am interested in learning more about the results of this initiative to determine whether its lessons should be more broadly applied.

The Sound's fish and shellfish populations continue to be under threat. In the early 1980s, recreational fishing landed more than one million winter flounder, but in 2007 only 5,000 of the fish were caught and kept. Simply put, the population crashed. And very importantly for both the culture and economy of the region, the population

of lobsters has seen precipitous declines. In 1997, the harvest was worth $40 million to the region. Two years later, in 1999, the catch had declined to $7 million and has seen little recovery since then. In actuality it is likely that a number of factors are involved with the collapse of the Sound's lobster fishery. One of the central objectives in reviving this once verdant estuary is to restore water quality – a central condition for a healthy ecosystem.

While hypoxic conditions have improved in the Sound, it remains the central water quality impairment issue. While some nitrogen run-off occurs naturally, human activities in the watershed account for an estimated 400% increase over natural nitrogen loadings. These nutrient loadings are largely a product of the massive amounts of nitrogen flushed into the system via stormwater outfalls and through wastewater facility discharges. Excess nitrogen loadings also occur through the process of atmospheric deposition. Conditions in the Sound have improved as a result of steps taken by the EPA and the States of New York and Connecticut. But there is no doubt that hypoxia remains the major issue in the Sound. In 2007, hypoxia lasted 58 days at its peak, and affected 162 square miles, an area that is four times the size of Manhattan.

Reauthorizing Section 119 of the Clean Water Act presents an opportunity for this Committee and the Congress. Of course, the immediate goal of the reauthorization will be to restore, and then protect, the Long Island Sound. But the reauthorization of this regional program also offers us an opportunity to experiment with new approaches to water quality protection and watershed and estuarine restoration. Through its Nitrogen Credit Exchange program, the State of Connecticut has dramatically reduced nitrogen loadings into the Sound, on schedule, and for a cost-savings of millions of dollars. The State of New York also has an innovative

approach to reducing nutrient discharges from its wastewater treatment facilities. We need to look at these programs and replicate what works – and take advantage of this time to make improvements. As I noted earlier, urban and suburban stormwater is one of the greatest drivers for estuary impairment in the region. We need new approaches for effectively tackling – in a cost-effective manner – these widespread sources of pollution.

Today's hearing sets the stage for the resuscitation of the Sound. I look forward to today's testimony and suggestions for improving a program that is on its way to a successful consummation.

Protecting and Restoring America's Great Waters: The Long Island Sound

TESTIMONY OF

JEANETTE A. BROWN, P.E., BCEE, D.WRE, F.ASCE

EXECUTIVE DIRECTOR, STAMFORD (CONNECTICUT) WATER POLLUTION CONTROL AUTHORITY

STAMFORDWPCA

VICE PRESIDENT, WATER ENVIRONMENT FEDERATION

Water Environment Federation®
the water quality people®

BEFORE THE

WATER RESOURCES AND ENVIRONMENT SUBCOMMITTEE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

U.S. HOUSE OF REPRESENTATIVES

OCTOBER 6, 2009

Stamford Water Pollution Control Authority
Harbor View Ave.
Stamford, CT 06902
203.977.4590

Good morning, Madam Chair and Subcommittee Members. My name is Jeanette Brown and I am the executive director of the Stamford Water Pollution Control Authority one of the largest wastewater utilities in Connecticut. I am also the Vice-president of the Water Environment Federation which is devoted to the preservation and enhancement of the global water environment[1]. WEF has many committees involved with nutrient removal issues including design, operations and control, nutrient trading and environmental impact. Nutrient removal is one of the biggest challenges faced by our technical community.

I am honored to be here today to discuss the Connecticut Nitrogen Credit Exchange Program and its impact on the water quality of Long Island Sound. The Stamford Water Pollution Control Authority provides advanced wastewater treatment for a community of 100,000 people. As an engineer, and a water professional, I am a steward of the environment and very proud of the job we do providing an essential community service and protecting the water quality of Long Island Sound. Since the late 1980s I have been spent a great deal of time working on ways to optimize nitrogen removal not only to benefit Stamford and Long Island Sound but also the wastewater community at large.

Long Island Sound's (LIS) most pressing water quality problem is over enrichment of nutrients, specifically nitrogen that leads to greatly reduced levels of dissolved oxygen in the bottom waters on the western side of the Sound. . Nitrogen

[1] Formed in 1928, the Water Environment Federation (WEF) is a not-for-profit technical and educational organization with 36,000 individual members and 75 affiliated Member Associations representing water quality professionals around the world. WEF and its Member Associations proudly work to achieve our mission of preserving and enhancing the global water environment.

stimulates the growth of microscopic algae that are either consumed, passing through larger zooplankton and fish, or die, ultimately sinking to the bottom of the Sound as animal waste and dead algae, that undergoes microbial decay. During decay, oxygen is consumed. Because Long Island Sound is stratified during the summer, meaning the upper and lower waters are not mixed, bottom water oxygen replenishment is limited. The oxygen consumption from microbial respiration far exceeds oxygen replenishment from photosynthesis and wave action. This results in severe hypoxic conditions with dissolved oxygen levels well below those allowable according to State Water Quality Standards. Low oxygen levels, or "hypoxia" typically occur during the July through September period. These conditions are inadequate to support healthy populations of fish and shellfish because they disrupt the feeding, growth and reproduction of nearly all forms of aquatic life. Primary sources of nitrogen include municipal wastewater treatment plant discharges, atmospheric deposition and runoff from urban, suburban and agricultural areas.

The federal Clean Water Act requires that the State establish Total Maximum Daily Loads (TMDLs) for all waterbodies that do not meet minimum State Water Quality Standards, such as Long Island Sound. Once the State establishes a TMDL, federal law requires that the TMDL be reviewed and approved by the US Environmental Protection Agency (EPA). In April 2001, EPA approved Connecticut and New York's jointly submitted TMDL to address the impairment of Long Island Sound water quality that results from excessive nitrogen loading. The TMDL establishes the maximum loading ofr nitrogen that Long Island Sound can assimilate without causing impaired water

quality, apportions that maximum loading among sources, and lays out a plan to achieve the loading reductions necessary to meet Water Quality Standards.

In the TMDL, discharges from municipal wastewater treatment plants, stormwater runoff and atmospheric deposition, the primary sources of nitrogen enrichment in LIS, are targeted for control. The TMDL requires that the two states, by 2014, achieve a 58.5% collective reduction of nitrogen loading from point discharges and urban and agricultural runoff sources to LIS from an established baseline. The State of Connecticut the established a 64% reduction goal was set for Connecticut wastewater treatment plants through a wasteload allocation (WLA) process. There are 79 publicly owned treatment works(POTWs) in Connecticut, which vary considerably in size, complexity and age. Under the General Permit, the effluent discharged from these plants must in aggregate meet the required annual nitrogen load limit.

Nitrogen "trading" was identified as a mechanism for cost-effectively attaining the aggregate goal for Connecticut wastewater treatment plants. Public Act 01-180, codified in the Connecticut General Statutes in Sections 22a-521 through 527, established a Nitrogen Credit Exchange Program overseen by a Nitrogen Credit Advisory Board and authorized issuance of a Nitrogen General Permit. Collectively, the Nitrogen General Permit, the Nitrogen Credit Exchange (NCE) Program and the Nitrogen Credit Advisory Board form the foundation for the nitrogen-trading program instituted by Connecticut in 2002.

The program provides an alternative compliance mechanism for the 79 POTWs located throughout the state, and is completing its seventh annual credit exchange based on 2008 operations. The program is an incentive-based approach, enabled through

legislation passed by the Connecticut General Assembly in 2001, organized under the authority of a State Of Connecticut general permit for nitrogen and overseen by an independent Nitrogen Credit Advisory Board (NCAB), which represents both state agencies and the participating municipal interests. I have served as a member of the advisory board since its inception.

The NCE has proven to be a flexible, cost-effective approach for meeting the regulated nitrogen load allocation under an accelerated schedule, and its structure has demonstrated capability with minimal administrative burden. It provides one of the few mature examples of water quality credit trading with a successful track record. Further, it has promoted economic, policy and regulatory understanding of how water quality trading can work, serving as a model for EPA policy and other water quality trading programs. In recognition of the NCE success, EPA awarded its first Blue Ribbon for Water Quality Trading to the Connecticut program in 2007.

When the trading program was proposed, several municipalities were opposed to it. The Connecticut Conference of Mayors President Dan Malloy, Mayor of my own city of Stamford, conducted several meetings between municipal government leaders, treatment plant managers and the state environment agency. Although initially some smaller municipalities opposed the program, once they understood the benefits to smaller towns, they supported it. The concern primarily was for the towns that did not discharge directly to LIS. Nitrogen in the effluent from a plant in the northwest corner of the State has considerably less of an impact on dissolved oxygen in western Long Island Sound than that from a nearby plant. That impact is defined in the Public Act as follows:

- Equivalency factor is the ratio of the unit response of dissolved oxygen to nitrogen in Long Island Sound for each POTW based on the geographic location of the specific POTWs discharge point divided by the unit response of the geographic area with the highest impact.
- Equivalent pounds means the actual pounds of nitrogen discharged by a POTW multiplied by the equivalency factor for that POTW.

The equivalency factor adjusts those discharges that have the highest impact on water quality and creates an even platform for all participants. For example, Stamford, in southwestern Connecticut, discharges directly to Long Island Sound and has an equivalency factor of "1" whereas Putnam (in the northeast corner of Connecticut) has an equivalency factor of "0.14".

Equivalency factors are used to calculate the waste load allocation for each plant and the money a town receives for selling credits or spends to purchase credits, resulting in tangible business data that can be used to determine when a treatment facility upgrade for nitrogen removal is economically viable.

The Stamford treatment plant receives wastewater not only from Stamford, but also from the neighboring town of Darien. In December 2001, Stamford began a project to upgrade and expand the treatment plant at a cost of $105 million of which approximately $50 million was devoted to nitrogen removal. As mentioned earlier, Stamford discharges to the "hot spot" in Long Island Sound. Mayor Malloy felt it was critical to the health of Long Island Sound that we procede with the upgrade quickly. The major selling point to the various governing bodies which were responsible for

appropriating funds was in part the nitrogen credit trading program and the fact that we would receive some off-setting revenue.

The Stamford treatment upgrade was completed in late 2005 and by mid-2006 was removing considerable amounts of nitrogen. The following table shows the incremental cost of removing nitrogen at the treatment plant and the off-setting revenue from selling nitrogen credits.

Year	Total O&M Cost/Yr	Total O&M Cost/MG	Price of Credit	Total Revenue	% Coverage
2006	$866,986	$135	$3.40	$393,397	45
2007	$1,175,989	$178	$4.36	$681,117	58
2008	$1,295,601	$199	$4.50	$939,510	73

As indicated between 45 and 73% of the incremental cost of operation and maintenance for nitrogen removal is covered by the revenue obtained by selling credits. After working with the nitrogen trading program for the past six years, I am totally supportive of the program, not just because we are sellers of credits but because the program is an economical and fair way of meeting water quality standards. It is important to understand that municipalities have to comply with environmental regulations whether or not they can afford to do them. In Connecticut, the treatment plants are required to remove nitrogen and soon many of them will be required to remove phosphorus. We are fortunate that there is some funding available to help offset the capital costs, but communities are responsible for 70% of the cost of the improvements which can result in significant debt service and the higher operation and maintenance costs associated with advanced treatment. Furthermore, there is no help with operation and maintenance costs which are relatively high as can be seen from the table above.

One value of the trading program is that it helps off-set the operation and maintenance costs incurred by communities which have gone forward with these upgrades and thus reduces the user charge imposed on the residents. However, a second benefit is that it allows the municipality to choose what they want to do. LIS does not care where the nitrogen comes from but only the total amount entering it.

Upgrading treatment plants is expensive and there is limited grant money available to help offset improvements. The State provides a 30% grant for nitrogen related upgrades and 2% interest loan rate for the balance (70%) of the cost. Even with a 30% grant, many communities cannot afford the debt service and the higher operation and maintenance costs associated with advanced treatment. The trading program allows these officials to evaluate the cost of upgrading versus the cost of continually purchasing credits. In some cases, town officials are putting off upgrades for a short period of time (five years); in other cases, they determined that it is more economical to purchase credits long term. For Stamford, the decision was easy. Because of its location, the choice was to upgrade the plant to achieve high removal of total nitrogen and becoming a major seller of credits.

Point Sources vs Non-Point Sources

To this point, I have been focusing on point sources (discharges from POTW's), but there is a major concern about how we deal with nutrients and pollutions being carried in non-point source run-off (stormwater). This is a critical issue that does not have an easy fix and will cost significant amounts of money.

As mentioned earlier, excess nutrients, namely nitrogen (N) and also phosphorus (P), cause water quality problems (impairments) in many freshwater and coastal areas. The most common problem associated with these excess nutrients is anthropogenic eutrophication of waterways (streams, rivers, lakes, and estuaries). These problems can occur in small localized areas, such as toxic bluegreen algae blooms in farm ponds, to widespread coastal eutrophication problems, such as dramatic declines in fisheries, habitat, and marine life in large ecosystems like LIS, Chesapeake Bay, Puget Sound, the Gulf of Mexico, and the Great Lakes. Nutrient discharges from POTW's can contribute to these impairments. In some instances, however, POTW contributions are an insignificant portion of the problem. Reducing or even eliminating POTW discharges therefore may, or may not, result in a significant reduction in anthropogenic eutrophication for any individual or downstream waterway. Control of nutrients in POTW discharges is therefore not a "one-size-fits-all" solution.

PS v. NPS: Sparrow Results for 40 Watersheds to Major Estuaries

For example, a comprehensive assessment of the different sources of N for 40 watersheds of major estuaries of the conterminous United States was conducted by the U.S. Geological Survey. This assessment used a nationally calibrated empirical watershed model, SPARROW (Spatially Referenced Regression on Watershed attributes) to evaluate N loads from the atmosphere (Alexander et al. 2001). As part of this assessment, N loads from point sources, fertilizer, livestock, and nonagricultural nonpoint

sources[2] were also evaluated, as shown in Table 5.1. This assessment revealed that 4 to 35 percent of the TN delivered by the watershed was from atmospheric sources and that the highest percentages were in the northeastern and mid-Atlantic portions of the United States. Relevant to this discussion, point sources (on average) made up less than 13 percent of the TN delivered to the estuaries.

Table 5.1 Range in Percentage of Total Nitrogen Export from Drainages of Major Estuaries of the Conterminous United States

Sources	Minimum	Median	Maximum
Atmosphere	4%	14%	35%
Point Sources	1%	13%	88%
Fertilizer	1%	21%	67%
Livestock	0%	7%	44%
Nonagricultural Nonpoint Source	6%	27%	75%

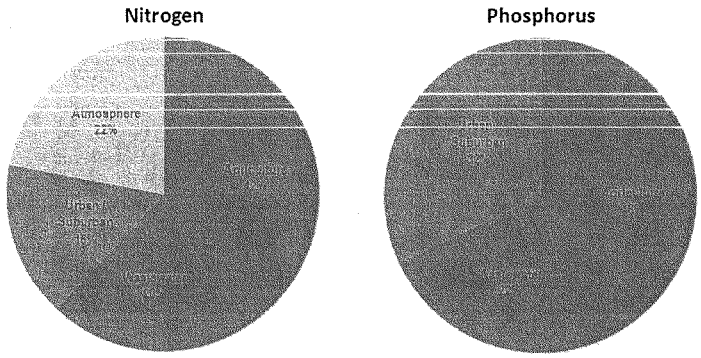
Adapted from Alexander et al. 2001. Table 4. pp. 138-139

Chesapeake Bay: PS v NPS Nutrients

[2] Nonagricultural sources in SPARROW include nitrogen entering streams via runoff and subsurface flows from wetlands as well as from urban, range, forested, and barren lands (Alexander et al. 2001, p. 132).

Although nutrients are naturally present in the ecosystem, the Chesapeake Bay's problems with eutrophication are a result of anthropogenic nutrient loads from point and nonpoint[3] sources. The point sources in the watershed are largely wastewater treatment plants. Nonpoint sources primarily include agricultural runoff and urban and suburban storm water runoff. More than three-quarters of the nutrient pollution to the Bay comes from nonpoint sources. In 2008, only 20% of the N loads and 22% of the P loads were from wastewater treatment plants (Figure 5.7) (Chesapeake Bay Program 2009).

Figure 5.7 Sources of Nitrogen and Phosphorus Pollution to the Chesapeake Bay in 2008



Source: Chesapeake Bay Program 2009.

[3] Urban storm water runoff for Phase I and Phase II communities is considered a point source under the Clean Water Act. For the purposes of the discussion of the Chesapeake Bay, urban (and suburban) storm water runoff will be considered as nonpoint sources.

All of the states within the watershed are nonpoint source dominant. Only the District of Columbia generates more N and P from point sources than nonpoint sources. The largest source of nonpoint source pollution is agriculture, and this remains true throughout each individual state, with the exception of the District. But although agriculture is currently the largest source, runoff from urban lands is a growing source of nutrient pollution. The Bay watershed is experiencing significant population growth, and the urban lands are growing at speeds many times faster than the population. From 1990 to 2000, the population in the Chesapeake Bay watershed grew by 8%, yet impervious surface cover increased by 41% (Chesapeake Bay Program 2009). As shown in Figure 5.8, wastewater treatment plants have met 67% of the targeted N reductions and 91% of the targeted P reduction; however, loads from nonpoint sources are getting worse. Nonpoint source pollution reduction from urban and suburban lands is therefore a top priority for Bay restoration.

Relative Contribution of Point and Nonpoint Sources in the Gulf of Mexico

Nonpoint sources were estimated to contribute approximately 90 percent of the N and P discharging to the Gulf of Mexico (Goolsby et al. 1999). Of this, fertilizer plus mineralized soil organic nitrogen represented half of the delivered N load to the Gulf, each contributing about 25 percent of the annual total. Atmospheric deposition, groundwater discharge, and soil erosion (associated with MARB runoff) were estimated to contribute 24 percent of the delivered N load. Animal manure was estimated to contribute about 15 percent of the delivered N load. Point sources were estimated to deliver 11 percent of the delivered N load. For phosphorus, Goolsby et al. (1999) estimated that 41 percent was from runoff, 31 percent of the delivered P load was from

fertilizer, 18 percent from manure, and 10 percent from point sources. In basins with high phosphorus yields, 85 to 90 percent of the phosphorus was in particulate form, indicating that sediment was the principal source of phosphorus.

Summary

As the above testimony indicates, I strongly believe that Connecticut's NCE program is a cost-effective and administratively viable approach to addressing nitrogen discharges from wastewater treatment facilities. I would recommend a similar program for other parts of the watershed.

Also, as WEF's Vice-President, I would note that beyond Connecticut/Long Island Sound, watershed-based trading is a potentially cost-effective and efficient approach to achieving and maintaining water quality goals and providing net water quality benefits through pollutant load reductions. WEF's position is that innovative programs such as effluent trading need to be expanded by removing legal obstacles that limit their use.[4]

Better controlling nutrients is a major water quality challenge impacting our Nation's ability to meet our clean water goals. WEF is committed to helping advance nutrient controls. We are currently preparing a technical document on nutrient removal technologies at secondary treatment plants to help EPA address this issue. WEF also recently sponsored a very successful Nutrients Conference in Washington, DC. We believe that, in addition to decreasing discharges from wastewater treatment plants, nutrient control must also include continued efforts to improve nonpoint source and

[4] March 2001 WEF position statement: "WEF and the Clean Water Act"

stormwater management. WEF is ready to help foster stakeholder dialogues on future directions for stormwater and NPS programs under the Clean Water Act

Statement of Nicholas Crismale

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Statement of Nicholas Crismale:

First of all, Madame Chairwoman, I want to thank you for this opportunity to speak before your committee. My name is Nicholas Crismale I live in Guilford, CT and I have been a commercial lobsterman and shellfisherman in Long Island Sound for 37 years. I am President of the Connecticut Commercial Lobsterman's Association, a member of the Lobster Advisory Committee for the Atlantic States Marine Fisheries Commission, a member of the advisory panel of the Lobster Institute at the Univ. of Maine, a member of the fisherman's and Scientist's Research Society of Canada, a CT Lobster Industry Representative on the Steering Committee for lobster disease research, and CT's Chairman of the Area 6 Lobster Committee Management Team.

I. The Beginning of the End

Prior to a significant mortality event in the Fall of 1999, which I will discuss further in just a bit, the lobster fishery was the most important commercial fishery in CT in Long Island Sound. State and federal lobster landings data showed that Long Island Sound commercial lobster harvests ranged from 7 to 11.7 million pounds annually valued at $18 to $40 million. To date, they have steadily declined to less than 1 million pounds. Twelve hundred resident commercial lobster licenses were issued in 1998, in 2002 fewer than 900 lobstermen remained licensed and even fewer remain each year until the present.

In 2000, just after the mortality event in the Fall of 1999, the U.S Dept. of Commerce declared the lobster industry in Long Island Sound "a commercial fishery failure due to a resource disaster." The documentation supporting the declaration was provided by two state resource management agencies and in addition to the cry for help from the desperate commercial lobster industry. In response, bi-state congressional support led to an appropriation of $13.9 million in disaster assistance, $7.3 million for economic relief and $6.6 million for resource monitoring and assessment and to support a research initiative to investigate the potential causes of the mortality event.

There were as many as 65 scientists at 30 institutions and agencies nationwide that participated in the research initiative, investigating the effects of environmental factors, mosquito control pesticides, and diseases on the physiology and health of American lobsters. Many various hypotheses were drawn based on the particular researchers' expertise but nothing conclusive was ever determined as the cause of the mortality to the disappointment and dismay of the Long Island Sound Lobstermen.

The general consensus of the Long Island Sound Lobstermen was the mortalities were related to water quality and the spraying of mosquito control pesticides during the West Nile Virus crisis in the fall of 1999. During the spraying campaign in western Long Island Sound a major raining event (Hurricane Floyd) washed the pesticides, malathion, resmithrin and methoprene, into the western basin impacting the lobster population that at the time was going through a molting process, which is a mutation the lobster goes

through at least once a year causing their bodies to become extremely fragile making them more susceptible to predation and any kind of major change in the eco-system. So you see, the lethal pesticide cocktail combined with Hurricane Floyd's fast and violent delivery, either caused the lobsters to all die or compromised their immune systems to the point they could not fight off any of the usual eco-system culprits it normally would survive. This all happened in the fall of 1999.

Following this mortality event, an initial assessment of the economic and human impact was conducted by Human Ecology Associates in January, 2000, and it found that approximately 70% of the western Sound lobstermen had lost 100% of their fishing income in the following year and the remainder lost 30 to 90% of their income. The study also noted that because of the severity and suddenness of the die-off the lobstermen found it difficult to switch to other fisheries or new vocations. The report also documented significant social and psychological damage to these fishing families and their communities. The basic fishing infrastructure of lobster wholesalers, bait dealers, equipment suppliers, restaurants were all impacted, and to this day the few remaining lobstermen have to travel out-of-state to get bait and supplies.

II. The Problem

At present, the few remaining lobstermen in Long Island Sound are not optimistic about their future in the lobstering industry. What is happening to our lobsters now is something that is specific to Long Island Sound – you are not going to find some of these problems that we are now experiencing in other more northern waters, for example:

A. The Lobstermen from the eastern end of Long Island Sound continue to see a large percentage of their catch with shell disease, at times 40 to 50% of their catch is affected. It is a disease whereby the lobster develops lesions and pitting on the carapace caused by external bacteria that digest the minerals in the lobster's shell. Lobstermen believe that the coincidence of the continued use of chitin inhibitor pesticides to control moths and the compromising of the lobster's immune system prevents the lobster from producing the enzymes necessary to produce chitin which is needed to harden its shell thus weakening these lobsters and, if not, killing them making them extremely susceptible to predation. Not to mention the economic issue of attempting to sell a shell diseased lobster to a wholesaler, they are not very appetizing looking creatures for a customer's dinner plate.

Preliminary data from a Univ. of CT researcher shows that female lobsters have a higher rate of incidence of shell disease in that affected females carrying fertilized eggs under their tails may molt prematurely before the eggs are released ending any chance of larval survival.

Municipalities continue to use of the pesticide, methoprene, to control mosquito larvae. They actually have programs where slow release briquettes are placed in drainage basins to kill mosquito larvae and, what happens is the pesticide eventually makes its way to Long Island Sound. If it is designed to kill mosquito larvae, it will kill lobster larvae.

The lobster larval indices indicate extremely low lobster larval counts in Long Island Sound. There have been studies on all of these chemicals without any conclusive evidence that any one chemical has, by itself, a lethal impact on crustaceans, but take these chemicals and co-mingle them and I believe you have a concoction for disaster.

B. The continued low levels of dissolved oxygen causes significant adverse effects in the bottom water habitats of the Sound which is caused by excessive discharges of nitrogen which is the primary cause of hypoxia. Nitrogen fuels the growth of planktonic algae, the algae die, settle to the bottom of the Sound and decay, using up oxygen in the process.

C. The lobster resource has all but disappeared from the near shore areas of the central Long Island Sound basin. Since 1972 up until 1999, I and fellow lobstermen remember setting traps within a stone's throw of the shore areas, and now find the lobster population has moved off to the areas more center to the Sound from the shoreline.

III. Urbanization

The evolving community growth around Long Island Sound and the accompanying infrastructure that this urbanization creates has caused the degradation of water quality which is reflected in the development of shellfish sanitation regulations that first appeared in the first half of the 20th Century and continue to tighten aquaculture practices today. As a shellfisherman (not a lobsterman – I now harvest clams and oysters in the Long Island Sound) the inadequate and antiquated community drainage systems continue to place financial hardship on shellfishermen as storm water and rain fall events of one inch or more have a major impact on shellfish harvesting practices and will at times, depending on the amount of rain fall, completely eliminate all shellfish harvesting. In an effort to sustain my viability as a fisherman and remain on the water I have focused my efforts, as have other lobstermen, on shellfishing in the Sound. Our hope is that the lobster resource will rebound and become healthy and viable enough to support a living once again. Unfortunately, for the many commercial lobstermen who were optimistic enough to remain the last few years have been drained financially and have been forced to seek alternative occupations. This of course, was not before they were depleted of their savings, equity in their homes, education funds, their boats and equipment. These families you do not see in unemployment statistics because they were self-employed. There are very few if any alternative fisheries for commercial fisherman in Long Island Sound unless that fisherman had a recorded history in other fisheries.

The Atlantic States Marine Fisheries Commission has determined that the southern New England lobster stock is depleted; however over-fishing is non-existent which can only lead to the conclusion that the stock is being impacted by water quality issues which are impacting the eco-system. But this same determination of the ASMFC does not address the collateral impacts of water quality, but rather chooses to implement regulations limiting the lobsterman's catch which already is below the sustainable economic level of the fishermen. This is supported by the CT Dept. of Environmental Fishing logbooks. I suspect, I should say, I know, after January, 2010 when an additional gauge regulation is

scheduled to be implemented by the State of Conn. this will again reduce the number of active lobstermen in Long Island Sound.

IV. Stewardship

What we will lose will be the true stewards of Long Island Sound. The lobstermen that fished their area specific waters year long and who are the first to observe changes to the Sound and the eco-system. In the last few years, the fish trawling industry has been all but eliminated and the fresh fish brought in daily by these boats to local CT ports is gone. We must begin to realize that as we chip away at one feature of the Sound, no matter how small, whether it is a stretch of marsh land, that we compromise and undermine the natural working of the entire Sound. One has only to look at the Branford River Shoreline where I keep my boat and observe the piling and boat bottoms to see that there is virtually no growth visible. The perception of water clarity is not necessarily an indication of a healthy eco-system. When the food chain (no matter how microscopic) in the water column is broken, an eco-system collapse is inevitable. As the marshland and eel grass disappear due to urbanization so disappears the eco-system that supports lobster and fish larvae.

Currently, and in the past, there have been numerous studies and research projects of Long Island Sound and those studies have indicated the need to address water quality concerns but as time goes on the urgency dissipates until another emergency arises. A recent statement issued by CT's Attorney General, Richard Blumenthal addressed the contaminated run-off including human excrement, improper disposal of pharmaceuticals and other foul substances are ruining many of CT's beaches.

As we develop aquaculture programs in schools and encourage our children to seek involvement in the fishery, it is our obligation to ensure those opportunities exist for them in the future. One has only to read "Our Stolen Future" by Theo Colburn and John Myers to be reminded how fragile our eco-system is and if we neglect action now we will have eliminated our children's' opportunities in these fields. I raised two daughters as a lobsterman and both worked and helped as young ladies on my boat along side me. During summer and school breaks they helped banding lobsters and I believe during those times they developed solid work ethics and an understanding of hard work and its rewards. Fisherman are people of results that depend upon their ingenuity and resourcefulness to provide for their families. I believe that it is passion, independence and love of the sea that drives fishermen and when they are unable to provide for their families, while fishing, this has an impact on the fabric of who they are.

In closing, I believe we need broad acceptance of the fact that the sources of the problem are extremely difficult ones to address and will require sustained collaboration between administrative and regulatory agencies, legislators, coastline residents, boaters and recreational/commercial fishermen and those with commercial interests. Difficult choices will have to be made by surrounding communities, farming and other entities that impact sewage and non-point source water run-off if we are to sustain the eco-system necessary to retain Long Island Sound's viability.

I fear that CT may get an unpleasant surprise one Spring, finding that the fragile Sound that they look so forward to enjoying every year can no longer be utilized because we may breach the threshold at which the Sound can sustain living aquatic life.

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Importance of Long Island Sound Restoration Funding
Testimony for the US House of Representatives
Committee on Transportation and Infrastructure

October 6, 2009

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Citizens Campaign for the Environment (CCE) is an 80,000 member, not-for-profit, non-partisan advocacy organization working for the protection of public health and the natural environment on behalf of its members in New York and Connecticut. The protection of waterways, especially estuaries, is of the utmost importance to CCE. CCE has been working to protect water quality across New York State and throughout the Nation since our inception in 1985. Currently, CCE actively works on protecting many of New York's largest and often most impacted waterways including the Hudson River, the Long Island South Shore Estuary Reserve, the Great Lakes, Finger Lakes, Peconic River, and Long Island Sound. Additionally, CCE is an active member of the Long Island Sound Study Citizens Advisory Committee and Chairs the South Shore Estuary CAC. **Thank you for holding this hearing on such an important topic.**

I would like to thank Congress for demonstrating a commitment to protecting the Long Island Sound. As you are aware, the Comprehensive Conservation and Management Plan (CCMP), developed by EPA's Long Island Sound Study (LISS) has been a guiding blueprint to restoration and preservation efforts for this estuary.

Congress has responded over the last decade to challenges facing Long Island Sound by enacting two key authorizations that target federal funding toward the most pressing needs identified in the CCMP: the Long Island Sound Restoration Act (first authorized in 2000 and again in 2005) Authorizes up to $40 million per year for projects to reduce nitrogen loading and improve and monitor water quality; and the Long Island Sound Stewardship Act (authorized in 2006) authorizes up to $25 million per year for acquisition of land and easements that protect and enhance important ecological and recreational sites around the Sound, and promote public access to this amazing natural treasure.

CCE offers the following comments for continued and productive restoration efforts for Long Island Sound:

FUNDING

- **The Long Island Sound, as well as our Nation's other Great Water Bodies, needs a dedicated, reliable funding stream to allow for a holistic and comprehensive approach for restoration and protection efforts.**

  Fortunately, the Administration and Congress have begun to take notice, and are moving forward on more funding for programs like the Comprehensive Everglades Restoration Plan (CERP) and the creation and funding of the Great Lakes Restoration Initiative. We thank you for these efforts. This is the kind of progress we must strive towards for all of our Great Waters if we as a nation want to be able to continue to enjoy the water bodies that define our way of life. Currently, the cost to restore our Great Waters is into the multi-billions. The longer we wait the problems will get worse and the solutions more costly.

  Recognizing this financial need and the many common problems that all of our Great Waters face, the restoration community has come together to work to collectively advance all restoration efforts by collaborating on overarching national issues which affect Great Waters across the United States. The America's Great Waters Coalition will work toward ensuring that funding and sound implementation of comprehensive restoration plans for our Great Waters are a priority for Congress and the American people.

  The uncertainty from year to year of federal funding for LIS projects provides a burdensome roadblock to long term projects from advancing in any meaningful way. In past years funding allocation for Long Island Sound restoration has been anemic. Funding for 2006, 2007 and 2008 was $2.2 million, $2.7 million, $5.5 million respectively. While these amounts have allowed efforts and work to progress, they represent a sizable disparity from the $65 million yearly authorized under federal legislation.

  Recently, the Citizens Advisory Committee of the EPA Long Island Sound Study (LISS), a volunteer group with broad representation including municipalities, marine trades, and non-profit environmental groups, identified well over $70 million in needs for FY10 for projects ranging from water quality, land acquisition and stewardship, wildlife and marine resources including aquaculture, mapping, monitoring, research, dredging, and planning for climate change.

  For instance, one such recommendation is for the LISS to increase resources devoted to fish, shellfish and lobster management. However, these programs need at least a three year commitment of resources. Another recommendation is to fully implement the *Sentinel Monitoring for Climate Change* program, assessing impacts of sea level rise on

beaches, wetlands, coastal ecosystems, and developing adaptation plans in response to these changes are all critical priorities. Infrastructure, buildings, water-dependent uses, and natural resources are all threatened by shoreline erosion and flooding. Strategies to address these threats must be properly planned. Minimal funding from year to year does not allow for these types of essential programs to advance and provide the critical science and policy we need. Both of these examples require staff and consecutive years of research data and evaluation. A three to five year funding commitment is necessary for many specific projects to reap results.

- **A dedicated and robust Clean Water Trust Fund needs to be established to help all Great Water bodies address the serious needs of failing infrastructure.** Such a Trust Fund will assist states and local municipalities in closing the gap for waste infrastructure needs, create jobs, improve water quality, and protect public health.

  Failing, aging water infrastructure is a national dilemma, with the EPA estimating a need exceeding $722 billion over 20 years. Many times it is our Great Water bodies that face the dire consequences. Long Island Sound is not immune. Facing excessive nitrogen pollution, Connecticut, New York, and the EPA reached a landmark agreement to reduce human sources of nitrogen by 58.5% by 2014. Progress has been made. Forty-one of the 105 sewage treatment plants that discharge into Long Island Sound have been upgraded to remove nitrogen. Yet, we have more to do.

  In the winter of 2008, a sewage pipe broke in Greenwich, CT, pouring over 28 million gallons of sewage into the Sound.[1] Westchester County is facing a $230 million price tag to reduce nitrogen in 2 of their plants and New York City needs to invest over $1 billion.

  In addition, the States of New York and Connecticut, and their municipalities, have invested hundreds of millions of dollars to upgrade treatment facilities in an effort to restore water quality and protect the coastal resources of Long Island Sound. It is vital that the federal government continue to be a key player in the upgrading of this critical infrastructure needs.

Lobster Population Restoration

Every water body has a species that defines and embodies the culture and the history of the waterway. The Long Island Sound is no exception and our species is the Long Island Sound Lobster. Praised to some as a culinary delight, others as an integral part of the ecosystem and still others an important economic resource. Whichever category you fall in—one thing remains the same, NY and CT love the lobster. The problem: every year there is less and less to love.

In the 1990's the lobster harvest was at an all time high, with a harvest value of $40 million. In 1997 NY harvested 8.2 million pounds of lobster, and in 1998 Connecticut harvested 3.2 million pounds. Since then there has been a dramatic decline in the lobster population. In 2003 the NY harvest dropped to 800,000 pounds and in 2006 the combined NY and CT total catch was less than 2 million pounds.

[1] http://www.wtnh.com/dpp/news/news_ap_epa_greenwich_sewage_spill_among_largest_200812300855

Connecticut responded by rolling out their Lobster V-notch program in 2006. The Lobster V-notch program is an innovative and effective program that works to protect the lobsters, while ensuring the lobstermen are adequately compensated.

How the V-Notch Program Works:

- Mature female lobsters are marked on a tail flipper with a v-shaped notch. In Long Island Sound, this includes lobsters with a minimum legal length of 3-1/16" CL ("carapace length" or length of the body shell excluding the "tail"), as compared to the minimum legal length at which they can be taken in the fishery (3-5/16" CL).
- Legal-sized lobsters are considered protected for two full years until the lobsters have molted twice and the notch has been reduced by the growth of the shell filling in the notch to less than 1/8" in depth.
- Students of the three schools are employed as "v-notch agents" deployed on the vessels of participating lobstermen. Two-person teams notch the lobsters, record biological data, and verify the numbers notched for accountability.
- Lobstermen are compensated at fair market value for the value of marketable lobsters notched.

The program is a mere $300,000 to run per year. In 2008 there were 67,000 lobsters notched and the lobstermen were compensated $180,000; a laudable achievement. The program is a low-cost, high yield environmental program that aims to restore the Sound's lobster population. Yet, every year it is a battle to keep the program funded.

Not only is it a battle to keep the program operating in CT, but there is one crucial element missing from the program: New York State. Lobsters do not stay within state boundaries; rather they freely move between state lines, from one side of the Sound to the other. For the program to truly restore the Sound's lobster population it needs to be a bi-state holistic program.

The federal government can play a key role in the recovery of the lobster population and the preservation of our maritime culture by expanding this program and ensuring a stable, reliable stream of funding for three years for both NY and CT.

The reduced lobster population and the spiraling costs of fuel for the lobstermen's boats make the program a necessity in preserving this species and the maritime culture that is a vital part of Long Island Sound.

Diadromous Fish Restoration

Fish species that migrate between fresh and marine waters during their life cycles are collectively referred to as diadromous fish. Historically, Long Island Sound tributaries and rivers provided unobstructed and valuable nursery and spawning habitat for diadromous fish. Over the years, installation of dams, roads crossings, channelization of streams and the destruction of terrestrial habitat adjacent to streams has created physical barriers to fish migration. ***An inventory and Analysis of Barriers to Fish Passage*** between the estuary and its fresh water tributaries is needed.

Stormwater Management

It is well established that the two greatest sources of contamination in the Long Island Sound are stormwater runoff and sewage treatment facilities. The remedies for stormwater management and treatment are gravely deficient. There is no cohesive storm water management plan for the entire LI Sound watershed. CCE recommends the following:

1. **Comprehensive Stormwater Mapping for all of New York's and Connecticut Watersheds**

Stormwater outfall pipes and related drainage infrastructure discharging into water bodies fall under the jurisdiction of the state, county, town, city and village governments. The infrastructure has evolved over the years and has been constructed piecemeal. Many times, no drainage system records or plans exist for a specific water body. The Long Island Sound should be required to conduct a *"Stormwater Infrastructure Mapping Inventory and Assessment"* report such as was done for the South Shore Estuary Reserve in a report dated February 20, 2008.

A stormwater assessment can determine the extent of the areas discharging to the water body and provide a more accurate and objective characterization of the quantity of the stormwater sources. The goal of the SSER report was to provide an inventory and assessment of geographic information systems (GIS) drainage mapping efforts of all of the state, county, town, city and village governments within the Reserve. With this information, the SSER Council will be able to make informed recommendations of programs that will improve water quality in the priority areas identified. Improved information about these sources and impacts will help promote design and site location of cost effective projects to mitigate pollution.

We understand that some municipalities have this information, such as the Village of Babylon, who reports mapping 100% of their drainage system including pipes, manholes and catch basins. Other municipalities have no current plans to digitally map their drainage infrastructure. Babylon Village can be a model for Long Island Sound municipalities. Nassau County also has established a solid frame work of comprehensive stormwater drainage system mapping. This type of GIS data base needs to be accumulated for an entire watershed. Information needs to be shared and entered into one central GIS data repository so that a water body can be evaluated in a more holistic approach.

2. **Address areas with documented high bacteria levels**

A yearly report by Natural Resources Defense Council, "Testing the Waters," examines beach closures throughout the nation. In New York State beach closings increased 21% from 2006-2007. Sources of contamination were primarily stormwater run-off (70%) and sewage contamination (19%).

Part of the report focused on the percent of monitoring samples that exceeded the state's daily maximum bacterial standards. For NYS the percent of samples exceeding the standard increased to 11% in 2007 from 9% in 2006. *It is clear that there are serious problems with bacteria at several of our nation's beaches.* Yet, a process or mandate to trace back the source of the bacteria contamination does not seem to exist. High bacteria levels could be due to contaminated

run-off or they could be related to other sources such as a marina located in close proximity to the beach. Instead of identifying the source and implementing a remedy to the problem, we just close the beach and wait for the water to clear. Then we continue to test the water and wait for it to become contaminated once again. Closing the beaches is not a solution - tracing the source load of that bacteria and mitigating that source is the solution. If the source area cannot be identified these areas should be on a priority list for filtration structures.

CCE urges that the LISS engage in a process that identifies high priority areas, establish a "needs list" that will help guide allocation of funds for municipalities with effected beaches.

3. **Stormwater Management Plans. The City of Norwalk, CT is a model plan.**

Successful stormwater management plans are needed and can be done. The City of Norwalk, CT recognizing the harmful effects caused by polluted stormwater on waterways and commercial shellfish hatcheries, embarked on an evaluation program known as the "Stormwater Filter Project." The project evaluated different technologies to treat stormwater run-off. The project selected two similar areas in the city. One of the selected sites had stormwater filters installed in each catch basins, the other site did not. Both areas were routinely tested for bacteria, oil and grease, heavy metals, and sediment debris. The result of the study was astonishing. The filters were able to remove bacteria by 75-95%, and oil and grease by 70%. The filters also removed some heavy metals and prevented 19 tons or 13 cubic yards of sediment from being deposited in the harbor. The city is currently looking to expand the project.

The reason the study is so significant is that it clearly illustrates the extent of the stormwater pollution, but more importantly it shows that the pollution is treatable, when there is willingness to address the problem. Preventing 75% to 95% of bacteria from entering our estuaries, bays, and lakes provides meaningful protection to marine and freshwater ecosystems, public health, and our economy.

4. **Implement a federal law restricting fertilizer applications in the fall and winter months**

CCE recommends federal action to enact legislation that restricts the use of fertilizer in the fall and winter months in coastal communities. This simple, common sense legislation goes far in protecting our water resources against harmful run-off. Literally, our public behavior makes the choice between red tide and a green lawn. This choice is not well understood by the public. Legislation could help create this needed change in public understanding and public behavior.

In the fall of 2007, Suffolk County signed to law legislation (Resolution 2117-2007) that restricts the use of fertilizers in the fall and winter seasons. This simple restriction significantly reduces the amount of nitrogen polluting our waterways and at the same time it educates the residents of Suffolk County to as to why excessive nitrogen is harmful. Parts of the legislation state:

"The Legislature further finds that fertilizers are responsible for approximately 50% of the total nitrogen loads to the Peconic Estuary and throughout medium-density residential land use in Suffolk County."

"The Legislature also determines that excess nitrogen inputs result in depressed dissolved oxygen (hypoxia), harming aquatic life, causing excessive algal blooms, and diminishing water clarity to further impair habitat for aquatic plants."

"This Legislature determines that the quality of our water should be considered a higher priority than the aesthetics of lawns, and that high maintenance lawns require more nitrogen and are more likely to leach excess nitrogen, so that high maintenance lawns should be discouraged."

As you may be aware, 2008 was the largest, most dense and longest lasting Brown Tide event in the South Shore Estuary Reserve. The lesser publicized, but more threatening, Red Tide also occurred in Long Island Sound. A relationship between nutrient loading and these algae blooms is being closely studied.

5. **Support green infrastructure designs**

As sprawling developments cover land with impervious surfaces, like roofs, driveways, highways, and parking lots, rainfall is prevented from filtering naturally into the ground. Instead, these hard surfaces accelerate stormwater run-off that collects pollutants in its path to the Long Island Sound. In contrast to relying on conventional catch basins, storm drains, and combined sewer systems to manage stormwater, communities are beginning to incorporate "green infrastructure" strategies. Designed to buffer, absorb, and slow polluted run-off, using vegetative buffers, restored wetlands, porous or permeable pavers, green roofs rain gardens and rain barrels are all green infrastructure designs to filter pollutants, like pesticides and oil, prior to stormwater reaching the nearest tributary or storm drain. Green infrastructure designs improve stormwater quality by while adding beauty to our neighborhoods, easing burdens on municipal wastewater treatment plants, and conserving energy.

Comprehensive Bi-State Public Education Plan

***CCE Recommends* an improved, coordinated and wide scale public education plan. The government is not solely responsible for protecting our waterways. A large share of that responsibility is the publics'.** The public needs to be part of the solution instead of part of the problem. We need to plan a constructive, productive way to enlist the public's assistance in stopping polluted runoff and caring for the Sound. **We need a comprehensive public education program that will result in public action and a change in public behavior.**

When it comes to ensuring that our waters are not polluted with unnecessary pesticides, fertilizers, plastic bottles, cigarette butts, and the infamous plastic bags, it is the public that can take simple steps to prevent this type of contamination.

In October of 2006 the Long Island Sound Study released a Public Perception Survey. Several of the questions that were asked related to fertilizers and lawn maintenance practices. Here are some interesting results.

- When asked how often Long Islanders living in the LIS watershed fertilized their lawn, 49% said several times a year.
- 74% of Long Islanders fertilize their lawns as often today as they did 5 years ago.
- 46% of residents did not know whether they used a slow-release fertilizer or a fast-release fertilizer.
- When asked if Long Islanders thought a change in their everyday behavior would improve the quality of Long Island Sound—55% of Long Islanders said no.

The Long Island Sound Public Perception Survey found that roughly 90% of residents agree that humans are severely abusing the environment. Yet, roughly 70% of residents do not believe they do anything that worsens the quality of water in the Long Island Sound. A closer look revealed that those who thought they did not affect the water negatively were just as likely to partake in harmful activities (ex. Using quick release fertilizer), as those who thought they may have a negative impact on water quality. Moreover, most residents did not think that there was anything they could do to improve the quality of water in LIS, although they believed that if other residents changed their everyday behavior water quality in the Sound would improve. **The good news is those that had high environmental knowledge on the issues, were also most likely to practice pro-environment behaviors.** This finding again reinforces the importance of a wide-spread public education component that will lead to positive behavioral changes.

CCE strongly believes the public wants to be, and is willing to be engaged in Long Island Sound protection, however, the current void of information or simply having a patchwork of efforts provided by local municipalities and non-profits has proven to be inadequate to alter public behavior in a meaningful way. Federal government coordination and involvement in a wide scale, far reaching, Long Island Sound public education effort is needed if we are to provide lasting remedies for restoration and long term preservation of this Great Water body, the Long Island Sound.

In conclusion, I would like to emphasis the much progress has been accomplished for the protection of the Sound, but we still have much to do. The partnership and leadership of the federal government, agencies and our congressional leaders has all added to the preservation of the Sound and we look forward to collaborated and coordinated efforts for years to come.

Thank you for the opportunity to comment.

Appendix A

CITIZENS ADVISORY COMMITTEE

OF THE LONG ISLAND SOUND STUDY
Website: http://www.longislandsoundstudy.net

CITIZENS ADVISORY COMMITTEE OF THE LONG ISLAND SOUND STUDY

OFFICERS

Curt Johnson
Connecticut CAC Co-Chair

Nancy Seligson
New York CAC Co-Chair

Martin Garrell
Secretary

CAC SUBCOMMITTEES:

Advocacy, Legislative & Policy
Tracking & Accountability
Local Government

LISS WORK GROUPS

Habitat Restoration
Stewardship
Nonpoint Source/Watersheds
Communications
Nutrients

CAC ADDRESS

Long Island Sound Study
Citizens Advisory Committee
c/o EPA LIS Office
Stamford Government Center
888 Washington Blvd, Suite 6-5
Stamford, CT 06904
Office: 203 977-1541
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The CAC meets quarterly on the second Thursday of March, June, September, and December at alternating locations in New York and Connecticut. Meetings are open to the public.

September 28, 2009

Mark Tedesco, Chair
Long Island Sound Study Management Committee
EPA Long Island Sound Office
Stamford Government Center
888 Washington Blvd. Suite 6-5
Stamford, CT 06904-2152

Re: Long Island Sound Priorities in 2010

Dear Mr. Tedesco,

With this letter, the Citizens Advisory Committee (CAC) of the Long Island Sound Study (LISS) is pleased to reinstate a valuable past practice of recommending to the Management Committee priority actions for funding in the upcoming year. This communication, last delivered in 2005, is an imperative part of fulfilling the CAC's mission to provide ongoing advice and critical guidance to the federal, state, and local government partners of the Management Conference (MC) in their efforts to implement the Comprehensive Conservation and Management Plan (CCMP) for the restoration and protection of Long Island Sound.

The CAC has embarked on a year-long process of revitalization and reinvigoration. We have reconstituted our Committee Structure and through the Sound Vision Project, we will be assessing progress to date toward meeting the goals of the CCMP, and identifying challenges and opportunities for the future. With the real possibility of up to $15 million in total federal funding for Long Island Sound programs in FY10, potentially the highest level of funding ever awarded to the estuary, the CAC believes it is essential that any new funding be invested in actions that will lead to tangible results in restoring the health of LI Sound. Such beneficial results are themselves the greatest argument that we can give to our elected officials for continuing to fund LIS programs in the future.

On September 10, 2009, the CAC met in New York City and identified the following seven priority areas for implementation of the LISS CCMP in 2010. The total project need identified by the CAC for FY10 is more than $70 million, far beyond the $15 million in federal funding that may be available under the best of circumstances to the LISS in FY10. This identified need is based on conservative estimates and is consistent with authorized federal appropriation levels of up to $40 million per year for the Long Island Sound Restoration Act and up to $25 million per year for the Long Island Sound Stewardship Act. The CAC strongly supports full funding for these federal programs and we look forward to achieving the authorized funding levels in the future.

The Long Island Sound Study is a cooperative Federal/State Management Conference reservoiring and addressing the priority environmental problems of the Sound identified in the Comprehensive Conservation and Management Plan (CCMP). The Citizen's Advisory Committee provides advice on public education activities to the Management Committee in implementing the CCMP.

For FY10, the CAC has identified the following priority issues and recommendations:

(1) Water Quality – Water quality is given the highest priority. Both New York and Connecticut have made significant and meaningful progress in reducing nitrogen loads to the Sound, primarily through upgrades to wastewater treatment facilities. The funding need for this critically important effort is monumental, with funding currently provided primarily through federal and state Clean Water State Revolving Fund allocations or other such federal programs that provide grants and loans to states and municipalities for these upgrades through the federal budget process. In order to further improve water quality, ensure that dissolved oxygen (DO) levels support marine life and habitat in the Sound, stimulate the economy, and create jobs, federal and state investment in critical infrastructure upgrades must continue and be increased to authorized levels in the Long Island Sound restoration and Stewardship Acts. The CAC finds that the need for funding stormwater runoff management is compelling and urgent. Therefore, we strongly recommend that the LISS invest in projects addressing nonpoint and stormwater management, creating and implementing model watershed-based strategies, and continuing to establish No Discharge Zones, with an ultimate goal of having the entire Sound designated as a No Discharge Area for vessels. Funding should also be provided to pilot bioremediation techniques for nutrient removal.

(2) Stewardship and Habitat – The LISS stewardship program has identified 33 priority sites for acquisition/enhancement/restoration under the program. Additional funding should be targeted to acquisitions and public access at these sites, taking into account the potential effects of sea level rise. Running in tandem, additional funding should be provided for the LISS restoration initiative, which has identified numerous priority projects that will restore tidal wetlands and salt marshes, create fish passage, protect the habitat of species of greatest conservation need, and/or rejuvenate forest lands.

(3)Wildlife and Marine Resources – The CAC calls on the LISS to increase the resources it devotes to the understanding, assessment and enhancement of wildlife and marine resources in the Sound. Fish, shellfish and lobster management are a top priority. Supporting species restoration projects such as the lobster V-Notch program in Connecticut and establishing such a program in New York, pilot programs for increasing oyster abundance that may provide water quality improvement co-benefits, and investigating the food web implications of shifting fisheries are all important issues. Identifying and increasing our understanding of key indicator species, including coastal birds, and establishing programs to monitor those species, is essential. Resources should also be devoted to addressing the threat from invasive species. Throughout, principals of ecosystem based management should be supported.

(4) Closing the Gaps: Mapping, Monitoring and Research – LIS experts and advocates identify a host of mapping, monitoring and research needs. Basic monitoring efforts include near shore monitoring, and tracking and assessing marine life and habitat, recreational resources, water-related infrastructure improvements and assessing the results of other pollution abatement efforts. Expanding the Integrated Ocean Observing System is also needed. Mapping needs include updating tidal wetlands inventory maps, re-mapping LIS Coastal Erosion Hazard Areas, extensive seafloor mapping, especially as it relates to energy development and management, and habitat mapping. Additional research is needed to develop critical nitrogen water quality criteria, to ensure that DO and other water quality parameters, are supportive for marine life and habitat, document pharmaceuticals in the water, assess the impacts of climate change and nutrients on trophic systems, and clarify our understanding of tidal wetlands loss. Of particular concern in this area is the loss of the Long Island Sound Research Fund and Connecticut's LIS License Plate Fund. A significant investment in basic research is essential to our understanding and successful management of the Sound.

(5) Dredging – While the Army Corps of Engineers serves as the lead federal agency for the development of a Dredged Material Management Plan for Long Island Sound, the states of New York and Connecticut are important advocates for environmental and local interests pertaining to the appropriate disposal of dredged materials. LISS funds are needed to assist the states of New York and Connecticut with the identification of relocation sites, alternatives for beneficial reuse, demonstration projects and the siting/acquisition and construction of public processing facilities.

(6) Climate Change – Full implementation of the Sentinel Monitoring for Climate Change program, assessing the impacts of sea level rise on beaches, and developing data sets and adaptation plans in response to climate change are all top priorities. Infrastructure, buildings, water-dependent uses, and natural resources are threatened by shoreline erosion and shoaling. Strategies to address these threats must be properly planned and coordinated.

(7) Public Education and Outreach –Recognizing the importance of the public's full understanding of Long Island Sound issues, the impacts of individual actions and the potential application of Social Marketing techniques, the CAC recommends a bi-state coordinated educational effort to engage significant public participation in protecting the Sound. In 2007, LISS released the results of its survey on the public's perception of Long Island Sound. The results show that residents are highly concerned about the environment. The survey also revealed that people with more knowledge about the environment were more likely to engage in behaviors that were protective of the Sound, such as using fertilizer sparingly. The coordinated public education campaign should build and expand upon the results of the public perception study by investing in professional outreach and education, high quality printed and electronic materials, and enhanced press coverage; all essential to providing meaningful and sustained protection for LIS. Additionally, exploratory planning for a Quadricentennial Commemoration of Adrian Block's exploration of LIS has begun; investing money in 2010 to ensure a strategic and organized endeavor is advised. The LIS 400 commemoration presents an additional opportunity to raise ecological and cultural awareness of the Sound. These proposed outreach efforts are efficient and savvy ways of using funds that have exponential and long lasting results.

The CAC believes that 2010 will be a critical year for Long Island Sound funding efforts. The LIS Restoration Act requires re-authorization and the LIS Stewardship Act will require re-authorization in 2011. We look forward to working with the members of the Management Committee and with the agencies you represent to provide our lawmakers with the information and education necessary to support funding at authorized levels.
In keeping with this regional and cooperative mindset, we look forward to the conclusion and signing of an updated **Long Island Sound Agreement**. The Agreement is a document that signifies our mutual goals and intent; and in this watershed year of Long Island Sound funding and protection, there can be no better indication of the region's commitment.

Thank you for your dedication and support of the restoration and protection of Long Island Sound.

Sincerely yours,

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cc: Mr. Ira Leighton/Acting RA, USEPA, Region 1
Mr. George Pavlou/Acting RA, USEPA Region 2
Ms. Amey Marella/ Acting Commissioner, CT DEP
Mr. Pete Grannis/ Commissioner, NYS DEC
LISS CAC
LISS Management Committee

LISS CAC 2010 Recommended Priorities		
Priority	**Suggested Funding Level** *(% total funding)* **Need Identified**	**Project Examples** ***(Not necessarily in order of priority)***
Water Quality *Stormwater, Nonpoint sources, LID, Watershed-based Management*	*Suggested Funding Level: 40%* *Total FY10 Need Identified: $24 million*	1. Updates to stormwater standards & retrofits. 2. Implementation of watershed management plans. 3. Preparation of sub-watershed plans to reduce nitrogen and pathogen loadings. 4. Preparation of 3 micro sub-watershed plans to evaluate the installation of sanitary sewers to reduce pollution from septic systems. 5. Improve watershed & management zone models and enhancements to the SWEM model to address some larger areas of pathogen impairments to shellfishing. 6. Increase pharmaceutical take back programs. 7. Develop model codes for water quality protection 8. Funding to pilot bioremediation using shellfish/seaweed harvesting to remove nutrients.
Stewardship and Habitat *Acquisition, Access, Habitat Restoration, Ecosystem-based management, Fish Passage, Tidal Wetlands, Forest Lands.*	*Suggested Funding Level: 25%* *Total FY10 Need Identified: $24 million*	1. Potential Acquisition/enhancements/ restoration of Stewardship Sites, including Barn Island in CT and around Flax pond, Conscience Bay, Mt. Sinai Harbor in NY. 2. Potential acquisitions around Public access projects for Mattituck Inlet and Bronx River
Wildlife, Marine Resources and Habitat *Fisheries, Shellfish, Coastal Birds, Invasive Species, Fish passage, tidal wetlands, forest land, habitat restoration and management, ecosystem based management.*	*Suggested Funding Level: 14%* *Total FY10 Need Identified: $10 Million*	1. Fish & Lobster Management: V-notch lobster restoration program, removal of derelict fishing gear. 2. Fish passage projects in Bronx River and Huntington in NY. Fish Passage at Rainbow Dam, Saugatuck River, Pequonnock River, Quinnipiac River, Mattabessett River, Anguilla Brook, and Poquetonock in CT. 3. Tidal Wetlands Restoration at Mill River and Old Field in CT. 4. Tidal Wetlands Restoration at Sunken a. Meadow, Heron Park, Tallapoosa, and b. West Pond. 5. Forest Restoration at Pelham Bay Forest, Nissequogue River 6. Invasive Species-early detection and awareness.
Closing the Gaps: Mapping, Monitoring and Research *Research, wetlands inventory mapping, wetlands monitoring, nearshore monitoring, seafloor mapping*	*Suggested Funding Level: 8%* *Total FY10 Need Identified: $6 million*	1. Monitoring water quality 2. Near shore monitoring 3. Wetlands mapping, LIS Coastal Erosion Hazard Areas with LiDAR 4. Sea floor mapping/LIS Resource Center. 5. General Research

LISS CAC 2010 Recommended Priorities		
Priority	**Suggested Funding Level** ***(% total funding)*** **Need Identified**	**Project Examples** ***(Not necessarily in order of priority)***
Dredging *Funding for relocation sites, beneficial reuse, DMMP*	*Suggested Funding Level: 9%* *Total FY10 Need Identified: $7.25 million*	1. Development of a management plan and evaluation of alternative upland disposal sites. 2. Evaluate disposal and beneficial re-use alternatives and identify dredging needs.
Climate Change *Readiness and Adaptation, Sea Level Rise Impacts on Beaches, Sentinel Monitoring*	*Suggested Funding Level: 2.5%* *Total FY10 Need Identified: $1.6 million*	1. Develop natural resources adaptation plan in response to climate change 2. Studies of sea level rise impacts on beaches. 3. Climate Change Preparedness—develop informational database of infrastructure and ecosystems at risk, and adaptation strategies to prepare for changes.
Public Education and Outreach Comprehensive and collaborative public education strategy for communities within the Sound watershed.	*Suggested Funding Level: 1.5%* *Total FY10 Need Identified: $2 million*	1. Public education and outreach. 2. Bi-state coordinated educational effort to engage significant public participation in protecting the Sound. 3. Exploratory planning for a Quadricentennial Commemoration of Adrian Block's exploration of LIS

Appendix B

CITIZENS CAMPAIGN
FOR THE ENVIRONMENT
www.citizenscampaign.org

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Empowering Communities, Advocating Solutions.

Importance of Long Island Sound Restoration Funding
Testimony for the US House of Representatives
Committee on Transportation and Infrastructure

October 6, 2009

Submitted by Adrienne Esposito
Executive Director
Citizens Campaign for the Environment
225 Main Street
Farmingdale, NY 11735
516-390-7150

Citizens Campaign for the Environment (CCE) is an 80,000 member, not-for-profit, non-partisan advocacy organization working for the protection of public health and the natural environment on behalf of its members in New York and Connecticut. The protection of waterways, especially estuaries, is of the utmost importance to CCE. CCE has been working to protect water quality across New York State and throughout the Nation since our inception in 1985. Currently, CCE actively works on protecting many of New York's largest and often most impacted waterways including the Hudson River, the Long Island South Shore Estuary Reserve, the Great Lakes, Finger Lakes, Peconic River, and Long Island Sound. Additionally, CCE is an active member of the Long Island Sound Study Citizens Advisory Committee and Chairs the South Shore Estuary CAC. **Thank you for holding this hearing on such an important topic.**

I would like to thank Congress for demonstrating a commitment to protecting the Long Island Sound. As you are aware, the Comprehensive Conservation and Management Plan (CCMP), developed by EPA's Long Island Sound Study (LISS) has been a guiding blueprint to restoration and preservation efforts for this estuary.

Congress has responded over the last decade to challenges facing Long Island Sound by enacting two key authorizations that target federal funding toward the most pressing needs identified in the CCMP: the Long Island Sound Restoration Act (first authorized in 2000 and again in 2005) Authorizes up to $40 million per year for projects to reduce nitrogen loading and improve and monitor water quality; and the Long Island Sound Stewardship Act (authorized in 2006) authorizes up to $25 million per year for acquisition of land and easements that protect and enhance important ecological and recreational sites around the Sound, and promote public access to this amazing natural treasure.

CCE offers the following comments for continued and productive restoration efforts for Long Island Sound:

FUNDING

- **The Long Island Sound, as well as our Nation's other Great Water Bodies, needs a dedicated, reliable funding stream to allow for a holistic and comprehensive approach for restoration and protection efforts**.

  Fortunately, the Administration and Congress have begun to take notice, and are moving forward on more funding for programs like the Comprehensive Everglades Restoration Plan (CERP) and the creation and funding of the Great Lakes Restoration Initiative. We thank you for these efforts. This is the kind of progress we must strive towards for all of our Great Waters if we as a nation want to be able to continue to enjoy the water bodies that define our way of life. Currently, the cost to restore our Great Waters is into the multi-billions. The longer we wait the problems will get worse and the solutions more costly.

  Recognizing this financial need and the many common problems that all of our Great Waters face, the restoration community has come together to work to collectively advance all restoration efforts by collaborating on overarching national issues which affect Great Waters across the United States. The America's Great Waters Coalition will work toward ensuring that funding and sound implementation of comprehensive restoration plans for our Great Waters are a priority for Congress and the American people.

  The uncertainty from year to year of federal funding for LIS projects provides a burdensome roadblock to long term projects from advancing in any meaningful way. In past years funding allocation for Long Island Sound restoration has been anemic. Funding for 2006, 2007 and 2008 was $2.2 million, $2.7 million, $5.5 million respectively. While these amounts have allowed efforts and work to progress, they represent a sizable disparity from the $65 million yearly authorized under federal legislation.

  Recently, the Citizens Advisory Committee of the EPA Long Island Sound Study (LISS), a volunteer group with broad representation including municipalities, marine trades, and non-profit environmental groups, identified well over $70 million in needs for FY10 for projects ranging from water quality, land acquisition and stewardship, wildlife and marine resources including aquaculture, mapping, monitoring, research, dredging, and planning for climate change.

  For instance, one such recommendation is for the LISS to increase resources devoted to fish, shellfish and lobster management. However, these programs need at least a three year commitment of resources. Another recommendation is to fully implement the *Sentinel Monitoring for Climate Change* program, assessing impacts of sea level rise on

beaches, wetlands, coastal ecosystems, and developing adaptation plans in response to these changes are all critical priorities. Infrastructure, buildings, water-dependent uses, and natural resources are all threatened by shoreline erosion and flooding. Strategies to address these threats must be properly planned. Minimal funding from year to year does not allow for these types of essential programs to advance and provide the critical science and policy we need. Both of these examples require staff and consecutive years of research data and evaluation. A three to five year funding commitment is necessary for many specific projects to reap results.

- **A dedicated and robust Clean Water Trust Fund needs to be established to help all Great Water bodies address the serious needs of failing infrastructure.** Such a Trust Fund will assist states and local municipalities in closing the gap for waste infrastructure needs, create jobs, improve water quality, and protect public health.

  Failing, aging water infrastructure is a national dilemma, with the EPA estimating a need exceeding $722 billion over 20 years. Many times it is our Great Water bodies that face the dire consequences. Long Island Sound is not immune. Facing excessive nitrogen pollution, Connecticut, New York, and the EPA reached a landmark agreement to reduce human sources of nitrogen by 58.5% by 2014. Progress has been made. Forty-one of the 105 sewage treatment plants that discharge into Long Island Sound have been upgraded to remove nitrogen. Yet, we have more to do.

  In the winter of 2008, a sewage pipe broke in Greenwich, CT, pouring over 28 million gallons of sewage into the Sound.[1] Westchester County is facing a $230 million price tag to reduce nitrogen in 2 of their plants and New York City needs to invest over $1 billion.

  In addition, the States of New York and Connecticut, and their municipalities, have invested hundreds of millions of dollars to upgrade treatment facilities in an effort to restore water quality and protect the coastal resources of Long Island Sound. It is vital that the federal government continue to be a key player in the upgrading of this critical infrastructure needs.

Lobster Population Restoration

Every water body has a species that defines and embodies the culture and the history of the waterway. The Long Island Sound is no exception and our species is the Long Island Sound Lobster. Praised to some as a culinary delight, others as an integral part of the ecosystem and still others an important economic resource. Whichever category you fall in—one thing remains the same, NY and CT love the lobster. The problem: every year there is less and less to love.

In the 1990's the lobster harvest was at an all time high, with a harvest value of $40 million. In 1997 NY harvested 8.2 million pounds of lobster, and in 1998 Connecticut harvested 3.2 million pounds. Since then there has been a dramatic decline in the lobster population. In 2003 the NY harvest dropped to 800,000 pounds and in 2006 the combined NY and CT total catch was less than 2 million pounds.

[1] http://www.wtnh.com/dpp/news/news_ap_epa_greenwich_sewage_spill_among_largest_200812300855

Connecticut responded by rolling out their Lobster V-notch program in 2006. The Lobster V-notch program is an innovative and effective program that works to protect the lobsters, while ensuring the lobstermen are adequately compensated.

How the V-Notch Program Works:

- Mature female lobsters are marked on a tail flipper with a v-shaped notch. In Long Island Sound, this includes lobsters with a minimum legal length of 3-1/16" CL ("carapace length" or length of the body shell excluding the "tail"), as compared to the minimum legal length at which they can be taken in the fishery (3-5/16" CL).
- Legal-sized lobsters are considered protected for two full years until the lobsters have molted twice and the notch has been reduced by the growth of the shell filling in the notch to less than 1/8" in depth.
- Students of the three schools are employed as "v-notch agents" deployed on the vessels of participating lobstermen. Two-person teams notch the lobsters, record biological data, and verify the numbers notched for accountability.
- Lobstermen are compensated at fair market value for the value of marketable lobsters notched.

The program is a mere $300,000 to run per year. In 2008 there were 67,000 lobsters notched and the lobstermen were compensated $180,000; a laudable achievement. The program is a low-cost, high yield environmental program that aims to restore the Sound's lobster population. Yet, every year it is a battle to keep the program funded.

Not only is it a battle to keep the program operating in CT, but there is one crucial element missing from the program: New York State. Lobsters do not stay within state boundaries; rather they freely move between state lines, from one side of the Sound to the other. For the program to truly restore the Sound's lobster population it needs to be a bi-state holistic program.

The federal government can play a key role in the recovery of the lobster population and the preservation of our maritime culture by expanding this program and ensuring a stable, reliable stream of funding for three years for both NY and CT.

The reduced lobster population and the spiraling costs of fuel for the lobstermen's boats make the program a necessity in preserving this species and the maritime culture that is a vital part of Long Island Sound.

Diadromous Fish Restoration

Fish species that migrate between fresh and marine waters during their life cycles are collectively referred to as diadromous fish. Historically, Long Island Sound tributaries and rivers provided unobstructed and valuable nursery and spawning habitat for diadromous fish. Over the years, installation of dams, roads crossings, channelization of streams and the destruction of terrestrial habitat adjacent to streams has created physical barriers to fish migration. ***An inventory and Analysis of Barriers to Fish Passage*** between the estuary and its fresh water tributaries is needed.

Stormwater Management

It is well established that the two greatest sources of contamination in the Long Island Sound are stormwater runoff and sewage treatment facilities. The remedies for stormwater management and treatment are gravely deficient. There is no cohesive storm water management plan for the entire LI Sound watershed. CCE recommends the following:

1. **Comprehensive Stormwater Mapping for all of New York's and Connecticut Watersheds**

Stormwater outfall pipes and related drainage infrastructure discharging into water bodies fall under the jurisdiction of the state, county, town, city and village governments. The infrastructure has evolved over the years and has been constructed piecemeal. Many times, no drainage system records or plans exist for a specific water body. The Long Island Sound should be required to conduct a *"Stormwater Infrastructure Mapping Inventory and Assessment"* report such as was done for the South Shore Estuary Reserve in a report dated February 20, 2008.

A stormwater assessment can determine the extent of the areas discharging to the water body and provide a more accurate and objective characterization of the quantity of the stormwater sources. The goal of the SSER report was to provide an inventory and assessment of geographic information systems (GIS) drainage mapping efforts of all of the state, county, town, city and village governments within the Reserve. With this information, the SSER Council will be able to make informed recommendations of programs that will improve water quality in the priority areas identified. Improved information about these sources and impacts will help promote design and site location of cost effective projects to mitigate pollution.

We understand that some municipalities have this information, such as the Village of Babylon, who reports mapping 100% of their drainage system including pipes, manholes and catch basins. Other municipalities have no current plans to digitally map their drainage infrastructure. Babylon Village can be a model for Long Island Sound municipalities. Nassau County also has established a solid frame work of comprehensive stormwater drainage system mapping. This type of GIS data base needs to be accumulated for an entire watershed. Information needs to be shared and entered into one central GIS data repository so that a water body can be evaluated in a more holistic approach.

2. **Address areas with documented high bacteria levels**

A yearly report by Natural Resources Defense Council, "Testing the Waters," examines beach closures throughout the nation. In New York State beach closings increased 21% from 2006-2007. Sources of contamination were primarily stormwater run-off (70%) and sewage contamination (19%).

Part of the report focused on the percent of monitoring samples that exceeded the state's daily maximum bacterial standards. For NYS the percent of samples exceeding the standard increased to 11% in 2007 from 9% in 2006. *It is clear that there are serious problems with bacteria at several of our nation's beaches.* Yet, a process or mandate to trace back the source of the bacteria contamination does not seem to exist. High bacteria levels could be due to contaminated

run-off or they could be related to other sources such as a marina located in close proximity to the beach. Instead of identifying the source and implementing a remedy to the problem, we just close the beach and wait for the water to clear. Then we continue to test the water and wait for it to become contaminated once again. Closing the beaches is not a solution - tracing the source load of that bacteria and mitigating that source is the solution. If the source area cannot be identified these areas should be on a priority list for filtration structures.

CCE urges that the LISS engage in a process that identifies high priority areas, establish a "needs list" that will help guide allocation of funds for municipalities with effected beaches.

3. **Stormwater Management Plans. The City of Norwalk, CT is a model plan.**

Successful stormwater management plans are needed and can be done. The City of Norwalk, CT recognizing the harmful effects caused by polluted stormwater on waterways and commercial shellfish hatcheries, embarked on an evaluation program known as the "Stormwater Filter Project." The project evaluated different technologies to treat stormwater run-off. The project selected two similar areas in the city. One of the selected sites had stormwater filters installed in each catch basins, the other site did not. Both areas were routinely tested for bacteria, oil and grease, heavy metals, and sediment debris. The result of the study was astonishing. The filters were able to remove bacteria by 75-95%, and oil and grease by 70%. The filters also removed some heavy metals and prevented 19 tons or 13 cubic yards of sediment from being deposited in the harbor. The city is currently looking to expand the project.

The reason the study is so significant is that it clearly illustrates the extent of the stormwater pollution, but more importantly it shows that the pollution is treatable, when there is willingness to address the problem. Preventing 75% to 95% of bacteria from entering our estuaries, bays, and lakes provides meaningful protection to marine and freshwater ecosystems, public health, and our economy.

4. **Implement a federal law restricting fertilizer applications in the fall and winter months**

CCE recommends federal action to enact legislation that restricts the use of fertilizer in the fall and winter months in coastal communities. This simple, common sense legislation goes far in protecting our water resources against harmful run-off. Literally, our public behavior makes the choice between red tide and a green lawn. This choice is not well understood by the public. Legislation could help create this needed change in public understanding and public behavior.

In the fall of 2007, Suffolk County signed to law legislation (Resolution 2117-2007) that restricts the use of fertilizers in the fall and winter seasons. This simple restriction significantly reduces the amount of nitrogen polluting our waterways and at the same time it educates the residents of Suffolk County to as to why excessive nitrogen is harmful. Parts of the legislation state:

"The Legislature further finds that fertilizers are responsible for approximately 50% of the total nitrogen loads to the Peconic Estuary and throughout medium-density residential land use in Suffolk County."

"The Legislature also determines that excess nitrogen inputs result in depressed dissolved oxygen (hypoxia), harming aquatic life, causing excessive algal blooms, and diminishing water clarity to further impair habitat for aquatic plants."

"This Legislature determines that the quality of our water should be considered a higher priority than the aesthetics of lawns, and that high maintenance lawns require more nitrogen and are more likely to leach excess nitrogen, so that high maintenance lawns should be discouraged."

As you may be aware, 2008 was the largest, most dense and longest lasting Brown Tide event in the South Shore Estuary Reserve. The lesser publicized, but more threatening, Red Tide also occurred in Long Island Sound. A relationship between nutrient loading and these algae blooms is being closely studied.

5. **Support green infrastructure designs**

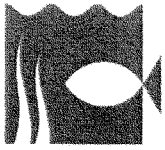
As sprawling developments cover land with impervious surfaces, like roofs, driveways, highways, and parking lots, rainfall is prevented from filtering naturally into the ground. Instead, these hard surfaces accelerate stormwater run-off that collects pollutants in its path to the Long Island Sound. In contrast to relying on conventional catch basins, storm drains, and combined sewer systems to manage stormwater, communities are beginning to incorporate "green infrastructure" strategies. Designed to buffer, absorb, and slow polluted run-off, using vegetative buffers, restored wetlands, porous or permeable pavers, green roofs rain gardens and rain barrels are all green infrastructure designs to filter pollutants, like pesticides and oil, prior to stormwater reaching the nearest tributary or storm drain. Green infrastructure designs improve stormwater quality by while adding beauty to our neighborhoods, easing burdens on municipal wastewater treatment plants, and conserving energy.

Comprehensive Bi-State Public Education Plan

***CCE Recommends* an improved, coordinated and wide scale public education plan. The government is not solely responsible for protecting our waterways. A large share of that responsibility is the publics'.** The public needs to be part of the solution instead of part of the problem. We need to plan a constructive, productive way to enlist the public's assistance in stopping polluted runoff and caring for the Sound. **We need a comprehensive public education program that will result in public action and a change in public behavior.**

When it comes to ensuring that our waters are not polluted with unnecessary pesticides, fertilizers, plastic bottles, cigarette butts, and the infamous plastic bags, it is the public that can take simple steps to prevent this type of contamination.

Appendix C



"Over the past decade, the Long Island Sound Restoration Act has served as a critical vehicle for regional work implementing the Comprehensive Conservation Management Plan ("CCMP"). Authorized at $40 million each year, history demonstrates that that only a small fraction of that figure is actually appropriated. Consistent, sustained, and full funding of LISRA in future years will not only further the region's primary goal of nitrogen reduction through supplemental sewage treatment plant upgrades, combined sewer overflow separation, and innovative stormwater management projects, it will provide for efficiency and much needed predictability in planning next steps on the road to restoring Long Island Sound's water quality, habitats, and fisheries. The Long Island Sound Management Conference has seen great success since LISRA, and the Long Island Sound Improvement Act before it, began providing funding—slashed nitrogen point source discharges, opened ancestral fish passages, restored saltmarshes critical to wildlife, and new research and education efforts to put all of these efforts into context. However new challenges dot the horizon and as the region moves to confront issues like sealevel rise, changing fisheries, and the need to bring other watershed states into the effort, year to year, fluctuating allocations simply will not do. With increased and consistent appropriations, distressed communities like Bridgeport and New Haven could quicken their effort to eliminate raw sewage discharges, research on Long Island Sound's food web trends and impacts could be expanded, and successful pharmaceutical take back programs could be replicated throughout the region. The Long Island Sound Study has been innovative with the funding it has received, exploring every opportunity to leverage each dollar provided, but it can only do so much with the limited resources it receives. If we are serious about the restoration of the western sound Dead Zone, interested in keeping beaches and shellfish beds open, and hopeful for a future Long Island Sound that is vibrant and teeming with life, Reauthorization of LISRA and full funding are the next two steps that will have the widest impact on our regional treasure.[1]"

Leah L. Schmalz
Director of Legislative and Legal Affairs
Save the Sound, A Program of the Connecticut Fund for the Environment

[1] For a more in-depth discussion of Save the Sound's comments and priorities, please see the oral and written testimony submitted to the Subcommittee on Water Resources and Environment on October 6, 2009.

Appendix D

Protecting and Restoring America's Great Waters: Long Island Sound

SoundWaters Statement of Interest on Long Island Sound
October 5, 2009

The mission of SoundWaters, based in Stamford, CT, is to educate children and adults about the wonders and beauty of Long Island Sound and its watershed. Through education, SoundWaters provides people with an understanding and awareness of the changes they can make in their lives and communities to restore, protect and preserve Long Island Sound and the environment.

As such, SoundWaters' perspective on Long Island Sound focuses on outreach and education.

Over twenty million people live within fifty miles of Long Island Sound,[1] yet the majority of these residents lead lives that are disconnected from our coastal resources. This disconnect is due to several factors: physical access, visual access, and regional economics. Physical access is limited because it is difficult to get to Long Island Sound, since the shoreline is largely privatized. There is a lack of a visual access because of geologic factors. With a flat landscape, residents do not see the coast and the Sound as part of their daily lives. Finally, the region's economy does not depend upon the Sound (unlike areas that are more dependent upon local natural resources), so coastal conditions do not impact people's lives in an immediate way. These factors combine to create a dynamic where most of the public -- nearly 7% of the nation's population – has no interaction with the region's greatest natural resource. This lack of connection to Long Island Sound is not unique to any group: it spans all racial, ethnic and socioeconomic groups.

This regional lack of connection with natural resources is compounded by social dynamics. Many children now experience the world from inside the house, often through television or video. Play has increasingly become an indoor phenomenon.[2] This is true across the population, but especially for urban low-income children, whose families lack the means or the experience to take advantage of the outdoor spaces in their community. The outdoor world is a vital aspect of life and of learning.[3] Environmental education and outreach programs address this gap in children's lives by providing outdoor learning opportunities in their own community.

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[1] U.S. Census Bureau, 2000 Census

[2] Louv, Richard. Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder. Workman Publishing: New York. 2005

[3] Kellert, Stephen R and Edward O. Wilson, eds. The Biophilia Hypothesis. Island Press: Washington DC. 1993.

Environmental outreach and education is vital as a means to draw the human community to the coast and to Long Island Sound and should be part of any transportation, infrastructure, development or restoration program.

Several species in Long Island Sound are listed as at risk, threatened or endangered, and study of these species, as well as habitat protection, are vital to ensure a healthy Long Island Sound in the future. For example, the Diamondback Terrapin, listed as at risk by the CT Department of Environmental Protection, requires salt marsh and beach habitat to survive- both of which are under extreme stress due to coastal development.

Such education elements should include:

- Outreach: Community partnership with actual goals of project (eg a community role in a restoration project, from site design to actual implementation);
- Education: provide a series of hands-on field science programs on Long Island watershed to help students to better understand the Long Island Sound and become stewards of and advocates for the resource. These programs would be directed to students from pre school through high school – in age appropriate manner.
- Access: Continue to create opportunities for public and students to better access the Sound. This could be through easements, restoration and also programs aboard teaching vessels.
- Restoration: Restoration of salt marshes, beach grasses and eel grasses are a critical element to improving habitat for critical species. In addition, these projects offer excellent outreach opportunities for the public to see and learn about the Sound and actively participate in the restoration process.

Connecticut Department of Environmental Protection

Assessment of the Sound
6 October 2009

Testimony before the
House Subcommittee on Water, Research and the Environment
Protecting and Restoring America's Great Waters: Long Island Sound

Amey Marrella
Commissioner

Good Morning Madame Chairwoman and members of the Subcommittee. My name is Amey Marrella and I am Commissioner of the Connecticut Department of Environmental Protection (CT DEP). I want to thank you for your invitation to speak about the status of Long Island Sound and our role and the partnership we share to protect and restore Long Island Sound. There is no question that the citizens of Connecticut and New York value the Sound as a resource important to their lifestyle and livelihood. The years of federal support the Long Island Sound Study has enjoyed has been instrumental to our progress in many areas of research and management. These successes are attributable to the efforts of an attentive Congress and, of course, the Connecticut/New York Long Island Sound caucus. This special attention given to Long Island Sound for nearly 25 years, and your understanding of our needs, is greatly appreciated. This partnership has indeed been the cornerstone of our commitment to improve the water quality, habitats and health of aquatic life in Long Island Sound, and the human uses that depend on a healthy Sound.

I've been asked to provide an assessment of Long Island Sound's present condition, and the progress made over the last many years. CT DEP and the Long Island Sound Study partners have made great strides in managing the Sound, despite resource limitations and the unparalleled difficulty of the task. While some impairments persist after nearly 25 years of concerted management efforts, there is also good news to share. In particular, this past summer a pod of nearly 200 bottlenose dolphins passed through Long Island Sound in late June for the first summer reporting in at least 30 years, which many believe is a result of improving water

quality conditions. We hope this is not an isolated event and that the dolphins will become regular visitors to the Sound along with the four species of seals that have been increasingly visiting the Sound during the winter months.

However, it is often our successes that uncover the next layer of challenges. In particular, we are making progress raising levels of dissolved oxygen to meet water quality standards, along with management of bacterial indicators to ensure safe beaches and healthy shellfish consumption. But there are other issues, climate change prominent among them, that must be understood to ensure management goals and objectives are attainable, and have the intended outcome. To provide that assurance, we must comprehensively address the interconnected effects of air, land and water pollutant sources that we can control while considering changes, and biological responses, that may be beyond our direct control. This forces us to continually dig deeper into the more difficult and costly management of increasingly diffuse pollutant sources distributed throughout a large watershed in an ever changing environment.

Today's problems can strain our ability as regulators as we grapple with multimedia issues, such as atmospheric deposition of nitrogen and its effect on Long Island Sound water quality, and pollutant sources from individual homes and septic systems that are individually minute, but collectively the next big slice of the management pie. Couple this with the societal lifestyle and economic demands that create landscape conditions that are often incompatible with healthy ecosystems; the wide range of physical, chemical and biological consequences of those demands that must be understood and remedied; and the effects of climate change and you have today's environmental management challenge for Long Island Sound, and pretty much everywhere in the United States.

Of course, Long Island Sound is not unidimensional in its attributes, or its needs. Today you are hearing testimony from many of the partners in the effort to manage this Estuary of National Significance and, I might add, daily magnificence. It is a driving factor in our economy, our

lifestyle and our souls. These people represent many of the 8 million people that live along the shores of the Sound and throughout its watershed. All have aspirations and commitments to protect the habitats, living resources, water quality, and economy that are integral to a functional ecosystem and our human presence and reliance on its bounty. Collectively, we all have much to relate, and much to be proud of, that these few minutes of presentation could never fully capture. However, for my part, I will review some of the highlights, and challenges, that face Connecticut as a major Long Island Sound stakeholder.

While **Water Quality** is a primary, cross-cutting issue that affects all of the areas to be covered today, there is no controversy over the priority water quality problem that we must continue to address for the foreseeable future. It is hypoxia, the condition of low dissolved oxygen that plagues the bottom waters of Long Island Sound each summer, and the challenges of managing the pollutant that is most responsible for its occurrence – nitrogen. Nitrogen comes from many sources ranging from coastal sewage treatment plants to Midwestern power plant emissions, and from many individual activities that infuse our everyday lives from driving our cars to walking the family dog. There is no easy or quick fix. Connecticut and New York have been diligent in their application of sewage treatment plant technologies and expect to reach nitrogen reduction targets before the close of the next decade.

Connecticut is especially pleased with the progress and success of their nitrogen-trading program, which has accelerated progress in sewage treatment plant nitrogen control. We are presently more than three-quarters of the way towards meeting the 2014 target for the 79 municipal plants participating in the trading program. We are proud of this success and in 2007 EPA awarded their Blue Ribbon for Water Quality Trading to our **Nitrogen Credit Exchange**. It took a lot of effort to get that program off the ground, and the support of the Long Island Sound Study in scoping the possibilities for trading and the funds provided through the Long Island Sound Restoration Act to promote planning and design for facilities upgrades in distressed communities are appreciated.

Since 1993, nearly 40 nitrogen removal projects in Connecticut have been completed or are in the works. These projects have a total capital cost of nearly $1 billion for all the work performed at those facilities, of which more than $300 million is specific to nitrogen removal. Since 2002, about 14 million nitrogen credits have been bought or sold in seven annual exchanges with a total value approaching $40 million. Through trading, Connecticut has been able to maintain steady progress towards the 2014 nitrogen wasteload allocation for the 79 facilities, and has easily attained the 2009 interim target ("2009 WLA" line in Figure 1).

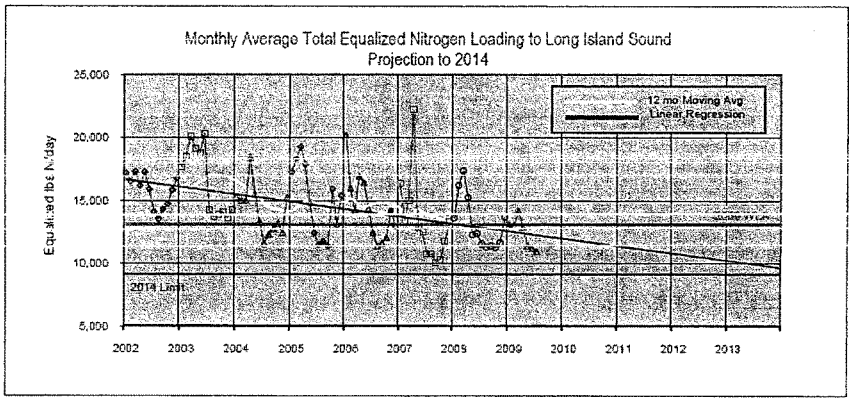

Figure 1. Performance of Connecticut's Nitrogen Credit Exchange, 2002-2009.

This is unquestionably a very expensive effort with much of the cost borne by the local taxpayers. However, the market forces of trading have created economic efficiencies that are estimated to save in the range of $300 - $400 million in construction costs when fully implemented in 2014. But that single action to manage sewage borne nitrogen will not fully resolve the hypoxia problem.

We have learned that the success of our nitrogen control programs in Connecticut depends on a steady, and large, infusion of funds. A 2007 analysis by a committee established by Governor Rell to assess the future of our Clean Water Fund reported nearly $5 billion in infrastructure

needs for municipal sewers and sewage treatment over the next 20 years. Included in that figure was about $600 million for nitrogen removal.[1] Increased bonding at the state level over the past two fiscal years and the added infusion of federal funds into the state revolving fund program through the American Reinvestment and Recovery Act, have made an enormous difference in our ability to meet the demands for financing as municipalities step up to upgrade for nitrogen removal.

Congress and EPA have also provided more flexibility for use of state revolving funds to support **Green Infrastructure**, manage storm water, septic systems, and even purchase land for preservation if related to water pollution control. However, because federal resources are still a relatively small portion of Connecticut's annual revolving fund allotment, and the needs are enormous, we have elected not to divert funds towards these expanded uses at this time beyond meeting the requirement of ARRA. As identified by the Connecticut Clean Water Fund evaluation, there are traditional needs that cannot currently be met; diluting our efforts to other causes, which are certainly worthy, would not provide for added or accelerated environmental gains at this time.

We know from recent modeling efforts supported by the City of New York and the Long Island Sound Study that management of Connecticut's and New York's treatment plants for nitrogen alone will not attain water quality standards for dissolved oxygen. It will require nitrogen reductions from other states in the watershed (Massachusetts, New Hampshire and Vermont), more attention to stormwater and nonpoint source runoff, and atmospheric deposition controls from both power plant emissions and mobile sources that may go beyond the present Clean Air Act requirements and State Implementation Plan goals. Whether reductions in those areas can be accomplished to the point where water quality standards in the Sound will be met is highly uncertain, but there is no doubt that implementation in those areas will be costly. Because of this uncertainty, and the unlikelihood of an enormous infusion of dollars to support stormwater and

[1] "The Clean Water Fund Dilemma: Increasing Demands with Diminishing Fiscal Resources". A report of the Clean Water Fund Advisory Work Group to DEP Commissioner Gina McCarthy. http://www.ct.gov/dep/lib/dep/water/municipal_wastewater/cwf_a_g_report.pdf

nonpoint source efforts, easily in excess of $1 billion in Connecticut alone, the Long Island Sound Study is evaluating innovative bioremediation alternatives to close the management gap. For example, enhanced production of shellfish or seaweeds, which do an excellent job of filtering water and sequestering nutrients, could supplement nutrient removal by harvesting and potentially provide viable products for market.

There is no better evidence of our need to do more than the current state of the Sound. Although we see signs of **Improvement in Dissolved Oxygen Levels** from our monitoring of Long Island Sound over the last 20 years, they are less than dramatic. Nevertheless, we should be pleased that over the last ten years, the area of hypoxia in the Sound has only significantly exceeded the long term average in one year – 2003, and severe hypoxia (less than 1 ppm dissolved oxygen) appears to be in decline, with a slight upward bump in 2008 (Figure 2). And this despite some of the warmest years on record that have exacerbated the Sound's sensitivity to hypoxia. Monitoring data for 2009 indicate a similarity to 2008 conditions, although the area of most severe hypoxia (less than 1 mg/L) did not recur. Because of the large amount of inter-annual variation caused by weather conditions, the five-year moving average presents the best indicator of change, and it's heading in the right direction.

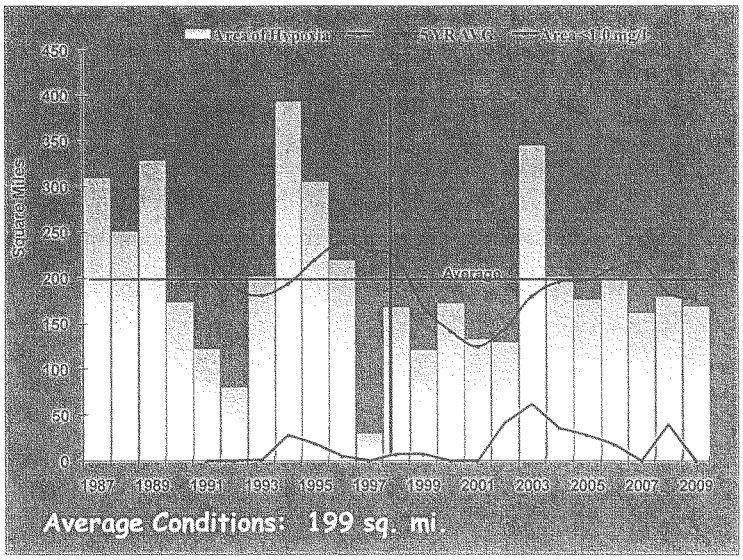

Figure 2. Areal extent of hypoxia in Long Island Sound, 1987-2008.

One additional water-quality condition warrants mention at this time – **Closures at Beaches and Shellfish Beds**. Excess levels of indicator bacteria close beaches and shellfish areas, a problem that can have significant economic consequences. Closed beaches impact tourism and businesses that rely on open beaches during the short, summer bathing season in New England. A week's closing at a busy beach can meaningfully impact a beach vendor's bottom line and if shellfish are unsafe for market there are economic consequences not only for the shellfish industry, but for the food industry that relies on a consistently available supply.

For Long Island Sound with its highly-urbanized watershed, **Storm Water** is a primary source of bacterial indicators; in a few older cities combined sewer systems remain a problem today. Bridgeport and New Haven, for example, are urban coastal communities where combined sewer overflows (CSO) during wet weather can contribute to beach and shellfish area closings. Both CSO and stormwater impacts are managed pre-emptively in many towns. Beaches or shellfish

beds are closed based on the amount of rainfall, which is presumed to deliver unacceptable amounts of indicator bacteria during storms. Additional study, as EPA has been mandated to perform in recent federal legislation, using better predictive models, indicators, and monitoring protocols, could improve responsiveness and, thus, potentially reduce the number and duration of closings. But, ultimately, better control of sources by implementing long-term control plans for CSOs and managing storm water are the primary objectives. Management of these sources is difficult, and will require education, innovative approaches and activism on the part of residents to ensure their individual septic systems are not failing, they pick up after pets, and we all work to reduce imperviousness that can promote runoff. And the solutions are costly, certain to exceed $1 billion for CSO abatement and stormwater management.

As environmental managers, we see a troubling but clear **Convergence of Management Needs** towards those recalcitrant problems that are not easily addressed through permitting and enforcement. In many respects, the structures of the Clean Water Act and National Pollutant Discharge Elimination System (NPDES) permitting programs have become outmoded. Both are well-designed to address the problems of past decades when industrial and municipal point sources were egregiously discharging toxic pollutants into the nation's waterways. Criteria for toxic pollutants were established and translated into permit limits, first on a technology basis but ultimately on a water-quality effects basis, and treatment implemented with enormous gains in water quality improvement and ecosystem health. Now the focus has shifted, and justifiably so.

Today's impairments are more often caused by runoff from urban and agricultural lands, and may be exacerbated by pollutants from distant sources, such as mercury and nitrogen, which contribute to impairments of waters throughout the Northeast but have their origin from power plant emissions throughout the eastern half of the nation. Even more troubling are the incremental, but significant contributions of mercury from global sources as far away as China. Nutrients associated with runoff are a major issue, and the highest priority for management to restore Long Island Sound and many other U.S. estuaries. Phosphorus management is an

acknowledged need for inland freshwaters in Connecticut and throughout the nation. However, the Clean Water Act paradigm for toxic chemical management is a poor fit for nutrients.

Nutrients are essential to healthy ecosystems but, in excess, can degrade water quality, impairing aquatic life systems. Each waterbody has a unique, inherent requirement for nutrients that is defined by its physical, chemical and biological make up. For that reason, attempts to set "threshold" criteria for nutrients in a "one size fits all" approach as has been done for toxic contaminants is not only futile, but ill-advised and contrary to sound ecological conditions that we are bound to protect. Instead, as has been done for Long Island Sound, there is no substitute for detailed monitoring, assessment and evaluation and targeted control of nutrients specific to the waterbody to ensure management towards a best attainable condition rather than a homogeneity of condition never intended by nature, and largely unattainable through human intervention. The bottom line is that there is simply no substitute for the diligent analysis of each unique ecosystem, its status and the effects of human alteration to come up with a viable nutrient management plan on a case-by-case basis. Numeric nutrient criteria being promoted by EPA simply defeats the objective of setting meaningful management goals for incredibly diverse and balanced ecosystems that should be managed to maintain that diversity, not to create artificial conditions.

Clearly, human activity has greatly distorted the nutrient balance of many of our nation's waterbodies, and management action is essential. **Land Use Practices**, particularly urban and suburban development, have had a major influence on both the quality and quantity of stormwater and nonpoint runoff delivered to Long Island Sound and to surface waters throughout the state of Connecticut. And something needs to be done about it. Conventional storm sewer systems serve to quickly deliver runoff to surface waters, and bypass infiltration opportunities that can help renovate polluted runoff. According to the University of Connecticut's Center for Land Use Education and Research (CLEAR), between 1985 and 2006, about 145 square miles of land was developed and associated impervious cover has increased in the state by more than 20%.

These uses of the land help deliver nutrients, bacteria, suspended solids, oil and grease and heavy metals associated with runoff from streets, highways, and parking lots to our surface and ground waters. The sources of those pollutants are varied, but can usually be attributed to human activities such as fertilizing lawns and gardens, not cleaning up after pets, leaking cars and trucks, poor erosion and sediment control, and use and corrosion of metals and other materials exposed to weathering.

Fortunately, changes are being made to better manage the land, albeit slowly. Connecticut, through state and federal programs, is stepping up efforts to regulate stormwater and to educate and implement best management practices for runoff, including **Low Impact Development** techniques. We were pleased to host a recently completed 10-year study in partnership with the University of Connecticut, the Town of Waterford, the U.S. EPA and other partners at Jordan Cove in Waterford that demonstrated the benefits of low impact development.[2] The study, funded through the EPA Sec. 319 (nonpoint source) program, proved that low impact practices work, with post-construction runoff almost identical to the amount of runoff measured before ground breaking.

That study, and research conducted by CTDEP in partnership with CLEAR's Nonpoint Education for Municipal Officials (NEMO) program, has further defined the relationship between levels of **Impervious Cover**, and water quality degradation as reflected in the diversity of aquatic life, i.e., macroinvertebrates and fish. Using that relationship, CTDEP adopted the first Total Maximum Daily Load (TMDL) analysis in the nation for an impaired water based on the level of impervious cover, which serves as a surrogate for the suite of pollutants that are delivered to the waterbody. The Eagleville Brook TMDL[3], with the University of Connecticut a major feature in the watershed, was adopted in 2007 and set the stage for a new, practical approach for resolving development-related water quality impairments where a suite of causative agents are likely involved, including

[2] http://www.cag.uconn.edu/nrme/jordancove/
[3] http://www.ct.gov/dep/lib/dep/water/tmdl/tmdl_final/eaglevillefinal.pdf

nutrients. This approach is critically important to resolving stormwater and nonpoint source problems, not only in the rivers flowing to Long Island Sound, but ultimately in the Sound itself.

In one sense, there is a potential benefit to having to address multiple problems from one source – land cover alteration – because management practices are likely to have multiple benefits as well. Standard **Best Management Practices** (BMP) for storm water and nonpoint runoff are not pollutant specific for the most part and treat the suite of pollutants associated with runoff and land degradation. Most BMPs simply simulate natural, soft landscapes with native vegetation to promote infiltration, which helps purify the water, and natural features such as wetlands where microbial decay and physical trapping of pollutants precludes them from contaminating surface waters.

Connecticut is at the fore of promoting better land management practices and green infrastructure, only limited by levels of funding paired with the enormous cost, and the ever present need to promote better practices among an often reluctant public. In 2007, Governor Rell initiated a "Responsible Growth" program by Executive Order to help address concerns over unwise development and sprawl.[4] The program has formed a steering committee charged with evaluation of sweeping changes related to development, transportation, energy conservation, brownfields remediation, and land preservation. DEP has a seat on the committee, and expects that this initiative will have far-reaching benefits in promoting low-impact development, and towards the programmatic aims of DEP to reduce runoff from developed areas.

The DEP through the EPA Clean Water Act Section 319 (nonpoint source) program is now developing several **Watershed-Based Plans** as a new approach to comprehensively identify pollution problems that impair surface waters, with a focus on nonpoint sources. The first such plan was been completed for the Niantic River basin in eastern Connecticut and DEP, in partnership with local representatives, has been implementing the recommendations of that plan

[4] http://www.ctbrownfields.gov/ctbrownfields/cwp/view.asp?a=2633&q=320932

to protect eelgrass beds in Niantic Bay and to reduce bacterial indicator loading to protect beaches and shellfisheries in the area. Most important, it is helping engage municipal officials, who have the authority to regulate local land practices, and whose residents are the primary stakeholders and beneficiaries of the positive outcomes. Key objectives will be to promote low impact development to stop additional deterioration of conditions, educate the public about their role and responsibility to protect the watershed through pollution prevention and landscaping techniques, and to install best management practices to mitigate existing sources where possible. There are similar plans under development in other watersheds throughout the state. It is hoped that over time watershed-based plans will be completed for all the state's impaired watersheds and implementation will be underway; however, the availability of Sec. 319 funds, which have been reduced in recent years, limit the number of active projects that can be completed, and the number of management actions that can be implemented.

CTDEP is also building a **Low Impact Development** (LID) program to promote better development practices in the state that will help slow the negative effects of poorly planned development. Recently, grants have been awarded to a dozen communities to conduct reviews of their local development regulations and ordinances to see how LID practices can be better accommodated and promoted in their towns.

Complementing efforts to improve watershed management practices, **Habitat Restoration** activities not only aid the protection and enhancement of fish and wildlife populations statewide, but healthy habitats also provide conditions that help purify water. Wetlands, river buffers, green corridors, and vegetated uplands all serve to keep the air and water clean, and can mitigate the effects of climate change. The difficult and time-consuming work for Long Island Sound habitats encumbers a lot of uncertainty, and can be quite costly. Therefore, when conditions exist that do not allow for full restoration, we try to restore the habitat's functions and values as fully as possible. This is often done in partnership with the many federal agencies and non-profit groups including the EPA's Long Island Sound Office, the U.S. Fish & Wildlife Service, Natural

Resources Conservation Service, the National Marine Fisheries Service, The Nature Conservancy, Save the Sound, Inc., Ducks Unlimited, and American Rivers, as well as academic experts. All provide expertise and can bring public and financial support to our programs.

Since 1980, over 1,920 acres of degraded tidal wetlands have been restored through such partnerships. Between 1983 and 1998, DEP issued municipal grants, funded through the state's Clean Water Fund, to study and/or restore 17 degraded sites in tidal waters under the Coves and Embayments Program. An additional 20 **Restoration Projects** have been funded through the "Preserve the Sound" License Plate program. Activities have included: removal of tidegates to restore tidal exchange; channel dredging to improve tidal circulation and water quality; construction of osprey platforms; fencing of beaches to protect piping plover and least tern nest sites; planting of beach grass to stabilize shorelines and prevent beach erosion; and installation of fish ladders to reestablish anadromous fish runs. A recent NOAA grant under ARRA is furthering these objectives with a $2.5 million grant to complement $2.25 million in state funds to provide fish passage around Tingue Dam on the Naugatuck River. That action will reopen 31 miles of the river to anadromous fish migration.

The restoration of eelgrass beds, which were decimated by reduced light transmittance caused by nitrogen-induced algal booms, has resulted from successful efforts to improve water quality in Long Island Sound through elimination of wastewater discharges. Removal of invasive species, such as the aggressive *Phragmites australis* (common reed) from tidal wetlands is an important habitat restoration initiative at DEP, though we are also focusing on the eradication of water chestnut (*Trapa natans*) and hydrilla (*Hydrilla verticillata*), which have threatened to overtake many bodies of freshwater throughout the state.

Passage of the Long Island Sound **Stewardship** Act in 2006 held promise for additional funding to assist with restoration activities under the Long Island Sound Study. The Study's stewardship approach brings key players to the table, engages the public, and is built upon several years of

evaluations in the habitat initiative fostered by the Study. Using $650,000 awarded to CTDEP through the Long Island Sound Study under the Act allowed us to partner with The Nature Conservancy to secure nearly 50 acres of very valuable coastal habitat along Connecticut's eastern shore at a total cost of $920,000. Habitat protection and restoration is a key component of state and federal plans to restore Long Island Sound, and complement and contribute to investments made to improve water quality.

In addition to restoring habitats, it is evident that we must be good stewards of our coastal landscape features, especially along our coastal shoreline, for both the environmental attributes they support and for the benefit and enjoyment of future generations. Open space and protected natural features preserve the scenic qualities that help define the cultural heritage of our shoreline towns, maintain the biodiversity of our environment by protecting sensitive habitats such as river corridors and ridge tops, and expand opportunities for public use and enjoyment of our coastal waters. These natural features also benefit control of stormwater and nonpoint sources, as described in the land use section.

The **Need for Additional Resources** to respond to the threats to the Sound's most significant recreational and ecologically areas is real and pressing. Connecticut's historic settlement pattern favors higher density development near Long Island Sound and its saltwater tributaries, threatening their health. Fifty-one percent of the land within Connecticut's coastal boundary, a narrow band of land with 1,000 feet of salt water, is classified as "developed," over twice the rate of developed land for the State of Connecticut. Despite the increased value of coastal area real estate over the last decade, coastal development pressure has intensified, threatening the quality of our coastal resources and increasingly placing coastal land conservation out of reach of public agencies.

Of Connecticut's 332 miles of shoreline directly fronting on Long Island Sound and its bays, harbors and coves, 73 percent is privately owned, much of it in small parcels that have been

developed. A recent CT DEP analysis of over 28,000 tax parcels within Connecticut's coastal boundary identified only 82 undeveloped parcels larger than 25 acres with significant conservation value remain. Only 31 such parcels greater than 50 acres remain as potential conservation acquisitions, indicating that very few large undeveloped parcels near coastal waters with conservation value remain in Connecticut.

Yet we can report occasional **Conservation Success** stories at some of our most ecologically significant coastal areas. For example, in 2004 we were able to add 144 acres, which had been approved for a golf course development, to our largest and most significant state coastal Wildlife Management Area. And just last year we transformed an area at that same property that had been used as dredge spoil disposal site into a native plant demonstration garden and salt marsh overlook and outdoor education interpretive area. Neither project would have been possible without grant funds from the U.S. Fish and Wildlife Service and NOAA.

Just recently, a 600-acre conservation property was acquired along the East River marshes in Guilford. This acquisition is one of the largest in Connecticut's history. It was made possible through a collaborative effort of the Town and CT DEP, with $3 million in funding made available through NOAA's Coastal and Estuarine Land Conservation Grant Program towards the $14.4 million cost. The Town of Guilford issued $11.4 million in municipal bonds to fund the difference. Unfortunately, for every such coastal conservation success story in Connecticut there are dozens of opportunities lost to development each year due a lack of available funds to acquire ecologically or recreational important coastal land.

In recent years **Dredging** and, consequently, **Dredged Material Disposal** have emerged as important issues in the Long Island Sound region. Periodic dredging is necessary to ensure Connecticut and New York harbors remain navigable for both safety and security reasons as well as for their contribution to the states' commercial and recreational economies. Therefore, we need to work together as a region to insure that we have protocols and processes in place to

accommodate the dredging of our harbors along with environmentally responsible management of dredged sediments in addition to the adequate federal funding necessary for maintenance dredging of federal projects.

Of paramount importance is federal funding to develop and complete the Long Island Sound **Dredged Material Management Plan** (DMMP) in a timely manner. The DMMP is a requirement of the EPA Site Designation Rule, which designated the Western and Central Long Island Sound Dredged Material Disposal sites in June 2005. The effort is being led by the Army Corps of Engineers ("ACOE") with detailed participation by EPA, NOAA, New York, and Connecticut. According to the EPA Rule, the DMMP must be completed by 2013 with limited opportunities for extension.

The states of Connecticut and New York have been working with the Corps of Engineers, EPA and NOAA to put together a project management plan for the DMMP that has the goal of protecting the environment "based on best scientific data and analysis" and which will consider alternative management practices to reduce open water disposal. While land-based alternatives to open water disposal should and will be identified and used when feasible, they are currently limited in application and, because of cost, can impose undue economic burdens on Connecticut marine facilities.

A related priority is initiation by EPA of an Environmental Impact Statement (EIS) to evaluate potential **Designation of Disposal Sites** in eastern Long Island Sound. In 2002, EPA decided to bifurcate the Environmental Impact Statement process into a process for western and eastern Long Island Sound. The outcome of the western process was the EPA Rule mentioned above. The process for the eastern Sound has not yet started. The main disposal site in eastern Long Island Sound is the New London Disposal Site, which is currently available on an interim basis but will close in October 2011 unless otherwise designated. EPA estimates that the EIS will cost $6 million and take 3 to 5 years to complete. Recently, Secretary of the Navy, Ray Mabus,

praised Governor M. Jodi Rell for Connecticut's contribution of $7.65 million towards construction projects at the Navy Submarine Base in Groton, something no other state has done to support jobs at a Naval installation. Clearly, **Dredging and Dredged Material Disposal** is of importance to marine interests in eastern Long Island Sound and essential to the long-term viability of the Navy Submarine Base, to maintain the mission capability of their waterfront infrastructure.

Finally, all our management activities – water quality, habitat, living resources, landscapes, and dredging – all need to be conducted with an eye to the potential effects of **Climate Change**, especially sea level rise, storm surges and temperature increase. Adaptation is a key, and I'm pleased to report that there's a concerted, multi-agency and public effort underway in Connecticut by a Subcommittee on Climate Change Adaptation that I co-chair with Lise Hanners of the The Nature Conservancy. It's a component of Governor Rell's climate change initiative under her Governor's Steering Committee on Climate Change. Within the Adaptation Subcommittee, we are looking at ways to adapt to climate change, and better protect our infrastructure, so essential to our population and our management of ecosystems; to protect public health; agriculture; and natural resources and habitats. If there's a lesson to be learned from the Katrina tragedy in Louisiana and Mississippi, and the effects of flooding in general, it's the value of wetland areas provide to dampen the effects of storms and to absorb rainfall. They need to be protected and restored for these human needs as well as intrinsic habitat values. In future years, DEP and its partners will continue their adaptation efforts in the four key areas identified above and will work with our federal partners and the Long Island Sound Study to make our Climate Ready Estuary project part of the solution to this dilemma of climate change and what to do about it.

In Summary: Connecticut and its partners in the Long Island Sound Study have made good progress in addressing many of the water quality, land use, habitat, and stewardship issues identified in the Comprehensive Conservation and Management Plan (CCMP). Yet, there is now, and likely always will be much left to do – new issues and new challenges will require new and innovative management actions, and a large public financial commitment. Pressures from

development, competing uses, and maintenance of existing infrastructure place enormous demands upon diminishing state and federal resources. We must keep the priorities established under the CCMP at the top of our management agenda, and be watchful of diverting or overextending our scarce and diminishing state and federal resources into new activities before we complete many of the tasks outlined above. We must also recognize the convergence of management actions around common sources of pollution, especially from runoff from the land, where multiple problems might be resolved by better land management practices.

Until we have resolved the problem of hypoxia in Long Island Sound, that should remain a top priority for management, including a primary use of our Clean Water Fund, Connecticut's state revolving fund. Habitat restoration, land use management, and stewardship are also high and relevant priorities in the Long Island Sound clean-up effort. But, they can only be incorporated if adequate funds are provided to meet those needs.

We need to keep an eye towards climate change, which will greatly complicate management strategies and casts uncertainty on the final outcomes of our efforts. Federal law and funding needs to provide a high level of flexibility to ensure states and the public can be responsive to a changing environment and are not forced to use yesterday's tools to fight tomorrow's problems.

Finally, the Long Island Sound Study has been an excellent focus for the discussions between Connecticut, New York, federal agencies and the public, providing funding and motivation to monitor, manage and educate. Continued support through the Long Island Sound Restoration Act, the National Estuary Program, and the Long Island Sound Stewardship Act are just a few of the vehicles to ensure consistent and steady progress.

Long Island Sound is an "**Estuary of National Significance**" and is highly valued by the residents of Connecticut, New York, and many others throughout the region. Let's be sure these

excellent efforts implemented over the past 25 years are continued as the necessary means to provide a healthy and vibrant resource to the public.

Testimony of
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United States House of Representatives
Subcommittee on Water Resources and Environment

Protecting and Restoring America's Great Waters: The Long Island Sound
Rayburn House Office Building Rm. 2167
October 6, 2009

Dear Chairwoman Johnson, Ranking Member Boozman, and distinguished members of the Subcommittee on Water Resources and Environment:

Thank you for this opportunity to provide testimony on the importance of protecting and restoring Long Island Sound, one of the country's great waters.

Save the Sound is a regional program of Connecticut Fund for the Environment and has worked to protect and restore Long Island Sound since 1972. With assistance from 6000 members, 1700 volunteers, and a cadre of scientific and legal experts we restore tidal wetlands and migratory fish-runs, advocate for Sound-wise policies and funding, defend its waters from imminent threats, and educate the region's citizens about the economic and ecosystemic importance of this national treasure.

It has been said that perhaps we can never bring the Sound back to its historic wilds, but there is public and governmental agreement that Long Island Sound is our heritage and we have a duty to protect it for future generations. We all share a common hope for our regional treasure:

> *It is a vision for a Long Island Sound that runs "with waters that are clean, clear, safe to swim in, and charged with life. It is a vision of waters nourished and protected by extensive coastal wetlands, by publicly accessible, litter-free beaches and preserves, and of undeveloped islands. It is a vision of abundant and diverse wildlife, of flourishing commercial fisheries, of harbors accessible to the boating public, and of a regional consciousness and a way of life that protects and sustains the ecosystem."*

It is a grand view that requires us to focus on both the successes and shortcoming encountered in the past, so that we can develop innovative strategies for the future.

Pursuant to the September 10, 2009 invitation to testify, I will focus on statutory and regulatory gaps in Clean Water Act §119[1] and how those gaps hinder the ability of governmental and non-governmental stakeholders to address water quality issues still present in Long Island Sound.

I. Clean Water Act §119: The Long Island Sound Restoration Act ("LISRA")

A. Statutory Scope

Section 119 of the Clean Water Act[2] ("CWA") expounds on the Management Conference authorized pursuant to the National Estuary Program (CWA §320)[3] by providing that an office be established[4] and a director, and other staff as necessary, be assigned[5] (collectively, "The Long Island Sound Study Office") to carry out eight general categories of duties.[6] These include:

> 1) Assisting and supporting the implementation of the Comprehensive Conservation Management Plan ("CCMP"),[7] including associated efforts to promote innovative methods and technologies when issuing watershed general permits;
>
> 2) Conducting or commissioning studies to strengthen CCMP implementation;[8]
>
> 3) Coordinating the grant, research and planning programs associated with §119;
>
> 4) Coordinating with federal agencies that regulate Long Island Sound and with programs established by the Marine Protection, Research and Sanctuaries Act;
>
> 5) Providing administrative and technical support to the conference;
>
> 6) Collecting and making Long Island Sound publications and information available to the public;

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[1] 33 U.S.C. §1269.
[2] *Id.*
[3] 33 U.S.C. §1330.
[4] 33 U.S.C. §1269 (a).
[5] 33 U.S.C. §1269 (b).
[6] 33 U.S.C. §1269 (c)(1)-(8).
[7] The CCMP consists of sections on public involvement and education and the following priority problems for Long Island Sound: Hypoxia, Toxic Substances, Pathogen Contamination, Floatable Debris, Management of Living Resources and Their Habitats, and Land Use and Development.
[8] This section includes an example list of such studies: population growth and waste water treatment, tertiary waste water treatment, dredging and contaminated sediments, watershed land use and nonpoint source pollution, wetland protection and restoration, atmospheric deposition, water quality requirements to sustain wildlife, state water quality programs, long-term financing of waste water treatment projects and water pollution control programs. 33 U.S.C. § 1269 (c)(2)(A-I).

7) Issuing a biennial report to Congress which summarizes progress and modifications of the CCMP and incorporates specific implementation recommendations; and

8) Convening discussions for state legislators to recommend coordinated legislative efforts that could aid the Sound's restoration.

Equally important to establishing the scope of the Long Island Sound Study Office, this section of the CWA provides two funding provision critical to progress in restoring Long Island Sound. First, and most importantly, it currently authorizes $40 million per year through 2010[9] to be distributed through grants to projects and studies that will assist in implementation of the CCMP,[10] particularly those that focus on actual implementation (which includes authority to discretionarily prioritize upgrades to wastewater treatment facilities in distressed communities[11]), research and planning, enforcement, citizen involvement, and education.[12] Second, it allows for additional funds to be appropriated as necessary for non-grant projects that fall within the previously outlined duties of The Long Island Sound Study Office and once again, for sewage treatment facility upgrade assistance in distressed communities, according to a strict reading of §119 (f)(1).[13]

While §119, in conjunction with CWA § 320[14] (the Nation Estuary Program), establishes the backbone of authority to carry out restoration in Long Island Sound and its watershed, it does not and cannot operate in a vacuum. There are numerous statutory and regulatory provisions that weave into the activities set forth in this Long Island Sound specific provision, and it is these other statutes and regulations that provide the true teeth for protecting and restoring Long Island Sound. Some are deeply ingrained in the implementation of the CCMP, such as the Nitrogen Total Maximum Daily Load ("TMDL") established pursuant to CWA §303(d) in 2000.[15] Others are critical to achieving the region's goals but not explicitly part of the Long Island Sound master plan, like ensuring the range of projects proposed in and around wetlands, whether they be airports like Tweed New Haven or individual dock permitees, comply with the state regulations and the local harbor management plans. And still others regulate areas not contemplated by the CCMP, but nonetheless essential in the ultimate expectation of fishable swimmable water quality, for example requiring that energy infrastructure proponents adhere strictly to the coastal policies of New York and Connecticut, or that public access and sewage treatment plant siting is adequately accounted for as sea level rise adaptation plans and regulations are developed.

B. Identification of §119 Gaps and the associated hindrance to the restoration of Long Island Sound

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[9] 33 U.S.C. §1269 (f)(2).
[10] 33 U.S.C. §1269 (d)(1).
[11] 33 U.S.C. §1269(e)(2).
[12] *Id.*
[13] 33 U.S.C. §1269 (f)(1).
[14] 33 U.S.C. §1330.
[15] http://www.longislandsoundstudy.net/pubs/reports/tmdl.pdf

While there is always room for improvement, the Long Island Sound Study Office and Management Conference have managed to do amazing things with relatively little funding. Each and every one of the duties set-forth in §119 (c)(1-8) has seen measurable progress and definable successes. A few examples include: a significant nitrogen trading program developed in Connecticut to address nitrogen pollution discharged from publically owned sewage treatment plants; studies on nitrogen reduction through the use of biofiltration projects have been commissioned and oyster restoration projects have received authorization; management coordination with United States Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, the Environmental Protection Agency, the United States Geological Survey, the United States Army Corps of Engineers, and the United States Department of Agriculture has built diverse and well versed federal involvement; a riparian buffer toolbox has been developed to help curb non-point source pollution; Stewardship and Restoration Initiatives have been developed and implemented to protect and enhance ecologically critical spaces; water quality modeling and monitoring programs have been developed and supported; and the public has been educated by consistent, high quality reports on the health of Long Island Sound, informative Long Island Sound Citizens Summits, and pharmaceutical take back programs.

Save the Sound believes that §119 is a solid statute that is at once broad--providing the needed flexibility to adapt and change resource management course as the research and planning around Long Island Sound develops--and specific enough to ensure restoration efforts continue to be measurable. However there are four areas we identify as gaps that hinder the ability of governmental and non-governmental stakeholders to address water quality issues still plaguing the Sound.

1) Inadequate Funding Authorization and Inadequate Funding Appropriations

Over the last decade, §119 has authorized $40 million per year for projects and activities associated with the implementation, research, and furtherance of the CCMP. Unfortunately, the historical record also indicates that only a fraction of that figure is ever produced, with the highest appropriation year of 2005 yielding less than a sixth of that amount and the lowest appropriation year of 2007 yielding less than a thirtieth. Even more grim, §119 is identified as a source to fund nitrogen reductions at wastewater treatment plants. Sadly, even if fully appropriated at $40 million per year, it would be a drop in the regional sewage-treatment-plant-needs bucket and would leave every other critical Long Island Sound restoration effort shivering in the cold.

With the exception of the recent stimulus allotment, the federal allocations for the Clean Water State Revolving Fund ("CWSRF") have been minimal. By leverage this federal support with over a billion dollars in state funded grants and low interest loans, Connecticut has developed a program to provide cash strapped municipalities with money for upgrades. This type of funding combined with innovative techniques like the nitrogen credit trading program and its municipal stormwater authority pilot program, are solid steps on the daunting march toward the nitrogen TMDL's 2014 deadline (please

see, *II. A. LISRA and Issues Facing Long Island Sound: Water Quality and Beyond* below for challenges and successes with Connecticut's Clean Water Fund). In New York, a 1996 bond act was helpful, but significant upgrade needs and staggering upgrade costs weigh down reductions in the nitrogen inputs from New York City's and Westchester County's plants. These bi-state upgrades, along with other watershed sewerage needs, such as septic systems control within Connecticut and combined sewer overflow separation in Massachusetts, are essential to restoring water quality in Long Island Sound. Connecticut and New York are working to keep up there end of the TMDL bargain, but authorization under §119 should be increased to reflect the true and burgeoning need of this estuary.

Consistent and adequate funding is necessary to achieve not only the much needed wastewater treatment upgrades, but to provide predictable sources for future research and public outreach efforts. This could be a watershed year for federal support of Long Island Sound: the United States House of Representatives passed the 2010 Interior & The Environment Appropriations Bill allocating $15 million to Long Island Sound programs, but with a significantly smaller amount provided by the Senate, the ultimate fate of this year's funding is still a mystery.

2) Regional Legislative Coordination: §119 (c)(8)

While partnership, cooperation, and information sharing has a clear path within the Long Island Sound Study Management Committee structure—representatives from New York and Connecticut's environmental and coastal agencies are designated to serve on the committee—multi-state legislator coordination has been limited. New York and Connecticut share this regional treasure, but have different water quality standards, different coastal policies, different state environmental quality statutes (mini-National Environmental Policy Act), different approaches to cross-jurisdictional projects like energy infrastructure, and different fisheries management programs to name but a few. A bi-state (New York and Connecticut) Long Island Sound Marine Resources Committee was established pursuant to state statute in 1988, but in addition to its limited scope, it has enjoyed a tumultuous tenure marked with limited meetings, an uncoordinated legislative redrafting and passage by Connecticut in 2005,[16] a subsequent Connecticut legislative redrafting, passage, gubernatorial veto, and legislative override in 2009, and bill stagnation in New York. A true bi-state, if not multi-state, watershed-based legislative committee is needed.

3) Grants for Enforcement: §119 (d)

Enforcement of basic federal and state environmental laws is key to the clean-up of Long Island Sound. The best laid plans are merely that-- plans. The CCMP, while covering much ground, is a generally unenforceable document. The teeth for our CCMP come from the various statutory and regulatory programs used to evaluate projects or activities that could impact the Sound's watershed.

[16] This redrafting was an effort to expand the commission's mission beyond Marine Resources.

It is through the thoughtful crafting, conditioning and enforcement of the provisions of New York City's ("NYC") State Pollutant Discharge Elimination System ("SPDES") permits that nitrogen reductions will occur at sewage treatment plants and combined sewer overflows will be remedied. Similarly, it is through the enforcement of Connecticut's Municipal Separate Storm Sewer System ("MS4") general permit created pursuant to the National Pollutant Discharge Elimination System[17] that stormwater pollution will be curbed. Other methods, like spotlighting electric companies who violate discharge and construction permits, will help ensure that future applicants adhere to their permits. And something as unexpected as both states vigorously enforcing litter laws will aid in the battle to eliminate floatable debris, like the thousands upon thousands of cigarette butts plaguing the Sound's waters and coastline.

However, as we have seen recently, enforcement becomes tougher and tougher as state budgets get tighter and agency staffing shrinks. In the last two years alone, Save the Sound/Connecticut Fund for the Environment have had to initiate legal action against five industrial polluters illegally discharging[18] into tributaries of Long Island Sound and against the City of Bridgeport, Connecticut for its continued sewage treatment plant permit violations. Furthermore, the recent New York Times Series *Toxic Waters*, and its corresponding tracking device, indicates that numerous facilities in New York and Connecticut have or are violating their Clean Water Act permits but lapses in inspection and enforcement continue to occur.[19]

While both states do what they can given budget and staff constraints, re-issuing adjusted TMDL related nitrogen discharge permits,[20] allowing toxic dischargers to pollute unchecked and allowing municipalities to run roughshod over requirements to abate raw sewage discharges stemming from combined sewer overflows is unacceptable to the citizens who have the right to healthy and safe waterways. Section 119 specifies that special emphasis be given to four key areas, and unfortunately enforcement programs seem to have gotten the short shrift leaving states without adequate resources and the region with scofflaws.

4) An Aging Management Plan

Every provision within §119 is tied to the goals of a fifteen year old management plan, and rightly so. The CCMP contains all of the agreed upon goals for achieving healthy waterways, restored habitats, thriving fisheries, and enhanced public access. While it has

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[17] 33 U.S.C. §1342(p)(6).

[18] On September 11, 2007, CFE filed Notices of Intent to sue under the Clean Water Act against five companies who were chronically violating their discharge permits. On January 29, 2008, four of the companies agreed to pay a total of at least $613,000 in penalties and environmental projects, and a lawsuit was filed against the fifth. The four companies are Electric Boat, Cytec, Whyco and Allegheny Ludlum. The lawsuit was filed against Atlantic Wire in state court cooperatively with the Connecticut Attorney General for a number of events, one of which killed hundreds of crabs in Branford Harbor. Atlantic Wire subsequently declared bankruptcy.

[19] http://projects.nytimes.com/toxic-waters/polluters/new-york ; http://projects.nytimes.com/toxic-waters/polluters/connecticut

[20] See infra *II.A.. Issues Facing Long Island Sound: Water Quality and Beyond*-- Water Quality.

worn well with age, there is a need for a review, refresh, and recommitment to the hope of a vibrant Long Island Sound. It is in this context, to broadly re-examine the CCMP, that the Citizens Advisory Council of the Long Island Sound Study is working to create a more unified picture of the Sound's progress: where have we spent our money this past decade and a half, which areas of investment have surpassed expectations and which have squeaked by, and which goals have fallen off the grid, are no longer relevant or have not yet been addressed. From there, overlapping areas can be charted to determine where the most value lies in terms of ecosystem protection, public access and industry return on investment. Over the course of 2010, this coordinated effort will tell us where we have been, where we are going, and what it might take to get there. The conclusion of this process is the beginning of a new chapter for Long Island Sound, one filled with drive to fulfill our existing CCMP obligations, new dialogs about emerging issues, future research needs, and a reengaged and reinvigorated public.

While §119 requires the Long Island Sound Study Office to report any modifications to the CCMP in its biennial report to Congress, it does not require or proscribe any re-visitation. The Long Island Sound Study Office and the Management Conference should be commended for recognizing the need and forging ahead on such limited resources. However, a provision requiring a decennium review and revision of the CCMP may be useful.

II. LISRA and Issues Facing Long Island Sound: Water Quality and Beyond

Long Island Sound is not just a body of water that is co-owned by New York and Connecticut, it one of the most urbanized waterways in the country. Trends it faces now are indicators of things to come in other national estuarine systems.

It was two short years ago to the day that the Long Island Sound Caucus, then headed by Congressmen Israel and Shays held field hearings in New York and Connecticut designed to garner information from resource managers, advocates, and the public at large. During those sessions, our local connection to the Long Island Sound Study, the Connecticut Department of Environmental Protection ("CTDEP") and the New York Department of Environmental Conservation ("NYDEC") illuminated years of successes and challenges of managing Long Island Sound's health, the advocates highlighted the need for vigilance, research, funding, and action, and the citizen's told stories of childhood beach memories, sailing adventures, and aquaculture livelihood. While one might expect that story to remain unchanged just 24 months later, there is a momentum that has been building.

Substantial commitments by both New York and Connecticut show significant movement from 2007. New York City and Westchester have agreed to upgrade aspects of their nitrogen reduction facilities and Connecticut has invested significant state funds to get its Clean Water Fund—its primary mechanism for upgrades to sewage treatment plants—back on track; five industrial polluters have been stopped, one of which in Branford, CT was a chronic polluter; CTDEP has issued an order requiring Bridgeport, CT to investigate and remediate its egregious sewage treatment violations by next summer;

Hartford, CT is progressing on its massive combined sewer overflow separation; the New York Department of State stopped the industrialization of the Sound's mid-waters when it denied Broadwater a coastal consistency certification; and the Citizens Advisory Council of the Long Island Sound Study embarked on an ambitious plan to evaluate the CCMP, identify gaps and needs and then to set a course for new and uncharted territories like sea level rise.

LISRA appears to be exclusively concerned with water quality, due in equal part to its specific language and its placement within the Clean Water Act. In actuality, its breadth is more expansive. It provides the means for full implementation of all aspects of the CCMP and the incentive for further estuary research. It is in this vein that Save the Sound respectfully submits the following perspective on three key areas: 1) Water Quality, 2) Land Use, and 3) Habitat Restoration and Stewardship.

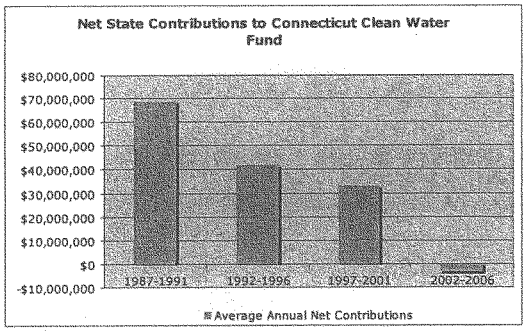
A. Water Quality

Long Island Sound is a complex ecosystem, which means that there are many overlapping, interdependent pieces to the puzzle of its overall health. While there is much we still do not know about the system, we do know that good water quality is its lifeblood. It is for this reason that so much focus has been placed on improving the destructive and clearly identifiable problem associated with excess nitrogen. Despite its reputation as a villain, it is the volume of nitrogen that we dump—either through point sources like sewage treatment plants, or non-point sources like the fertilizers we put on our lawns—and not the nitrogen in and of itself that causes the low oxygen problems.

When the federal government and the states of New York and Connecticut promised the citizens clean and healthy water thirty years ago, the goal was to stop the billions of gallons of raw sewage that enter our waterways each year by separating combined sewer overflows and to restore the Dead Zone in Long Island Sound by removing approximately 60 percent of nitrogen inputs.

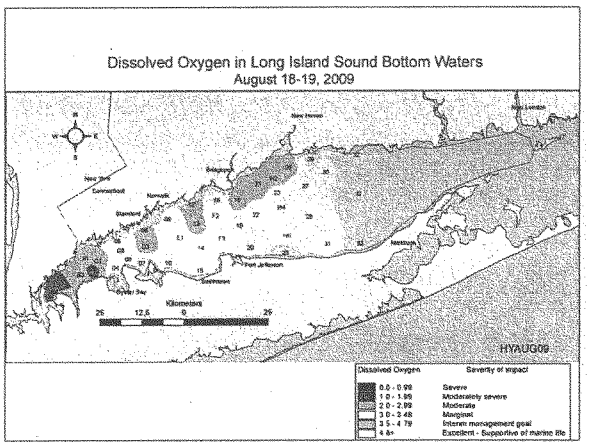
The good news is that progress has been made. Due in large part to Connecticut's innovative nitrogen cap and trade program, we are about 40% of the way there. The problem is that as we get closer and closer to the goal, reductions will get more expensive and more diffuse. The difficulty, as we see it will be 1) adequate funding, 2) enforcement and 3) sufficient public awareness.

As the citizens of Connecticut took to Long Island Sound, its beaches and its tributaries this summer, they were shocked to learn that our water isn't as clean as is should or could be. This year a national study showed that Connecticut closed its beaches or issued advisories 135 times in 2008, a statistic that will surely rise once data from the 2009 beach season is tabulated. Additionally, despite years of great progress, the Clean Water Fund began to fall apart when the legislature decided to shift that money to other purposes in 2002.



The value of a well financed Clean Water Fund to protect the public's health became painfully clear in 2005 when Hartford's city sewer flooded the local residents' basements with raw sewage.

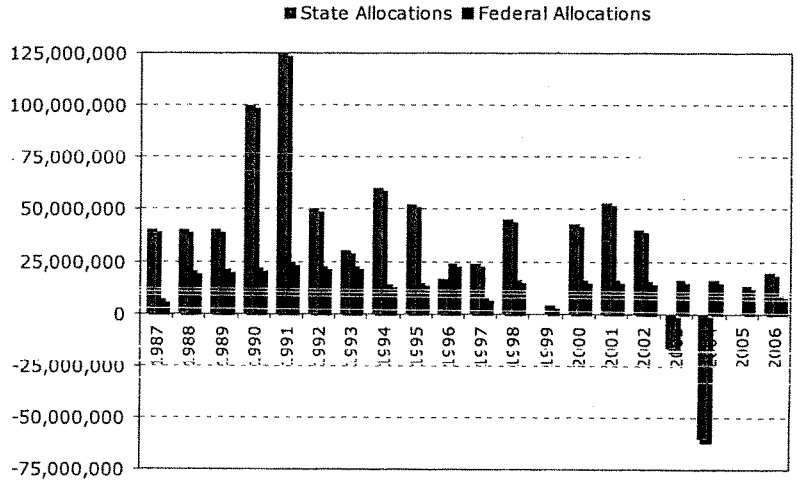
Its value to the environment was reinforced the following year when inadequate funding for nitrogen reduction forced the CTDEP to permit the discharge of over 1.5 million more pounds of oxygen depleting nitrogen into Long Island Sound than was originally allowed under existing permits.



As we sit here today, the Clean Water Fund remains a precarious success. Connecticut redoubled its efforts for Fiscal Years 2008 and 2009, setting aside $595 million in state funding. However, the state has noted that within the next 20 years nearly $5 billion is

required to fund wastewater treatment infrastructure,[21] and state allocations for Fiscal Years 2010 and 2011 dipped to $265 million. Failure to make the required re-investment could result in lakes and streams remaining impacted by sewage-laden water for decades to come and could result in a delay in the clean-up of Long Island Sound's Dead Zone.

But state funding is not the only avenue that ensures upgrades to our sewage treatment plants. Federal dollars for the CWSRF, money that Connecticut leverages for its upgrades, has also been cut over the years and a re-investment in the country's waters is needed.



On occasion, LISRA has augmented the state's Clean Water Fund financing in distressed communities. The fiscal year 2001 appropriation of $1.58 million was used for planning grants and in fiscal years 2002 through 2005 appropriations of $8 million were used for design grants.

Simply put, Clean Water Funding whether state or federally driven makes the region a better place to live and do business and the citizens should not be asked to wait for something as basic as sewage-free and healthy water.

B. Land Use:

Typically when CCMP land use issues are discussed, they revert to municipal and county planning and zoning as the framework. Instead of focusing on upland zoning and buffers, Save the Sound would like to highlight two priority areas: public access and use of submerged lands.

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[21] http://www.ct.gov/dep/lib/dep/water/municipal_wastewater/cwf_a_g_report.pdf

1) Public Access

As the environmental adage goes, 'we save what we love, we love what we understand, and we understand what we are taught.' If we are to save Long Island Sound, the public must understand it, and there is no better way for people to learn than to give them direct access to the Sound's beaches, waters and habitat. Connecticut has added more than ten miles of public access since 1980 through its Coastal Consistency program. Despite this increase, a substantial portion of the coastline remains closed to the general public. We are hopeful that expanded funding sources like LISRA, the Long Island Sound Stewardship Act ("LISSA") and the Coastal and Estuarine Land Conservation Program ("CELP") will grow to allow more aggressive public access improvements and expansions.

2) Use of Submerged Lands

Sure signs of progress for submerged lands have been made with the 600+ acres of wetlands restoration and the Cornell University eelgrass meadow work off of St. Thomas Point in NY. However, just as intense development on coastal land has become an ongoing balance between economic growth and environmental responsibility, submerged lands and the appropriate use of those lands have also been thrust into the spotlight over the past 5 to 10 years.

Long Island Sound is held in trust for the citizens of New York and Connecticut. This "trust" is a real trust in the legal sense of the word, with the trustees (the State Legislatures and their delegates) being responsible for, and having a duty to protect the trust. Because these are public goods to be shared by all, "the government must assume a trust-like duty not to waste or expend them for the benefit of just a few."[22] "There is a clear purpose for the trust: to preserve and continuously assure the public's ability to fully use and enjoy public trust lands, waters and resources for certain public uses." [23]

In Connecticut and New York, this public trust doctrine generally guarantee's the public's right to use the shoreline and the water and acts as a limitation on the state's ability to convey underwater land.

Unfortunately, as the coastline has became more congested, companies have begun looking to Long Island Sound as an easier, quicker, and less expensive options for development rights-of–way. Connecticut began to look into long-term effects of such projects nearly five years ago, and now available settlement funds could help fill in some data gaps, but more must be done. Cumulative impacts analysis, on going mapping and identification of critical areas, stringent monitoring requirement and permit enforcement

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[22] Richard Delgado, Trust Theory of Environmental Protection, and Some Dark Thoughts on the Possibility of Law Reform, Issues in Legal Scholarship, *available at* www.bepress.com/ils/iss4/art4 (summarizing Joseph L. Sax, The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention, 68 Mich. L. Rev. 471, 478-89, 553-57 (1969-1970).

[23] Coastal States Org., Putting the Public Trust Doctrine to Work (2nd 1997).

will continue to be a challenge as the potential for damage to the Sound's submerged land grows.

C. Habitat Restoration and Stewardship

The region has a unique method and ambitious plan to restore the habitats of Long Island Sound. A hugely successful partnership of non-profits, governmental agencies, local groups and citizens have set a goal of restoring or protecting 800 acres by 2011 and restoring 2000 acres by 2020 of critical habitat important to wildlife and water quality. Additionally, the same partnership set a goal to restore 150 river miles around Long Island Sound by 2011. Opening these rivers will allow our migratory fish to access ancient spawning areas and should result in increased stocks in Long Island Sound. The great news is that we have met our initial river goal early; having exceeded that 100 mile mark we added another 50 miles, and so far 609 coastal acres have been restored. For example

- In Branford, CT 16 partners at the federal, state and local level came together to built a fishway on Queech Brook that reopened 5 river miles and 84 acres of water to migratory fish—the fish are now able to reach areas of the river, important for spawning, that they had been unable to reach for over one hundred years. This project was so successful, it received one of the 2007 Coastal America Awards.

- At Norwalk, CT's Wilson Cove, 10 acres of marsh habitat was reopened to tidal flow. Just six years later, native vegetation and animals are recoloinzing the site; a clear indication that the marsh is showing signs of a strong recovery.

- NOAA awarded $1.5 million through their Coastal and Marine Habitat Restoration Grants to the West River tidal gate replacement in New Haven, CT and the Bride Brook culvert replacement at Rocky Neck State Park in East Lyme, CT. These projects will have an enormous environmental impact through the restoration of marshland that is home to bird and fish species critical to the Long Island Sound ecosystem.

These projects, and other hands-on-work like that occurring at the Nissequogue Stewardship site on Long Island, illustrate that when the region works as a team, demonstrable results that improve the health of the Sound and its inhabitants are achieved.

Yet much work remains, particularly in the habitats crucial for our bird populations. Birds are a key indicator of the overall environmental health of Long Island Sound including water quality. More than 400 species of birds have been recorded on the Sound or along its shores, and more than 125 species are considered residents, a testament to the abundance and diversity of high quality habitats remaining in the ecosystem. National Audubon Society has recognized more than 20 sites as Important Bird Areas on Long Island Sound in Connecticut and New York including the pristine tidal marshes of the

Barn Island Wildlife Management Area, the barrier beach systems of Long and Pleasure Beaches in Stratford and Bridgeport, the marine Islands of Falkner and Great Gull Island, the tidal flats surrounding Menunketesuck Island in Westbrook, and the undeveloped lands that serve as migratory stopovers for hawks and songbirds at places like New Haven's Lighthouse Point Park. Each of these 20 sites has its own unique restoration, acquisition, and habitat enhancement needs.

As we look to the future, four major challenges come into focus.

First, the inventory of key ecological sites is by no means complete and development of such an inventory should be a priority. Connecticut's Comprehensive Wildlife Conservation Strategy, prepared by the Department of Environmental Protection in response to federal direction, cites lack of information on the abundance and distribution of wildlife species and their habitats as the key impediment to successful conservation. A systematic natural resources inventory would provide improved information on the distribution of critical wildlife habitats in the Long Island Sound ecosystem and enable us to take a systematic approach to prioritizing key habitat restoration and land acquisition opportunities. It would also allow us to make more informed decisions about the siting of infrastructure including pipelines, cross-Sound cables and wind or other renewable energy generation facilities. Improved efficiency in our land protection and habitat restoration efforts would not only benefit the wildlife that depend on these critical areas, but would assist efforts to improve water quality in the Sound. Undeveloped coastal areas act as a buffer against point and non-point source pollution and healthy tidal marshes act as critical filtration systems for the Sound's waters.

Second, just as partnerships are necessary to ensure successful projects, they are also necessary to ensure adequate funding is available to move those projects along. In addition to local and state money, we need the support of the federal government. Not only must we fund the LISRA and LISSA, but the Sound also needs support through the increased funding of NOAA's Community Based Restoration Program ("CBRP"), which was responsible for the Darien Five Mile River Tidal Wetland Restoration, the NOAA Open Rivers Initiative ("ORI") which was responsible for the Saugatuck River Fish Passage Improvements and NOAA's Coastal and Estuarine Land Conservation Program ("CELP") which could help the Stewardship Program as it expands to the acquisition of coastal properties and conservation easement.

Third, a system to prioritize marsh restoration projects with respect to their likelihood of survival is essential if the region is to respond to the impending threat of sea level rise. Scientists predict that sea level rise in Long Island Sound will inundate many existing salt marshes and coastal wetlands; suggesting that innovative engineering approaches and adjacent land acquisition will be needed to respond to expected ecosystem changes like marsh migration.

Fourth, restoration efforts need increased monitoring and better coordination of information so that we can determine the successes and failures of existing programs. Ongoing research is needed to track habitat changes and to deal with emerging issues,

like the sudden wetland dieback that is threatening many of our marshes. Developing technology such as remote sensing will facilitate better tracking and monitoring of marsh health, studying ways to restore eelgrass meadows, and extensive seafloor habitat mapping will assist the region in better managing Long Island Sound.

In short future restoration priorities include: a) increased federal funding for LISRA, CELP, CBRP, ORI and LISSA; b) increased coastal land acquisition for the protection of marshes as sea levels rise, and c) increased research and monitoring of marsh changes using latest technology.

III. Conclusion

Two things are clear: 1) substantial progress in protecting and restoring Long Island Sound and its habitats is being made and 2) significant funding will be required if the region is to continue this progress. Expanded authorization and full, consistent funding for the Long Island Sound Restoration Act may be the most critical action, but it is only one facet of a productive Long Island Sound.

Someone once told me that until individuals within our society take responsibility and begin to see environmental protection as more than someone else's adequate management of the decline, we will continue to propagate bad policies that result in even worse decisions. Yes, our elected officials and governmental resource managers have created numerous Sound-wise planning opportunities and they are a key component in the fight for a healthy Long Island Sound, but they are not the core. Our residents need to realize that each and every one of them is empowered with the ability to affect true change. It is the mother and father who takes their children to a beach cleanup in Oyster Bay, Long Island who not only to make a difference on that one day, but teach future generations that good environmental stewardship starts at home; it is the 70 year old woman in Ansonia, CT that calls her state Senator to explain why Clean Water Funding is just as important as school construction; and it is the 6 year old boy in Westport, CT that asks for donations in lieu of birthday gifts so that he can help protect the Sound's critters that will determine the Sound's fate.

We are grateful to the members of our regional Congressional Delegation, like Congressman Bishop, for their tireless work in protecting Long Island Sound and to the Subcommittee on Water Resources and Environment for reaching out to our communities and giving us this opportunity to help change the tide.

Testimony of Peter Scully, Regional Director
New York State Department of Environmental Conservation
Before the
United States House of Representatives
Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure

October 6, 2009

Protecting and Restoring America's Great Waters: The Long Island Sound

Chairwoman Johnson, Ranking Member Boozman and distinguished members of the Subcommittee on Water Resources and Environment, on behalf of New York Governor David A. Paterson and Department of Environmental Conservation (NYSDEC) Commissioner Alexander B. "Pete" Grannis I want to thank you for the opportunity to testify before you today on New York State's efforts to protect and restore Long Island Sound. I am the Director of the Long Island Regional office of the New York State Department of Environmental Conservation. My testimony today will address the actions which New York State has taken to date, in concert with our counterparts in Connecticut and the United States Environmental Protection Agency (USEPA), to restore Long Island Sound. I will also address the state's recommendations for future actions which we encourage the Subcommittee to consider to enhance our joint efforts to restore the Sound's water quality and bountiful natural resources.

The Importance of Long Island Sound to New York State

Long Island Sound is one of our Nation's greatest treasures, and its restoration is a priority for New York. More than 120 species of finfish are found in its waters. Over 20 million people live within 50 miles of the Sound, and millions use the Sound for boating, commercial and sport fishing, swimming and beach going. About $8.5 billion is generated annually for the regional economy from these uses.

The ability of the Sound to support activities such as these is dependent on the quality of its waters, living resources and their habitats. The current value and quality of the Sound are partly the result of investments in water pollution control, habitat protection and fishery management programs made over the past two decades.

The achievements that we have made to date have occurred under the auspices of the Long Island Sound Study (LISS), which was created jointly by USEPA, the states of New York and Connecticut and other concerned parties. This 24-year cooperative project involving federal, state, interstate, and local entities, universities, environmental groups, industry and the general public is part of the National Estuary Program, administered by USEPA, and is designed to address major environmental problems in estuaries of national significance. The study culminated with the approval of the Comprehensive Conservation and Management Plan (CCMP) for Long Island Sound in September of 1994, as reaffirmed in 1996 and 2003. The plan is being implemented as a blueprint to improve the health of the estuary while ensuring compatible human uses within the Sound ecosystem.

The CCMP has identified seven priority areas for implementation in the Sound: low dissolved oxygen (hypoxia, the top priority); toxic contamination; pathogen contamination (closure of shellfish beds and bathing beaches); floatable debris; health of the living resources and their habitats; land use; and public outreach and involvement. It also laid out 232 specific actions to protect and improve the health of the Sound while ensuring compatible human uses within the ecosystem.

During the summertime, over one-half of the Sound's bottom waters experience dissolved oxygen below the state standard of 4.8 mg/L, greatly stressing marine organisms. Through research and monitoring/modeling, excessive nitrogen was determined to be the cause of the summertime hypoxia. Nearly 20 years ago, New York and Connecticut agreed to the first steps in controlling nitrogen loads to Long Island Sound. The LISS adopted a phased approach that froze wastewater treatment plant discharges of nitrogen (Phase I), then committed to reduce these discharges (Phase II) using low-cost upgrades and process modifications. By 1997, a reduction of 3,300 tons of nitrogen per year had been reached. In 1998, agreement was reached on Phase III, including a commitment to reduce nitrogen from New York and Connecticut by 58.5% from 1994 baseline levels by 2014 through a Total Maximum Daily Load (TMDL). This TMDL was approved in 2001.

As one of the CCMP's key actions, municipalities which abut the Sound are required to upgrade their wastewater treatment facilities to virtually eliminate nitrogen discharges which are a cause of hypoxia, or low dissolved oxygen. Hypoxia, one of the most significant problems facing New York's coastal waters, has been found to impair the feeding, reproduction and growth of aquatic life. The phased nitrogen goals included a Phase IV to review out-of-state air and watershed sources of nitrogen and management actions coordinated by USEPA. In combination with these phases, Phase V actions consider several non-treatment technologies, such as aeration and tide gates on the East River.

Some fish and wildlife are contaminated with polychlorinated biphenyls (PCBs) and consumption advisories are in place to protect public health. Advisories exist for the consumption of striped bass, American eel, and bluefish and the tomalley of lobsters. Studies conducted by NYSDEC and the Connecticut Department of Environmental Protection (CTDEP) on contaminant levels in striped bass and bluefish indicate that the PCB levels have declined by an order of magnitude over the past 20 years, but mercury levels are still elevated in the fish tissue. Studies such as these are important, because elevated levels of contaminants in sediment cause impairments to resources and make it more difficult to dispose of dredged material. Long Island Sound beaches are periodically closed, along with 73% of New York's productive shellfish beds because of high levels of pathogens. Pathogens are potentially disease-causing organisms that are a public health concern when a certain concentration is reached. A majority of these pathogens reach the Sound through stormwater.

Given the magnitude of these challenges, New York cannot succeed in restoring Long Island Sound alone. We appreciate our partnership with USEPA, other federal agencies, our counterparts in Connecticut, local governments, not-for-profit organizations, and a very committed citizenry. Through our joint efforts, much already has been accomplished. New York's concern is that, without a much higher level of commitment from the federal government,

we will not be able to sustain the improvements that we've made in the Sound's water quality and habitats.

The Need for Federal Involvement in Long Island Sound's Restoration

In 2001, USEPA approved the Total Maximum Daily Load (TMDL) for nitrogen discharges to Long Island Sound that was developed by Connecticut and New York. The TMDL is the nitrogen reduction plan which formalized the agreement between USEPA and the two states and made the reductions enforceable under the Clean Water Act.

To combat these serious problems, New York State, county and local governments anticipate spending an estimated $1.1 billion, in addition to the millions already spent on wastewater treatment upgrades. These funds will reduce nitrogen discharges to the Sound which cause hypoxia. State and local funds also are being used to restore aquatic habitats, control nonpoint sources of pollution, acquire valuable open space, provide access, and to undertake many other essential projects for the residents of New York who live and work along the Sound.

In 2000 – more than 10 years after New York and Connecticut began to restore the Sound – Congress approved the Long Island Sound Restoration Act (P.L. 106-457, Title IV, as reauthorized by P.L. 109-137), in recognition that New York and Connecticut should not be expected to upgrade sewage treatment plants along the Sound, an Estuary of National Importance, or implement the priority actions of the CCMP, without federal assistance. LISRA, as the Act is called, authorizes federal appropriations up to $200 million to assist in the Sound's restoration – matching the funds which New York already has provided for Long Island Sound improvements through the Clean Water/Clean Air Bond Act of 1996 and other sources. LISRA funds can be used for a wide variety of projects, including habitat protection and restoration, sewage treatment plant upgrades, program management, monitoring, education, research and special projects. The LISS Management Committee determines the uses of the LISRA appropriations to best meet the needs of the Sound.

To date, the States have had only limited success in securing the federal appropriations which could be of significant benefit in funding the sewage treatment plant upgrades needed to protect Long Island Sound's water quality and natural resources. Since Federal Fiscal Year 2001, the first year for which funds could be appropriated pursuant to LISRA, less than $50 million has been appropriated by Congress. To date USEPA has only included modest amounts in its budget request, which, in our view, do not reflect the intent of Congress in enacting LISRA, even though the funding necessary for nitrogen removal is projected to be in excess of $1 billion in New York State alone.

New York appreciates the commitment Congress has demonstrated to Long Island Sound through the enactment and reauthorization of LISRA, as well as the sustained support for the appropriations which have been secured. In particular, we appreciate the hallmark efforts of New York's Congressional Delegation, particularly the advocacy of Congressmembers Israel, Bishop and Lowey, Senator Schumer and Senator Gillibrand for the State's Long Island Sound needs. We also are grateful for our partnership with USEPA, and their consistent efforts to

provide funding for LIS projects. Without the continued advocacy of Congress for this important estuary, however, we fear that efforts to restore Long Island Sound will continue to limp along. For this reason, your interest today in reauthorizing LISRA is greatly appreciated by the State of New York and its citizens.

The Impacts of Sea Level Rise on Wastewater Treatment

Each of the issues I have raised, while important in its own right, is subsumed by the critical issue of sea level rise and its potential impacts on Long Island's natural resources, water supplies and communities. NYSDEC's natural resources staff has already begun to observe detrimental impacts of sea level rise on ecosystems in southeastern New York. Sea level rise is contributing to salt water intrusion into Long Island Sound's sole source aquifer, which the entire region relies upon for its drinking water, and is changing wetland delineations, that had never before been envisioned. In addition to working to reduce the level of greenhouse gases that result in climate change, actions are needed to address the likely impacts of sea level rise on sensitive communities – particularly those in the Long Island Sound watershed. According to the Intergovernmental Panel on Climate Change, sea level rise is likely to result in more intense hurricanes and temperature increases in the Atlantic Ocean, both of which will have unanticipated consequences for the people who live and work in the Long Island Sound area, along with the natural resources which are so abundant in this region.

Sea level rise may, in part, determine future wastewater treatment needs. In order to prevent groundwater degradation, for example, it may be necessary to upgrade existing sewage treatment plants and to construct new plants to eliminate the use of aging and failing septic systems. New York City is evaluating the issue of how to protect its infrastructure and water quality from rising sea level, and other Long Island Sound communities need to do so as well. The New York State Sea Level Rise Task Force is developing guidance to municipalities to protect infrastructure and natural resources.

Actions to Improve upon LISRA

As I have already mentioned, the need for continued Congressional involvement in this biologically important and heavily populated region remains important. At the same time, we believe that it's time to change direction somewhat, so that the actions we take in the future can be even more effective.

While the need for federal support continues for wastewater treatment upgrades so that serious pollutants such as nitrogen discharges to the Sound are significantly reduced, we believe that it is also critically important that efforts be made now to address stormwater discharges to the Sound. Closures of shellfish beds for harvest are clearly linked to stormwater discharges. Through targeted stormwater control efforts, New York is in the final steps of re-opening the outer portion of Hempstead Harbor for shellfishing after it had been closed for more than 50 years. With sufficient resources, we should be able to open other areas for commercial and recreational harvest to support both commercial and recreational fishermen.

In order to reduce nitrogen loading from stormwater discharges to Long Island Sound, a wide range of sources, from urban areas to landscaped green space, must be addressed. Effectively controlling urban runoff involves a comprehensive inventory of the contributing impervious areas, the installation of stormwater management practices, and the improvement of existing stormwater controls. Implementation of a retrofit program to improve existing stormwater infrastructure with enhanced treatment systems, an accelerated maintenance program, reduced fertilizer applications and an effective public education program, are other important goals. While water quality improvements are integral to restoring the health of Long Island Sound, so are actions to restore habitats of this biologically productive region. Along with New York State and local governments, federal assistance is needed to restore eelgrass and tidal and freshwater wetlands, shellfish spawner sanctuaries, and to mitigate barriers to fish passage. Invasive species – a pervasive problem across New York State – also must be a targeted component of efforts to restore the Sound. As an action which goes hand-in-hand with restoring habitats, the establishment of no discharge zones for marine vessels – and inexpensive but important means of protecting water quality and habitats and controlling invasives – also must be considered in LISRA reauthorization efforts to complement the activities already underway in New York and Connecticut.

Finally, I want to briefly mention LISRA's sister statute, the Long Island Sound Stewardship Act (LISSA). LISSA was enacted in 2006 to identify, protect and enhance special places around Long Island Sound. LISSA acknowledges the necessity of the federal role in protecting habitats along the Sound, in both New York and Connecticut, not only to preserve the environmental quality of the Sound, but to ensure public access to it. By authorizing appropriations of $25 million annually for this purpose, for Fiscal Years 2007 through 2011, the Act recognizes the importance of federal financial contributions to these stewardship projects.

To date, LISSA has not been as effective as its sponsors envisioned. New York believes that amendments could be made to streamline this law, and possibly fold it into LISRA. As things currently stand, LISRA and LISSA compete against one another for funds; a single, comprehensive funding source for all Long Island Sound-related projects would be an ideal solution. Because this action would involve other Congressional committees, however, we defer to the Subcommittee to determine whether it would be feasible to consolidate both of these laws under one umbrella statute.

Summary

In summary, Long Island Sound has been one of the most beautiful and ecologically productive regions of the country, meriting the strong support of Congress and the federal government in efforts to improve its water quality and ecosystems. While many actions to improve the Sound have been made by New York, Connecticut and our federal, local and other partners over more than two decades, much more needs to be done. For Long Island Sound, we are at a crossroads – the success of our past endeavors shows that actions can be taken to reduce hypoxia and restore healthful water quality. In order for our past efforts to be successful, however, it's time for the states and local governments to redirect their efforts toward new - and in some cases very costly - efforts to reduce pollutant loads to the Sound. For this goal to be met, the federal government

must enhance its commitment to this Estuary of National Significance. New York is confident that, with the support of Congress, we can achieve the long-hoped for goals for the Sound.

On behalf of Governor Paterson and Commissioner Grannis, I thank you again for holding today's hearing and for your interest in New York's views on Long Island Sound restoration. I would be happy to answer any questions that you might have.

Testimony of
Mark A. Tedesco
Director, U.S. EPA Long Island Sound Office
Before the
Subcommittee on Water Resources and Environment
of the
House Transportation and Infrastructure Committee
October 6, 2009

Thank you Madam Chairwoman and Members for the opportunity to address the Subcommittee on reauthorization of Section 119 of the Clean Water Act.

I am Director of EPA's Long Island Sound Office, which is located in Stamford, Connecticut. In short, Section 119 continued the Management Conference of the Long Island Sound Study and established an EPA office to coordinate and fund implementation of the Comprehensive Conservation and Management Plan for Long Island Sound developed by the program.

The 16,000 square mile watershed of Long Island Sound lies within five states and two EPA regional offices. Nearly nine million people live in the Sound's watershed, among the most developed of any coastal system in the country. To protect and restore the Sound, the Long Island Sound Study approach is comprehensive and inclusive. First, we look at the Sound as an ecosystem, unhindered by political boundaries. We recognize that human use is a vital component of the ecosystem and that science must inform all our work. Second, we work through partnerships and collaboration, bringing together the skills and resources of federal, state, and local agencies, the private and non-profit sectors, and our research institutions to develop a shared vision, based on sound science. Working through the Long Island Sound Study

Management Conference, EPA supports and funds a number of activities, including:

- state and federal staff dedicated to Long Island Sound;
- research and monitoring to understand the status and trends in habitat and water quality, and to connect these trends to causes;
- implementation of water quality and habitat restoration, watershed planning, nonpoint source pollution abatement, and land protection actions; and
- education and outreach.

The states of Connecticut and New York are co-sponsors of the program and have brought extensive resources to the table to support the cleanup, and are major implementers through their permitting and enforcement programs.

What are the tangible benefits of the investments that have been made in the restoration of Long Island Sound? The good news is that pollutant discharges of nitrogen, toxic contaminants, and pathogens are decreasing.

- Thanks to stringent pollution controls, the discharge of toxic contaminants in the Sound's watershed reported in the Toxic Release Inventory has decreased by 90 percent since 1988.
- With tighter controls and product bans, levels of many contaminants in the sediments and biota have also declined. For example, PCB levels in striped bass and bluefish sampled in 2006 and 2007 in a project funded by the Long Island Sound Study have decreased by 50% compared to levels from the 1980s. These data have been used by the state health departments to update the finfish consumption advisories for Long Island Sound.

- Sewage treatment plant upgrades to provide biological nutrient removal of nitrogen have resulted in 50,000 fewer pounds of nitrogen entering Long Island Sound each day, compared to baseline levels from the early 1990s, a 32% reduction. For example, Stamford completed a $105 million dollar upgrade and expansion of its treatment plant in 2006, of which $50 million was for nitrogen removal. The plant now employs best available technology to remove nitrogen to very low levels. In New York, the Oyster Bay Sewer District completed a $10.6 million project in 2006 that has reduced nitrogen discharges from as much as 230 pounds per day to less than 60.
- Innovative approaches like New York's bubble strategy in New York, which aggregates multiple discharges into one permit, and the Nitrogen Credit Exchange Program in Connecticut, increase the effectiveness of implementation and lower costs. These innovative programs, by harnessing market forces within an accountable but flexible framework, are expected to save Connecticut more than $200 million and more than $1 billion in New York City in wastewater treatment construction costs.

Progress is also being made to protect and restore habitats and the populations of living resources they support.

- For example, the Long Island Sound Study's Habitat Restoration Initiative continues to restore tidal flow to coastal wetlands and open rivers for fish passage:
    - Between 1998 and 2009, 673 acres of coastal habitat have been restored and more than 147 miles of rivers and streams have been reopened for fish migration.
- Using Long Island Sound Study funding, meadows of underwater eelgrass beds have been comprehensively mapped. Although there

was a 12 percent increase in eelgrass beds in 2006 from 2002, we know that the extent of this important underwater habitat is still greatly reduced from historical levels. Now that we know how much eelgrass we have, the Long Island Sound Study is developing water quality criteria for its protection and restoration.

- In another Long Island Sound Study project, Connecticut Sea Grant has developed a bi-state invasive species management plan for the Sound.
- And with Long Island Sound Study funding, the University of Connecticut's Center for Land Use Education and Research has mapped the extent of vegetated buffers along streams and rivers, comparing levels from 1986 to today. This provides valuable information on the effectiveness of local regulations.
- A $650,000 Long Island Sound Study grant through the Long Island Sound Stewardship Initiative is helping Connecticut protect 48 acres of valuable coastal forest and tidal wetlands. The land will be added to the Barn Island Wildlife Management Area, the single largest coastal property managed for wildlife conservation. This acquisition is a demonstration of a broader set of conservation activities targeted at the 33 areas identified by the Long Island Sound Study Stewardship Initiative as having significant ecological, scientific, or recreational value. Protecting healthy areas throughout the Sound makes sense because practicing preventative environmental medicine is far more effective and far less expensive than cleaning up environments that are degraded.

So what challenges lie ahead?

- While policies in place are reducing nitrogen discharges to the Sound, widespread summer hypoxic events—areas of low dissolved oxygen—persist. Low levels of dissolved oxygen seriously threaten

marine life, including commercially and recreationally important fish populations.

- Pollution from urban stormwater contributes to the closure of beaches and restriction of shellfishing. According to a recent study by the University of Connecticut, development in some places, particularly in eastern Connecticut, is increasing at almost twice the rate of population, reducing forest cover and increasing impervious surfaces. These factors put additional pressure on efforts to restore the Sound.
- Sea level rise, warming temperatures, and other possible climate change effects will impact the Sound. For example, warmer water temperatures have been implicated in the crash of lobster populations in the Sound.

How can we and our partners address these issues?

The focus on reducing the amount of nitrogen fertilizing Long Island Sound must continue. In addition to continued implementation in Connecticut and New York, the program has expanded to include the 'upland' states of Massachusetts, New Hampshire, and Vermont. These states lie within the Sound's watershed and ultimately affect water quality in the Sound. EPA, through the Long Island Sound Study, has funded work to monitor and assess the impact of the upland states' discharges. This work will help inform revisions to the Long Island Sound nitrogen Total Maximum Daily Load, or TMDL, which sets limits on nitrogen discharges necessary to attain water quality standards for dissolved oxygen. All of these states are now at the table to discuss ways and means of achieving water quality standards in the Sound in an effective, cost-efficient, and scientifically supportable manner.

Opportunities to expand the innovative and successful approaches employed by Connecticut and New York regarding permitting and pollution trading need to be pursued. The Long Island Sound Study is also working to expand this trading concept to potentially include bio-extraction technologies to remove nitrogen from the Sound. This includes the use of natural filter feeders such as the oysters and mussels to filter algae and assimilate the nitrogen that enters the Sound from all sources – air, land, and water. The Long Island Sound Study is organizing a scientific conference this coming December to evaluate the economic and ecologic benefits of stimulating shellfish and seaweed harvests through pollution credits.

The Long Island Sound Study is also integrating efforts to address climate change impacts on Long Island Sound into annual program planning. One example is the Sentinel Monitoring Program, which is developing a strategy to increase our understanding of climate change impacts and our ability to respond and adapt to such changes.

EPA will continue to pursue partnerships with other federal agencies in addressing complex challenges. Staffs from the National Oceanographic and Atmospheric Administration and the Fish and Wildlife Service are co-located in the Long Island Sound Office to strengthen inter-agency collaboration among programs to improve water quality, protect and restore habitat, and manage living resources. This is a key element of ecosystem-based management – fundamental to the Long Island Sound Study approach.

One suggested technical fix to Section 119 of the Clean Water Act, in addition to extending the date of authorized appropriations past 2010, is to add the word "cooperate" to Section 119(c)(2)(4). This addition would allow EPA to "cooperate and coordinate activities and implementation

responsibilities with other federal agencies...", thus giving specific legislative cooperative authority for federal interagency agreements under Section 119.

The EPA Long Island Sound Office brings together the diverse views and uses of the Sound, from beachgoers to bird watchers, from powerboaters to sailboaters, from sport and recreational to commercial fishers, lobstermen, clammers, crabbers and even homeowners. Anyone who flushes a toilet or drives a car has an effect on, or affects the Sound -- its watersheds, rivers, streams, shores and living marine resources.

EPA believes that it is vitally important to the economy of the region, the ecology of the Sound, its habitats and living resources as well as its users, to reauthorize appropriations for Section 119. EPA believes that the partnership, innovation, and commitment that have characterized the Long Island Sound Study have brought positive environmental results.

I would be happy at any time to answer any questions regarding the Long Island Sound Study. Thank you.

Long Island Sound Study
Federal Funding History
Fiscal Years 1985-2010

FISCAL YEAR	CWA '320- NEP		CWA '119 B LIS Restoration Act			TOTAL ENACTED
	NEP President's Budget	NEP Congressional Change to President's Budget	LIS President's Budget	Congressional Change to President's Budget[1]		
				LIS Environmental Programs and Management	LIS State and Tribal Assistance Grants	
FY10	$600,000	n/a	$3,000,000	n/a	n/a	$3,600,000
FY09	$600,000	n/a	$3,000,000	n/a	n/a	$3,600,000
FY08#	$ 244,000	$347,750	$ 467,000	$ 4,442,000	$ 0	$ 5,500,750
FY07**	$ 298,800	$119,200	$ 467,000	$ 887,000	$ 0	$ 1,772,000
FY06*	$ 316,650	$175,950	$ 470,000	$ 1,773,500	$ 0	$ 2,736,100
FY05+	$ 307,520	$204,446	$ 473,581	$ 1,808,019	$ 3,968,000	$ 6,761,566
FY04++	$ 315,059	$191,925	$ 474,600	$ 1,811,800	$ 4,968,500	$ 7,761,884
FY03+++	$ 307,985	$198,700	$ 474,297	$ 2,009,453	$ 3,576,600	$ 6,567,035
FY02	$ 310,000	$200,000	$ 477,400	$ 2,022,600	$ 4,000,000	$ 7,010,000
FY01	$ 330,000		$ 500,000	$ 4,500,000		$ 5,330,000
FY00	$ 330,000		$ 500,000	$ 475,000		$ 1,305,000
FY99	$ 340,000		$ 500,000	$ 400,000		$ 1,240,000
FY98	$ 293,000			$ 736,500		$ 1,029,500
FY97	$ 260,000			$ 700,000		$ 960,000
FY96	$ 370,000			$ 350,000		$ 720,000
FY95	$ 303,231			$ 375,000		$ 678,231
FY94	$ 303,231	$105,000		$ 450,000		$ 858,231
FY93	$ 293,800	$0		$ 150,000		$ 443,800
FY92	$ 550,000	$67,000		$ 750,000		$ 1,367,000
FY91	$ 1,000,000	$0		$ 0		$ 1,000,000
FY90	$ 1,400,000	$0		$ 0		$ 1,400,000
FY89	$ 1,400,000	$150,000		$ 0		$ 1,550,000
FT88	$ 1,605,000	$530,000		$ 0		$ 2,135,000
FY87	$ 1,860,000	$0		$ 0		$ 1,860,000
FY86	$ 1,000,000	$0		$ 0		$ 1,000,000
FY85	$ 1,000,000	$0		$ 0		$ 1,000,000
TOTAL	**$ 14,494,276**	**$1,942,221**	**$ 4,336,878**	**$ 19,198,872**	**$ 16,513,100**	**$ $69,186,097**

1 Both the Environmental Programs and Management and State and Tribal Assistance columns are Congressionally directed funding.

Congressional rescission of 1.56% applied to all funds in 2008.

A separate appropriation for NOAA activities was made in 1988, 1989, 1990, and 1991(?) at approximately $1M/year.

** In FY2007, EPA included funding for LIS and the NEP program at 50% of the 2006 Enacted level for programs for which Congress had provided funds in addition to that requested in the President=s Budget.

* In FY2006 Congress enacted a 0.476% general rescission of funds, and a subsequent 1.0% rescission.

+ Congress enacted a 0.8% rescission across all funds in FY2005. EPA has not established final allocations. Dollar amounts reflect approximate rescission levels.

++ House Report 108-401, Consolidated Appropriations Bill HR2673 Conference Report called for Aspecific Agency program level@ of $2,300,000, which is inclusive of the President=s Budget request. Includes a Congressional rescission of .59%.

+++ .65% Congressional Rescission Applied to appropriated funds

NEP = EPA National Estuary Program
APDP = Action Plan Development Program; discontinued after approval of CCMP in 1994.

October 9, 2009

The Honorable Eddie Bernice Johnson
Chairwoman, Subcommittee on
Water Resources & Environment
Committee on Transportation &
Infrastructure
1511 Longworth House Office Building
Washington, DC 20515

The Honorable John Boozman
Ranking Member, Subcommittee on
Water Resources & Environment
Committee on Transportation &
Infrastructure
1519 Longworth House Office Building
Washington, DC 20515

Chairwoman Johnson and Ranking Member Boozman:

On behalf of the Long Island Sound Caucus, we thank you for your leadership in drawing attention to the issues facing this critical natural resource, and respectfully request the inclusion of the following testimony in the record of the Subcommittee's October 6th, 2009, hearing on Long Island Sound issues.

Sincerely yours,

Rep. Steve Israel
Member of Congress
Co-Chair, Long Island Sound Caucus

Rep. Rosa L. DeLauro
Member of Congress
Co-Chair, Long Island Sound Caucus

Rep. Nita M. Lowey
Member of Congress

October 9, 2009

The Honorable Eddie Bernice Johnson
Chairwoman, Subcommittee on
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1511 Longworth House Office Building
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Washington, DC 20515

Chairwoman Johnson, Ranking Member Boozman, and Members of the Subcommittee:

The Long Island Sound Caucus applauds your close attention to issues facing this national treasure whose stewardship is our primary purpose.

Home to both a multiplicity of marine and wildlife species and over eight million human beings, the Long Island Sound watershed presents perhaps the greatest challenge to the cause of environmentally sustainable development.

Though the Sound continues to provide feeding, breeding, nesting and nursery areas for diverse plant and animal life—while generating more than $8 billion a year to the regional economy through boating, commercial and sport fishing, and tourism—the challenges to the Sound have in many ways never been greater.

Pollution has increased, land surfaces have changed, open spaces have been reduced, and access to the Sound has been restricted for communities who had formerly enjoyed it more freely. These ever-mounting challenges make a federal commitment to protect the Sound vital, especially as our communities undertake multimillion-dollar investments to remove nitrogen and other pollutants from the Sound.

As the EPA continues its partnership with the states of New York and Connecticut, we would respectfully call the Subcommittee's attention to some policy options we believe would advance the goals of the Clean Water Act's Long Island Sound Study and benefit both our constituents and the communities they inhabit.

1) **Develop a systemic natural resources inventory.**

The scientific, advocacy, and volunteer communities are speaking clearly to us: We need better information about the wildlife species that utilize and depend upon the Sound. The State

of Connecticut's Comprehensive Wildlife Conservation Strategy, prepared by its Department of Environmental Protection in response to federal direction, cites lack of information on the abundance and distribution of wildlife species and their habitats as the key impediment to successful conservation. As such, the Long Island Sound Caucus strongly recommends the development of a systemic natural resources inventory to guide the wide range of infrastructure decisions that face federal, state and local authorities.

As an illustration, the location and abundance of birds are a key indicator of the overall environmental health of Long Island Sound, including its water quality. More than 400 species of birds have been recorded on the Sound or along its shores, and more than 125 species are considered residents, a testament to the abundance and diversity of high quality habitats remaining in the ecosystem. The National Audubon Society has recognized more than 20 sites as Important Bird Areas on Long Island Sound in Connecticut and New York including the pristine tidal marshes of the Barn Island Wildlife Management Area, the barrier beach systems of Long and Pleasure Beaches in Stratford and Bridgeport, the marine Islands of Falkner and Great Gull Island, the tidal flats surrounding Menunketesuck Island in Westbrook, and the undeveloped lands that serve as migratory stopovers for hawks and songbirds at places like New Haven's Lighthouse Point Park. Each of these 20 sites has its own unique restoration, acquisition, and habitat enhancement needs.

Nevertheless, our inventory of key ecological sites—and the threats that certain forms of development might pose to these sites—remains worryingly incomplete. A systemic natural resources inventory would provide improved information on the distribution of critical wildlife habitats in the Long Island Sound ecosystem and enable us to take a systematic approach to prioritizing key habitat restoration and land acquisition opportunities. It would also allow us to make more informed decisions about the siting of infrastructure including pipelines, cross-Sound cables and wind or other renewable energy generation facilities.

Undeveloped coastal areas act as a buffer against point and non-point source pollution, while healthy tidal marshes act as critical filtration systems for the Sound's waters. A comprehensive understanding of populations and migration patterns, therefore, would result in more efficient land protection and habitat restoration efforts, benefitting not only the wildlife that depend on these critical areas, but overall water quality in the Sound as well. Without this information, we risk making decisions about infrastructure and development on a case-by-case basis, without an informed understanding of how one project could affect the ecosystem at large.

2) <u>Enhance and accelerate key investments in water quality.</u>

Through upgrades to wastewater treatment facilities, pharmaceutical take-back programs and other local efforts, both New York and Connecticut have made significant and meaningful progress in reducing nitrogen loads to the Long Island Sound. But with the footprint of human development deepening and flooding an ever-present threat, the need to make smart, targeted investments in water-quality management could not be greater.

The Long Island Sound Caucus strongly recommends that the Long Island Sound Study invest in projects addressing nonpoint and stormwater management, creating and implementing model watershed-based strategies, and continuing to establish No Discharge Zones—with the ultimate goal of designating the entire Sound as a No Discharge Area for seagoing vessels.

Pharmaceutical take-back programs, which have shown limited but important success in reducing the incidence of the most ecologically threatening chemicals from our waterways, should be expanded and enhanced to include the widest range of chemical pollutants.

Advocates on the ground (and in the water) have drawn our attention to methods of improving the implementation of the Systemwide Eutrophication Model (SWEM) to address some larger areas of pathogen impairments to shellfishing. The Caucus would like to encourage the EPA to develop recommendations for improvements to the models or current monitoring efforts, linking available data to model predictions both at the regional scales and the Sound as a whole.

And in order to ensure that dissolved oxygen levels are salutary for marine life and habitat in the Sound, the Caucus believes that federal investments in infrastructure upgrades must continue and steadily increase to levels authorized by current law.

3) Prepare the Long Island Sound watershed for climate-change adaptation.

This June the *Washington Post* reported that sea levels could rise faster along the U.S. East Coast than in any other densely populated part of the world, "as changes in ice caps and ocean currents push water toward a shoreline inlaid with cities, resort boardwalks and gem-rare habitats." While the rest of the world might see 7 to 23 inches of sea-level rise by 2100, the Post cited studies which show that this region, including the entire Long Island Sound, might face an additional 17 to 25 inches of increase in its sea levels—a devastating threat to coastal ecosystems already under strain.

The Long Island Sound Caucus believes that this threat demands immediate data-gathering and improvements to our coastal infrastructure, and so strongly recommends the development of a comprehensive natural resources adaptation plan for climate change. Such a plan should include, at a minimum, studies of the effects of rising sea levels on maritime ecosystems, coastal infrastructure, and inland waterways, with recommendations tailored to producing short- and long-term prevention and remediation of the worst consequences. Such a plan must also provide for public awareness and outreach to communities who may disproportionately feel these effects, especially those whose residences and livelihoods depend on direct access to the Sound itself.

As part of Long Island Sound's climate-change adaptation plan, the Caucus encourages the development of an informational database of infrastructure and ecosystems at special risk, linked to shared adaptation and communications strategies to prepare for and mitigate climate-related changes.

Finally, the Long Island Sound Caucus would like to reemphasize the essential role played by the community advocates whose experiences with these challenges are the most direct, and whose opinions and insights are commensurately valuable.

We attach for the Committee's consideration, therefore, testimonials from three of the most active and perspicacious members of the Long Island Sound community. Appendix A to this letter is an opinion letter drafted by the Public Policy Committee of the Long Island Sound

Study's Citizen Advisory Committee, co-chaired by Ms. Sandy Breslin of the Audubon Society and Ms. Adrienne Esposito of Citizen's Campaign for the Environment. Appendix B is a separate testimonial by Ms. Esposito's outlining the Long Island Sound priorities of the Citizen's Campaign for the Environment. Appendix C is a short summary of priorities drafted by Save the Sound, a partner organization of the Connecticut Fund for the Environment. Lastly, Appendix D is a testimonial from Soundwaters, Inc., a citizens advocacy organization based in Greenwich, Connecticut, with keen insights into the often-difficult nexus between federal policy and local implementation.

The members of the Long Island Sound Caucus greatly appreciate the attention of the Subcommittee to these critical issues, and we stand ready to assist you in any way we can as Congress considers how best to preserve and protect this invaluable national treasure.

Sincerely,

Rep. Steve Israel
Member of Congress
Co-Chair, Long Island Sound Caucus

Rep. Rosa L. DeLauro
Member of Congress
Co-Chair, Long Island Sound Caucus

Rep. Nita M. Lowey
Member of Congress

Rep. Joe Courtney
Member of Congress

Rep. Peter T. King
Member of Congress

Rep. Gary L. Ackerman
Member of Congress

Rep. José E. Serrano
Member of Congress

Rep. Timothy H. Bishop
Member of Congress

Rep. Joseph Crowley
Member of Congress

Rep. Christopher S. Murphy
Member of Congress

Rep. James A. Himes
Member of Congress

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