PROGRESS TOWARD IMPROVING WATER QUALITY IN THE GREAT LAKES

(110–92)

HEARING

BEFORE THE

SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

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U.S. House of Representatives
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Washington, DC 20515

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January 22, 2008

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 Progress toward Improving Water Quality in the Great Lakes

PURPOSE OF HEARING

On Wednesday, January 23, 2008, at 10:00 a.m., in Room 2167 Rayburn House Office Building, the Subcommittee on Water Resources and Environment will receive testimony from representatives from the United States Environmental Protection Agency, the Natural Resources Conservation Service, the Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, the International Joint Commission, the Government Accountability Office, and members of the United States House of Representatives on Great Lakes water quality.

BACKGROUND

This memorandum summarizes efforts to improve water quality in the Great Lakes. It provides an overview of current water quality across the Great Lakes and state and federal programs to improve water quality.

Great Lakes Basin

The Great Lakes consist of Lakes Superior, Michigan, Huron, Erie, and Ontario. The lakes contain around 84 percent of North America's, and 21 percent of the world's surface fresh water supplies. Outflow rates from most of the Great Lakes are very slow: Lake Superior retains water for 191 years, Lake Michigan for 62 years, and Lake Huron for 31 years. Lake Ontario has a retention time of six years, and Lake Erie requires only 2.6 years for its waters to be exchanged. Those lakes with high retention times do not flush contaminants quickly, and are therefore particularly vulnerable to contamination.

The Great Lakes basin includes all of the state of Michigan, parts of Illinois, Minnesota, New York, Ohio, Pennsylvania, Wisconsin, and the Canadian province of Ontario. Approximately 40 million people live in the Great Lakes basin. Water in the lakes is used for a multitude of activities including drinking, fishing, swimming, boating, agriculture, industry, and shipping.

Water Quality in the Great Lakes

Industrialization and development have had a significant impact on the Great Lakes ecosystem. Over the past 200 years, the region has undergone significant industrialization. This industrialization has included mining, steel production, and machine tool and automobile manufacturing. Agriculture is also a significant component of the regional economy. The Great Lakes have historically provided convenient waterways for the movement of goods. They also provide process and cooling water for industrial users, and are used to generate hydroelectric power. While industrialization, agriculture, power generation, and other activities have produced significant economic development in the region, water quality has also been adversely impacted.

In its 2002 National Water Quality Inventory, the United States Environmental Protection Agency ("EPA") reports that 91 percent of assessed Great Lakes shoreline miles were impaired. (Only 520 of 5,521 total Great Lakes shoreline miles were assessed for the 2002 National Water Quality Inventory.) The leading causes of this impairment included pathogens, metals, and toxic organic compounds. EPA notes that the dominant cause of reported shoreline impairment is legacy, or historical, pollution – chiefly contaminated sediment.

In the same report, EPA reports that 99 percent of the assessed Great Lakes open waters were rated as impaired (84 percent (50,866 square miles) of the 60,546 square miles of Great Lakes open waters in the United States were assessed for the 2002 National Water Quality Inventory). The predominant causes of impairment were priority organics, metals (primarily mercury), and pesticides. The primary sources of these causes of impairment are atmospheric deposition, industrial sources, agriculture, and legacy, or historical, pollutants.

The EPA's 2005 National Coastal Condition Report II rated the overall condition of the Great Lakes as "fair-to-poor". Water clarity, drinking water quality, and dissolved oxygen were rated as "fair-to-good" or "good". Sediment contamination had a "poor" rating.

Pursuant to the Great Lakes Water Quality Agreement ("GLWQA"), since 1998 the EPA and Environment Canada have coordinated a biennial assessment of the ecological health of the Great Lakes ecosystem using a consistent set of environmental and human health indicators. The results of these assessments are published in the State of the Great Lakes reports.

In the State of the Great Lakes 2007 ("SOLEC") report, the status of the Great Lakes ecosystem is assessed as mixed. Based on the analysis of a series of categories (Contamination, Human Health, Biotic Communities, Invasive Species, Coastal Zones, Aquatic Habitats, Resource Utilization, Land Use-Land Cover, Climate Change), the SOLEC report characterizes the overall

condition of the Great Lakes as mixed: some conditions or areas are good, while others are poor.[1] Some of these conditions were reported as having improved, while others had worsened.[2]

The following sections provide summaries of the primary indicator categories for Great Lakes ecosystem health included in the SOLEC report.

Contamination: The SOLEC report characterizes contamination of the Great Lakes as mixed, but improving. Lake Superior is rated as good, Lake Ontario as poor, and the remaining lakes as mixed for contamination. The report notes that concentrations of some chemicals have declined significantly over the past 30 years, and that the overall trend of Great Lakes water quality contamination is improving. Nevertheless, contaminants from air, wastewater, and runoff from non-point sources continue to impact water quality in the lakes. In addition, concentrations of new chemicals that have the potential to cause harm have recently been detected, and are being labeled "chemicals of emerging concern".[3] Some localized toxic contamination continues to exist in high levels in Areas of Concern (*see below*).

Human Health: Human health can be impacted through Great Lakes water quality via drinking water, beaches, and consumption of fish. Overall, the SOLEC report characterizes its human health category as mixed, and that the trend over time is undetermined. The SOLEC report rates the quality of municipally-treated drinking water as good across all the lakes. This level of drinking water quality has remained unchanged over time. The report rates beaches on Lakes Superior and Huron as good, and the beaches on the remaining lakes as fair. Beach postings, advisories, or closures are due to the presence of *E. coli* bacteria (from both human and wildlife waste), poor water quality, or algae abundance. The trend for all lakes besides Lake Huron is undetermined. Lake Huron beach rating has remained unchanged. Contaminants in fish have generally decreased over time. Where the United States uses polychlorinated biphenyls ("PCBs") for consumption advisories in Great Lakes fish, Ontario also uses mercury and dioxins.

Biotic Communities: The SOLEC report refers to the biological components of the Great Lakes ecosystem as "biotic communities". It characterizes the current state of biotic communities across the lakes as mixed. While contaminant levels have decreased, the report notes that many biological components of the ecosystem are "severely stressed". The trend for the overall health of biotic communities across the lakes is undetermined. In all of the Great Lakes, except for Lake Superior,

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[1] SOLEC rates conditions according to five categories: Good – The state of the ecosystem component is presently meeting ecosystem objectives or otherwise is in acceptable condition; Fair – The ecosystem component is currently exhibiting minimally acceptable conditions, but it is not meeting established ecosystem objectives, criteria, or other characteristics of fully acceptable conditions; Poor – The ecosystem component is severely negatively impacted and it does not display even minimally acceptable conditions; Mixed – The ecosystem component displays both good and degraded features; Undetermined – Data are not available or are insufficient to masses the status of the ecosystem component.

[2] SOLEC rates trends according to four categories: Improving – Information provided shows the ecosystem component to be changing toward more acceptable conditions; Unchanging – Information provided shows the ecosystem component to be neither getting better nor worse; Deteriorating – Information provided shows the ecosystem component to be departing from acceptable conditions; Undetermined – Data are not available over time, so no trend can be identified.

[3] According to Environment Canada, some 70,000 commercial and industrial compounds are currently in use, and 1,000 new chemicals are produced every year. EPA and Environment Canada have categorized some of these chemical categories as 'chemicals of emerging concerns.' These include polybrominated diphenyl ethers (flame retardants), various pharmaceutical and personal care products, and approximately 20 currently-used pesticides.

species at the bottom of the food chain (for example, *diporeia* and zooplankton) and native preyfish (walleye, lake sturgeon, lake trout) are declining. In Lake Superior, *diporeia* levels are unchanged. Great Lakes amphibians and wetland-dependent bird populations are either unchanged or in decline. The SOLEC report attributes these population reductions to habitat loss and deterioration.

Invasive Species: The SOLEC report rates all of the Great Lakes as poor in terms of invasive, or non-native, species introductions and impacts. This rating is worse than previous levels. The SOLEC report notes that 183 aquatic and 124 terrestrial non-native species have become established in the Great Lakes basin. These invasive species are considered by EPA and Environment Canada to be one of the greatest threats to biodiversity and natural resources of the region.

Coastal Zones and Aquatic Habitats: The Great Lakes coastal zones are subject to a variety of human and natural stressors including agriculture, residential development, point and non-point pollution, and weather patterns. The SOLEC report characterizes the health of coastal zones as mixed. Coastal habitats and wetlands are degraded in coastal zones due to development, replacing natural coastline with non-permeable materials like concrete, and the establishment of non-native species. The Great Lakes coastline includes more than 494,000 acres of coastal wetlands. However, this is less than one-half of the number of acres that existed prior to European settlement of the basin. A 2004 inventory of Great Lakes coastal wetlands did indicate, however, that Lakes Huron and Michigan still have extensive wetlands.

Resource Utilization: Water withdrawals have decreased since 1980 due to the shutdown of some nuclear power plants and increased efficiency at other power plants. However, overall energy consumption is increasing due to increased populations and low-population density development throughout the Great Lakes basin. Additional development will also result in increased water demand. Increased water withdrawals in combination with low lake levels could result in increased stresses on the Great Lakes water resources.

Lake levels across the Great Lakes have decreased in recent years. In August 2007, Lake Superior's levels approached record low-levels. Lake levels do fluctuate, however. In the 1980s, record high-levels were reached as a result of extreme rainfall during that decade. The National Oceanic and Atmospheric Administration ("NOAA") finds that low-lake levels are caused in part by increased atmospheric temperatures that lead to less frozen water resulting in increased winter evaporation, and less overall snowpack yielding decreased spring runoff. NOAA also notes that increased dredging of canals and rivers around the Great Lakes could result in higher rates of water running out of the lakes.

Land Use-Land Cover: Land use and cover impacts Great Lakes water quality, as well as biological productivity, biodiversity, and the regional economy. The SOLEC report rates the Land Use-Land Cover category as mixed. Forest coverage in the area buffering surface waters increases capacity for the watershed to maintain biodiversity, store water, regulate water temperatures, and limit nutrient and sediment loadings (nonpoint source pollution). Urbanization, seasonal home construction, and recreational use have increased the demands placed on forest resources in these areas. As a result, water quality has been impacted. However, an increase in sustainable forestry programs has resulted in an improved soil and water resource protection.

Climate Change: The SOLEC report did not produce a qualitative assessment of the Climate Change indicator category because indicators were incomplete at the time of report production. The

report does note that some observed changes in the Great Lakes region have been attributed to climate change. These include: shorter winters; warmer annual temperatures; more frequent extreme heat events; decreased duration of lake ice cover (due to air and water temperature increases); and more common heavy precipitation (snow and rain) events. The report also notes that lake levels are expected to decrease. Decreased lake levels could impact shipping, and increase the need for dredging.

Programs to Protect Water Quality in the Great Lakes

The Federal Government, the States, and the Canadian government are each involved in a number of programs to protect and improve water quality in the Great Lakes basin. Among these programs are more than 115 Federal programs that are nationwide in scope that can be used to support environmental restoration activities in the Great Lakes basin. Canadian and U.S. efforts to clean up the Great Lakes are guided by the Boundary Waters Treaty of 1909 and the 1987 Great Lakes Water Quality Agreement.

EPA, NOAA, the Natural Resources Conservation Service ("NRCS"), and the Fish and Wildlife Service ("FWS") all have programs involving water quality protection and environmental restoration across the Great Lakes.

EPA: EPA's work in the Great Lakes is handled through its Great Lakes National Program Office ("GLNPO"). GLNPO is structured to bring together federal, state, tribal, local, and industry actors using an integrated, ecosystem approach to protect, maintain, and restore the Great Lakes basin.

Two of EPA's major water quality and environmental restoration initiatives are programs under the Great Lakes Legacy Act and the Great Lakes Initiative.

High concentrations of toxic substances remain in a number of localized settings across the Great Lakes. These toxic substances are often the historical, or legacy, remnants of former industrial pollution. While the discharge of these pollutants has largely ceased, these historical pollutants have contaminated sediment in those areas. They include PCBs, heavy metals, and polycyclic aromatic hydrocarbons ("PAHs"). These sites have been identified and labeled as Areas of Concern ("AOCs"). Forty-three AOCs are located across the Great Lakes, including 31 AOCs in United States territory.

To address these AOCs, the Great Lakes Legacy Act ("GLLA") was signed into law in 2002. The GLLA provides funding to take the necessary steps to clean up contaminated sediment in U.S. AOCs. The GLLA provides funding for remediation, public outreach, and research. The GLLA authorized $270 million over 5 years.[4] The program received $29.6 million in fiscal year 2007. The EPA's Great Lakes National Program Office was designated to implement the GLLA.

Three of the 31 U.S. AOCs have been remediated under the GLLA. These include Black Lagoon, Michigan (Nov. 2005), Hog Island, Wisconsin (Nov. 2005), and Ruddiman Creek, Michigan (May 2006). Two remediation projects are currently underway: Ashtabula, Ohio, and Sault Ste. Marie, Michigan.

[4] $50 million per year for project (remediation and monitoring); $3 million per year for research; $1 million per year for outreach activities.

The Great Lakes Initiative ("GLI") was created in 1995 to meet the goals of the GLWQA. It requires stringent water quality standards for many pollutants discharged into the Great Lakes. However, the primary focus of the GLI is on 22 bioaccumulative chemicals of concern ("BCCs"). These toxic pollutants include mercury, PCBs, and dioxin, among others.

A central component of the GLI is to promote consistent standards, implementation procedures, and National Pollutant Discharge Elimination System ("NPDES") programs for point source discharges across all of six states in the Great Lakes basin. As authorized under the Clean Water Act, the NPDES permit program controls water pollution by regulating point sources that discharge pollutants from any source into U.S. surface waters. Point sources are discrete conveyances such as pipes or constructed ditches. As of May 2005, nearly 5,000 facilities in the Great Lakes basin had NPDES permits. More than 500 of these facilities are classified as major source facilities.[5]

In July 2005, the Government Accountability Office ("GAO") released a report that evaluated EPA's GLI program.[6] Chief among the findings of the report is that GLI has a limited ability to improve overall water quality in the Great Lakes basin. First, under certain circumstances, GLI allows States to use flexible implementation procedures, such as variances, when issuing permits for facilities. These variances allow the facilities to discharge pollutants at levels exceeding the stringent GLI water quality standards. As of July 2005, mercury was the only BCC with GLI permit limits. Those facilities with mercury variances could discharge mercury at levels that exceed the GLI mercury water quality standards. Second, the GLI focuses only on point source pollution. Nonpoint source pollution, from both atmospheric (air) deposition and agricultural runoff, is a greater source of water pollution in the Great Lakes. In its formal response to the 2005 GAO report, EPA highlighted that the Clean Water Act does not include a regulatory program for nonpoint source water pollution – therefore the GLI is unable to address this major source of water impairment.

In addition to a number of other findings, GAO also found that EPA was unable to sufficiently assess the impact of GLI with existing data sources, and has not gathered additional information to monitor progress.

NOAA: NOAA has a number of programs that concern Great Lakes water quality. The Great Lakes Environmental Research Laboratory ("GLERL") is based in Ann Arbor, Michigan, and conducts physical, chemical, and environmental modeling research to provide scientific expertise and services to manage and protect ecosystems. NOAA is involved in the Great Lakes Restoration Project that acquires and restores critical habitat, implements storm water controls, and cleans contaminated sites along the five Great Lakes. NOAA also participates in Coastal Zone Management Programs that provides a basis for protecting, restoring, and responsibly developing the nation's important and diverse coastal communities and resources.

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[5] Major dischargers include municipalities with capability to discharge greater than one million gallons per day and certain industrial facilities based on EPA and state ratings.

[6] Government Accountability Office. 2005. *Great Lakes Initiative: EPA Needs to Better Ensure the Complete and Consistent Implementation of Water Quality Standards.* GAO-05-829. (July)

NRCS: NRCS is involved in a number of programs that lead to water quality protections. These include the Great Lakes Basin Program for Soil Erosion Sediment Control; the Environmental Quality Incentives Program, and the Wetland Reserve Program.

FWS: The FWS is involved in a number of programs that concern Great Lakes water quality and aquatic habitat protection. FWS Great Lakes programs include the Lower Great Lakes Lake Trout Restoration Program, Detroit River International Wildlife Refuge, and Fish and Wildlife Management Assistance - Great Lakes Operations.

AGENDA

PANEL I

The Honorable Peter J. Visclosky
The 1st District of Indiana

The Honorable Bart Stupak
The 1st District of Michigan

The Honorable Mark Steven Kirk
The 10th District of Illinois

The Honorable Rahm Emanuel
The 5th District of Illinois

PANEL II

Mr. David Maurer
Acting Director, Natural Resources and Environment
U.S. Government Accountability Office
Washington, DC

The Honorable Irene Brooks
International Joint Commission of the U.S. and Canada
Chair, United States Section
Washington, DC

Accompanied by:
Commissioner Allen I. Olson
International Joint Commission of the U.S. and Canada
United States Section
Washington, DC

PANEL III

The Honorable Benjamin H. Grumbles
Assistant Administrator for Office of Water
United States Environmental Protection Agency
Washington, DC

Accompanied by:
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Program Manager, Great Lakes National Program
United State Environmental Protection Agency
Washington, DC

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Director, Great Lakes Environmental Research Laboratory
National Oceanic and Atmospheric Administration
United States Department of Commerce
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Mr. Charles Wooley
Acting Regional Director, Midwest Region
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United States Department of the Interior
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Ms. Christina Muedeking
Central Regional Assistant Chief, National Resources Conservation Service
United States Department of Agriculture
Washington, DC

HEARING ON PROGRESS TOWARD IMPROVING WATER QUALITY IN THE GREAT LAKES

Wednesday, January 23, 2008

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

The Subcommittee met, pursuant to call, at 10:00 a.m., in Room 2167, Rayburn House Office Building, the Honorable Eddie Bernice Johnson [Chairwoman of the Subcommittee] presiding.

Ms. JOHNSON. Good morning. Today, the Subcommittee begins the second session of the 110th Congress, and we will examine what progress has been made in improving the water quality in the Great Lakes.

Over the years, this Subcommittee has returned again and again to this issue of the ecological and environmental health of the Great Lakes. In part, this is because of the importance of the lakes to the economic and environmental sustainability of the States and provinces surrounding the Great Lakes Basin.

However, this repeated attention is also warranted because the lakes provide a good indicator of our efforts to protect water quality throughout the Nation. The successes and challenges in improving water quality that we see in the Great Lakes can also be seen in water bodies across the United States.

Unfortunately, the message that I am expecting to hear from today's testimony is that our Nation and the Great Lakes States are doing a fair job in preventing water quality from getting worse, but that we are far less successful in realizing significant improvements in water quality.

Today, we will hear testimony that raises concern about Federal and State efforts to address ongoing point sources of pollution into the Great Lakes. Conceptually, these are the simplest of all ongoing sources of pollution to the lakes. Many of the chemicals of concern found in these point source discharges are the same compounds that show up year after year in the fish advisories posted for the Great Lakes waters. This testimony is concerning because it calls into question the effectiveness of Federal and State efforts to address all ongoing sources of impairment in the Great Lakes.

We will also hear concerns expressed by the International Joint Commission, the binational organization created to oversee water quality and water quantity issues in the Great Lakes. Their concerns center around whether the authorities contained in the Great Lakes Water Quality Agreement are up to task to address today's water quality challenges.

I welcome all the witnesses here this morning and I look forward to their testimony.

As I noted earlier, the successes and challenges in addressing water quality in the Great Lakes can also be identified in efforts to protect water quality throughout the Nation. As noted in EPA's recently issued Clean Water Act Needs Survey, the gap between wastewater infrastructure needs and funding is increasing.

The Great Lakes States have identified the control of discharges from combined and sanitary sewer systems as the key challenge of the Great Lakes Regional Collaboration. However, States from Texas to New York to Arizona have all identified significant wastewater infrastructure needs as a water quality challenge that must be addressed.

In addition, we know that non-point sources of pollution continue to pose a challenge to achieving water quality standards nationwide. Yet, we struggle with the effectiveness of current Federal, State and local efforts to reduce the amount and concentration of non-point sources of pollution.

While we are taking steps to begin to address the contaminated sediments in the Great Lakes areas of concern, toxic sediments are, by no means, localized to the Great Lakes. In many other communities throughout the Nation, the legacy of past contamination continues to pose a human and ecological health threat that must be addressed.

I am pleased that today the Subcommittee begins a second session of the 110th Congress. I am hopeful that we will repeat much of the successes of the previous session. Last year, this Subcommittee moved vital legislation to address many of the water resource challenges faced by our Nation. For example, after seven years of effort, the Subcommittee was instrumental in the enactment of the Water Resources Development Act of 2007.

I look forward to working with my colleagues and most especially I welcome back Mr. Duncan as the Ranking Member to this Subcommittee as Mr. Baker has taken on a new and challenging assignment outside the Congress.

In addition, the Subcommittee moved the first reauthorization of the Clean Water Revolving Fund to pass the House in over a decade, and I am hopeful that the other body will follow suit so that Congress can send a Clean Water Bill to the President before the end of the year.

In months to come, the Subcommittee will continue to investigate and pursue programs and policies of importance to the Nation. In the near future, the Subcommittee will begin hearings on reauthorization of EPA's brownfields program, reauthorization of many of EPA's place-based programs such as the Chesapeake Bay program office and the Great Lakes program office, and reauthorization of the Great Lakes Legacy Act, which is of particular importance to our hearing today.

I look forward to working with my colleagues on these and other issues of importance to the Nation's water resources needs.

Let me close by saying Mr. Lipinski has asked to join us today, and he has been welcomed. I also welcome our Full Committee Chair.

Let me begin by asking unanimous consent that the gentleman from Illinois, Mr. Lipinski, a Member of the Committee but not the Subcommittee on Water Resources and Environment, be allowed to participate in today's Subcommittee hearing, without objection.

And, we are very pleased to have Mr. Duncan back, my good friend. We have shared this Committee together before when he was Chair, and I now recognize him.

Mr. DUNCAN. Well, thank you very much, Madam Chairwoman, and it is a pleasure to be back with you. I will be remaining as the Ranking Member on the Highways and Transit Subcommittee, but I was asked to fill in for Mr. Baker who is leaving in a few days to head up a major association.

As you know, the Republicans have a six year limit on Chairmanships. During the six years I chaired the Aviation Subcommittee, I worked with the same Ranking Member the entire time, our friend, Bill Lipinski, who was a joy to work with. During my six years chairing this Subcommittee, my Ranking Members were Jerry Costello, Peter DeFazio and then the last two years, I had the privilege of working with you, and you were certainly a joy to work with also.

This is going to be a very important Subcommittee this year. I understand that our outstanding Chairman, Chairman Oberstar, intends to have another Water Resources Bill to take up some New Starts that we couldn't take up in the last bill, and it is going to be a lot of important work.

I want to welcome everyone to the hearing here this morning. The Great Lakes are a very high priority particularly to Members from Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania and New York and particularly the districts that border the Great Lakes. However, the Great Lakes are also important to our entire Nation.

The Great Lakes have six quadrillion gallons of water. They account for 18 percent of the world's fresh water supply and 95 percent of the U.S. fresh water supply. Over 33 million people live in the Great Lakes Region, representing one tenth of the U.S. population and one quarter of the Canadian population. The lakes are the water supply for most of these people.

The Great Lakes help support $200 billion a year in economic activity in the region including 50 percent of the U.S. manufacturing output, 30 percent of all U.S. agricultural sales and transportation of 50 million tons of waterborne cargo, half of which is exported overseas.

I don't think we could emphasize too much the importance of the Great Lakes to this entire Nation. Recreational benefits in the Great Lakes Region amount to over $35 billion in economic activity and support over 240,000 jobs.

Like many ecosystems around the Country, the Great Lakes have been impacted by industrial growth, urban development and agricultural and commercial activity. While most areas of the Great Lakes can be used safely for swimming, recreation and as a source for drinking water, the lakes do not fully support aquatic life and it is not always safe to eat the fish caught in the Great Lakes.

These water quality problems have a variety of causes. Part of the problem is from ongoing water discharges, urban and agricul-

tural runoff and air pollution, similar problems faced by lakes, rivers and bays all around the Country.

The Great Lakes, however, represent a unique environmental challenge. As the Great Lakes are nearly enclosed water bodies with limited outflow, toxic substances have built up in the lakes, sinking to the bottom and contaminating lake sediments.

In 2002, this Committee moved legislation to introduced by our colleague and really outstanding Member of this Subcommittee, Congressman Ehlers, the Great Lakes Legacy Act, to help jumpstart remediation of contaminated sediments in the Great Lakes. I was very proud to have chaired the Subcommittee when President Bush signed this legislation into law. The Legacy Act is one of many tools available for addressing ecosystem restoration in the Great Lakes.

Invasive plant and animal species are also impacting the Great Lakes. There are at least 25 major non-native species of fish in the Great Lakes. Zebra mussels invade and clog water intake pipes, costing water and electric-generating utilities a hundred to four hundred million dollars a year in prevention and remediation efforts. It is said that invasive species are discovered at the rate of one every eight months.

Efforts to improve the Great Lakes water quality and restore the health of the Great Lakes ecosystem are proceeding through the cooperative efforts of Canada as well as the efforts of numerous Federal, State and local and private parties.

All of the agencies are involved, the leading agencies. We have a taskforce under the lead of the EPA that has brought together or is bringing together 10 Federal agencies responsible for administering more than 140 different programs in the Great Lakes Region, and I think it is safe to say that we are doing more in regard to the Great Lakes than probably at any time in our history, but we have a lot of work left to do.

I look forward to hearing from the witnesses about the progress made in restoring the Great Lakes in light of the more 30 actions taken by Congress and the overall performance of these 200 funding programs. This is a very timely and important hearing, and I thank you, Madam Chairwoman, for letting me make these brief opening remarks.

Ms. JOHNSON. Thank you very much, Mr. Duncan.

The Chair now recognizes the Full Committee Chair, Mr. Oberstar.

Mr. OBERSTAR. Thank you, Madam Chair, and thank you very much for taking on the responsibility of these hearings. This is the first in a series of hearings that we will have on Great Lakes water quality.

Mr. Duncan, welcome back to the role of water issues in our Committee. As you said, we are going to pursue vigorously a Water Resources Development Act this year and give Mr. Visclosky more work to do in his Appropriations Subcommittee.

Madam Chair and colleagues, over the years and that is going on 34 now, I have given so many opening statements on Great Lakes water quality, I will not add to the burden. Someday, I am going to collect them all into a compendium and publish it as a

memoir of some sort. Maybe Mr. Ehlers will join with me in doing that. He has given so many as well.

Suffice it to say—and I have a very elegant statement with wonderful things that I have thought and staff have thought of, but we will include that for the record—that the quality of the waters of the Great Lakes is still at risk.

When I held the first hearings that I chaired in 1985 and 1986 and 1987 on Great Lakes water quality, we not only found that there was pollution resident in the bottom sediments, still coming in from the watershed, but airborne from Central America. While we had banned DDT in the United States, we were still exporting it to Central America for use on banana plantations and other crop-growing facilities run by American companies in Central America, and the wind currents were taking the aerosols into the upper atmosphere and in 14 days, faster than the Sandinistas could get to the Mexican border, the depositions were in the Great Lakes.

You remember the time when President Reagan said, in 14 days, they could be at our borders. Well, in 14 days, DDT was being reintroduced into the Great Lakes and having its consequential effect on bald eagles and their eggs and hatchlings.

In time, we have made some progress, but now, as we will see in the GAO report submitted and to be heard later in this hearing, we have fallen back. The purpose of these hearings is to make a hard count, a rigorous assessment of where we are, what needs to be done and then to set forth with an agenda of making further and real progress.

In the WRDA Bill and in the Coast Guard Bill, we have action programs to deal with invasive species. The WRDA Bill is now law. We need to get the Corps of Engineers to move on an action program. That is going to take some appropriation funding. I know Mr. Visclosky will give us help with that and Mr. Emanuel as well.

I salute our congressional colleagues who have urged these hearings and Mrs. Miller and Mr. Ehlers who also have been vigorous in pressing forth for these hearings, and Mr. Kagen, all of whom are sensitive, not only personally to the water quality problems of the Great Lakes, but who are being pressed upon by their constituents to take action, to deal with not only invasive species but the other persistent problems of long term residual toxics in the Great Lakes.

I thought I was going to be brief, but I wasn't. I apologize for that. Thank you.

Ms. JOHNSON. Thank you, Mr. Chairman.

The Chair now recognizes Dr. Ehlers.

Mr. EHLERS. Thank you, Madam Chair, and thank you for holding this hearing. I really appreciate it.

This Nation has five jewels in its crown at the northern part of our border, and those five jewels are the Great Lakes, tremendous source of fresh, pure water. It is our job to keep it pure.

There have been huge problems with invasive species. We are trying to address that through legislation.

There have been huge problems with toxics as the Chairman has referred to. The Legacy Act is helping to clear up the sediments, but the airborne toxics are still a problem. In addition to DDT from South America, we are getting toxaphene from China, the same

problem. Even though we have banned these, they are still getting into the Great Lakes through air transport.

I am very eager to hear from the agency witnesses about what they are doing and, more importantly, about what they plan to do as they deal with the issue.

I am very pleased with the agencies and what they are trying to do, but they need more power, more strength and, above all, more funding. I want to empower Federal program managers with the funding and tools necessary to get the job done. That is why I introduced H.R. 1350 along with one of our witnesses, Mr. Emanuel from Illinois.

We are working on this together, a bipartisan bill to put into place many of the legislative changes recommended by the Regional Collaboration Strategy in 2005, a comprehensive action plan developed at the request of President Bush by 1,500 experts from every level of government as well as scientists, ecologists, businessmen and other interested advocates. I have never participated with such an enthusiastic group of individuals, all very interested in preserving and protecting the Great Lakes. We had mayors, governors, Indian tribal chieftains, politicians of all levels as well as representation from Congress.

This bill currently has 50 co-sponsors including several Members of this Committee and has been endorsed by numerous stakeholder groups. I hope that we can take up that bill soon.

I applaud Chairman Oberstar for his commitment to the Great Lakes, and I look forward to working with him on moving Great Lakes legislation in the coming year.

People sometimes underestimate the political effect of the Great Lakes, and I simply want to point out that if you add together the electoral votes of the Great Lakes States, you have nearly a majority of the electoral votes needed to get someone elected. I think we should remind our presidential aspirants of that fact as well, and I am working with others to try to get letters of commitment from them.

Great Lakes restoration has to be considered a national priority, but also this is a new factor here that many people haven't thought of. It has to be considered an economic stimulus package.

The Brookings Institution has done us a great favor. They have released an economic study that has identified specific improvements that are expected through the restoration activities recommended in the Regional Collaboration Strategy.

They estimate that the most prominent benefits will be 6.5 to 11.8 billion dollars from increased tourism, fishing and recreation. They also expect 12 to 19 billion from increased commercial and residential property values. These figures do not include the multiplier effects that come with any Government funding including additional spending by contractors, suppliers, employees and so forth.

They estimate overall something like $50 billion of economic stimulus from doing this.

People simply don't realize. Many people in the United States don't realize how large in significance the lakes are, roughly $18 billion annually just from the fisheries, both in sport fishing and commercial fishing. So we have a real tiger up there, the jewels of

our Nation as I said, and it is our job to sustain them, improve them, protect them, preserve them.

I really appreciate the opportunity to make these remarks and once again, Madam Chair, thank you for having this hearing.

Ms. JOHNSON. Thank you very much.

Dr. Kagen.

Mr. KAGEN. Thank you very much, Madam Chairwoman. I very much appreciate this opportunity, and also a thank you to the Ranking Member, Mr. Duncan, for holding this hearing today.

There is perhaps no one else in the room that has studied the waterways of the Great Lakes and Wisconsin rivers than the current speaker. I have been studying the water for 25 years with regard to the aquatic biology, and I can tell you that things are not getting much better.

When I was growing up in Wisconsin, we looked at the Fox River. We were afraid to fish there. We were able to walk across the water. It would foam because of the paper companies and their effluents.

Today, everyone in this room and everyone in Wisconsin understands the great importance of our Great Lakes. They are an asset, and we have to be the best stewards possible to guarantee that future generations will have that resource available to them, not just for economic purposes but just to survive.

We also have to guarantee that the waters within the Great Lakes remain within the watershed of the Great Lakes, and I am sure we are going to hear testimony to that effect as well.

I will be very brief in my remarks and welcome the testimony of those situated before us.

Thank you again for holding this hearing and thank you, Madam Chairwoman, for having a congressional hearing in April in Green Bay to address this issue and others regarding the Great Lakes. Thank you and I yield back my time.

Ms. JOHNSON. Thank you very much.

The Chair now recognizes Mrs. Miller.

Mrs. MILLER. Thank you very much, but I think I will hold my opening statement. I know we want to get to the witnesses here, but I am delighted to have you hold this hearing.

Obviously, protecting the Great Lakes has been a principal advocacy of mine in the 30 years of public service that I have served here, and I am certainly looking forward to hearing all of our witnesses particularly my Michigan colleague. Mr. Stupak and I have worked together on Great Lakes issues for many, many years.

Thank you.

Ms. JOHNSON. Thank you.

Anyone else wishing to make an opening statement?

Thank you very much.

We are pleased to have four very distinguished Members of our first panel here this morning. Three are present. First, we have the Honorable Peter Visclosky of the First District of Indiana. Next, we will have the Honorable Bart Stupak, First District of Michigan. Mr. Kirk has not arrived yet. But, finally, we have the Honorable Rahm Emanuel from the Fifth District of Illinois.

We are pleased you were able to make it this morning, and your full statements will be placed in the record. We ask that you limit

your testimony to a five minute oral summary of your written statements, and I will hold you all to approximately five minutes. We will continue to proceed in the order in which the witnesses are listed in the call of the hearing.

Congressman Visclosky.

TESTIMONY OF THE HONORABLE PETER J. VISCLOSKY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF INDIANA

Mr. VISCLOSKY. Madam Chair, I appreciate the opportunity to be here and for your chairing the hearing today as well as Mr. Duncan, Chairman Oberstar and all of the Members of the Subcommittee.

I do understand that my statement will be entered into the record and do want to touch upon the national implications of the Clean Water Act.

But prior to doing that, in representing a district that is located on the shores of on those Great Lakes, Lake Michigan, in a district that also in itself produces more steel than any State in the Country and which has located in it the largest inland oil refinery in the United States, and all of the attendant other industrial facilities, and understanding that there will be comments made during the testimony relative to some of those facilities, I would just want to be local, if you would, for a moment.

There has been controversy attached to the permitting process for the BP refinery in Whiting, Indiana. There has also been controversy attached to the permitting process for the USX facility in Gary, Indiana, and a suggestion made that the State of Indiana has issued a permit threatening the Great Lakes.

I would point out first of all, as far as the holistic picture, that when Governor Daniels took office in 2001, there was a backlog of 263 permits which was very regrettable. The Governor in his administration has made great strides in working through those backlogs, which I think is very necessary, to make sure that we ensure our water and air quality is good. They now have that number down to 12.

I would point out to all of the Members who are here that controversy has attached to two of those permitting processes, but not to the other 249 that the State has pursued, because I do believe everyone who lives in Indiana, everyone who represents the people of Indiana want to see us continue to make progress as far as water and air quality throughout that region.

The controversy, you and I would certainly agree with my colleague from Illinois who will raise the issue, is if you don't like the law, you should change it, and we are in complete agreement for that. That ultimately is the reason that the hearing is taking place today, should that bar, particularly as it pertains to clean water, be raised.

In looking over the last half century, we have made great strides in improving the water quality of the Great Lakes and this Country as a whole. I would also point out that that progress came because of congressional action in 1972 with the passage of the Clean Water Act.

Subsequent to the enactment of that bill and over the last 35 years or so, there has been a marked reduction in the levels of toxic

chemicals in the air, water, flora, fauna and sediment. This improvement is, in no small part, due to the many Federal programs established to help fund environmental restoration and management activities in the basin. This was not through divine intervention. This was through congressional intervention.

I, again, would encourage you in your initiative today to raise that bar.

As far as the principles that are involved, I think first of all we must recognize the practicality of new clean water legislation and reward and push new innovation. Unfortunately, I think sometimes our technical ability to measure particulates and other types of pollutants have outstripped our ability to remove them, and we ought to reward that technology that gets us to where we want to be.

Second, we must set more rigid standards because we do have to push the envelope to continue to clean up the water of the Great Lakes, as well as the surrounding air. I do believe these standards can accommodate and create new economic development.

Next, I do believe that the new water quality legislation must require everyone to play by the same rules. Improving our Nation's and our planet's water quality is too important to use it as an opportunity to go back in time and try to restrict legislation to a particular region or an industry. Instead, I believe a comprehensive approach must be taken that puts all private industrial and public discharges under the same standards within their respective classes regardless of where they might be within the water basin.

Madam Chair, you mentioned the funding gap. I would point out that while heavy industry has been focused on, and it clearly remains a problem as far as advancing our water quality, many of the problems facing our supply of fresh water lie with public treatment facilities. Unfortunately, as you point out, many of these communities have limited financial resources to upgrade their water treatment facilities. The problem is particularly acute in the Great Lakes Basin, as evidenced by the prevalence of Great Lakes States near the top of EPA's 1996 Clean Water Needs Survey. This is why I do applaud this Subcommittee's leadership and all of the Members in shepherding the passage of H.R. 720, the Water Quality Financing Act of 2007.

Water quality is a health issue. It is an environmental issue. It is an economic development issue, and it affects everyone's quality of life.

I do believe that now is the time to raise the bar and to enact new water quality legislation that will allow our communities and future generations to prosper.

I, again, appreciate the opportunity to be here today and to congratulate the Chair, the Ranking Member and all of the Members of the Committee for your initiative and taking the time.

Ms. JOHNSON. Thank you very much.

Mr. Stupak.

TESTIMONY OF THE HONORABLE BART STUPAK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. STUPAK. Thank you, Chairwoman Johnson, and thank you, Chairman Oberstar and Mr. Duncan, for holding this hearing.

For most people, water is a very important issue and it becomes a greater issue each and every day. If we look at some facts about water and water use, the recommended basic water requirement for human domestic needs is 13.2 gallons per day, yet the U.S. and Canada consume 100 gallons per day per person. Statistics show that every 20 years, the demand for water is doubling.

In the Great Lakes, we consume about 5 percent of the water and we turn 95 percent of the water we use back into the basin. In the arid western States, they consume about 90 to 95 percent of the water and return about 4 or 5 or maybe even 10 percent.

By 2025, the World Bank predicts more than 3,000,000,000 people in 52 countries will suffer water shortages. Water will be the most valuable commodity and most sought after commodity in the world, and the wars of the 21st Century will be fought over water, not oil.

So, since I have come to Congress, I have made it a mission of mine to protect and promote our Nation's Great Lakes. When we first got here, NAFTA was the issue. I raised the issue that water could become a commodity under the NAFTA agreement.

Together, we have stopped the Nova Group from selling or diverting Great Lakes water to China. We have stopped drilling for oil and gas in and under the Great Lakes.

We have been urging Michigan, especially Michigan, and other States to develop comprehensive water use programs. We have stopped the discharge of partially treated human waste into our lakes, rivers and streams.

Currently, I am a Co-Chair of the Water Caucus, a caucus we have just started.

Why have we done all these things? Because 45 million people depend on the Great Lakes for drinking water, jobs, transportation, agriculture and energy.

If you just think of the domestic steel industry, there would be no domestic steel industry without the Great Lakes because we need those lakes to move the ships to move that tonnage to produce our steel in this Country. That is a $4 billion industry to our Nation alone, the steel industry.

In December of 2004, a collaboration of Federal, State, local and tribal government officials and private sector stakeholders formed a comprehensive strategy for restoring the Great Lakes called the Great Lakes Regional Collaboration, and I think most of us from the Great Lakes are on that bill. It is a bipartisan bill. It is H.R. 1350, the Great Lakes Collaboration Implementation Act.

As we have seen in recent months and we have seen in many, many elections, candidates running for President all promise resources to protect the Great Lakes but, unfortunately, like President Bush, they failed to provide the resources necessary to improve the Great Lakes in their annual budgets. Nonetheless, I look forward to working with Members of this Committee to address our shortfalls and needs in the Great Lakes.

A major source of Great Lakes pollution is inadequate wastewater treatment plants. Many of the Members have spoken about it, but let me give you one example.

Up in my district, I have Sault Sainte Marie, Canada on one side and Sault Sainte Marie, Michigan on the other. In between is an

island called Sugar Island. For three summers, the residents of Sugar Island have not been able to use their beaches, have not been able to go, even walk in the sand because of E. coli, chloroform and other bacteria.

What is the source of that pollution? Many of us feel it is the water treatment plant in Sault Sainte Marie, Canada, where they are only required to treat the human waste once before it is discharged. On the Michigan side, we treat it three times before the waste is discharged.

Fortunately, Sault Sainte Marie, Canada has put on a new wastewater treatment plant. We hope, and we will have to wait until this summer to see if our beaches will begin to clean themselves.

But it is not just Sault Sainte Marie, Michigan or Ontario. It is throughout the Great Lakes, this vast region. Some treat their waste one time. Other communities will treat it three times.

But across the Great Lakes Region, as a whole, waste water systems are deteriorating. They have not kept up with the demands. So that is why you see sewers that still combine sewer overflows when you have a big storm. We are dumping more garbage and waste and pollutants into our lakes, rivers, streams, and the Great Lakes because we haven't separated the rain water from the water we use.

It is no wonder why the EPA continually, in the last administration and this administration, requests that during so-called times of emergency, which seems to be every other day in the Great Lakes, that they be allowed to discharge pollutants, partially treated human waste into our Great Lakes because the infrastructure can no longer handle it and they are afraid of the effects of failure of the whole system on our Great Lakes shores.

Fortunately, through the work of many in this Committee, we were able to stop that issue of allowing the EPA to routinely allow for the discharge of waste, human waste, into our Great Lakes. But there are also other pollutants. In Michigan right now, we are trying to pass a ban on phosphorus from coming into our Great Lakes. Many domestic products use phosphorus.

I hope we would consider banning phosphorus discharges into our rivers and our treatment plants at the Federal level. Once discharged into water, phosphorus causes excessive growth of algae. It robs our water of the oxygen which fish need to survive.

I think my time is up. I will submit my statement, but I have so much more I could talk about the Great Lakes. As I said, it has been one of my main missions since I have been here in Congress.

I look forward to working with this Committee. Anything we can do to help and assist and clean up the Great Lakes, I am more than willing to do. Thank you for allowing me to testify.

Ms. JOHNSON. Thank you very much.

Mr. Kirk is not here yet, I don't think. So we will go on to Mr. Rahm Emanuel.

TESTIMONY OF THE HONORABLE RAHM EMANUEL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. EMANUEL. Thank you, Madam Chairwoman. I want to thank the Full Committee and all the Members for holding this hearing and on this very important subject.

I remember when I grew up in Chicago: we used to swim in Lake Michigan, and there would be nothing but dead fish that would come rolling in on the sand and in the first 35 feet of water.

The Clean Water Act made a significant difference because when I was growing up we used to run past the dead fish, holding our breath, jump in the water with a breath, go under the water and swim past all the dead fish as far as you could and come up. That is different, dramatically different from the present day, and you can point to one single act. The Clean Water Act made a dramatic difference in the water quality today. There is no doubt about it.

But we are in the crosshairs, basically. Both Members of the Committee and the panel talked about the fact that now we are slipping from some of that progress that we had made after 30 years of full investment.

The question before us is what are we going to do to build on the shoulders of the original Clean Water Act, and basically have a Clean Water Act, Stage II, that plans for the next 30 years? As my colleague from Michigan, Bart, noted, the future wars are going to be about water. In the next 10 years, 35 countries are going to run out of water.

We are sitting on top of a quarter of the world's fresh water. It is our future, and we hold one of the most important resources. Will we invest in our Yellowstone, our Grand Canyon with the same sense of not only its beauty but its potential, in the same way that we have done with our other national parks and national resources? We are sitting here, and that is really the question.

My colleague from Indiana is absolutely correct in the sense of what Indiana has done in dealing with the backlog, and they, including the Governor, have done it appropriately.

We have two issues. In the last 30 years—I talked about the Clean Water Act—the major pollution factor in the lakes was industrial. Today, it is urban runoff. As he noted, what the real investments have to do is deal with that treatment, mainly urban but also industrial.

I do have questions about how the process worked both on the Whiting facility and now what U.S. Steel wants to do. And I am not the only person. Indiana has done what they are supposed to do on behalf of Indiana.

But the Great Lakes is not Indiana's. It is not Illinois'. It is not Michigan's. It is not Canada's. It is not Wisconsin's. It is all of ours. This is why we had the GLI standards approved in 1996 that set a standard for all of us: so no one State could do what it wanted, in only its own interest.

I do believe that those were the proper points of finding a blend between what my colleague from Indiana needs to do on behalf of his constituents who use the lake, and also need the drinking water and water for their jobs, and what all of us need in the sense of what the lake can provide us.

We can do it. It is a hard issue. A lot of our constituents are emotional about it. Even sometimes a short Member from Chicago can get emotional about it.

But the fact is my colleague from Indiana is doing what he needs to do and I believe I am doing what I need to do, not only for my constituents but for the lake as a whole. Because if we do the right type of investments today, the Great Lakes will be an amazing resource for the United States when the rest of the world is running out of fresh water.

We have to see this not as some oversized pond that you can dump pollution in, but these are Lakes Michigan, Erie, Huron, Ontario, and Superior. These are the Yellowstones. These are the Grand Canyons. They are filled with great resources, and they are not just for fishing and for other types of sports-like activities or simply beaches. They are a great human resource.

We are the crossroads of a Clean Water Act, Stage II, and I think we have two things in front of us: A, enforce the laws that are on the book fully and B, develop the comprehensive legislation and the resources behind it to build on the shoulders of the Clean Water Act. This Clean Water Act, Stage II, would project into the future like the Clean Water act did in 1972. That Act got us to the point that kids today, when they are on the beaches, are no longer running past dead fish, holding their breath for 30 feet under water. They swim in there. My kids swim in there every summer.

The question is what do we see down the road and then point our legislation and our resources towards that vision. I think if we work together, we can get there.

I thank you again for holding this hearing and bringing these issues to the forefront.

Ms. JOHNSON. Thank you very much.

Let me thank our first panel and say that I look forward to working with you to see if we can come up with a little money to help you—as long as you furnish 80 percent.

Mr. OBERSTAR. Madam Chair, a comment before you dismiss this panel. All of you have spoken very thoughtfully and with deep passion and conviction about the Great Lakes, the treasure it is, as my Committee colleagues also have done.

Mr. Emanuel, I am taken by your thought of a Clean Water Act, Stage II. I am sure I noticed a smile coming out of my predecessor, John Blatnik in his portrait in the corner, the originator of clean water legislation in 1956, the Federal Water Pollution Control Act and all the subsequent amendments including the Clean Water Act itself.

It strikes me, and you have acknowledged it, that the enforcement of the existing law is our first challenge—we will hear from GAO about deterioration of that enforcement over the last few years—and also of a lack of funding. Mr. Visclosky is in the position to best guide us on the investments that could be made, through the Energy and Water Appropriations Subcommittee, and in how we might best mobilize our forces in the Great Lakes to direct the funding that we need to the renovation of wastewater treatment facilities, to treatment of the contaminated bottom sediments in the Areas of Concern. These are often the harbors located

principally in the Great Lakes, where the waterways discharge into the lakes.

Then I was touched by Mr. Stupak's comment and yours, Mr. Emanuel, of swimming under the dead fish. My God, I thought we only did that in Chisholm, my hometown, where the city fathers, for a few years, allowed the sewage treatment plant to discharge into our lake. How many towns have a lake right in their midst and have done that? That bunch was routed out by the voters and we built a sewage treatment plant.

But let us also look further on down the Lakes, at the discharge point of Lake Ontario into the Niagara River. In 1987, in hearings I held in this room, Dr. Henry Lickers, an elder of the Akwesasne Tribe also known as the Mohawks, who is a Ph.D. pharmacologist, testified that the people of his tribe who had been healthy for 2,000 years were suddenly coming up with tremors in their joints, with three times the national average of spontaneous miscarriages, with three times the national average or cancers. When he began the inquiry into the causes, he found that there were dioxins, mercury, lead and DDT in the food they were taking in, principally from the fish—even though they had been fish -eaters and -sellers for 2,000 years.

I asked him, "what did you have to do?"

He replied, "we changed our eating habits and, to gain the protein we were getting from fish, we switched to meat."

"And then what happened," I asked.

He replied, "then we had three times the national average of arterial sclerosis, heart attacks, stroke and diabetes."

That's because all the toxics from the Great Lakes concentrate there on the outlet into the Niagara River.

Now we have it within our power to do something about it. That means making some investments. Already, municipalities have invested in excess of $10 billion on the U.S. side of the Great Lakes, and industry, another $15 billion, but the needs are still enormous.

We have moved through the House—you all voted for it—the restoration of funding for the Clean Water Revolving Loan Fund for States. This revolving loan fund was originally enacted to replace the grant program of the Clean Water Act. Now the other body hasn't moved on that legislation, but we still have it within our power to increase funding under the existing law.

I would like to get an assessment from Mr. Visclosky whether that is realistic under the budget assumptions that are pending before us.

Mr. VISCLOSKY. Mr. Chairman, I haven't seen the 2009 budget request and obviously do not know what the final budget resolution will be.

But thinking about your remarks, I would suggest all of the Members who are committed to seeing the resources that are necessary to be brought to bear intervene with the presidential candidates of both parties so that whoever wins puts money in the budget. Everyone on the Committee understands that if it is not in the administration budget, you are constantly digging yourself out of a hole. Again, as everybody on this Subcommittee most clearly understands, it traditionally has been a bipartisan failure, as far as under-funding water resources and water investments.

We really need to convince the next administration, whomever that President may be, that they have to put that money in their budget. I haven't been in Washington so long as to not understand that some hundreds of millions of dollars is not a lot of money.

I would point out over the last couple of years that Dave Hobson, who is my Ranking Member, and who was my Chairman for four years, has done an excellent job in leading the way as far as a five-year plan for the Army Corps of Engineers. For example, you know where you are going to go and you have some guide slope, so that investment can be put to good use.

Just talking to Mr. Stupak, before we began, we have critical needs here that are going to continue to be unfunded unless somebody starts at least giving us a higher base on which to work. So that would be my answer, if you would, to that question.

Mr. OBERSTAR. Well, that is a very thoughtful response and an appropriate one.

We are at the point where we, as John Blatnik, my predecessor once said in exasperation—and he was a biochemist—to a panel sitting before the Committee: I am tired of you scientists holding up test tubes and saying, yes, that water is polluted. Look at it. Look at all this. Put it under a microscope and look at it.

We have to start doing something about it. We have done some, but we have to attack the invasive species through an enforcement program. We have to get after the bottom sediments in an enforcement program. We have to get after existing industries that are continuing to evade the law with an enforcement program.

Mr. Emanuel, don't you think that?

Mr. EMANUEL. That is a leading question, but the answer would be yes.

I just wanted to say to your point and to my colleague from Indiana, Senator McCain, Senator Clinton, and Senator Obama have all three signed pledges that they would push for the Great Lakes Restoration Act and comprehensive legislation. That doesn't mean A, when they got there, they would follow up, or B, that their budget would reflect that, but we have their signature on a piece of paper. To date, never in this process have we ever been there and done that before. So we are, I think, a little farther ahead.

The second thing is, I would argue, and this is straight politics and politics is not far from policy, we did the Everglades restoration in the late nineties. They got nine billion bucks.

I hate to say this, but we have a lot more electoral power in the Midwest if you just did it by votes. I think we have never, as a group in the Midwest, from New York all the way through to Minnesota and down, ever marshaled those political resources to fight for the resources that our region needs, whether that is the revolving fund or a comprehensive legislation. It is not us versus the Everglades, but they are nine billion bucks ahead of us.

As far as I can see and I sometimes do politics on the side, we are where the game is going to be in the presidential year. I think we, as a group, Democrats and Republicans alike—while we may disagree on other things—most make sure our nominee fights when they come through the Midwest, talking about the resources, and holding their feet to the fire. Because if we have them on record in this process, then we can hold their budget to their rhetoric.

Mr. OBERSTAR. Well, that is important. I am glad you raised that.

Mr. EMANUEL. I wouldn't want politics to influence policy in any way, Mr. Chairman.

Mr. OBERSTAR. Far be it from the political process, but lest it fail us, we have a process now. Whatever these candidates say, that is two years off from a budget standpoint. We have a budget cycle now in front of us, and the current Administration is not irrelevant. They have a responsibility.

I will withhold further comments. Mr. Kirk is here and, Madam Chair, I think you want to recognize Mr. Kirk and have his statement.

Ms. JOHNSON. Yes, thank you very much.

Mr. Kirk now has arrived. Would you like to proceed with your testimony?

TESTIMONY OF THE HONORABLE MARK STEVEN KIRK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. KIRK. Thank you, Madam Chair. I have a prepared statement which I would like to submit for the record and summarize briefly.

I am here backing legislation supported by a number of prominent Democrats, my colleague from Illinois, Rahm Emanuel, Dan Lipinski, Mayor Daley, but also a bipartisan concern, Congresswoman Miller, Congressman Ehlers, et cetera.

Let me mention two big issues in quick summary. Number one, Congressman Emanuel and I joined with the Alliance for the Great Lakes to get the Great Lakes commitment by the presidential candidates. If you go by today's polls, then the leaders of both parties have now signed the Great Lakes commitment, and that is an important promise that we will hold them to later.

The issue that I would like to focus on today beyond the global issue of funding for the Legacy Act, cleaning up polluting harbors, funding for the Restoration Act which Congressman Emanuel and I, which is looking at the Great Lakes as a comprehensive ecosystem, is to turn the attention of this session of Congress on sewage dumping in the Great Lakes, a critical issue.

Congressman Lipinski and I have joined together to propose bipartisan legislation to set a Federal date certain on banning all sewage dumping in the Great Lakes.

You know the numbers: 95 percent of the fresh water of the United States, the source of drinking water for 30 million Americans.

When you talk about the practicality of instituting a dumping ban, you have to go to some of the major municipalities and ask when could you accomplish this critical objective. In negotiations with Mayor Daley, we set a final date of 2027 of which the City of Chicago being the largest municipality on the Great Lakes to completely ban all dumping. So that is the basis of this legislation.

When we talk about the problem overall, let me give you the two big numbers in this issue. Twenty-four billion gallons of sewage are dumped into the Great Lakes each year.

When I originally looked at this problem, I was worried about my own communities which have a no dumping policy almost always

adhered to except during catastrophic storms. I looked at the City of Chicago which now generally goes a full decade between catastrophic events, and we are laying the groundwork to end that.

I originally thought the big bad guy here was Milwaukee which two years dumped four billion gallons of sewage directly into the lake, of great concern to Illinois because the current runs from Milwaukee to Illinois and of great concern.

But I will have to highlight the big bad guy here is the City of Detroit. Of the 24 billion gallons of sewage dumped in the Great Lakes each year, 12 billion are the City of Detroit alone, and that is unfortunate for this reason.

As Members of this Subcommittee well know, the Federal Government in general will pay up to two thirds of the cost of upgrading a sewer system to make sure that a responsible environmental policy can be adhered to. Nearly all Great Lakes communities take advantage of those Federal funds to make sure that they are good environmental stewards of the lake.

But what does the Federal Government do which is responsible for relations between the States and our relations with our Canadian allies when a community won't even come up with the one third match? Even though the Government is offering to pay an overwhelming majority of the bill, what happens when they fail to invest in becoming a good environmental steward? I would say that that is probably the example of Detroit.

In Chicago, we built the Deep Tunnel now over 100 miles long on the principle that we should not dump in the lake and therefore should handle stormwater. As one engineer put it, Milwaukee built the not so deep tunnel, and so they get regularly overwhelmed. There is no such facility that can handle Detroit's mess.

In the end, I think that the Kirk-Lipinski legislation is critical. We need to offer the resources as this Committee has been a strong advocate to do, but in the end there has to be a Federal date certain so the committees take that to act and we all, including the City of Detroit, become responsible stewards of what I think is one of the precious ecosystems in the United States.

I thank you for the chance to talk to you today.

Ms. JOHNSON. Thank you very much.

The Chair recognizes Mr. Duncan.

Mr. DUNCAN. We always have followed a policy in this Subcommittee of not questioning Members panels because we have a chance to talk to them at other times and also because we know they need to get on to other things, and I am not going to violate that policy now, but I will say this.

As I mentioned in my opening statement, we have passed more than 30 laws specifically aimed at the Great Lakes, most of which have been passed, as Chairman Oberstar noted, since 1956 and the most significant of which was the Great Lakes Legacy Act in 2002. We now have 10 Federal agencies working on this and 140 different Federal programs and 200 funding sources, counting State and local sources.

So what I am getting at is I think that what we need to look at in these hearings and what we need from the Members and their staffs, including the Members who just left and others if they have

staff members here, is we need to know which of those programs are working or are accomplishing things and which aren't.

We need to know, these Federal agencies, are they just talking to each other or are they actually doing something because I can tell you there is nobody on this Committee who doesn't want to do more on this problem, but we need to find out what is effective and what is not, what is actually accomplishing something and what is not.

Of all the hearings I have sat through on the Great Lakes, maybe I missed it before, but I have not heard the statistic from Mr. Kirk that you just said about Detroit. That is something. It is pretty amazing when I heard a few months ago that Detroit's population had gone down from two million a few years ago to 800,000. So it is almost hard to believe that they are producing that much waste, but something sure needs to be done on that.

We need some help on finding which ones of these 140 Federal programs are working and which ones aren't, and maybe we can take the funding from some that aren't doing much and put more funding towards the ones that are effective.

Thank you.

Ms. JOHNSON. Thank you very much.

Mr. Chairman.

Mr. OBERSTAR. Madam Chair, I want to thank Mr. Kirk, our colleague, for his very thoughtful statement, well prepared and well presented and with very heartfelt emotion in delivering it. I appreciate that. We see many people come here, read something rote, and leave without much of an impression, but you make a strong impression.

In the Clean Water Act of 1972, we set the goal of 1985 to achieve fishable-swimmable status for the waters of the United States, coming to a point Mr. Duncan raised just a moment ago. In fact, in that Act, there were 132 deadlines, dates by which certain things had to be accomplished. Every one of those deadlines was missed for one reason or another.

We have to find out, and we have a pretty good idea already, which programs are working, which aren't and why, and fix them. I think you are committed to doing that.

I like your idea of a goal, a date. Even though, in setting such a date, we have to be realistic that it might not be achieved. But if we don't set a date, then we will never get there. That is why all those deadlines in the Clean Water Act were of importance because they were like a blowtorch on the agencies to say get going, shape up, come back to Congress and report to us why you didn't get there.

I think Mr. Visclosky feels the same way.

Thank you, Madam Chair.

Ms. JOHNSON. Thank you very much.

Any other statements for this panel?

Thank you very much for coming.

The second panel will be Mr. David Maurer, Acting Director of the Natural Resources and Environment Division of the Government Accountability Office and the Honorable Irene Brooks, Acting Chair of the United States Section of the International Joint Commission and accompanying Chairwoman Brooks is United States

Commissioner for the International Joint Commission, Mr. Allen Olson.

As I noted to the first panel, Mr. Maurer and Chairman Brooks, your full statements will be placed in the record, and we ask that you try to limit your testimony to five minutes.

The Chair now recognizes Mr. Maurer and thank you for coming this morning. You may proceed with your testimony.

TESTIMONY OF DAVID MAURER, ACTING DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE AND THE HONORABLE IRENE BROOKS, ACTING CHAIR, UNITED STATES SECTION, INTERNATIONAL JOINT COMMISSION OF THE U.S. AND CANADA, ACCOMPANIED BY COMMISSIONER ALLEN I. OLSON, UNITED STATES SECTION INTERNATIONAL JOINT COMMISSION OF THE U.S. AND CANADA

Mr. MAURER. Great. Thank you very much.

Good morning, Madam Chairwoman and Members of the Subcommittee.

I am pleased to be here today to talk about our work on the Great Lakes Initiative. As you know, the GLI is a broad, ambitious and important effort with significant implications for the millions of people in the United States and Canada who rely on the Great Lakes for their drinking water, for their source of recreation and for their economic livelihood.

One important aspect of the GLI is the ongoing effort by EPA and the States to control so-called bioaccumulative chemicals of concern or BCCs. These are chemicals such as dioxins or PCBs that when released into the environment do not readily break down. They build up in soil, sediments and plants and accumulate in fish, animals and people.

Through the GLI, the EPA has established stringent water quality criteria for nine BCCs. My statement today primarily focuses on these nine BCCs and is based on our July, 2005 report on the GLI. In that report, we recommended that EPA take a series of actions to better ensure full and consistent implementation of the GLI.

As you requested, in preparation for today's hearing, we obtained updated information from EPA and the Great Lakes States on three issues: first, the status of EPA's efforts to develop an approve methods to measure pollutants at the GLI water quality criteria levels; second, the use of permit flexibilities which allow users to exceed GLI water quality standards; and, third, EPA's progress implementing the recommendations from our July, 2005 report.

My bottom line this morning is this: EPA and the States have made progress, but there is a long way to go before the water quality standards in the GLI are achieved.

I will now briefly summarize our three main points. First, EPA remains unable to regulate most BCCs to GLI standards because it lacks approved methods capable of measuring them in sufficiently small quantities. In other words, EPA can't regulate what it can't accurately measure.

Now, to be fair, this can be a very difficult thing to do. EPA is on the hook to approve methods for detecting BCCs to the nanogram per liter level. In plain English, that is finding one in a tril-

lion. That speaks volumes about both the potential risks from BCCs as well as the technical challenges in detecting them.

Currently, EPA has approved methods that measure down to the GLI criteria for only two of nine BCCs, mercury and lindane. As a result, States are not including GLI-level discharge limits for most BCCs in their permits for industrial and municipal users who discharge into the Great Lakes Basin. This is a significant barrier to fully achieving GLI's goals.

There has been some progress on this front. EPA approved a more sensitive method for mercury in 1999. As States began using this method, they discovered many facilities were exceeding the mercury standard and began including mercury limits in user permits. As a result, many more facilities are now required to limit their mercury discharges.

EPA officials told us they expected a similar rise in permits with discharge limits when detection methods for PCBs are approved.

However, progress in this area is partially offset by our second set of findings. Mainly, the GLI allows States to use flexibilities that permit facilities to exceed GLI water quality criteria. This gives States the option of offsetting the potential economic or social impacts of requiring businesses and municipalities to meet GLI requirements.

We found that States frequently take advantage of these flexibilities. For example, the vast majority of State permits with mercury discharge limits also had flexibilities.

The GLI also allows the repeated use of some flexibilities and does not set a time frame for facilities to meet the GLI water quality criteria. As a result, EPA and State officials could not tell us when the GLI criteria will be met.

Finally, EPA has taken some actions to implement the recommendations in our 2005 report. For example, EPA has implemented our recommendation to fully develop a GLI clearinghouse and share it with the States. The clearinghouse is a database of information on hundreds of chemicals which helps assist States in developing water quality standards.

EPA has also begun to track the progress of the GLI implementation. However, its efforts have been limited to mercury discharges from municipal wastewater treatment plants. As a result, EPA continues to lack the information it needs to adequately assess progress in meeting GLI goals.

In closing, although EPA and the States have made some progress in some areas such as mercury detection, they still have a long way to go before the water quality levels in the GLI are achieved. EPA remains unable to regulate most BCCs to the GLI levels, and extensive use of permit flexibilities could continue to undercut reduction in pollution levels and the ultimate achievement of GLI's goals.

Madam Chairwoman, this concludes my statement. I would be happy to respond to any questions that you or Members have. Thank you.

Ms. JOHNSON. Thank you very much.

Ms. Brooks.

Ms. BROOKS. I am Irene Brooks, Acting chair of the U.S. Section of the International Joint Commission. I am very pleased to be

here with my colleague, U.S. Commissioner Allen Olson. We are joined by our colleagues from Canada, the Right Honorable Herb Gray, Chair and Dr. Jack Blaney, Commissioner.

In both the United States and Canada, millions of people draw material and spiritual sustenance from the Great Lakes. Today, the basin's residents want to know that their priceless lakes, both in their majesty and their mystery, will be there for future generations just as they have been there for them.

We are very proud of the role of assisting the governments in implementing the Great Lakes Water Quality Agreement, alerting them to emerging issues and assessing their progress as they work to restore and maintain the chemical, physical and biological integrity of the waters of the Great Lakes Basin.

Here is our latest assessment. The lakes today are less polluted than they were decades ago. The toxic human, animal and industrial wastes as well as pharmaceutical and airborne substances continue to pollute the lakes. Ongoing urban development, invasive species and climate change present further challenges.

Therefore, we have declared today, as we have before, that the power of the vision captured in the agreement has generated neither enough action nor full recovery. That is why the Commission believes the time has come to make bold binational commitments and to accelerate actions to restore and protect the Great Lakes

Today, we focus on four specific shortcomings:

First, while progress towards cleaning up the Great Lakes has been significant in many areas, further gains are hampered by a lack of accountability, blurred lines of responsibility, lack of vigorous implementation and inadequate funding. Moreover, actions to address new threats such as invasive species are too slow and too scattered to be effective.

Second, information needed to assess progress is often not available from governments to the Commission and monitoring programs are under-funded, missing or inconsistent across the basin. Moreover, governmental reporting on Great Lakes water quality, as required by the agreement, is inadequate and sometimes nonexistent.

Third, the current agreement does not provide for the players with the greatest interest in cleaning up the Great Lakes to be at the table.

And, fourth, the current agreement is inadequate to meet present and emerging challenges. It must be replaced with a new, action-oriented agreement signed by the President and the Prime Minister and endorsed by the U.S. Congress and the Canadian Parliament.

Our view is that to speed up the cleanup, accountability is paramount. Responsibility for actions must reside in the highest levels of both governments with both countries making a bold commitment to specify achievable goals and a set timetable to restore water quality in the Great Lakes so that fish are safe to eat, water is safe to drink and beaches are safe for swimming.

For example, it appears that the invasive zebra mussel has effectively re-engineered physical and chemical processes in the nearshore area, promoting eutrophication and degrading water quality. Algae mats, closed beaches and dead birds are unmistakable signs

of water quality problems that are serious in most areas of the Great Lakes. Our written testimony details steps for binational action to address this urgent concern.

Finally, the Commission observes that while some see the Great Lakes as marking the boundary that divides our countries, we see them as the lifeblood connecting us. Indeed, pollution knows no boundaries. So, action to clean up the Great Lakes and clean them must be uncommonly strong, binational and immediate.

Ultimately, accountability will only be achieved to the extent that the national governments of the United States and Canada take action. We are here today to tell you that the International Joint Commission is ready to help you act with urgency, vision and focus to get the job done.

Thank you very much.

Ms. JOHNSON. Thank you very much.

Mr. Boozman.

Mr. BOOZMAN. Ms. Brooks, we know that everyone wants more funding. Is it possible to do more with the funding that we have? Alternatively, is it possible for the Great Lakes to decide to dedicate existing Federal assistance to Great Lakes restoration efforts?

Ms. BROOKS. Well, our figures are that it will cost $7.4 billion to clean up our areas of concern. Thus far, it has been inadequate funding to clean them up. We have 43 total, and only 3 have been de-listed.

Mr. BOOZMAN. Tell me about the panel. Congressman Kirk mentioned the large discharge from Detroit. Are those kinds of discharges, are those allowed under current law?

Ms. BROOKS. That would be under the EPA. We certainly have a responsibility for water quality, but unless we know the information data which is shortcoming, we can't assess the impact.

Mr. BOOZMAN. Okay. Thank you very much.

Thank you, Madam Chair.

Ms. JOHNSON. Thank you.

Chairman Brooks, you said in your testimony that the Great Lakes Water Quality Agreement is no longer working. What is the climate between the Canadian national government and the U.S. for revising the Great Lakes Water Quality Agreement to address the challenges that you have identified?

Ms. BROOKS. The time line? I am sorry. I didn't understand that.

Ms. JOHNSON. Receptivity.

Ms. BROOKS. We are assisting both governments in giving them our advice on what we feel should be in the agreement. We feel there should be a new agreement rather than an amended one. We feel the times have changed, conditions have changed, that we need a simple, direct agreement accompanied with a plan that can be flexible and include more people, bring more people to the table such as municipalities and tribes.

Ms. JOHNSON. How is that?

Mr. OLSON. If I may, Madam Chairwoman, we reflect a complete international approach to the issue. We don't represent the respective governments, but the six of us, three Canadian and three U.S. commissioners, take separate oaths to uphold the Boundary Waters Treaty of 1999. So we do represent a completely binational, inter-

national approach, but we don't represent the respective governments.

Ms. BROOKS. The only thing I would add is that both Federal Governments are undergoing a review process now to determine whether or not there indeed needs to be a review. They have not made that decision yet.

Ms. JOHNSON. Are you near an agreement of a recommendation for improvement?

Ms. BROOKS. Improving the agreement?

Ms. JOHNSON. Or a new one.

Ms. BROOKS. A new one. We recommend that there be a new one, a new agreement between the governments, signed by the President and Prime Minister and approved before Congress and Parliament to strengthen it.

Ms. JOHNSON. Where are you in attempting to get that accomplished?

Ms. BROOKS. We are in the process. We have given our advice to the governments. We are also in the process of exploring near-shore issues to give additional information and advice to the governments on near-shore issues to be included in the agreement. We feel that is important.

Ms. JOHNSON. Thank you.

Mr. Maurer, after listening to your testimony, my understanding is that if EPA has not developed a detection methodology for a given BCC, like PCB's, for example, there is no GLI permit limit. Is that correct?

Mr. MAURER. That is right. If there is not an approved detection method, they can't issue the permits down to the GLI level. It may still be regulated at higher levels. You may have other ways to try to get the most technologically feasible level, but it won't be reduced down to the level envisioned in the GLI.

Ms. JOHNSON. So that means PCBs are not regulated?

Mr. MAURER. They are not regulated at the GLI level which is the stringent standard set by the EPA.

Ms. JOHNSON. If they are regulated, what levels are they regulated at, or, in other words, do facilities on the Great Lakes have any permit limit for the PCBs at all?

Mr. MAURER. I don't know specifically the levels for PCB's. But, in general, depending on the chemical, there are requirements and permits established by the States that require facilities to reach the most technologically feasible level. They are not going to get down to the GLI level, but there are requirements that they do as best they can.

I think our concern is that if they are not reaching the GLI level, the GLI's requirements are not going to be met.

Ms. JOHNSON. Is the level protective of human health and the environment?

Mr. MAURER. Well, I think the real worry is that when EPA established the GLI levels in the mid-1990s, they set it at a level where they felt was a relatively safe level for PCBs in the water. We are not quite there yet because they don't have the approved methods that can measure sufficiently minute quantities of PCB's.

I think EPA is probably in a better position to talk about specifics of the regulatory regime. In general, though, it is set by EPA and implemented by the States.

Ms. JOHNSON. Thank you.

Mrs. Miller.

Mrs. MILLER. Thank you, Madam Chairman. Again, I want to tell you sincerely how much I appreciate your calling this hearing today.

I have to tell you the truth. I have been involved in public service about 30 years. A principal advocacy of mine has always been protecting the Great Lakes. In fact, it is probably a principal reason I actually ran for Congress because of all of the various issues.

If you can think about my district, you know it is great in Michigan. You always have a map of your State on the end of your arm. But if you think about the Mitten, I represent this but having been formerly a Secretary of State of Michigan, I have been involved in so many of these issues over the years.

I would just say this because I didn't want to violate our unspoken standard that we don't question our other colleagues. But when Representative Kirk mentioned about the terrible conditions that are happening in Detroit with all of our sewage overflows, I think he was talking about this. This came out in November of 2006, the Sewage Report Card, and it goes through the major communities on the Great Lakes.

You have Green Bay, Wisconsin up here with a B plus grade and then Detroit at the very bottom with a D. I will make no excuses for the City of Detroit, although I don't represent Detroit.

The City of Detroit has actually the entire region there that they are treating, most of the municipal sewage. So there is more than the 800,000 population in the City of Detroit whose sewage is being treated. It is probably closer to three or four million people actually. But we have a long way to go and much room for improvement, obviously, there.

However, I will note in the City of Chicago, they don't really have those kinds of problems because, of course, around 1900 they actually diverted the Chicago River and flushed their sewage down the Mississippi River. So they don't bring it into the Great Lakes Basin, and I think that's fine. However, if you live in St. Louis, you might not think it is as good.

I would also say when they are diverting actually in Chicago, they divert over two billion gallons each and every day of Great Lakes water down the Mississippi, not only for their sanitary purposes but also to help float the barges on the Mississippi River.

I think it should be pointed out because we now have such historic low lake levels that maybe it was okay when we had plenty of water, but with the low lake levels that we have today, I would like this Congress to revisit. I know the Supreme Court has talked about this issue and opined on it, but I don't think it is out of the realm for us to revisit this issue diversion that is happening of the Great Lakes in Chicago.

I understand that they need the drinking water supply and for sanitary reasons, et cetera, but flushing that amount, diverting that amount of water, over two billion gallons each and every day, I think is not a good idea for the Great Lakes.

Now, my question if I have just a moment here, I want to focus on phosphorus. My colleague, Representative Stupak from Michigan brought this up as well. This is something I am very, very interested in. I actually have sent a letter to our Governor, asking them to follow the lead of the States of Florida and Minnesota who both have statewide restrictions on phosphorus.

If you go to Google Earth and look at Michigan, I know the panelists can't see it, but you can actually see green all the way around the State of Michigan particularly in Saginaw Bay and Lake St. Clair and down in through here by Toledo. That is algae blooms created for a number of reasons, but a huge component of that is phosphorous.

Again, because of the historic low lake levels and the sun getting down to the bottom of the lakes, we are growing beautiful, beautiful lawns on the bottom of these lakes with all the phosphorus, the heavy phosphorus that we have in our lawn fertilizers and dishwashing detergents and, of course, all the outflow from the wastewater treatment plants.

I guess my question would be do you think it would behoove the Great Lakes on a Federal level, whether that is through legislation or regulation or financial assistance or a combination of both, to restrict phosphorus into the Great Lakes through the basin?

Mr. MAURER. Well, I actually lived in the State of Michigan for about eight years, so I am very familiar with some of these problems.

We haven't looked directly at that issue at GAO. We don't have a view specifically on the issue of phosphorus. However, we are concerned about the level of water quality in the Great Lakes as a whole, and we would hope that the different Federal agencies, as well as local and State governments work to address those problems.

Mrs. MILLER. Well, I will tell you in regards to the EPA, God love you, but you are not really helping us very much in this position.

In Saginaw Bay, where we are really having huge problems, we just call it the muck issue. One of our colleagues talked about dead fish. Well, we have the dead fish. We have this muck that is all over Saginaw Bay and all over the shorelines.

NOAA actually has committed about $4 million to do a study of Saginaw Bay, looking at some of the various, trying to pinpoint where the phosphorus is coming from.

EPA, on the other hand, has said you are contributing $80,000 which I appreciate that, but it is not really a lot of change in our blue jeans. We could really use some additional help from the EPA to pinpoint where this phosphorus is coming from. It is an unbelievable problem that we are having right now.

I think I am out of time, but I don't know if anyone else has any comments on that. I just think that that is something, as a Congress, it would seem.

We have various counties, for instance, in Michigan and I am sure that is happening in some of the other States, that are enacting local ordinance, but the water doesn't really know if it is in one county or another county or one State or one Nation or what have you.

I think we need to have a comprehensive policy on the phosphorus, and I raise that issue. I think it is something the International Joint Commission could also take a look at because, of course, again it is happening on both shores and it is exasperated really now because of the historic low lake levels that we have, which is why I brought up the diversion in the Chicago sanitary canal.

I mean if the City of Detroit diverted the Detroit River, we might not be dumping anything into the Great Lakes either. Obviously, we could never do that kind of a thing.

But phosphorus, I think, is common sense, something that we could do very quickly. People could still have green lawns. There are other kinds of elements that the fertilizer companies could put into their products without dumping it into the Great Lakes. I am not sure that this is a question as much as a statement.

But I do want to thank the International Joint Commission not only for being here today. They have been a fantastic help in so many various ways. I have worked with Commissioner Gray and others on looking at a problem.

Right now, the International Joint Commission is actually studying a problem that we have in the St. Clair River right under the Bluewater Bridge in the City of Port Huron. Our Chairman is very familiar with the City of Port Huron.

What has actually happened is in the early sixties, the Corps of Engineers did extensive dredging in the St. Clair River under the Bluewater Bridge ostensibly to open up the upper Great Lakes for shipping, which is a very important economic impetus obviously.

But there is a theory that is being advanced by one of the foremost coastal engineering firms in our hemisphere actually, that has said that because of that dredging, subsequent dredging, subsequent erosion, it is sort of like a bathtub effect of pulling the plug and that is also diverting, essentially, a Lake St. Clair every 18 months right over the Niagara and out into the big pond there. I am not sure whether that is true or not, but the International Joint Commission will assist us in finding out if that is so. We need to base it on sound science.

So I appreciate the International Joint Commission, Commissioner Brooks for being here and all of your assistance on that as well. I don't know if you have any comment on that particular study and where you are at now.

Ms. BROOKS. You are correct. Actually, the Upper Lake Study took that issue and put it ahead of all other issues, the St. Clair. They have not completed their studies on that yet. They have completed videotaping the bottom of the area, the affected area. But we hope to have an answer sooner than later, but it is going to take some time until we are able to assess that, but they are working on it.

Mrs. MILLER. With the Chair's indulgence, maybe I could ask just one further question.

Mr. OBERSTAR. If the gentlewoman would yield just a moment on two points.

Mrs. MILLER. Certainly.

Mr. OBERSTAR. First, hurry with your assessment. We are going to be doing, under Chairwoman Johnson's leadership, another

Water Resources Development Act. There are some issues that we need to address legislative, and we want to be able to do it this year. So get your work to us—I mean to the respective governments—so that we can take a look at it and then deal with it as is appropriate.

Second, on the issue of phosphorus, EPA says in their 2007 report, phosphorus targets have been met in Lake Ontario, Huron, Michigan and Superior. You are reporting algae blooms and bottom growth of vegetation in your Lake St. Clair and just off Port Huron. Those are seemingly contradictory observations.

Mr. OLSON. Mr. Chairman, if I may?

Mr. OBERSTAR. Yes.

Mr. OLSON. We are just beginning to address the near-shore issues including the non-point source concerns with phosphorus dumping into the lakes. I suspect that may be part of the answer.

We hope to have a more definitive position on that soon, and we would certainly hope that the two governments may find it in their interest to give us a reference on the specifics, but I think we will be in a position to add valuable information to the database as soon as we can get fully engaged in the near-shore concerns.

Mr. OBERSTAR. I thank the gentlewoman for yielding.

As lake levels drop, there is bound to be a higher concentration of nutrient-limiting factors. That is elements that when removed from a water column will limit growth, but as water warms, that growth will accelerate. So we have two rapidly colliding factors here that have to be addressed and addressed very soon.

I thank the gentlewoman for yielding.

Mrs. MILLER. Thank you and I certainly appreciate the Chairman talking about the phosphorus as well because, as you say, we have conflicting reports from the EPA.

I am not sure what your reports show, but I am a lifetime boater. All you have to do is walk around Lake St. Clair. You can hardly move because of the weeds that are growing in there now with the low lake levels.

Then again in Lake Huron and along the entire thumb area, the Saginaw Bay up in Traverse City, the northern part, it is everywhere. It is just everywhere. It is not the only reason that is happening, but certainly phosphorus is contributing to that.

If I could, with the Chair's indulgence, just ask one further question then in regards to invasive species and I am delighted that I think the full House is going to be acting on the invasive species this year. Because of the salties that come into the Great Lakes, there are really only several hundred of them because of the restriction, of course, as they come through the St. Lawrence Seaway and whatever we do with the ballast water, et cetera.

One of the other problems I am not sure we could ever really resolve is because many of the invasive species are actually attaching themselves to the hulls of the ships. They are not only inside the bilge, they are on the hulls.

We have found that in Michigan and throughout every State in the Great Lakes Basin with the zebra mussels, for instance. You dump your boat in Lake Michigan or what have you and then you trailer it over into an inland lake and put it in there. That is how

the zebra mussels have spread because they were attached to the hulls, and that is what is happening with these.

I bring that up because some people have actually talked about whether or not to just ban oceangoing freighters from coming into the Great Lakes system. I guess I would be interested if any of you have any. I guess I am not a proponent of that yet, but many people are talking about such a thing.

Mr. MAURER. That is not anything we have looked at in GAO, but I will get back to the phosphorus issue just briefly.

In our 2005 report, we did talk about the importance of addressing non-point source and addressing the overall water quality problems in the Great Lakes. While the Great Lakes Initiative focuses on point sources from industrial and municipal users, we have to address the non-point sources because they are in fact becoming the majority source for pollution in the Great Lakes. So addressing problems like phosphorus that you have raised are an important part of addressing the overall problem.

Mrs. MILLER. Thank you very much, Madam Chairman.

Ms. JOHNSON. Thank you very much.

Mr. Chairman.

Mr. OBERSTAR. Thank you, Madam Chair.

I thank this panel for being here, for your thoughtful testimony in which you have summarized well the full documents which I read last night and this morning.

Mr. Maurer, GAO has always been a great help to us on the Committee on assessing the issues of Great Lakes water quality, and again you have presented some thought-provoking observations. Lack of proven analytical methodologies: how and in what ways has that hindered the assessment of bioaccumulative chemicals in the Great Lakes waters and in implementing the GLI?

Mr. MAURER. We see that as a significant obstacle to both issues. If we don't have an approved analytical method that can measure consistently the different chemicals, it makes it difficult to measure progress towards reaching GLI goals. If there are different standards in the different permits, it is kind of difficult for EPA or anyone else to know whether or not they are making progress towards reaching the GLI goals.

Mr. OBERSTAR. What are the obstacles in reaching or agreeing upon approved methodologies?

Mr. MAURER. Well, I think it varies depending on the chemical, but in general what we heard from EPA is that a lot of these standards are, by design, meant to be technology-forcing. So when they were put into place in the mid-1990s, there were no technologies able to assess at this level. It was meant to force that development.

What EPA tells us is that it is expensive and time-consuming to do this.

Mr. OBERSTAR. I get exasperated with that stuff, and I will be exasperated at EPA, not at GAO.

Mr. MAURER. Good.

Mr. OBERSTAR. We have universities throughout the Great Lakes that are spending thousands of hours, millions of dollars, doing this kind of research. Why can't EPA bring them all together in a consortium and say figure it out?

Mr. MAURER. That is a very good question. We didn't ask.

Mr. OBERSTAR. Mr. Grumbles is here in the audience. I enjoin him to think about that, so when he comes to the witness table, he will be ready to answer.

Mr. MAURER. Yes, it is something we are concerned about, obviously, because you can't reach the goals set in the GLI and you can't contribute to the overall cleanup of the Great Lakes without having these methodologies.

Mr. OBERSTAR. We have EPA's water lab in Duluth. We have, well, the associated research centers that are associated with the National Environmental Research Laboratory. Bright minds, capable people, they all ought to be harnessed and given a deadline to come up with methodologies. It is not that difficult.

Time lines, you said they don't have a time line. Have you made some assessment of what a time line could be, or what would be an achievable time line?

Mr. MAURER. We didn't do an assessment about a specific time line. But we think that it is important for not just the GLI but government programs in general to have a measurable goal and have some time frames for when you are going to reach that goal and also have indicators of the progress you are making towards success in reaching that goal.

There is no time line for the Great Lakes Initiative, and EPA has a mixed record at assessing progress along the way.

Mr. OBERSTAR. And, there is another problem associated with a time line. The preamble of the legislation, the GLI, says the intent is to establish "consistent and forcible long term protection for the Great Lakes with a short term emphasis on the types of long-lasting pollutants that accumulate in the food web and pose a threat to the Great Lakes" and then it goes on to cite flexibilities.

As part of the flexibilities, there have been waivers given for one after another pollutant for various reasons for five years. Then they come to the end of the five years, and there is another five year waiver. Have you made an assessment of the waiver issue?

Mr. MAURER. That is right. As part of our preparation for this hearing, we went and got information from all the different Great Lakes States to do an assessment of the extent to which they are using these flexibilities, and we found that in many cases States were issuing flexibilities for the permits for substances like mercury.

We didn't review individual permits, so we are not saying whether or not it was a good idea to do that for individual permits. But at large, if you have this continued use of flexibilities and there is no sunset provision and they are used over and over again, we are concerned you are never going to reach the GLI levels.

When we asked EPA and State officials when they thought the GLI levels would be reached, they couldn't give us an answer.

Mr. OBERSTAR. At some point, the flexibility has to end. When is that point?

Mr. MAURER. Under law right now, there is no end point. They can, theoretically, be continued forever.

Mr. OBERSTAR. It is a problem of the law itself, and Congress can and should put an end date. Would the IJC be in favor of that?

Mr. OLSON. We would have to consult. We might have to turn around and consult with our Canadian colleagues.

Mr. OBERSTAR.[Foreign language.]

Mr. OBERSTAR. Mr. Gray? I will have to translate that later for the Reporter of Debates.

[Laughter.]

Mr. OLSON. Mr. Gray was prepared to respond to you in French.

Mr. OBERSTAR.[Foreign language.]

I think we will maybe do that.

Mr. OLSON. Maybe after we have concluded our part.

Mr. OBERSTAR. Yes, indeed, in a separate testimony.

In an earlier statement, Chairwoman Brooks, you said that the Great Lakes Water Quality Agreement U.S.-Canada, Canada-U.S. should be reframed. How long will it take to do that?

Ms. BROOKS. My personal opinion is, it depends on how quickly EPA will react to all the advice that they have been given and when they make the decision, whether there will be an amendment or a new agreement or nothing at all.

Mr. OBERSTAR. Historically, the principal impetus for the Canada-U.S. Great Lakes Water Quality Agreement was from the Canadian side. I participate annually in a Canada-U.S. Interparliamentary Group meeting and have done since 1981.

Canadian MPs and Senators were the driving force behind the acid rain issue that eventually forced both governments to come to an agreement, an air quality agreement as well as a water quality agreement. I can see his face. I just can't think of the MP from Canada who was so astute as to get a signature pen from both President Reagan and Prime Minister Mulroney.

It was Canada that prodded the U.S. to come to the table to reach agreement. We may have to call upon our Canadian counterparts to do that again.

But, according to this Committee, under my Chairmanship and with strong support from the Republican side of this Committee, this is a bipartisan issue. This is an American-Canadian-North American issue. We are going to do something about it.

Ms. BROOKS. Yes, I am glad you pointed that out. It is binational. EPA, actually, DFAIT and Department of State are involved, of course, in this process too. So we are just waiting and waiting and able to assist in any way that they would like us to participate.

Mr. OBERSTAR. In 1909, there was a meeting of President Roosevelt and the Prime Minister of Canada at the time, whose name escapes me.

Mr. OLSON. Mackenzie King.

Mr. OBERSTAR. It wasn't Mackenzie King. It may have been, but I think it was just before Mackenzie King, who in the meeting said, well, Mr. President, we may not be in the same boat, but we are more or less in the same waters, and we must take care of those waters.

That was good advice that we ought to still observe, and that is why we have the 1909 treaty and that is why we have the IJC, which for along time was a moribund agency. Since the mid-1960s, it has been rejuvenated and been a very strong force for action.

I remember a time when I started on the staff of my predecessor, and we would call and ask the IJC for information, and they would

be having their winter meeting in Mexico. No more. You are now focused on the Great Lakes. The colder, the better; the more intense your focus.

I would like to know more about low water on the Great Lakes, for a variety of reasons I need not elaborate on. They are well known to all of us who follow the Great Lakes. What is the current regulatory scheme established by the IJC? Is it still the SEO, Superior-Erie-Ontario?

Ms. BROOKS. Yes, as far as Sault Sainte Marie and then, of course, the Moses-Saunders Dam are the two structures that have any influence on levels. That is it.

Mr. OBERSTAR. Now, the issue raised by Mrs. Miller which is a very serious one, of the increasing outflow through St. Clair, does not affect Michigan, Lake Michigan because it is its own regulatory scheme. If you pull the plug at Chicago and drain water out, you are affecting Michigan but not the SEO scheme.

But if you shut off the Lake Ogoki and Long Lake diversion into Lake Superior which has been in place since early World War II as a power generation scheme and left in place to provide feed for the upper lakes and the lower lakes, then you would have a serious problem. We would have a much lower water level if something were done with Long Lake or Ogoki.

Have you had discussions on the IJC about the inflow? That is 5,000 cfs if I recall.

Ms. BROOKS. The Upper Lakes Study which just began about a year ago will be looking at many of those issues, and we hope that that study will be move as quickly and expeditiously as possible.

Mr. OBERSTAR. Well, I would like to pursue these matters further, Madam Chair and colleagues, but staff notifies me that we may have votes at noon and I will have to suspend at this point, so we can get to the next panel.

Ms. BROOKS. Thank you.

Ms. JOHNSON. Thank you very much.

I want to thank the witnesses from panel two and again suggest that the Members of the Subcommittee may have some follow-up questions for the record, and we would hope that you would give a timely response if there are questions forwarded to you. I appreciate your cooperation and your valuable participation this morning.

Ms. BROOKS. Thank you.

Mr. MAURER. Thank you.

Ms. JOHNSON. The final panel will be the Honorable Benjamin Grumbles, Assistant Administrator for the Environmental Protection Agency Office of Water; accompanying Administrator Grumbles is Ms. Mary Gade, Program Manager of EPA's Great Lakes National Program Office; Dr. Stephen Brandt, Director of the National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Laboratory; Mr. Charles Wooley, Acting Regional Director of the Midwest Region of the U.S. Fish and Wildlife Service; and Ms. Christina Muedeking, Central Regional Assistant Chief of the Natural Resources Conservation Service.

As I have noted to the previous panels, your full statements will be placed in the record, and we ask that you limit your testimony to at least five minutes. We are going to try to move, not dis-

respectfully, but as rapidly as we can, so that we can finish before the vote is called.

Mr. Grumbles, you may begin.

TESTIMONY OF THE HONORABLE BENJAMIN H. GRUMBLES, ASSISTANT ADMINISTRATOR FOR THE OFFICE OF WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY ACCOMPANIED BY MARY A. GADE, PROGRAM MANAGER, GREAT LAKES NATIONAL PROGRAM OFFICE, U.S. ENVIRONMENTAL PROTECTION AGENCY; DR. STEPHEN B. BRANDT, DIRECTOR, GREAT LAKES ENVIRONMENTAL RESEARCH LABORATORY, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE; CHARLES WOOLEY, ACTING REGIONAL DIRECTOR, MIDWEST REGION, U.S. FISH AND WILDLIFE SERVICE, U.S. DEPARTMENT OF THE INTERIOR; AND CHRISTINA MUEDEKING, CENTRAL REGIONAL ASSISTANT CHIEF, NATURAL RESOURCES CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Mr. GRUMBLES. Thank you, Madam Chair, and thank you, Chairman Oberstar, Congresswoman Miller, Congressman Hall. We appreciate the opportunity to testify on the progress and the challenges confronting the Great Lakes.

With me is Mary Gade, the Regional Administrator, Region 5 and also the Great Lakes National Program Manager.

As we all know, the Great Lakes is not just an environmental treasure. It is an economic powerhouse.

Madam Chair, the basic summary of the testimony is this: We have made a dramatic comeback in the Great Lakes compared to where it was in the seventies, but we face significant issues and emerging challenges.

The President issued an executive order in May of 2004, initiating a process, a Federal interagency taskforce with EPA in the lead to improve upon the coordination, to align the resources and to put more of a emphasis than ever before on restoring and protecting the Great Lakes.

An extremely important part of that executive order was also calling for a collaboration, a true collaboration. As Members have testified, this regional collaboration is one of the most significant developments in recent years because it signals progress towards sustainability and resiliency in the Great Lakes. So that led to a strategy, and that strategy has been a blueprint for progress over the years.

The other significant development with help from Congress has been the Great Lakes Legacy Act. We recognize, I think everyone that is a partner in that strategy and the collaboration recognize that the toxic sediments and the legacy sediments need to be a priority. That is where we put our efforts at the EPA, one of the many priorities, and there has been progress on that front.

Madam Chair, what we have seen in terms of the Great Lakes Regional Collaboration and the Interagency Task Force of the Federal agencies is a focus on the priority issues.

As Congresswoman Miller knows and often reminds us, invasive species is one of the greatest threats to the ecology and the econ-

omy of the Great Lakes. So we are putting efforts there with a rapid response work group. We have been developing protocols.

We urge Congress to reauthorize and strengthen invasive species laws. It is not just EPA but the other Federal agencies that are part of the Taskforce, pursuant to the President's executive order, that are putting a priority on regulatory and legislative responses to these global hitchhikers that are entering the Great Lakes.

Madam Chair, we also have put a focus on toxic sediments over the last several years. We have removed, with your support and the support of our partners, over 800,000 cubic yards of contaminated sediments from the various Great Lakes legacy sites.

We are also working with our partners, Canada and the IJC, on an international level. We recognize the importance of that and look forward to discussing further the future of possible revisions to the agreement, the international agreement.

Madam Chair, I would say that the Great Lakes Regional Collaboration is one of the most important components for future progress. We are all committed at the Federal agency level to ensure this continues. We just recently, with our State and local and tribal partners, announced additional initiatives on wetlands, invasive species, toxic pollutants and beaches.

The accomplishments over the last few years include a commitment for Federal agencies working together to provide wetlands and watershed restoration grants. We also have seen the Oswego River, New York Area of Concern de-listed.

We are focused. We are committed to wetlands restoration. The President's goal, the goal that is part of the Federal agencies' response to the strategy is 200,000 acres restored or improved, 100,000 from the Federal level. We are making significant progress on that front.

What often is not mentioned in hearings like this are some of the good news stories that have occurred over the years, not just because of Federal action but because of State and local, tribal and private sector action. There has been good news that is reported in the 2007 State of the Great Lakes Report. The Great Lakes continue to be a good source for municipally-treated drinking water. There is progress in terms of the levels of most contaminants in herring gull eggs and predator fish.

But we face very many challenges, Madam Chair, and we have talked about those throughout the morning or we have listened as Members and others have spoken about them. We recognize invasive species, contaminated sediments, nutrient levels.

Madam Chair, we are working. We are putting a priority, a national priority and a Great Lakes priority on nutrient criteria to help translate those limits into permits, whether it is phosphorus or nitrogen. We recognize that is a continued challenge for progress in the Great Lakes.

We also recognize that climate change in terms of part of a broader picture is a very important part. So whether it is the Region Five framework on climate and clean energy or the draft water national strategy on climate change, we are looking at these issues and we look forward to answering your questions throughout the hearing. Thank you.

Ms. JOHNSON. Thank you very much.

Dr. Brandt.

Mr. BRANDT. The Great Lakes are one of the Nation's most important aquatic resources. Multiple stressors are affecting the health and water quality of the Great Lakes. Add to this mix the changes in land use, climate change and natural variability, and the situation becomes very complex. Future successes will depend on a comprehensive and balanced ecosystem approach.

NOAA has significant responsibilities in the Great Lakes and promotes both a science-based and an ecosystem-based approach to water quality improvements and restoration. Our work is broad and ranges from such issues as invasive species and food webs to watersheds and water movements to water quantity and water quality. We work in close partnership with our State and Federal partners to provide comprehensive science management and technical assistance tools.

Research is fundamental to our mission and research priorities are based on user needs. As such, research results must get into the hands that use and manage the Great Lakes. Our overarching research goal is to develop forecasting tools that predict how the ecosystem responds to the physical, chemical, biological and human-induced changes. By being able to forecast such things as low oxygen, harmful algal blooms, water quality, fish production and extreme natural events, we can provide critical information for decision-makers and the public.

I would like to give you three examples. One is the Lake Erie dead zone which has been a key indicator of the health of the lake for over three decades. Evidence suggests that the size of the low oxygen waters has grown in recent years.

What is causing this growth and can we stop it? How will it affect food webs and fisheries? Is it a threat to drinking water quality? NOAA is actively trying to answer these questions.

One example concerns the Cleveland Water District which provides drinking water to over 1.5 million people and gets its main source of water from the central basin of Lake Erie. In 2006, some of the water treatment plants were exposed to hypoxic water from Lake Erie which can compromise water treatment in the system.

Last year, we deployed some real time sensors in the area to provide an early warning system to Cleveland to give them advance notice, so that they could place alternative processing and storage techniques on standby during such hypoxic events. Our research is now looking at ways to predict these hypoxic intrusions through temperature monitoring and water movement monitoring.

As a second example, the NOAA Center of Excellence for Great Lakes and Human Health is developing tools to forecast beach conditions, harmful algal blooms and drinking water quality to reduce the risk to human health. We are also trying to identify the causes of these problems so that long term solutions can be found.

For example, harmful algal blooms produce potent toxins that can contaminate drinking and recreational waters. In the Great Lakes, we have found algal toxin levels that were 10 times higher than the World Health Organization's recreational standards.

To aid officials, we recently held user needs workshops in Toledo, Bay City and Green Bay to discuss how harmful algal blooms can affect drinking water quality and to find ways to detect and mon-

itor these blooms. Both public health, drinking water and beach management sectors all participated at these workshops.

Thirdly, the NOAA National Center for Research on Aquatic Invasive Species fosters partnerships to address prevention, early detection, rapid response and management of invasive species. An important research area for NOAA is to understand how established invaders are affecting the ecosystem so we can minimize their impact.

We are also looking at how invaders get into the lakes via transport in the ballast tanks of ships. NOAA and the Smithsonian recently concluded that in the absence of effective alternative treatment strategies, the use of ballast water exchange has been effective.

In addition, new policies and regulations have been recently proposed by both the U.S. and Canada for vessels entering the lakes that officially have no ballast on board. These requirements were based on findings of the NOAA-led research that demonstrated that these vessels still presented a level of invasive risk and a saltwater flushing might help.

In closing, I would like to highlight two initiatives. In 2006, NOAA created eight regional teams to pool NOAA's regional resources to focus on the unique needs of the various geographic regions of the United States. Just recently, we created a Center of Excellence for Great Lakes ecosystem restoration to mobilize NOAA's capabilities to support broader restoration efforts in the Great Lakes.

Secondly, just last week, NOAA announced a new $3.8 million program to examine how multiple stressors including nutrient loadings, declining water levels and invasive species combine to affect water quality, fisheries and economics in Saginaw Bay, Lake Huron. We have a number of partners in this endeavor.

In summary, water quality improvements and restoration need to be based on the best available science, and an ecosystem-based management approach is essential.

I thank you for inviting me to this hearing, and I am happy to answer any questions.

Ms. JOHNSON. Thank you very much.

Mr. Wooley.

Mr. WOOLEY. Madam Chairwoman, there is a critical connection between clean water and healthy fish and wildlife resources in the Great Lakes.

The Fish and Wildlife Service has a number of programs and projects I would like to highlight, including our strong partnership efforts among members of the Great Lakes Regional Collaboration as well as with Great Lakes States, conservation organizations, tribes and private landowners. The Service's role within this collaboration is to address issues that affect the fish, wildlife and habitats of the Great Lakes Basin as well as the 35 million people who live there.

This work is important not only to the fish and wildlife but to the American economy. Service data indicate hunting and fishing and wildlife generate $18 billion in annual revenue in the Great Lakes Region including just $1.5 billion from sportfishing alone.

With this in mind, the Service is strongly committed to protecting and restoring the water quality of the Great Lakes. Water quality is a function of wetland quality and quantity. That is healthy, intact wetlands in the basin will mean better water quality for the Great Lakes. Wetlands serve to clean and filter our waters as well as to sequester and store vast amounts of carbon, a leading greenhouse gas contributing to global climate change. Unfortunately, the Great Lakes has lost more than half of its original wetlands.

On Earth Day in 2004, the President announced an initiative to restore, enhance and protect 3,000,000 acres of wetlands nationwide over 5 years including 200,000 acres in the Great Lakes. Since January of 2004, 64,000 acres of wetlands have been protected, restored and enhanced in the Great Lakes.

Of this total, the Fish and Wildlife Service contributed 40,000 acres or about 60 percent. This contribution highlights the significance of the Fish and Wildlife Service authorities, programs and field-based presence to work with partners to identify and implement important projects that benefit both water quality, fish and wildlife and, most importantly, the American public.

The Service has 58 field stations spread across the Great Lakes Basin who work with partners on a day to day basis to identify, plan and implement projects. Typically, these projects focus on habitats, such as wetlands, that provide positive benefits to water quality including filtering sediments while providing essential fish and wildlife habitat.

The Service has programs that provide technical and financial assistance, such as our Partners for Fish and Wildlife Program and our Coastal Program. In fact, just last week, the Fish and Wildlife Service announced seven grants totaling more than $4 million for coastal projects in Illinois, Michigan and Wisconsin. These projects will protect, restore or enhance more than 2,400 acres of Great Lakes wetlands.

In addition to these wetlands and habitat conservation programs, under authority provided by the Great Lakes Fish and Wildlife Restoration Act, the Service continues to lead the collaboration activities related to invasive species, fish and wildlife habitat restoration, and collection and management of related information and ecosystem health indicators.

As Co-Chair of the Aquatic Nuisance Species Taskforce, the Service provides technical and financial assistance to planning efforts to support prevention and control of invasive species in the region.

In terms of ecosystem health, the Service believes a successful restoration strategy for the Great Lakes must also include an informed decision-making process based on consistent methods to measure and monitor key indicators of the ecosystem's function. The Service's National Wetlands Inventory has the primary responsibility for mapping and inventorying all wetlands and surface waters of the United States. Knowing where and what types of wetlands and deep water aquatic habitats are currently on the landscape is critical when targeting planning and implementing Great Lakes Basin and coastal wetlands restoration and protecting resources.

Of note, as reported recently, in the National Wildlife Federation's Report on Global Climate Change, the Great Lakes are particularly susceptible to negative effects, specifically reduction of water supply and increased water demand in the region.

Finally, another critical program to the Service is the Service's Environmental Contaminants Program which is the primary Federal program with expertise in fish and wildlife ecotoxicology. This program provides assistance to other agencies and stakeholders to address water quality issues arising from pollutants. An example are our natural resource restoration programs that are working in the Fox River, Wisconsin, Kalamazoo River and Saginaw Bay, Michigan.

In closing, the Service is committed to working with our many partner to ensure healthy fish and wildlife resources in the Great Lakes and to enhance and restore ecosystem health in the basin.

Thank you, Madam Chairwoman.

Ms. JOHNSON. Thank you very much.

Ms. Christina Muedeking.

Ms. MUEDEKING. Good morning, Madam Chairwoman, Ranking Members and Members of the Subcommittee.

My name is Christina Muedeking. I am the Regional Assistant Chief for the Natural Resources Conservation Service, for the agency's central region, and I am pleased to be with you today.

Since we last testified about the Great Lakes before this Subcommittee, USDA was named to the Great Lakes Interagency Task Force. Under the leadership of the Environmental Protection Agency, the Task Force assisted in the development of the Great Lakes Regional Collaboration Strategy, a plan to protect and restore the Great Lakes. Two USDA agencies, NRCS and the Forest Services, are actively engaged in implementing the strategy by working directly with private landowners to help them meet their water quality and other conservation objectives.

NRCS is also one of the principal partners of the Great Lakes Basin Program for Soil Erosion and Sediment Control which was initiated in 1991 and codified in the 2002 Farm Bill. The Great Lakes Commission coordinates the program in partnership with USDA, EPA and the U.S. Army Corps of Engineers.

In our role, NRCS provides voluntary, onsite technical assistance to farmers for the application of land treatment methods designed to reduce erosion and sedimentation and the related delivery of associated nutrients and pesticides within the basin. Much of this technical assistance is funded through NRCS's Conservation Technical Assistance Program or CTA.

Beyond CTA, landowners may participate in a diverse array of Farm Bill programs that are administered by NRCS. Our portfolio of programs includes cost-share, easement and stewardship programs, all of which provide technical and financial assistance to private landowners.

The 2002 Farm Bill provided USDA with a historically unprecedented increase in conservation funding. This increase in funding is reflected in NRCS's conservation investment in the Great Lakes Basin. Counting only those programs considered to have a direct impact on Great Lakes water quality, such as the Environmental Quality Incentives Program and the Wetlands Reserve Program,

NRCS provided an estimated $87 million in financial and technical assistance to basin landowners in fiscal year 2006 alone.

Landowners enrolling in the Wetlands Reserve Program have in the last two fiscal years created, restored or improved over 20,000 wetland acres in the Great Lakes Basin.

Congress is currently in the midst of conference negotiations for the next Farm Bill. In January, 2007, USDA released its Farm Bill proposals to increase conservation funding by $7.8 billion over 10 years.

USDA's proposed creation of a Regional Water Enhancement Program or RWEP is of particular interest to stakeholders in the Great Lakes Basin. The Administration's proposed funding for RWEP of $1.75 billion over 10 years would address an important component currently lacking in the Federal Government's conservation assistance regime, that of coordinated, watershed-based water quality and water conservation projects. The cooperative approach to water quality improvements exemplified by today's panelists is an example of the type of coordinated action that would be encouraged under RWEP.

For both existing and future programs, we know that establishment of relevant performance measures remains a priority. While we have sound contract and project data and excellent information regarding resources distribution, we have yet to be able to fully quantify resource outcomes for conservation programs.

To address this challenge, NRCS initiated the Conservation Effects Assessment Program or CEAP in 2003. By estimating the effects of conservation programs already in place, CEAP will ultimately provide decision-makers with a scientific accounting of environmental benefits achieved through conservation programs.

Currently, a regional assessment for the Great Lakes Basin is being carried out under CEAP to determine the extent to which existing conservation practices are reducing nutrient and sediment loads from basin cropland. The assessment also includes estimates of the remaining need for conservation practices as well as estimates of possible additional load reductions in sediment, nutrients and pesticides both at the field level and instream. The Great Lakes Regional Assessment is scheduled for completion in 2009.

Madam Chair, we know that through private landowners' stewardship actions on the ground, USDA is making important contributions to the improvement of water quality in the Great Lakes. We look forward to continued close cooperation with stakeholders at all levels as we help implement the Great Lakes Regional Collaboration Strategy and the Great Lakes Basin Program and measure the results of conservation activities.

Again, I thank you and the Members of the Subcommittee for the opportunity to join you today. I look forward to answering any questions you might have.

Ms. JOHNSON. Thank you very much.

The Chair recognizes Mr. Hall for questions.

Mr. HALL. Thank you, Madam Chair, and thank you to all of our esteemed witnesses for the work that you do and for your testimony.

I have a question first for Mr. Wooley regarding over-fishing or fish populations. There were stories a couple days ago about a new

study about saltwater, ocean fishing or over-fishing and then just today story that I read about unusually high levels of mercury showing up in tuna sushi of all things.

I am just reading the reports about fish populations in the lakes which obviously are somewhat different but also probably suffering some of the same stresses. They don't have 24-7 factory fishing boats from other countries necessarily trolling them, but they do have the mercury and other heavy metals falling from power plant emissions and so on.

What do you think the state is of the fish population and what can we do best to try to maintain it or stabilize it?

Mr. WOOLEY. Our fish populations in the Great Lakes are doing very, very well, sir. We have excellent management that occurs between the United States and Canada and between the States that is highlighted and choreographed by the Great Lakes Fishery Commission. We have a very active program with the States and the Federal Government of stocking fish in the Great Lakes.

We have an almost $2 billion sport fishery in the Great Lakes. It is very robust. It is providing a great benefit back to the American public.

We do issue, where we know we have concerns about contaminants, fish consumption advisories to advise people on how many fish to eat and what kind of species to eat. But, in one word, it is a robust population.

Mr. HALL. That is good news. I am happy to hear that.

Mr. WOOLEY. Thank you, sir.

Mr. HALL. Administrator Grumbles, a number of you have mentioned climate change as a factor that you are taking into consideration. It seems that it is beginning to take its toll on even the Great Lakes with the water levels declining and temperatures warming.

Would you say that some of the factors that contribute to climate change, like dirty coal-burning power plants, present a double threat for the lakes in terms of greenhouse gas emissions and pollutants that contribute to acidification, and, as we in Congress move forward with legislation this year to target climate change, what factors are most important to protect the Great Lakes?

Mr. GRUMBLES. Thank you, Congressman.

The Administration and EPA in particular recognize the importance of controlling mercury emissions and other pollutants from coal-fired power plants and other facilities. Often, what goes up into the air can come down into the Great Lakes as Chairman Oberstar and Chairman Johnson recognized in a hearing earlier on atmospheric deposition. That is one of the greatest threats to water quality in the Great Lakes. It is the atmospheric sources of pollutants. So we are focused on using Clean Air Act authorities and also Clean Water Act authorities.

On climate change, as part of our emerging strategy in the water program, one of the highest priorities we are putting emphasis on is water efficiency. Reducing the water waste through our Water Sense Program, working with utilities and communities and manufacturers so that we reduce the amount of water waste, not through Federal EPA regulation, but through incentives in manufacturing

and programs like our EnergyStar Program for water because the more water waste you reduce, the more efficient you are.

Even in the Great Lakes and throughout the Country, where some people would think there is an abundance of water, it means less energy consumption. It means mitigating greenhouse gas emissions. It is a win-win. It helps on clean energy and energy security and reduces pollutants that get into the water.

The other aspect on climate is having a thorough review of our clean water and drinking water programs and looking to see what types of adaptations are necessary. We know that restoring wetlands in the Great Lakes is not only good for the watershed, and the water, and the habitat, but also is an important component of the clean energy and energy security. So the climate component with IJC, and also within the EPA, is a growing area of emphasis to look to see how it connects to our existing tools.

Mr. HALL. Thank you very much, Mr. Grumbles. I just want to jump in while I have two seconds left and ask a question.

We heard in a hearing last year that, among the invasive species, there was a hemorrhagic virus that was showing up in at least one of the lakes, and I was wondering if any one of you could tell us if there has been any further developments with that, and, of course, whether the danger of virus or bacteria jumping from other species to humans through eating of the fish is something that one could be concerned about?

Ms. GADE. Excuse me. Let me take that question. I think you are talking about viral hemorrhagic septicemia which is unfortunately a new virus that has broken out in most of the Great Lakes. There is an effort now to try to prevent its spreading to Lake Superior. In fact, the National Park Service has taken an aggressive role in trying to provide leadership in preventing the spread of that disease.

It is quite serious. It impacts numerous species. It causes hemorrhaging, failure of organs and the death of the species. It has potentially very significant impacts in terms of the fishing industries and, hence, the economy of the lakes.

The effort right now is to try and figure out how to forestall it from being spread further. There was a conference last week in my regional offices in Chicago. The National Park Service worked for an entire week, pulling in experts from different agencies to talk about how they could prevent further spread of it, whether there are things to be done in terms of treating ballast water, other sort of techniques that can be used. So it is a very serious concern.

Mr. HALL. Thank you very much.

As you get more information, I am sure other Members would like to hear about that in particular.

Thank you, Madam Chair. I yield back.

Ms. JOHNSON. Thank you very much.

Mrs. Miller.

Mrs. MILLER. Thank you, Madam Chair. I know they have called the vote, but I did have one question for perhaps Mr. Grumbles.

You know we have talked a lot about the various contaminants that are introduced into our Great Lakes system, particularly combined sewer overflows, et cetera, but we actually have somewhat of

a unique dynamic in my region because, again, referring to my Mitten here.

On the other side of the liquid border that we share with our great Canadian neighbors, actually right along this area in Sarnia at Point Edwards is the largest concentration of petrochemical plants, I believe, in North America. We have had over a thousand reported chemical spills. That goes into the St. Clair River and then ultimately to Lake St. Clair and right on down the Detroit River through Lake Erie, et cetera, all kinds of problem that we have had with that.

One of the things that we have done actually in our region, and I am not sure if you are familiar with this system or if you have seen it anywhere else. We were actually able to get some Federal funding, but we have a great partnership between the Federal Government, the State and the local municipalities where we put water quality monitoring devices at strategic places, actually at the water intake plants. All along the St. Claire River there are seven of them, and we have also put two in Lake St. Clair.

Now they are going to be extending that to the rest of Lake St. Clair and some of the other water intake plants and down the Detroit River and hopefully into Lake Erie where it is part of the notification protocols. So, every 15 minutes, the water plants are sampling, and they have immediate notification whether it is chemicals or any kind of contaminant that is introduced into the water transit.

Interestingly enough, it could be serendipity or coincidence but now that everyone is aware that we are monitoring every 15 minutes, guess what? No more chemicals. It is a wonderful thing because we are able to track where it is coming from. So we have had very good experience with that.

I mean I think that would be a fantastic model to see throughout the Great Lakes. Again, most of the places fortunately don't have chemical problems but for combined sewer overflows, et cetera, or any kind of contaminants.

Mr. GRUMBLES. I think we all know that dilution is not the solution to pollution and that the first step, the key principle is prevention. Effective prevention means having monitoring systems of varying degrees and levels of sophistication.

What you are talking about is an area of growing importance and maturity also as the Clean Water Act gets older, using different types of monitoring devices, relying on different mechanisms.

We at EPA recognize, since we are charged with enforcing the Clean Water Act, working with the States, ensuring that permit limits are met because that is what is really enforceable, that there has to be an adequate and routine and accurate monitoring system. One of the great growth industries, the necessary ones, is to have improved monitoring, automated systems throughout the pipes, the thousands of miles of pipes underground as well as at the outfalls.

I think for us the key to measuring progress and ensuring progress is going to be continued investment in monitoring methods of varying types, chemical constituents but also impacts on the biota. It is in a wide array. When you are talking about a petro chemical industry which may have several of the BCCs, bioaccumulative chemicals of concern, it makes it all the more important.

Mrs. MILLER. Right. Okay, very well.

Ms. JOHNSON. Thank you.

Mr. Oberstar.

Mr. OBERSTAR. I have several questions, Madam Chair. We will have to break in about five minutes for the floor vote, and I would request that the Subcommittee recess for the vote and reconvene soon thereafter so that I and other Members may have the opportunity to pursue these questions.

If you are committed to other matters, I will preside in your stead.

Ms. JOHNSON. Any objection?

Hearing none, we will recess for the vote.

Mr. OBERSTAR. I think it would be good to recess now for the vote.

Ms. JOHNSON. Yes, thank you.

[Recess.]

Mr. OBERSTAR. [Presiding.] The Subcommittee will resume its sitting. I assure witnesses and others that we will not be terribly long, but there are some items that I wanted to pursue.

First, Mr. Grumbles, welcome back once again to the Committee, a familiar environment for you for many, many years as a staff member and also through your distinguished role with EPA.

I propounded the issue in an earlier panel about harnessing the resources of the academic community, the universities who have participated in one way or another in research on Great Lakes water quality issues, and asked you to think about how that could be done and in what time frame. So I will give you the opportunity to respond.

Mr. GRUMBLES. Thank you, Mr. Chairman.

A couple points specifically related to that or relevant to that, one of them is that we recognize that there are technological challenges when we are measuring the parts per trillion levels when it comes to bioaccumulative chemicals of concern like mercury, in particular.

We, just recently in March of 2007, approved a new and more sensitive method for measuring mercury. Since then in August of 2007, we sent a very strong signal to the Great Lakes and to other parts of the Country that when it comes to mercury, in particular, and putting defensible, measurable limits in Clean Water Act permits, that permit writers should be using the most sensitive methods. So the policy directive is an important one, and I think it is consistent with where you are going.

And so it really then becomes how do we advance the science which also has to be legally defensible because the history of the Great Lakes Initiative is that it is highly contentious and litigious. The agency has defended the Great Lakes regs successfully and we are very committed to continuing to do that.

When it comes to the scientific community, working with not just our Office of Research and Development but other groups and academic consortia is important.

I know, Mr. Chairman, that one of the eight priority areas of the action plan, the December, 2005 strategy was to improve the information and indicators for Great Lakes water quality progress. I know that for us that is where we, admittedly, need to continue to

do more work with the academic community on measuring these extremely small levels.

We just concluded a FACA in the agency. This is a nationally applicable FACA—it is not just in the Great Lakes—on quantitation and detection limits. It is more than science. It is policy. It is also enforcement-related. We are committed to improving those detection limits, the methods for determining them.

Mr. OBERSTAR. Detecting them in the water column and in the biota in the lakes?

Mr. GRUMBLES. Detecting them in the water column, detecting them at the end of the discharge pipe for purposes of Clean Water Act compliance.

Mr. OBERSTAR. There are also airborne substances, to be broad and inclusive, and do you discern that mercury is coming from the air as well as from runoff into the Great Lakes?

Mr. GRUMBLES. Most definitely. Most definitely.

Mr. OBERSTAR. So the first step is to determine the bioaccumulation and the next is to issue enforcement action, but between those two is the word, flexibility. Variances given over period of time have allowed industries to just continue to discharge.

Mr. GRUMBLES. We recognize that the hallmark for progress under the Clean Water Act is having measurable reductions in pollutants. Zero discharge is not always an achievable goal.

There needs to be some mechanisms included in the Act, and that is why for the last several decades the concept of mixing zones and variances and compliance schedules have been relied upon. It is an important component for our State partners who, as much as if not more than the EPA, are on the front lines for the permitting.

So I think we all support the concept of raising the bar. The Act needs to have achievable goals and enforceable standards. So it requires more discussion but also working with the scientific community to improve the methods. Ultimately, EPA approves of the various methods that can then be used by the permit writers.

You note and you noted in a previous hearing about the role of atmospheric deposition. That is one where all of us, not just in the agencies or in the interagency taskforce that the President created in his executive order but in our binational conversations with Canada and through IJC, in looking at the upcoming discussions on the Great Lakes Water Quality Agreement.

There is significant value to looking at the agreement and seeing whether areas, biological, not just chemical and physical, indicators and near-shore and a broader approach, looking from a holistic standpoint which includes looking at atmospheric pollutants and non-point sources as well as the point sources which are the ones that are regulated by the Clean Water Act.

Mr. OBERSTAR. Do you have an assessment of which of the lakes, or in some prioritized or descending order of significance, are more to less affected by mercury, not just mercury in the water column, but mercury in the bottom sediments from which plants take up the substance and fish eat the plants and people eat the fish?

Mr. GRUMBLES. I know our State of the Lakes Report gets into the specifics, Mary Gade's program, and the web site on the Great Lakes has information on the stressors and challenges on each of the five Great Lakes.

What I would suggest is that we could provide you and your Committee colleagues with as much detail as we possibly can on which of the lakes have the greatest stressors, atmospheric, or where mercury is the greatest problem.

We worked very hard with the State of Minnesota to get the TMDL, the essentially statewide TMDL efforts approved last year. We think that can be a very useful tool. So I know it is certainly an issue in Lake Superior and in lakes throughout the State.

Mr. OBERSTAR. It is very important in the inland lakes in Minnesota. They are shallower. They are more subject to deposition, and the fish have a much shorter cycle of uptake of pollutants in those lakes. They also warm faster than the Great Lakes. That TMDL issue is very, very important.

Ms. Gade, do you have something to supplement Mr. Grumbles' statements?

Ms. GADE. No. I will just echo what Mr. Grumbles said which is the State of the Great Lakes has some excellent data related to stressors including mercury in the various lakes, and we will pull that information and other information and provide it to you, sir.

[Information follows:]

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EPA provided the following information in response to Regional Administrator Mary Gade's commitment to provide the Subcommittee with additional information:

Comprehensive assessment reports for Alkly-Lead, B(a)P, Dioxins, HCB, Mercury, Octachlorostyrene, PCBs, Pesticides (i.e., chlordane, DDT, dieldrin, etc.): http://www.epa.gov/greatlakes/bns/level1/index.html

The lastest Great Lakes Bi-National Toxics Strategy (GLBTS) report with monitoring and indicator information (chapter 8 - environmental indicators of progress):
http://www.epa.gov/greatlakes/bns/reports/2006glbtsprogressreport.pdf

The latest State of the Lakes Ecosystem Report, which includes chemical toxicant indicators:
http://www.epa.gov/greatlakes/solec/sogl2007/SOGL2007.pdf

The latest State of the Lakes Ecosystem Conference (SOLEC) report:
http://binational.net/solec/English/sogl2007highlights_en.pdf

The GLBTS Management Assessment for Mercury:
http://www.epa.gov/ARD-R5/mercury/mercury_reassessment_final_feb%2006.pdf

NOAA's Report to Congress on Mercury Contamination in the Great Lakes:
http://www.arl.noaa.gov/data/web/reports/cohen/NOAA_GL_Hg.pdf

Mr. OBERSTAR. We will receive that information for the record and distribute it to the Members individually.

Do you have a priority process for developing methodologies for the most significant, by which I mean dangerous, BCCs?

There is a list in the GAO report: chlordane, dieldrin, DDT, hexachlorobenzene, lindane, mercury, PCBs, toxaphene, all of which just to pronounce them is scary. To accumulate them in your body is worse.

Mr. GRUMBLES. Right. I think, as GAO noted, we have focused much of our effort on mercury in terms of the analytic methods.

Mr. Chairman, I don't know. I can't answer right now how we prioritize. I know that in our materials that we provided to GAO we had some information, but I would ask if I could get back to you on how we prioritize the various BCCs, bioaccumulative chemicals of concern.

[EPA did not provide this information to the Subcommittee and was unwilling to provide it upon subsequent request.]

Mr. OBERSTAR. Just parenthetically, did any of you see the PBS TV movie, The First Emperor, on the Chin Dynasty?

Emperor Chin who united China, and who was counseled when he sought eternity in this life—he wanted to be able to live forever as emperor of China—that he should take mercury. So they fed him vials of mercury every day, and he became worse and worse until it eventually drove him mad. Then he was buried in a huge mausoleum, with a lake of mercury that is still extant.

All you need to do is see that movie and see how if you needed any other inspiration of how important it is to deal with that issue, in order to address it.

You are doing that, and I appreciate it, but toxaphene was found in a small lake on Isle Royale which is above the level of Lake Superior, discovered there by the Environmental Research Lab in Duluth associated with your lab in Ann Arbor.

How did it get there? Not from Lake Superior. Not from human activity on Isle Royale because there are only wolves and moose and a few park rangers and occasional visitors. So it got there from atmospheric deposition.

It is all throughout the lakes, and power plants certainly are the prime genitors of mercury.

Mr. GRUMBLES. I would say that emerging contaminants are of concern to us. We are also, both through the office that Mary oversees but also our headquarters office, Mr. Chairman, investing more and more in these emerging contaminants such as pharmaceuticals and personal care products.

We think that an important part of an approach for the future is learning more about increasing amounts, detections of pharmaceuticals, whether it is through the wastewater treatment plant or through other sources are becoming identified in water bodies or contributing in some way to deformities in fish, and that is a growing concern.

We think, as we do more research with other Federal agencies and with academia, we also are looking for specific ways to encourage product stewardship and take-back programs when it comes to unused pharmaceuticals, treating the toilet like a trash can and

flushing it down. We think that would be a growing concern, so we are taking increasing actions on that front.

Mr. OBERSTAR. Well, that is very encouraging because I have seen numerous scientific analyses of discharges from after treatment, from sewage treatment facilities, containing a whole list of pharmaceuticals that are being dumped, as you said, down the toilet or down the drain and not extracted from or during the treatment process.

I don't want to beknight you with all of my questions, but I have a few others.

What purpose is served in using the flexibilities? What is EPA attempting to achieve in using the so-called flexibilities, giving exemptions or extensions of time? What is the objective here?

Mr. GRUMBLES. Well, the rules in the Act contemplate, for instance, when it comes to anti-backsliding or anti-degradation. When there are material and substantial changes to a facility, there may be an exemption from the provision. But the point is it should be a temporary exemption, flexibility with accountability.

Mr. OBERSTAR. But these are five year increments in many cases and then extended again.

Mr. GRUMBLES. Flexibility with accountability is the key. The flexibility has been an important and necessary component over the years in terms of the Clean Water Act permitting programs.

As you know, with municipalities in particular, compliance schedules become necessary in order to give the utility the time to not only invest in and find the necessary upgrades but to construct them and get them into place. Since permit terms are limited to five years, an example for a justification for a flexibility with accountability is that in compliance schedules, there will be additional time beyond that five years, "flexibility" for the community to build the necessary upgrades or improvements.

When it comes to variances or mixing zones, these aren't new concepts. They have been a part of the Clean Water Act. It becomes a component of getting to an enforceable goal, recognizing that they may not be able to get there immediately. We understand the need to review and continue to check on how that flexibility is being exercised.

Mixing zones, as you know, the Great Lakes Initiative, one of the significant steps forward under that initiative was banning the use of mixing zones in the Great Lakes, essentially banning them for bioaccumulative chemicals of concern.

We stand by the regulations. We will continue to enforce them and take to heart GAO recommendations and other observations about States. We are in extensive discussions with several of the Great Lakes States on making further progress under the Great Lakes Initiative.

Mr. OBERSTAR. I appreciate your statement about reassessing and reevaluating and taking to heart. We hear from the environmental community. We hear from others who are just users of the lakes, their frustration about repeating or extending these five year flexibility times without a cutoff date.

But earlier, the IJC witness said that the IJC thinks it would be a good time now to revisit the U.S.-Canada, Canada-U.S. Great

Lakes Water Quality Agreement and revise it. Is that a view within EPA?

Mr. GRUMBLES. We are certainly involved in those discussions and with the State Department and think it is important to make a decision, reach a decision on behalf of the Administration. We appreciate the work of the IJC and others in bringing the matter to our attention, and we are taking it seriously.

I know the Administrator has been asking me questions about how does the existing agreement address issues that have developed over time. So, Mr. Chairman, we are discussing that and sharing that.

Mr. OBERSTAR. If you think about it further, I hope that we would have an opportunity for further discussion; certainly before May, during which month the U.S.-Canada Interparliamentary Group meets, this time in the U.S. As in the past, Members of Parliament and Members of the Canadian Senate and Members of the U.S. House and U.S. Senate exchange views and have had lively discussion about the Water Quality Agreement.

I would like to be able to present the views of Government for the EPA and for the U.S. Government. I always think it is fair to present Government views which may be different from my own or those of the individual Members, and I think it would be important for us to be able to do that in this coming meeting.

Mr. GRUMBLES. Okay.

Mr. OBERSTAR. Ms. Muedeking, do you think it is a good idea to revisit the Great Lakes Water Quality Agreement and have the two governments come together and make revisions? What revisions would you like to see?

Ms. MUEDEKING. Chairman Oberstar, I am not familiar with USDA's involvement in that situation. So, could I respond in writing to that question for you?

Mr. OBERSTAR. Certainly, of course.

Ms. MUEDEKING. Thank you.

[Subsequent to the hearing, Ms. Muedeking submitted the following: NRCS is not a member of the advisory board to the Great Lakes Water Quality Agreement. NRCS, as a member of the Regional Working Group of the Interagency Task Force (IATF), recommends ways to improve coordination and implementation of policies, strategies, projects, and priorities. NRCS and Conservation Districts provide technical and financial assistance to help farmers and ranchers plan and install conservation systems and practices on agricultural lands that meet resource conservation goals and priorities as identified by locally-led efforts. We also address Great Lakes Regional Collaboration non-point source reduction and restoration goals and objectives. NRCS's covservation priorities and program delivery system supports the objectives of the current Great Lakes Water Quality Agreement. The Great Lakes Water Quality Agreement provides for two binational boards to advise the International Joint Commission: the Great Lakes Water Quality Board and the Great Lakes Science Advisory Board. NRCS is not a member of either of these advisory boards and defers to our federal partners who are members of these institutions.]

Mr. OBERSTAR. The Acting Chair of the U.S. Section of the IJC earlier said addressing non-point source pollution is critical in pre-

serving and restoring the ecological health of the lakes. That has long been my mantra. I introduced the first non-point source bill back in 1984, I think it was, or 1985, to take that next step.

We have done all the planning, Section 208 planning in the Clean Water Act, but now we have to attack runoff from non-point sources after spending hundreds, literally, of billions of dollars by industry and municipalities to attack point sources.

What are your thoughts about non-point runoff?

Ms. MUEDEKING. NRCS works with producers through our voluntary conservation programs that are authorized in the Farm Bill to address non-point source pollution, for example, the Environmental Quality Incentives Program. In fiscal year 2006, we funded 45.3 percent of the applications that we received, and one of the limiting factors for our agency is how much is authorized in the Farm Bill to expend on these programs to address these issues.

Mr. OBERSTAR. For farmers who feel themselves the object of concern and unrest from the environmental community, they think that the burden of runoff is principally theirs, but it is not principally agriculture.

It is site developers for housing, for shopping centers, for parking lots, and all of those projects are under construction for months at a time. If responsible action isn't taken to contain the runoff and pollution, even if it is just soil, it will get into the ditches, into the creeks, into the streams, into the rivers and then into the lakes—the Great Lakes.

What is the view at USDA on taking strong action on non-point source?

Ms. MUEDEKING. We continue to focus on voluntary programs that producers choose to participate in, sir.

We do quite a bit work on soil erosion which you just mentioned. I thought it might be of interest to you that, although this is not a Great Lakes specific number, our National Resource Inventory shows that from 1982 to 2003, there has been a 43 percent decline in total soil erosion on cropland across the Country.

Mr. OBERSTAR. That is an encouraging figure. It is progress over the situation of that attained in the eighties and the early nineties.

But still, where farmers, just to return to the agricultural issue, farm to the waters edge which is usually land within 150 feet or so of a waterway; and that is marginal at best. It is usually a high acid mix, large amounts of limestone to bring it up to usable quality, and then some tiling to drain because it usually has high water content.

Then, if dairy farmers, for example—I take this example out of a town meeting I had in the dairy country in my district—allow their dairy cows to go right up to the water's edge and even stand in the creek to do what they normally do, lift their tail and make a deposit, the farmer downstream is the one that has to deal with it. In those situations, maybe that farmer has someone upstream that is allowing his cattle to do that to him as well.

They all have an interest. They have an interest on a watershed basis on dealing with this.

My legislation, years ago, was to do exactly that, start with a voluntary program. But if you don't voluntary agree on the value of the protection of a buffer zone from the water's edge, then someone

has to do it in the public interest. That will be the State and/or the Federal Government through EPA.

Mr. GRUMBLES. Mr. Chairman?

Mr. OBERSTAR. Yes.

Mr. GRUMBLES. I just wanted to add that in the context of the Great Lakes and non-point sources, it was identified as one of the eight priority areas in the Regional Collaboration. NRCS stepped up to the plate, agreed to conduct rapid watershed assessments, rapid assessments for critical watersheds, eight watersheds within the Great Lakes. I know they have been working on that front.

I, myself, have been very encouraged by the role of USDA here in Washington. We meet every two months to talk about non-point source and CAFOs and other regulatory issues that EPA and USDA share.

I think it is fair to say that both USDA and EPA are interested in advancing a watershed approach and also providing economic incentives, not regulatory directives under the Clean Water Act for non-point source since they are not regulated as point sources under the Clean Water Act, but using market-based tools, water quality trading as a way to advance progress and have a watershed approach.

The other item you mentioned, which is really important I think, is non-point source isn't just agriculture. It is everybody, and it is construction and development. The agency is committed to issuing updated, improved effluent guidelines under the Clean Water Act for the construction and development industry before the end of this year.

Mr. OBERSTAR. It is also those green lawns that Mrs. Miller talked about earlier.

Mr. Ehlers.

Mr. EHLERS. Yes, sir. Thank you, Mr. Chairman.

I would like to talk just a bit about the Legacy Act, and I have a personal interest in that since I wrote the original bill. As you heard this morning, Chairman Duncan was very impressed that this bill was supported by the environmental community, by the business community and by local and State governments.

I am pleased with how well it has gone, and I appreciate the fact that the EPA and the President have funded it at reasonable levels, although it is becoming clear that funding is going to have to be increased. I am committed to securing higher funding, but I wanted to check on some things.

My understanding is that under the published guidelines, potentially responsible parties are eligible for the funding. That is fine because the statute particularly authorized them, especially expressly authorized them to serve as a non-Federal sponsor to help fund cleanup projects.

However, I have been told that the scoring system established in the guidance for evaluating project submissions is heavily weighted against PRPs such that no project submissions are likely to be approved for funding. That is a bit disconcerting because we know that in many areas of concern a PRP could provide a significant source of non-Federal matching funds.

Mr. Grumbles, I would just like your countenance on that. Can you explain the reasoning behind the guidelines which appears to make it much more difficult to PRPs to participate?

On a similar note, can you offer any comments on the recommendations made by the regional collaboration about changes to the Legacy Act program, specifically with respect to the role that PRPs, as non-Federal project sponsors, could be involved in Legacy Act activities which might also be Superfund sites?

I would appreciate your comments on that.

Mr. GRUMBLES. We continue to believe that the Great Lakes Legacy Act is one of the most significant legislative enactments for the betterment of the Great Lakes over the last several decades. It is a tremendous one, a tool for accelerating cleanup as long as we all continue to honor the polluter pays principle. So the regulation that we issued to help in the selection and prioritization of projects starts out with recognizing that fundamental concept of honoring the polluter pays principal.

But, as you point out, there are situations and in our view and the way the scoring is written, there are situations, a limited number of situations but situations where PRPs could be involved in this process, where the sites could involve a Superfund site if the PRP's involvement could contribute to the betterment of the site. By that, I mean going above and beyond what a PRP would agree to, to have an even higher level of cleanup than what may have been negotiated with lawyers and everyone in a ROD.

The concept of the scoring is the Great Lakes Legacy Act's monies are not an unlimited supply. So we try to, consistent with the statute, find those instances where we get the most bang for our buck. It may be in some of those situations there are PRPs and if their involvement leads to an even more protective and effective cleanup, then they can be involved.

You are right, Congressman, that the scoring for the selection of the sites under the Great Lakes Legacy Act that we issued has a bias or a preference for sites that are not Superfund sites and sites that don't involve PRPs, but we are not ruling out the possibility that in some of these situations where PRPs are part of the Great Lakes Legacy project, we could get even more than what they might have bargained for in negotiating it under Superfund.

Mr. EHLERS. Okay. I recognize the concern, but at the same time I am concerned that the guidelines may have been written in a way that makes it more difficult for them to participate in sites where we want them to participate. And so, I would appreciate if you would go back and take a look at the guidelines and see whether my concerns are valid and whether it would be appropriate to revise them to make sure that PRPs can be participants.

The whole intent of the Legacy Act is to get the job done and to get as much money from everyone involved as we can, and I would hate to see anyone excluded when they really shouldn't be excluded.

One other point on the collaboration, as you know, they recommended the Legacy Act should go up to $150 million. I would be quite pleased with them if the EPA would consent to request that from the President, and I would be happy to argue with the President to request that and argue with the Congress to fund it.

It is clear to me the program is working extremely well, and I am not saying that just because I authored it, but the feedback I have gotten from a number of individuals is that the Legacy Act is the best cleanup act that has ever been legislated. Now, maybe that is not a very high bar to reach, given the troubles we had with some other cleanups, but the point is it is working.

So let's put our money onto something that is working, and I would very much appreciate your cooperation as I work with others. I know Chairman Oberstar shares my interest in this because we have had conversations about how well the Legacy Act is working. I would just like to see it go full tilt and get as much cleaned up as possible.

Mr. GRUMBLES. Well, we thank you, Congressman.

We recognize that when we face budgetary constraints, severe constraints in terms of getting the most investment out of the taxpayer dollars—that is part of the EPA annual budget which we will be discussing further with the Committee in the next couple weeks—we recognize that the Great Lakes Legacy Act component is a very good investment, and we continue to put a priority emphasis on that. We appreciate you.

Mr. EHLERS. Just one side note, I frequently refer to this as trying to prevent illegal aliens from getting into our fresh water. That especially applies, of course, to the invasive species but also a certain amount to pollutants as well. So, since everyone wants to spend more money on keeping out illegal aliens, I thought that might be a good thing to tag onto.

Thank you.

[Laughter.]

Mr. OBERSTAR. Well, I had never thought of introducing this issue into the presidential debates, but I think you have found a new avenue for us.

In the matter of budget priorities, of course, we are all aware there are constraints and every program has its advocates. But, in the end when you are considering the space program, for example, I know Mr. Ehlers sits on the Science Committee and has and all this talk about a grand mission to Mars and sending men, I hope women as well, to the moon again, I don't know what they are looking for.

What we have here cannot be replicated there. There is no other place in space that has fresh water, and we have to spend far more of our resources on protecting that precious slice of water on Earth. All the water of the Great Lakes and all the rest of the fresh water on the North American continent and Lake Baikal added and Lake Victoria added all together don't make a drop compared to the saltwater environment on Earth.

We have to do our utmost to preserve and protect. That is your responsibility and ours as well, and we thank you very much for being here today to address it.

The Subcommittee is adjourned.

[Whereupon, at 1:23 p.m., the Subcommittee was adjourned.]

OPENING STATEMENT OF THE HONORABLE RUSS CARNAHAN FOR WATER RESOURCES AND ENVIRONMENT SUBCOMMITTEE HEARING: PROGRESS TOWARD IMPROVING WATER QUALITY IN THE GREAT LAKES
JANUARY 23, 2007

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Chairwoman Johnson and Ranking Member Baker, thank you for holding this hearing on improving water quality in the Great Lakes.

We all agree we must improve the water quality in our waterways. The Great Lakes are a perfect example of the need to delicately manage our water resources, to balance the need for clean drinking water with our use of our waterways for boating, agriculture, industry and shipping. It is critical that we continue our efforts to ensure the residents of the areas surrounding the Great Lakes can rely on a clean drinking supply. Specifically, we must continue to work to cut down on contamination and restore the habitat of species living in the Great Lakes.

Again, I want to thank the Chairman and Ranking Member for holding this hearing and I look forward to hearing from our witnesses.

STATEMENT OF
THE HONORABLE JERRY F. COSTELLO
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
HEARING ON PROGRESS TOWARD IMPROVING WATER QUALITY IN THE GREAT LAKES
WEDNESDAY, JANUARY 23, 2008 AT 10:00AM

Thank you, Madame Chairwoman, for holding this hearing on the progress toward improving water quality in the Great Lakes.

As a life-long resident of a Great Lakes state, I am pleased this Subcommittee has held numerous hearings on the Great Lakes, and has investigated and proposed legislation to address Great Lakes water quality impairment, contaminated sediments, and a wide variety of sources of pollution to the Lakes. This Subcommittee continues its thorough oversight on the ecological and environmental health of the Great Lakes with this hearing today.

It cannot be stressed enough how vital these natural resources are to the economic health and well being of our state. Whether as a source of drinking water for our largest cities, a major

transportation corridor for the movement of goods and services, or as a center for recreation, the Great Lakes are important to the regional economies and livelihood of those states.

There are currently 115 Federal programs that can be used to protect and improve the water quality of the Great Lakes basin. These programs fall under the EPA, NOAA, the Natural Resources Conservation Service and the Fish and Wildlife Service and I am interested in hearing from our witnesses more details about how these federal programs are working to improve the water quality of the Great Lakes.

Madame Chairwoman, significant policy and funding challenges remain in this nation's efforts to improve the water quality of the Great Lakes. I am pleased that this Subcommittee continues to explore these issues. I welcome the witnesses here today, and look forward to their testimony.

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OPENING STATEMENT
Congressman Steve Kagen

SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
"Progress toward Improving Water Quality in the Great Lakes."
Wednesday, January 23, 2008

Thank you Chairwoman Johnson and Ranking Member ~~Baker~~ DUNCAN for holding this hearing regarding progress toward improving water quality in the Great Lakes. I would also like to thank all the members of the panels for appearing before the Water Resources & Environment Subcommittee. I look forward to your testimonies.

The Great Lakes are a tremendous and extraordinary natural resource unparalleled anywhere else in the world.

Individuals from Northeast Wisconsin are tough advocates for improving and preserving the water quality of the Great Lakes. They clearly believe that conserving our environment is imperative to the health and economy of our state.

To that end, my constituents understand the necessity in protecting the Great Lakes, which hold 95 percent of all the surface water in the United States. The Great Lakes provide potable water and the means for Wisconsin to meet demands for food and feed.

Family farmers and ranchers from Northeast Wisconsin also recognize the critical need to protect the Great Lakes, and remain committed to carefully balancing their managerial practices with environmental stewardship. As a proud member of the House Agriculture Committee, I fully recognize their ongoing efforts to meet these objectives. I was also pleased to be a part of the negotiations for the 2007 Farm Bill, which contains conservation provisions that will complement these goals.

As our population has grown exponentially, and our limited resources have become increasingly scarce, it is essential that we not only advance efforts to improve water quality, but also pursue measures that will lessen the affects of invasive species, and ensure that no water taken from the Great Lakes is ever shipped outside the Great Lakes watershed.

In order for the Federal, state and local governments to work collectively to ensure that these objectives are met, it is vital that significant investments are continually made in our water infrastructure. To tackle these challenges, we will be required to work in a bipartisan manner.

It is my hope that the witnesses will enlighten the Committee on ways in which we will be better able to address these matters.

Thank you again Chairwoman Johnson and Ranking Member [redacted] for holding this hearing. I yield back my time.
DUNCAN

Statement of Rep. Harry Mitchell
House Transportation and Infrastructure Committee
Subcommittee on Water Resources and Environment
1/23/08

--Thank you Madam Chairwoman.

--When you live in Arizona, you learn pretty quickly to have a healthy respect for clean, fresh water.

--Our supplies are so limited, you simply have to.

--But I don't think you have to live in a desert to appreciate why the health of the Great Lakes is so important to all of us, even those of us who live so far from them.

--These 5 lakes contain more than 80 percent of North America's surface

fresh water, and more than 20 percent of all that exists on earth.

--This is a precious resource, and unfortunately, it is under stress.

--And that is why today's hearing is so important.

--I look forward to hearing from today's witnesses about what we can to do to ensure that the Great Lakes continue to be a valuable resource for generations to come.

--I yield back.

STATEMENT OF
THE HONORABLE JAMES L. OBERSTAR, CHAIRMAN
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT
HEARING ON "PROGRESS TOWARD IMPROVING WATER QUALITY IN THE GREAT LAKES"
JANUARY 23, 2008

Today, the Subcommittee on Water Resources and Environment holds a hearing on water quality in the Great Lakes.

What I expect to hear is that it is past time for us to give back to the Lakes. Since western Europeans first explored the Lakes in the early 17th Century, the Lakes have given much to us – they are in many ways largely responsible for making the United States the economic powerhouse of the world. But for millennia before that, the Great Lakes gave to the original inhabitants of the region, the many native peoples and tribes.

An image of the original, pristine condition of the Great Lakes Basin, and the bounty it provided is given by Samuel de Champlain – the Frenchman who was amongst the first Europeans to explore the Great Lakes region. Describing Lakes Huron and Ontario in 1615, Champlain wrote:

> *During the time that I was with them, the chief of [the Algonquin] tribe and their most prominent men entertained us with many banquets according to their custom, and took the trouble to go fishing and hunting with me, in order to treat me with the greatest courtesy possible. These people are very numerous, there being from seven to eight hundred souls, who live in general near the lake. This contains a large number of very pleasant islands, among others one more than six leagues long, with three or four fine ponds and a number of fine meadows; it is bordered by very fine woods, that contain an abundance of game, which frequent the little ponds....The northern side of*

> *the lake is very pleasant, with fine meadows for the grazing of cattle, and many little streams, discharging into the lake.*

And further into this voyage, Champlain described the plentiful bounty of Lake Ontario:

> *This region is almost an island, surrounded by the great river Saint Lawrence, which passes through several lakes of great extent, on the shores of which dwell various tribes speaking different languages, having fixed abodes, and all fond of the cultivation of the soil, but with various modes of life, and customs, some better than others. On the shore north of this great river, extending westerly some hundred leagues towards the Attigouantans, there are very high mountains, and the air is more temperate than in any other part of these regions, the latitude being 41°. All these places abound in game, such as stags, caribous, elks, does, buffaloes, bears, wolves, beavers, foxes, minxes, weasels, and many other kinds of animals which we do not have in France. Fishing is abundant, there being many varieties, both those which we have in France, as also others which we have not. There are likewise many birds in their time and season. The country is traversed by numerous rivers, brooks, and ponds, connecting with each other and finally emptying into the river St. Lawrence and the lakes through which it passes. The country is very pleasant in spring, is covered with extensive and lofty forests, and filled with wood similar to that which we have in France, although in many places there is much cleared land, where they plant Indian corn. This region also abounds in meadows, lowlands, and marshes, which furnish food for the animals before mentioned.*

The Great Lakes can no longer be cast in such light. A traveler, following the storied path of Samuel de Champlain, would write a very different tale. Where the Lakes have provided for thousands of years, we, of late, have taken too much. And, we have given back too little.

Through the years the federal government, in partnership with the states, has joined in a number of efforts to address water quality degradation and its sources of pollution. Some of these programs – such as the Great Lakes Legacy Act – have started a process of addressing the toxic legacies of the industrial era. Cleaning the numerous areas of contaminated sediment will reduce the health risk to local communities, lessen ecosystem degradation, and make these areas more ripe for new development in this century. We have to, however, make sure that these Superfund sites are being addressed correctly, and that the Great Lakes Legacy Act provides the tools to do so. I look forward to working with Chairwoman Johnson, and other members of the Committee to visit this issue this session.

Another instrument I look forward to hearing about today is the Great Lakes Initiative, or the GLI. This program was implemented in 1995 to meet the goals of the Great Lakes Water Quality Agreement. It required more stringent water quality standards for many pollutants discharged into the Great Lakes. The GLI was intended to promote and force the development of new and more effective pollution-control technologies.

However, as the Government Accountability Office will testify, I think real questions exist as to the effectiveness of the GLI, and EPA's commitment to cleaning up the Great Lakes by using this tool to significantly decrease toxic discharges. The GLI allows discharging facilities a significant degree of flexibility in whether or not they meet their GLI discharge limits by allowing for 'variances.' In practical terms, variances allow a facility to discharge listed contaminants – like mercury – at higher levels than the GLI would normally allow.

The frequency at which variances have been granted – and because they can be extended indefinitely – begs the question of whether EPA seeks to realize the spirit of the Great Lakes Initiative, or whether it will follow the path of least resistance by signing off on never-ending variances. This policy unchecked, will, I am afraid, lead to never-ending toxic pollution.

We all understand, of course, that the cost borne by the Great Lakes in terms of water quality degradation and habitat destruction is the result of the huge economic advances that the United States made through the twentieth century. But by the same token, no longer can we ignore the very real costs which Great Lakes communities, large and small, pay as a result of using these magnificent waters as a dumping ground for the refuse of society's progress.

I will not subscribe to the tired notion that economic progress must come at the expense of the environment. Or, that environmental cleanup necessarily means a slowdown in the economy.

In the Great Lakes we must do both – we can and we will.

Clean-up of the Lakes will have positive impacts on many areas of the regional economy. In a recent report, the Brookings Institution has determined that if the myriad sources of water quality degradation in the Great Lakes are effectively addressed, the Great Lakes region will realize $50 billion in net benefits. Among these benefits, Brookings notes these direct economic gains stem from:

- Restoration of the Lakes will lead to $6.5 to $11.8 billion in benefits from tourism, fishing, and recreation;

- Remediating the toxic Areas of Concern throughout the lakes will improve coastal property values to the tune of $12 to $19 billion;
- Decreasing sediment runoff will reduce costs to municipalities by $50 to $125 million;
- And finally, while difficult to quantify, improving water quality in the Great Lakes will result in environmental and aesthetic benefits which will make Great Lakes cities and communities increasingly attractive to businesses and workers.

Addressing the sources of water quality impairment in the Great Lakes will not be easy and it will not be cheap – either in monetary or political terms. But given the benefits that will accrue to both communities and ecosystems alike, it's what must be done to give back to the Lakes.

Thank-you.

Opening Statement by Congressman Bart Stupak
Subcommittee on Water Resources and Environment
"Progress Toward Improving Water Quality in the Great Lakes"
January 23, 2008

Thank you, Chairwoman Johnson, Chairman Oberster, and Ranking Member Duncan for holding this hearing. Water is a very important issue and it becomes even more important every day.

The recommended basic water requirement for human domestic needs is 13.2 gallons per person per day. Yet in the U.S. and Canada, the average person uses 100 gallons per person per day. Statistics show that in every 20 years, the demand for water is doubling.

In the Great Lakes, we consume about 5 percent and return about 95 percent of that water back into the Great Lakes Basin. In the arid western states they consume approximately 90 to 95 percent and return 5 to 10 percent back.

By 2025 the World Bank predicts that more than 3 billion people in 52 countries will suffer water shortages for drinking and sanitation. Water will be the most valuable and most sought after commodity in the world, and the wars of the 21st century will be fought over water, not oil.

Since coming to Congress, I have made it my mission to protect and promote the Great Lakes.

When I first arrived, NAFTA was the focus of the time and I raised the issue that Great Lakes water would become a commodity under the NAFTA agreement.

Since then we have stopped the Nova group from selling Great Lakes water to China, we've stopped the drilling for oil and gas in and under the Great Lakes, we've worked with the Great Lakes states to develop comprehensive water use programs, something we need to continue to urge, and we've stopped the discharge of partially treated human waste from being dumped into our lakes, rivers, and streams. To continue my mission to protect the Great Lakes, I became co-chair of the Water Caucus last year.

Why did we do all of these things?

45 million people depend on the Great Lakes for drinking water, jobs, transportation, and energy production. Without the Great Lakes, our water borne highway, there would be no domestic steel industry. Up to 180 million tons of cargo are shipped annually on the Great Lakes adding over $4 billion to our nation's economy. However, despite all these benefits, we have not invested nearly enough in this treasured resource and have left many challenges unaddressed.

In December 2004, a collaboration of federal, state, tribal, and local government officials and private sector stake holders formed a comprehensive strategy for restoring the Great Lakes called the Great Lakes Regional Collaboration. To implement this strategy, a bi-partisan group of Great

Lakes members introduced H.R. 1350 the Great Lakes Collaboration Implementation Act which I am a co-sponsor. The bill would authorize $23 billion over 5 years for combating invasive species, repairing our waste water treatment infrastructure, cleaning up pollution in sediment, water front restoration grants, and other important Great Lakes improvement projects.

As we have witnessed in recent months and in many elections, candidates running for President promise additional resources to protect the Great Lakes but unfortunately like President Bush, they fail to provide the resources necessary to improve the Great Lakes in their annual budgets. Nonetheless, I look forward to working with Members of this Committee to address these needs.

A major source of Great Lakes pollution is inadequate waste water treatment plants. Municipal wastewater treatment infrastructure in both the United States and Canada is old and deteriorating. Because many of these facilities are combined wastewater and storm water treatment facilities, storm events often over burden these systems, resulting in sewage overflow entering the Great Lakes.

It is no wonder why the EPA under this Administration has continually proposes to weaken regulations to allow for partially treated human sewage to be dumped into lakes, rivers, and streams. I stopped the EPA by passing an amendment to the Fiscal Year 2006 Interior APproprations Bill. Now we must provide the funding necessary to repair

our infrastructure to prevent all untreated discharges into the Great Lakes.

Phosphorus is another pollutant that has caused excessive harm to the Great Lakes through runoff. It is important that while states like Michigan lead the way in banning phosphorous that we consider similar legislation at the federal level. Once phosphorous is discharged into the waterways, it causes excessive growth of algae, which robs the water of oxygen that fish need to survive.

In addition, the record low water levels in the Great Lakes reduce the lakes ability to flush out toxic substances and excessive levels of nutrients such as phosphorous, nitrogen, and other pollutants. This problem is significant when considering the slow outflow rates for most of the Great Lakes. For example, Lake Superior retains water for 191 years, Lake Michigan for 62 years, and Lake Huron for 31 years.

Many believe that human influences are to blame for the low water levels in the Great Lakes. However, I believe that in the overall Great Lakes ecosystem, our weather cycles are the largest cause of low water levels. Right now, the Great Lakes are experiencing moderate to severe drought conditions. The greatest loss of water occurs during the winter when the lakes do not freeze over and evaporation occurs. In 2006 and 2007 winter snow packs provided 60% less water than average.

While we can't control the weather, we should be working to stop all diversion from the Great Lakes. Diversion by the bottled water industry has had an increasingly negative effect, particularly on the ground water sources they extract from. Ground water replenishes the Great Lakes and is an important contributor to its sustainability. Groundwater alone makes up approximately 35% of Lake Michigan.

The Great Lakes-St. Lawrence River Basin Water Resources Compact would allow bottled water from the region to be classified as a "product" available for diversion. Once our Great Lakes water becomes a product or commodity, there will be significant international pressure on this resource. In fact, NAFTA and the General Agreement on Tariffs and Trade (GATT) state that no country can prohibit the export of water once it becomes a commodity.

The bottled water loophole in the Compact is a significant diversion of groundwater, and would allow companies to make money at the expense of our treasured resource. The Great Lakes are estimated to only replenish themselves by less than 1% per year while we currently consume 5% per year. Any comprehensive water use plan is insufficient without this prohibition on bottled water extraction.

The Beverage Marketing Corp. estimated that the U.S. consumed 8.2 billion gallons of bottled water in 2006, 3 billion gallons more than 2001. With the net profit of the bottled water industry in the billions, the drive to extract more from the Great Lakes for commercial gain will

increase. The problems associated with our low water levels will only become worse.

Lastly, invasive species has become the greatest immediate threat to the Great Lakes economy. Zebra mussels, asian carp, and 181 other known aquatic terrestrial non-native species reside in the Great Lakes basin. Approximately ten percent of them are considered invasive and are harming one of the major economic aspects of the Great Lakes, commercial and sports fishing.

Over 1/3 of the aquatic non-native species introduced into the Great Lakes are the result of ships discharging foreign ballast water. I urge the Committee to move swiftly and enact tougher ballast water regulations as they are essential to reducing the number of invasive species that are entering the Great Lakes.

Our Great Lakes face many challenges and I look forward to working with Members of this Committee and my Great Lakes colleagues to address these issues.

Thank you, Chairwoman Johnson and Chairman Oberstar for holding this hearing on this critical issue.

WRITTEN TESTIMONY OF

DR. STEPHEN B. BRANDT
DIRECTOR, GREAT LAKES ENVIRONMENTAL RESEARCH LABORATORY
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

OVERSIGHT HEARING ON
"PROGRESS TOWARD IMPROVING WATER QUALITY
IN THE GREAT LAKES"

BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

January 23, 2007

Madame Chair, and Members of the Subcommittee, good morning, and thank you for inviting me to discuss contributions made by the National Oceanic and Atmospheric Administration (NOAA) to water quality improvement and restoration in the Great Lakes. I am Dr. Stephen Brandt, Director of NOAA's Great Lakes Environmental Research Laboratory (GLERL), headquartered in Ann Arbor, Michigan.

The Laurentian Great Lakes are a major resource to North America, containing 18 percent of the world's surface freshwater and 90 percent of the surface freshwater of the U.S. They serve as the focus for a multi-billion dollar tourism and recreation industry, supply 40 million people with drinking water, provide habitat for wildlife and fish, and support transportation and diverse agricultural production. The basin is home to about 15 percent of the U.S. population and 60 percent of the Canadian population.

The Great Lakes are one of the Earth's greatest treasures and one of the Nation's most important aquatic resources from an economic, geographic, international, ecological, and societal perspective. The Great Lakes continually face extremes in natural phenomena such as storms, erosion, high waves, high and low water levels, and climate variability, all of which influence water quality and efforts to restore habitat. Population growth and changes in land use in the region will continue to increase stresses on the Great Lakes, adding to the complexity of management issues. The one thing that we can predict with near certainty is that the Great Lakes ecosystem will continue to change, and adapting to those changes poses a challenge for effective use and management.

In regard to water quality, multiple stressors directly or indirectly affect the Great Lakes ecosystem. Harmful algal blooms and low bottom water oxygen (hypoxia) are stressors to the Great Lakes ecosystem. Invasive species are perhaps the greatest challenge to a healthy Great Lakes. Add to this mix the impacts of local land use and climate change

and the situation becomes very complex, making management, restoration and planning even more difficult.

In the early 1970s when Lake Erie was declared dead, the solution, based on best available science, was relatively clear: nutrient loading must be reduced. Our ecological understanding and technological know-how have significantly improved since the 1970s. The Great Lakes have a large, complex and economically important user base and are heavily impacted by human activities with resultant multiple stresses. Many parts of the lakes are highly eutrophic – the result of an enrichment in dissolved nutrients which has stimulated plant growth resulting in a depletion of dissolved oxygen when the plant life decays. Eutrophication and other stresses to the lakes have created the need for ecological prediction of oxygen deficiency, harmful algal blooms, recreational water quality, recreational and commercial fisheries production, invasive species and extreme natural events (high winds, storms, dramatic changes in water influx). Future successes will depend on a comprehensive and balanced ecosystem approach.

NOAA's ROLE IN THE GREAT LAKES

NOAA's mission is: "To understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social and environmental needs." That mission statement captures the essence of one of NOAA's four primary goals: "Protect, restore and manage the use of coastal and ocean resources through ecosystem-based management." NOAA has environmental stewardship, assessment, and prediction responsibilities in the Great Lakes. NOAA conducts physical, chemical, and biotic research and environmental monitoring and modeling, providing scientific expertise and services to manage and protect Great Lakes ecosystems. The preeminent research and monitoring that NOAA conducts helps improve the understanding and prediction of Great Lakes processes, including the connections among the atmosphere, water and sediments. All of NOAA's offices play a vital role in supporting the economy of the Great Lakes through NOAA's four strategic themes — ecosystems, weather and water, climate, and commerce and transportation.

The Great Lakes ecosystem is one of the most clearly definable regions under NOAA's purview and mission responsibilities, and the region holds a long history of interagency partnerships and collaborations among States, Tribes, and other Federal partners. The partnerships in the Great Lakes region have led the Nation in innovative management strategies for decades, with efforts that have spanned thousands of miles, and provide a large-scale testing ground for new science and management.

NOAA has over 15 Congressional mandates that guide its specific responsibilities in the Great Lakes. NOAA is mandated to provide research, monitoring and coordination throughout the Great Lakes Basin on ecosystem issues such as water resources, invasive species, foodweb dynamics, pollutants, hydrology, hydrodynamics, ice, water quantity and quality and so forth. NOAA's programs in the Great Lakes work in partnership with one another, and with other federal and state agencies to provide comprehensive science, management, and technical assistance tools to foster comprehensive environmental

stewardship of the area. NOAA's research, monitoring and operational services contribute to the protection and restoration of the Great Lakes ecosystem and the socio-economic health and safety of the public; most of these activities are connected to water quality.

Water quality is affected by multiple factors, and therefore improvements in water quality are dependent on a number of programs coordinated to work in an efficient way to improve overall ecosystem health. NOAA is working to address environmental issues in the Great Lakes through a regional ecosystem approach. By using an ecosystem approach, NOAA strives to use a science and policy framework that recognizes the fundamental interconnections of all ecosystem components, and emphasizes the maintenance of biological diversity, natural relationships among all species including humans, and dynamic processes that ensure ecosystem sustainability.

NOAA promotes a science-based approach to water quality improvements and restoration and NOAA's research provides critical information toward this end. Highlighted below are some of NOAA's efforts that contribute to improvement of water quality through interagency coordination, state partnerships, forecasts for Great Lakes conditions such as hypoxia, restoration planning, research and response for harmful algal blooms and aquatic nuisance species, monitoring activities, and hazardous materials response. Several of NOAA's activities in the Great Lakes specifically relate to water quality improvement and restoration. For example, NOAA:

- Predicts impacts of pollution and coastal development on sensitive habitats and resources, including the use of contaminant-monitoring sites in Green Bay, and Lakes Michigan, Huron, St. Clair, Erie and Ontario to determine contaminant trends;
- Works with states to analyze changes in coastal land cover and plan habitat restoration and conservation;
- Acts on behalf of the Secretary of Commerce as a natural resource trustee for the public to protect and restore aquatic species and their habitats, and associated services such as safe navigation and transportation, recreation, commercial fishing, shoreline stabilization, and flood control;
- Collects, analyzes and distributes historical and real-time observations, and predictions of water levels, coastal currents and other meteorological and oceanographic data;
- Leverages other assets such as the CoastWatch node in Ann Arbor to utilize NOAA environmental satellite and in-situ data to monitor the health of the ecosystem;
- Provides scientifically sound information on ecosystem processes and is developing ecosystem forecasting tools to improve management decisions, mitigate human impacts, and reduce the risks to human health;
- Develops and implements techniques and products to improve severe storm forecasting, and provides the weather and flood warnings, forecasts, and meteorological and hydrologic data used by research, environmental management, transportation, and community interests in the Great Lakes;
- Provides surveying, nautical charts, and other navigation services for safe shipping and boating;

- Monitors ice hazards to maritime shipping industry, which is the lifeblood of the industry and commerce on the Great Lakes and St. Lawrence Seaway;
- Partners with universities through the National Sea Grant College Program and GLERL to encourage stewardship of Great Lakes coastal natural resources by providing funding to, and conducting joint projects with area universities for research, education, outreach and technology transfer;
- Partners with state Coastal Zone Management Programs to work with local communities and state agencies to preserve, protect, develop, restore, and enhance coastal zone resources, providing research, education, and protection of coastal and estuarine areas by balancing state and national interests to promote conservation and responsible development; and
- Protects and provides interpretive information on approximately 160 historic shipwrecks at the 448-square mile Thunder Bay National Marine Sanctuary and Underwater Preserve, located off the coast of Alpena, Michigan in Lake Huron.

REGIONAL PARTNERSHIPS

In 2006, NOAA created eight regional teams in recognition of the unique needs of the various geographic regions of the U.S. The Great Lakes is one of these regions and I lead this effort. NOAA is well represented in the Great Lakes by over 65 physical offices and 140 programs. Applying a regional approach means that NOAA will draw upon the expertise of its regional offices and partners to champion the improved development, implementation, and delivery of products and services in the Great Lakes region. NOAA's strength and capacity derive from strong collaborative ties among its programs and with its partners and customers. Through the regional approach NOAA is improving outreach and communications to increase awareness and delivery of our services and also develop them from the bottom up to ensure they best serve the needs of the public. It is at the regional scale that NOAA can blend the place-based needs of customers and partners with its priorities and responsibilities as a federal agency. Ensuring consistent, high-value services to NOAA customers is more important than ever, especially given recent public attention to the state of the oceans, the effects of climate change, and impacts of natural disasters. Strengthening these relationships also is essential to the "one NOAA" principles of improved internal communications and efficiency.

Regional Collaboration will improve our value to customers by identifying and applying NOAA's full range of capabilities, within and across regions. It will also allow us to design the best solutions to address geographically specific problems. This effort will use existing authority and accountability structures and does not entail changes to NOAA's organizational structure. NOAA's leadership is committed to Regional Collaboration as an approach to engaging partners and customers, and delivering NOAA services. A senior leadership team has been established to guide the efforts of regional and priority area teams as they engage with external partners to develop and implement strategies that address the following priorities in the regions: hazard resilient coastal communities, integrated ecosystem assessments, and integrated water resource services.

INTERAGENCY COORDINATION

Interagency partnerships and collaborations have played a historic role in efforts to protect the Great Lakes ecosystem and improve water quality. Underpinning the foundation for collaboration in the Great Lakes is the President's U.S. Ocean Action Plan of December 17, 2004, which calls on federal agencies to work together with their partners in state, local and tribal authorities, as well as with the private sector, our international partners and other interests, to make our oceans, coasts, and Great Lakes cleaner, healthier, and more productive.

Also in 2004, President Bush established the Great Lakes Interagency Task Force through the Great Lakes Executive Order, which promotes partnership among federal agencies to help protect and restore the Great Lakes.

Currently, NOAA is also appointed as the U.S. chair to the International Joint Commission's Council of Great Lakes Research Managers. The International Joint Commission has overall water quality responsibilities for the Great Lakes. The Council of Great Lakes Research Managers has responsibilities to coordinate Great Lakes Research related to water quality.

THE ROLE OF RESEARCH IN SERVING THE PUBLIC

Research underpins NOAA's science-based mission of understanding and predicting changes in the Earth's environment and conserving and managing coastal and marine resources to meet our Nation's economic, social, and environmental needs. Robust environmental observation, assessment, and prediction capabilities provide the foundation for performing NOAA's mission. Research is the cornerstone on which to build and improve environmental forecasts that can enable ecosystem-based management and provide critical weather, climate, and water quality information for decision makers and the public. We ensure NOAA research and services meet the needs of our stakeholders by seeking regular feedback from the research community, operational users, and stakeholders. NOAA scientists and our external partners work together to improve the quality of people's lives and to meet our Nation's economic, social, and environmental needs.

Ecosystem Forecasting

NOAA conducts scientific research directed towards creating new tools and approaches for management and protection of coastal ecosystems that can also lead to improvements in water quality. To anticipate and minimize how stresses from human and natural causes will affect ecological processes, NOAA is developing ecological forecasting tools that predict the effects of biological, chemical, physical, and human-induced changes on ecosystems and their components. These tools include research on understanding ecological processes, conceptual models of ecosystem function, and statistical and process-driven prediction models. As these tools are developed in the research environment, NOAA scientists identify, consult, and collaborate with user groups representing the ultimate operators and beneficiaries to determine the most useful

operational parameters, products, and delivery methods. This often requires the involvement of the operational branches of NOAA to plan for routine application and dissemination of ecological forecasts. Public workshops are conducted to identify user needs and services are developed accordingly. This model has been successfully applied by GLERL for forecasts of Great Lakes ice conditions, water levels, circulation and thermal structure, and waves, and is in the process of being applied for beach closures, harmful algal blooms, hypoxia/anoxia, and fish recruitment.

Lake Erie "Dead Zone"

An important research project is addressing the Lake Erie hypoxic or "dead" zone that has grown worse in recent years. Hypoxia has been responsible for the contamination of drinking water supplies and death of wildlife. NOAA's Center for Sponsored Coastal Ocean Research (CSCOR) in the National Ocean Service's National Centers for Coastal Ocean Science is funding a project to create, test and apply models to forecast how anthropogenic (land use, invasive species) and natural stresses (climatic variability) influence hypoxia formation and ecology in Lake Erie, with an emphasis on fish production. Currently funded projects are mapping the extent of hypoxia across Lake Erie, investigating the causes and consequences of hypoxia and forecasting alternatives for the management of nutrient loading to minimize harmful phytoplankton problems in zebra mussel-invaded habitats.

In 2005, GLERL, in collaboration with researchers from the U.S. and Canada, initiated one of the largest, most comprehensive Lake Erie research field programs ever conducted. The project, the International Field Years on Lake Erie (IFYLE), is focused on hypoxia and harmful algal blooms. Lake Erie's harmful algal blooms in the west basin, recurring low oxygen episodes ("dead zones") in the central basin, and invasive species have the potential to disrupt normal food web and ecosystem processes, and in turn, jeopardize the ability of Lake Erie to provide valued ecosystem services (e.g., recreational and commercial fish production, safe drinking water, and clean, bacteria-free beaches). The primary objectives of the IFYLE program are to evaluate the causes and impacts of hypoxia and harmful algal blooms in Lake Erie.

The IFYLE program involves approximately 40 scientists from NOAA, 17 different universities, and private institutions spread across 7 states and 4 countries. This program is integrative with involvement by numerous U.S. and Canadian universities and federal, state, and provincial agencies.

NOAA Center of Excellence for Great Lakes and Human Health

The NOAA Center of Excellence for Great Lakes and Human Health began in 2004 and focuses on understanding the inter-relationships between the Great Lakes ecosystem, water quality and human health. The Center employs a multidisciplinary approach to understand and forecast coastal-related human health impacts for natural resource and public policy decision-making, and develop forecasting tools to reduce human health risks associated with three research priority areas: beach closures, harmful algal blooms, and drinking water quality.

One example of the need for forecasting coastal-related human health impacts deals with drinking water quality. The Cleveland Water District provides drinking water to approximately 1.5 million people in 72 communities in Northeast Ohio. The water system gets its source water from the Lake Erie Central Basin through four water intakes covering approximately 27 miles of shoreline in the greater Cleveland area. In August 2006, three of the four Cleveland Water District water treatment plants were exposed to hypoxic water from Lake Erie, compromising water quality in the system. Hypoxic waters are low in pH and temperature and have a high manganese content that negatively impacts water processing. In an effort to investigate, research, and limit future water quality impacts to Cleveland's drinking water, GLERL, in collaboration with the Ohio Sea Grant Program, deployed Real-Time Coastal Observation Network (ReCON) buoys during the 2007 field year to develop mitigating solutions to the problem of hypoxic water intake. The ability to observe the onset of hypoxic waters in real-time by ReCON buoys has resulted in an early warning system allowing the Cleveland Water District the advance notice required to place alternate processing and storage techniques on standby during hypoxia events. In addition, real-time observations of Lake Erie temperature profiles provide the ability to detect deep water movement that can result in sudden changes in oxygen, pH, and temperature levels at water intakes. Future forecast plans include the prediction of these deep water movements using local wind forecasts.

The Center uses a multidisciplinary approach to translate scientific information and research into materials to aid health officials, local governments, and communities in making sound environmental decisions. Working with the end users is critical for this process to be effective. As one example, during 2006 and 2007 the Center held user needs workshops in Toledo, Bay City, and Green Bay to discuss how harmful algal blooms can affect drinking water quality. The purpose of these workshops was to bring together public health and natural resource managers and decision makers interested in harmful algal blooms to determine the extent of the harmful algal bloom issue in the region, create a venue to understand and assess existing knowledge of harmful algal blooms, and identify methods in which these blooms are monitored for and reported to the public. Stakeholders from the public health, drinking water, and beach management sectors, as well as academia, U.S. and Canadian federal, state, county and city governments, and community members participated. This type of outreach is critical to identify community needs and translate scientific information into a concise, easily understood format.

Managing Impacts of Multiple Stressors in Coastal Ecosystems

A new 5-year project was initiated in 2007 to examine the way in which multiple stressors, including watershed nutrient inputs, declining water levels, and invasive species, affect management goals and activities and economics in Saginaw Bay on Lake Huron. Project participants include GLERL, universities, state management agencies and the private sector. The state management participants will help to clarify the primary endpoints of public concern such as nuisance algae, harmful algal blooms, and sport-fish growth rates. Project participants will develop several parallel ecosystem-scale models that will describe our current understanding of the relationship between the important

ecosystem stressors and the endpoints of concern, and lead to a new way to fully integrate research and management.

Harmful Algal Bloom Research and Response

A stressor that leads to reductions in water quality is the rapid proliferation of toxic or nuisance algae, called a harmful algal bloom. Harmful algal blooms include cyanobacteria, especially *Microcystis*, which can produce potent toxins; and macro algae, such as *Cladophora*, that build up on beaches, impacting tourism and recreation. In the Great Lakes, NOAA scientists have documented harmful algal bloom toxin levels that were 10 times higher than the World Health Organization recreational standards. NOAA is working with its federal partners to organize harmful algal bloom research around a suite of complementary and interconnected programs and activities that involve a mix of extramural and intramural research, long-term regional ecosystem-scale studies supported by short-term targeted studies, collaborations between academic and federal scientists, and multiple partnerships with Federal, state and tribal managers. EPA, a key partner, is working to determine whether cyanotoxins should be regulated under the Safe Drinking Water Act, but does not yet have sufficient information to make this determination.

Great Lakes Coastal Forecasting System

In April, 2006, NOAA announced the completion of the Great Lakes Operational Forecast System (GLOFS) for lakes Superior, Huron, and Ontario. This system is a NOAA automated model-based prediction system aimed at providing improved predictions (guidance) of water levels, water currents and water temperatures in the 5 Great Lakes (Erie, Michigan, Superior, Huron and Ontario) for the commercial, recreation, and emergency response communities. This system is an excellent example of how NOAA is meeting its mission responsibility through research projects that were developed in NOAA laboratories and are now being transferred to operational use. This forecast system, which is built on 15 years of solid research and testing, benefits all who use the Great Lakes – be it for recreational or commercial purposes. In addition to supporting critical economic uses, the GLOFS also enhances efforts to promote public safety by providing better navigational and coastal information to civil authorities and coastal managers involved in search and rescue missions and other emergency response operations.

NOAA's Center for Operational Oceanographic Products and Services maintains the GLOFS in an operational environment 24 hours a day, seven days a week to provide accurate information needed by the diverse user population in their day-to-day use of the lakes. GLOFS generates hourly "nowcast" guidance (analyses) for present conditions and four times daily forecast guidance (out to 30 hours) of total water level, current speed and direction, and water temperature for each of the Great Lakes. The GLOFS predictions enable users to increase the margin of safety and maximize the efficiency of commerce throughout the Great Lakes. Both the nowcasts and the forecasts use information generated by a three-dimensional hydrodynamic model that includes real-time data and forecast guidance for winds, water levels, and other meteorological parameters to predict water levels, currents, and temperatures at thousands of locations throughout the five lakes. Key products include data and animated map plots of water

levels, water currents, and water temperatures; these products are available at http://tidesandcurrents.noaa.gov/ofs/glofs.html.

RESTORATION

NOAA's restoration activities in the Great Lakes region are important for the improvement of water quality because they restore habitat and clean contaminated sites. In support of the President's Great Lakes Executive Order, NOAA's FY 2008 budget request includes $1.5 million to establish a Great Lakes Habitat Restoration Program that will mobilize NOAA's restoration assets to restore Great Lakes aquatic resources and serve as a focal point for NOAA's broader restoration efforts in the region. The program will also support major restoration projects in Great Lakes Areas of Concern that achieve significant improvement in habitat function and provide community-wide human use benefits, while ensuring appropriate monitoring and feedback. Working with our partners, results will be used to apply lessons learned to other science-based restoration efforts throughout the Great Lakes basin.

NOAA's restoration role includes coordinating with remedial agencies on cleanup of contaminated sites, restoring injured resources and lost services, natural resource damage assessments and restoration in conjunction with other trustee agencies, working with states, tribes, and other partners to fund habitat restoration projects, and conducting research and monitoring activities. NOAA, through the Damage Assessment, Remediation, and Restoration Program, works with our partner agencies including states, tribes, and the U.S. Fish and Wildlife Service, to promote assessments and cleanup activities that will protect the aquatic environment, integrate restoration into clean up actions, and reduce overall injury to natural resources. By working cooperatively at sites with remedial and trustee agencies, local groups, and potentially responsible parties, NOAA decreases contaminant loads, reduces risks to protect sensitive species, and improves and restores habitat function. This can be accomplished through NOAA's trustee authority to cooperatively address liability, to assess natural resource damages, and to restore natural resources. NOAA is currently addressing cleanup and restoration at 16 hazardous waste sites in the Great Lakes region.

AQUATIC NUISANCE SPECIES RESEARCH AND RESPONSE

Aquatic nuisance species have the potential to impact water quality. For example, recent declines in water quality (e.g., harmful algal blooms, *Cladophora* outbreaks) in the Great Lakes have been attributed to the establishment of zebra and quagga mussels, prolific invasive species which have fundamentally altered ecosystem food webs and nutrient cycling. The major pathways by which aquatic nuisance species reach U.S. ecosystems all involve human activities, especially commerce and trade. Solutions to problems related to aquatic nuisance species will undoubtedly affect both the costs and policies of commerce and trade. Congress (in the *Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4701 *et seq.*)) and the White House (in Executive Order 13112) identified aquatic species invasions as a growing national problem requiring federal action.

NOAA is one of several federal agencies given joint responsibility for developing and implementing a national aquatic nuisance species response and action plan. NOAA serves as co-chair of both the national Aquatic Nuisance Species Task Force and the Invasive Species Council. The NOAA Sea Grant program, GLERL, and CSCOR are three programs that invest in research towards understanding, preventing, responding to, and managing aquatic species invasions in U.S. coastal ecosystems.

In July 2003, NOAA established the NOAA National Center for Research on Aquatic Invasive Species, a virtual center for the coordination of existing research programs throughout NOAA. The Center, administratively housed at GLERL, fosters partnerships to address prevention, early detection, rapid response, and management of invasive species, a major restoration and water quality issue for Great Lakes ecosystems.

It is safe to say that the risks associated with ballast water introductions have been reduced by the regulatory requirements imposed on vessels entering U.S. ports from beyond the Exclusive Economic Zone. GLERL, in conjunction with the Smithsonian Environmental Research Center, recently completed a scientific assessment of the effectiveness of ballast water exchange and concluded that, in the absence of effective alternative treatment technologies, the use of ballast water exchange has reduced the risk of ballast associated invasions to our coastal estuaries. In addition, new policies and regulations by both the U.S. and Canada have been established for vessels entering the Great Lakes that officially have no ballast on board (NOBOB vessels). These new requirements were based on findings of the NOBOB Research Program led by GLERL that NOBOB vessels still presented a level of invasion risk. Finally, considerable work has been done on development of new technologies to treat ballast water.

We have made progress in documenting the occurrences and spread of invasive species. Some of the best documented areas are the Great Lakes, where both Canadian and U.S. entities have played a significant role in documenting nonindigenous species occurrences. GLERL is creating a specific Great Lakes database in partnership with the U.S. Geological Survey, which will be rolled-out by the end of this calendar year. Even with baselines, though, monitoring of new introductions and invasion rates will continue to be problematic. Survey work is expensive in terms of both human and financial resources, and we cannot monitor all areas all of the time. We will continue to be dependent on observant individuals (including the general public), as illustrated by the most recent discovery of a new species in the Great Lakes: bloody red shrimp. Even though GLERL does extensive survey work, the bloody red shrimp was not found by our scientists as part of a formal survey. Instead, it resulted from an independent observation by one of our scientists at our boat docking facility near Muskegon, Michigan. The identification of new species (and ascertaining whether they are new introductions) and determining if such species are potentially invasive will continue to be an issue.

Finally, the most extensive scientific work has documented an apparent connection between zebra mussels and several deleterious impacts to the Great Lakes including toxic blue-green algal blooms, major impacts in the trophic chain with the disappearance of the

benthic amphipod *Diporeia*, decreased growth of Great Lakes whitefish, and avian botulism in the Great Lakes causing thousands of water fowl deaths. Research is now being conducted to determine if there is a link between the mussels and expansion of the dead zone in Lake Erie.

SUMMARY

Water-quality improvements and restoration need to be based on the best available science and an ecosystem-based management approach is essential. NOAA's research in the Great Lakes takes a proactive approach and is focused on predicting ecosystem response to management decisions. By predicting the effects of biological, chemical, physical and human-induced changes on ecosystems and their components, decision makers will be better informed and have the tools to make economically and ecologically sound decisions.

Thank you again for inviting me to present this overview of NOAA's current contributions to water quality improvements and restoration in Great Lakes ecosystems.

I would be happy to answer any questions you might have.

INTERNATIONAL JOINT COMMISSION
UNITED STATES AND CANADA

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Testimony before the Subcommittee on Water Resources and Environment
U.S. House of Representatives Committee on Transportation and Infrastructure
January 23, 2008

Madame Chair Johnson, members of the Subcommittee, I am Irene Brooks, Acting Chair of the U.S. Section of the International Joint Commission (the Commission). I am very pleased to be here with my colleague, U.S. Commissioner Allen Olson. We are joined by our colleagues from Canada, the Right Honorable Herb Gray, Chair, and Dr. Jack Blaney, Commissioner. We commend the Subcommittee for its focused attention on the issue of Great Lakes water quality.

In both the United States and Canada, millions of people draw material and spiritual sustenance from the Great Lakes. Today, the Basin's residents want to know that their priceless lakes – both in their majesty and their mystery – will be there for future generations, just as they have been there for them. Of all the world's natural legacies, with what can we compare our Great Lakes?

Since the Commission was created by the Boundary Waters Treaty of 1909, we have provided advice to the governments of the U.S. and Canada regarding both water quality and water quantity issues along the boundary from coast to coast. As we approach our 100th anniversary, the Commission is pleased to note that we have successfully responded to nearly 60 requests for advice known as "references" from the governments. In our view, no current reference is more important than our ongoing responsibilities written into the U.S.-Canada Great Lakes Water Quality Agreement (the Agreement). In this capacity, we assist the governments in implementing the Agreement, alert them to emerging issues, and assess their progress as they work to "restore and maintain the chemical, physical and biological integrity of the waters of the Great Lakes Basin Ecosystem."[1]

[1] Great Lakes Water Quality Agreement of 1978, As Amended by Protocol Signed November 18, 1987, available at http://www.ijc.org/rel/agree/quality.html. Reference to IJC is in Section VII.

Here is our latest assessment. Relative to the management of other world freshwater systems we have been good, but not exemplary, stewards of our lakes. The lakes today are less polluted than they were decades ago. But toxic, human, animal and industrial wastes, as well as pharmaceuticals and airborne substances, continue to pollute the lakes. Ongoing urban development, invasive species and climate change present additional challenges. The future of the Great Lakes is uncertain. That's why the Commissioner believes the time has come to make bold binational commitments and to accelerate actions to restore and protect the Great Lakes.

Today, we focus on four specific shortcomings:

- First, while progress toward cleaning up the Great Lakes has been significant in many areas, further gains are hampered by a lack of accountability, blurred lines of responsibility, lack of vigorous implementation and inadequate funding. Moreover, actions to address new threats such as invasive species are too slow and too scattered to be effective.

- Second, information needed to assess progress is often not available from governments to the Commission, and monitoring programs are underfunded, missing or inconsistent across the basin. Moreover, government reporting on Great Lakes water quality, as required by the Agreement, is inadequate and in some cases nonexistent.

- Third, the current Agreement does not provide for the players with the greatest interest in cleaning up the Great Lakes to be at the table. A broad range of stakeholders must be involved in decision-making, especially cities such as Chicago and Toronto, Native Americans and First Nations, among others.

- And fourth, the current Agreement is inadequate to meet present and growing challenges such as the effects of climate change, land use and factory farms and must be replaced with a new, action-oriented Agreement that commits to making meaningful and measurable progress, and that is signed by the President and Prime Minister and endorsed by the U.S. Congress and Canadian Parliament.

Our view is that to speed up the clean up, accountability is paramount. Responsibility for action must reside in the highest levels of both governments, with both countries making a bold commitment to specific, achievable goals and a set timetable to restore water quality in the Great Lakes so that fish are safe to eat, water is safe to drink and beaches are safe for swimming.

First signed in 1972, the Great Lakes Water Quality Agreement is the binational framework for protecting and restoring the world's largest and most precious freshwater resource. The 1972 Agreement gave priority to addressing point-source pollution from factories and sewage plants, and as a result, such pollution was dramatically reduced, at least initially. A new Agreement, signed in 1978, adopted the "ecosystem approach" and called for the virtual elimination of the discharge of any or all persistent toxic substances and the levels of many of those chemicals in birds and fish have declined substantially.

The Agreement was last revised in 1987 when the U.S. and Canada agreed to focus efforts on the restoration of water quality in the most contaminated local areas in the basin. Known as Areas of Concern (AOCs), these are 43 locations that fail to meet objectives of the Agreement where such failure has caused or is likely to cause impairment.of beneficial uses. Ensuring drinkable water, swimmable beaches and fish that can be safely consumed are key goals associated with the 14 beneficial uses specifically listed in the Agreement[2]. While conditions have improved significantly in a number of AOCs, only three have been removed from the list – one in the U.S. and two in Canada—so that currently there remain 25 AOCs wholly within the U.S., five shared with Canada and 10 entirely within Canada.[3] In 2003, the Commission estimated the cost for known wastewater infrastructure and sediment remediation needs in U.S. AOCs at $7.4 billion. In this regard, the Commission notes the importance of increased funding provided by the U.S. Congress for the Great Lakes Legacy Act, which targets resources to speed up contaminated sediment removal in AOCs. With respect to Canadian AOCs, the Commission estimated costs of $1.9 billion Cdn.

For example, the extreme northwestern portion of Indiana, including about 13 miles of the Grand Calumet River, the Indiana Harbor Canal, and nearshore of Lake Michigan, comprises one of the most notable AOCs, the Grand Calumet River. All 14 beneficial uses are impaired in its surface waters and it is estimated that more than 16 million gallons of petroleum products are floating in groundwater within this AOC. Ninety percent of the river's flow originates as industrial or municipal effluent, cooling and process water and storm water discharges. Between five and 10 million cubic yards of contaminated sediment are present in that river system alone. Since two decades have passed since the two governments committed to cleaning up AOCs, this is hardly satisfactory.

Annex 2 of the Agreement directs the United States and Canada, working with state and provincial governments, to develop Remedial Action Plans (known as RAPs) and Lakewide Management Plans (LaMPs) to restore and protect ecosystem health in AOCs and to the open waters of the Great Lakes respectively. In the Grand Calumet River AOC, the U.S. Environmental Protection Agency, Great Lakes National Program Office and the Indiana Department of Environmental Management have shared responsibility for the development and implementation of a RAP for the Grand Calumet River AOC and a LaMP for the open waters of Lake Michigan. These plans are to embody a systematic and comprehensive ecosystem approach to restoring and protecting beneficial uses in AOCs and in open lake waters.

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[2]Annex 2, Paragraph 1(c): "Impairment of beneficial use(s)" means a change in the chemical, physical or biological integrity of the Great Lakes System sufficient to cause any of the following: (i) restrictions on fish and wildlife consumption; (ii) tainting of fish and wildlife flavour; (iii) degradation of fish wildlife populations; (iv) fish tumors or other deformities; (v) bird or animal deformities or reproduction problems; (vi) degradation of benthos; (vii) restrictions on dredging activities; (viii) eutrophication or undesirable algae; (ix) restrictions on drinking water consumption, or taste and odour problems; (x) beach closings; (xi) degradation of aesthetics; (xii) added costs to agriculture or industry; (xiii) degradation of phytoplankton and zooplankton populations; and (xiv) loss of fish and wildlife habitat.

[3] In the Province of Ontario, Collingwood Harbour AOC was delisted in 1994 and Severn Sound AOC was delisted in 2003. The Oswego River AOC, in the State of New York, was delisted in 2006. Two AOCs are deemed to be Areas in Recovery: Spanish Harbour in Ontario and Presque Isle Bay in Pennsylvania.

Importantly, the implementation of these plans would be a significant step toward achieving Agreement goals of virtual elimination of persistent toxic substances and toward restoring and maintaining the chemical, physical and biological integrity of the Great Lakes Basin Ecosystem.

Reporting required under other programs also has not been acceptable. The Great Lakes Critical Programs Act of 1990 provided a January 1, 1993 deadline for the Administrator of U.S. EPA, in consultation with the Great Lakes National Program Office, to submit the Lake Michigan LaMP to the Commission. To date, no document has been formally submitted to the Commission for its review. Concerned by the lack of required formal reporting for the Lake Michigan and other LaMPs, the Commission has launched an assessment of the governments' progress toward achieving LaMP goals. This report will be completed later this year.

The Agreement [Annex 2, Paragraph 7(b)] also requires the federal governments to report every two years to the Commission on progress toward restoration of beneficial uses in AOCs. Since 1987, only one comprehensive binational report on the status of beneficial uses has been submitted, and that was in 1994. Concerned by the lack of reports, in 2001 the Commission began a comprehensive review of progress in developing and implementing RAPs for the AOCs. By January 2002, the governments provided some data, noting that much of the requested information was not in their control and not readily available. We would also note that, for the most part, monitoring required by the Agreement is not happening.

In its 2003 special report[4] to governments "The Status of Restoration Activities in the Great Lakes Areas of Concern", the Commission noted that at least three U.S. AOCs—the Kalamazoo River, the Grand Calumet River, and the Lower Green Bay/Fox River—remain severely contaminated and are releasing significant amounts of polychlorinated biphenyls (PCBs) and other persistent toxic substances to the open waters of Lake Michigan. The Commission urged that clean up of these sites should be a priority.

The 2003 report also recommended that the two federal governments should meet their responsibility to report formally, on a biennial basis, on the degree to which each impaired beneficial use in each AOC has been restored, as required by Annex 2 of the Agreement. Still, four years later, no report has been received. In addition, the Commission recommended that governments should report to the Commission and the public on their rationale for determining priorities for remedial measures and identify those priorities within and among the AOCs. To date, the Commission is unaware of any such report.

Most importantly, the Commission is concerned that progress to date is threatened by lack of vigorous implementation and funding to address old threats compounded by the inability to address new ones. The U.S.-Canada Great Lakes Water Quality Agreement has not been revised since 1987, and as a result, the inspiration and vision it once provided has been diminished. The core purpose of the Agreement remains sound, but what was once thought to be sufficient to restore water quality and protect vulnerable humans, fish and wildlife no longer works.

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[4] Available at http://www.ijc.org/php/publications/html/aoc_rep/english/report/index.html.

Science has advanced and ecosystem stressors such as climate change and invasive species are now widely recognized as real and growing threats to the Great Lakes ecosystem. For example, it appears that invasive zebra and quagga mussels have effectively reengineered physical and chemical processes in the nearshore area, promoting eutrophication and degrading water quality. Algae mats, closed beaches, and dead birds in nearshore areas of the Great Lakes signal the need for action. Indeed, the lack of adequate monitoring and failure to implement needed compliance programs for facilities that discharge to the lakes, combined with inadequate tools to address new challenges, has resulted in nearshore water quality problems that are serious in most areas of the Great Lakes.

Recently, the Commission held an expert consultation to address these growing nearshore concerns. Based on the advice of more than 50 experts, we make the following recommendations for binational action to improve nearshore areas of the Great Lakes:

- First, urban and agricultural nonpoint sources of pollution are key contributors to the continued excessive loadings of phosphorus to nearshore waters and must be reduced.

- Second, nutrient-control programs, as outlined in Annexes 3 and 13 of the Agreement, need to be funded and implemented.

- Third, most programs to monitor Great Lakes phosphorus loadings were terminated fifteen years ago because their objectives were met. The problem has returned, and this monitoring needs to be reinstated.

- And fourth, critical research must be funded to improve our understanding of the science and linkages between land sources of pollutants and the waters in the nearshore and offshore.

These recommendations regarding the nearshore builds on the comments we provided to the governments as they began the review process. In our "Advice to Governments on Their Review of the Great Lakes Water Quality Agreement" (August, 2006)[5], the Commission recommended that the governments take the opportunity of their 2007 review of the Agreement to replace it with a shorter, more action- oriented document. This new Agreement should be signed by the President and Prime Minister and endorsed by the U.S. Congress and Canadian Parliament, raising accountability to the highest levels of government.

The 2006 report focused on new institutional arrangements to improve accountability in binational Agreement implementation. For example, the Commission recommends the creation of a Binational Steering Committee that would bring together the Great Lakes Task Force created by President Bush's 2005 Executive Order with their Canadian counterparts. Reporting to that high-level political committee would be a new coordinating body of federal, state, provincial, municipal, tribal and other representatives responsible for administering the programs designed to achieve the goals of the Agreement

[5] Available at http://www.ijc.org/php/publications/pdf/ID1603.pdf

The Commission recognizes that much of the work required to implement the Agreement is carried out under domestic authorities in the two countries. Therefore, the 2006 report recommended that the new coordinating body develop a Binational Action Plan that would specify the actions to be taken and by whom, commit to timelines for implementation, include a broader array of signatory partners and provide for regular review, reporting and updating. The plan would also make provision for effective monitoring and surveillance as well as regular progress reports to the Commission and the public along with regular oversight hearings by federal legislative committees. Indeed, hearings such as this one should be held on a regular basis so that program managers can be held accountable and ineffective programs can be retooled with a focus on results.

The need for improving accountability in implementing the Great Lakes Water Quality Agreement was further articulated by the Commission in its "13th Biennial Report on Great Lakes Water Quality" (December, 2006).[6] The Commission recommended that the two federal governments create and apply in the context of the Agreement a strong accountability framework for the protection and restoration of the Great Lakes. We are pleased to report that the governments have responded to our recommendation and have agreed to work with the Commission, starting this spring, on the process for developing such an accountability framework.

However, governments are advised not to delay taking action until there is a new or revised Agreement, though we urge the governments to negotiate and sign a new Agreement as soon as possible. In the meantime, we recommend that all orders of government take positive steps to focus increased attention and resources on water quality issues in the nearshore, especially those highlighted in this presentation. We also remind governments of the need to meet our current obligations under the 1987 Great Lakes Water Quality Agreement, and urge Congress to provide adequate funding and vigorous oversight of existing programs to assess, monitor, and restore the Great Lakes.

While some see the Great Lakes as marking the boundary that divides our countries, we see them as the lifeblood connecting us. Indeed, pollution knows no boundaries, so action to clean up the Great Lakes and keep them clean must be uncommonly strong, binational and immediate. Ultimately, accountability will only be achieved to the extent that the national governments of the United States and Canada take action. And we are here today to tell you that the International Joint Commission is ready to help you act with urgency, vision and focus to get the job done. Thank you.

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[6] Available at http://www.ijc.org/php/publications/pdf/ID1601.pdf

TESTIMONY OF
BENJAMIN H. GRUMBLES
ASSISTANT ADMINISTRATOR FOR WATER
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT OF THE U. S. HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

JANUARY 23, 2008

Introduction

Thank you, Madam Chairwoman and Members of the Subcommittee for the opportunity to discuss the Great Lakes and the progress that has been made as well as challenges that remain in protecting and restoring this vast but fragile natural resource. Accompanying me is Mary Gade, the Great Lakes National Program Manager. Since the beginning of settlement and industrialization, the Great Lakes have been a center of industry, development, and population, holding about one-fifth of the world's fresh surface water. The Great Lakes Region is an economic powerhouse producing one-third of our gross national product and would comprise the world's third largest economy if it were a separate country.

While significant and emerging challenges remain, the Great Lakes have made a dramatic comeback from severely polluted conditions - 30 to 40 years ago when the Lakes were seemingly on the verge of collapse. The Lakes, and especially the Lower Lakes, were beset by fish kills, offensive algae blooms, oil slicks, and oxygen depletion. Many beaches were permanently closed and fishing for some species was banned. The Cuyahoga River in Cleveland caught fire and Lake Erie was declared "dead" by the media.

Background

One of the first steps towards a binational approach to the management of the Great Lakes was the signing in 1909 of the Boundary Waters Treaty between the United States and Canada. Among other things, the Boundary Waters Treaty established the International Joint Commission (IJC) and gave it

authority to help resolve "questions or matters of difference" between the U.S. and Canada involving boundary waters.

Growing public awareness and concern for the environment in the late 1960's and early 1970's led to a series of landmark events:

- The U.S. Environmental Protection Agency and Environment Canada were formally established in 1970.
- The Clean Air Act of 1970 was enacted,
- The Federal Water Pollution Control Act Amendments of 1972, the predecessor to the Clean Water Act of 1977, were enacted, and
- The United States and Canada signed the Great Lakes Water Quality Agreement in 1972 setting out broad binational goals for cleaning up the lakes and launching an important era of binational stewardship of the lakes.

To achieve the goals of the Great Lakes Water Quality Agreement, and recognizing the multi-jurisdictional and multi-media nature of this effort, EPA established the Great Lakes National Program Office, or "GLNPO" [Clean Water Act Section 118(b)]. GLNPO has responsibilities for coordinating actions within EPA and with other federal and state agencies to restore and protect the Great Lakes and to implement the Great Lakes Water Quality Agreement. The Great Lakes Program has been instrumental in coordinating and streamlining efforts among U.S. and Canadian Federal, State, and Tribal governmental partners.

In l987, the Agreement was revised and strengthened, adding a new focus on toxic substances as well as providing for the development of Remedial Action Plans for Areas of Concern, and Lakewide Management Plans. Congress responded by amending the Clean Water Act to include specific elements to protect and restore the Great Lakes. The Great Lakes Critical Programs Act of 1990 made further revisions and also required the development of water quality guidance for the Great Lakes System consistent with the objectives and provisions of the Great Lakes Water Quality Agreement and to be no less restrictive than the provisions of the Clean Water Act and national water quality criteria and guidance. The Guidance specifies numerical limits on pollutants in ambient Great Lakes waters to protect human health, aquatic life, and wildlife. EPA's Guidance to the Great Lakes States sets forth minimum water

quality standards, antidegradation policies, and implementation procedures for the Great Lakes System. The Guidance takes into account the particular characteristics of the Great Lakes and its inhabitants.

More recently, with the passage and funding of the Great Lakes Legacy Act of 2002 , EPA has been given a powerful new tool to accelerate the pace of sediment cleanups in the Great Lakes. The Great Lakes Legacy Act (GLLA) calls for partnerships between the EPA and other governmental or non-governmental parties to clean up sediments, emphasizing cleanup rather than studies.

Executive Order 13340, signed by President Bush on May 18, 2004, further reinforced the central coordinating role of EPA and GLNPO. This Order established a Great Lakes Interagency Task Force and called for a "regional collaboration of national significance" for the Great Lakes, involving the Federal Agencies at the highest level.

It is important to note that governance in the Great Lakes basin is complex.
There are two countries involved, each of which has several federal agencies with jurisdiction over some aspect of the Lakes. In the US the agencies include the Environmental Protection Agency, the Fish and Wildlife Service, U.S. Department of Agriculture, U.S. Geological Survey, the National Oceanic and Atmospheric Administration, the National Park Service, the Corps of Engineers, and the Coast Guard, among others. In Canada, the relevant agencies include Environment Canada, Health Canada, Agriculture Canada, Fisheries and Oceans Canada, Natural Resource Canada, Transportation Canada, and others.

There are also 8 U.S. States with part of the Great Lakes in their jurisdiction, and there are two Canadian Provinces. Each of the States and Provinces also has multiple agencies, including the State or Provincial equivalent of an environmental quality agency and a natural resource management agency.

There are 83 U.S. counties bordering the Great Lakes, whose county health departments, for example, monitor the swimming beaches. In Ontario, 41 Public Health Units monitor swimming beaches and drinking water quality, among other things.

In the U.S., 33 tribal governments have independent governance in the Great Lakes basin. In Canada, the relationship between the federal government and First Nations is more complex, but there are over 50 recognized First Nations in the basin.

The U.S. and Canada have established special binational commissions, such as the aforementioned IJC, to assist in the implementation of the Great Lakes Water Quality Agreement, as well as the Great Lakes Fishery Commission to control infestation of the sea lamprey and to promote a multi-use fishery.

Clearly, we have come a long way with our many partners, some of whom are here today. The aesthetics of our beaches and waterfronts have improved immensely leading to revitalizing development in many of the older cities on the shores of the Lakes, including Cleveland, Toledo, Milwaukee, and Chicago to name just a few. Our cleanup efforts have turned what had been eyesores into valuable assets, aesthetic amenities, and magnets for economic investment.

There is much more to be done, however, and we can't accomplish the task of restoring the Great Lakes alone. I would like to take a few minutes to highlight some accomplishments, and to also talk about some challenges we have in our work to restore the Great Lakes.

Working Together

We are working together with other Federal Agencies through the Great Lakes Interagency Task Force (IATF) established under Executive Order 13340 to resolve a variety of problems on the Great Lakes. Formation of the IATF and its Regional Working Group has changed the way the federal agencies interact on Great Lakes issues by providing a forum for information exchange, leveraging of resources, and further program coordination. It has strengthened interagency coordination on a wide variety of issues and provides a forum for Agencies working together to investigate issues, share information, and develop solutions to difficult problems. The IATF's Regional Working Group meets on a weekly conference call and has developed a workplan highlighting key actions needed to protect and restore the Great Lakes. The IATF also partners with the Great Lakes Regional Collaboration to further support Great Lakes restoration activities.

The Executive Order directed EPA to partner with the Great Lakes States, tribal and local governments, communities, and other interests to establish a regional collaboration to address nationally significant environmental and natural resource issues involving the Great Lakes. The Great Lakes Regional Collaboration (GLRC) was subsequently established in 2004, which includes government and nongovernmental partners. The Collaboration had its annual meeting on October 2, 2007 at which over one hundred collaboration participants gathered in Chicago. The GLRC is currently implementing six joint initiatives related to wetlands, rapid response to aquatic invasive species, toxic pollutants, and beaches. I will keep you apprised of progress on these initiatives as they are planned and implemented in more detail.

Accomplishments to Date

I now want to specifically highlight recent accomplishments.

- An example of success is the Great Lakes Watershed Restoration Grants Program. Now entering its third funding cycle, the program has provided almost $2 million in federal funding, and leveraged even more in non-federal funds, to support 36 projects since its inception. By bringing together the resources of NOAA, the U.S. Fish & Wildlife Service, the Forest Service, NRCS, and EPA, and using the GLRC Strategy as a guide, the program has been able to make real, on-the-ground gains in protecting and restoring watersheds in the Great Lakes.

- We have seen noteworthy success in the timely removal of contaminants from Great Lakes Areas of Concern since EPA received its first appropriation under the GLLA in 2004, paving the way for these sites to finally be delisted. Since that time, we have remediated over 800,000 cubic yards of contaminated sediment at six sites, at a cost of almost $97 million. We have been able to effectively leverage funds under the Act, utilizing federal, state, and private dollars to remove 1.5 million pounds of contaminated sediments from the environment, thereby reducing risk to aquatic life and human health. For example over 25,000 pounds of PCBs has been remediated from Legacy Act sites, over one million pounds of chromium, about 400 pounds of mercury, and 171 pounds of lead. We continue to move forward in cleaning up more sites under the Legacy Act.

- The Oswego River, New York Area of Concern has been delisted.

- The Habitat/Wetlands Initiative, which the Task Force initiated to meet its joint commitment with the States of 200,000 acres of wetlands habitat restored or protected, and has now grown to become a joint GLRC project, is another example of effective interagency coordination and resource leveraging. By bringing the relevant agencies to the table to coordinate and plan, and by merging with the Corps of Engineers' $1 million Great Lakes Habitat Initiative, the Interagency Task Force has already restored, protected or improved approximately 65,000 acres of wetlands towards its 100,000 acre near-term goal.

- Over 180 aquatic invasive species have now entered the Great Lakes and are a continuing threat to the ecosystem's integrity. The primary vectors for Great Lakes aquatic invasive species include maritime commerce, canals and waterways, aquaculture, organisms in trade, and recreational activities The IATF has established the Federal Aquatic Invasive Species Rapid Response Subcommittee to coordinate Federal efforts to respond to these invaders. The Subcommittee has been working with partners to develop a Communication Protocol that will assist in coordinating efforts and communication to stem new invaders to the Lakes and to ensure resources and expertise can be brought to bear to the problems of new invaders.

More broadly, the Task Force has completed 13 of the 48 near term actions it committed to after the GLRC Strategy was released, and the majority of the rest are on track toward completion. These actions, contained in the Task Force's Near Term Action Plan, engage all eight of the priority issue areas in the Strategy. The Strategy is also consistent with the President's Ocean Action Plan and the Administration's support of regional collaborations on oceans, coasts, and Great Lakes policy in partnership with States, localities, and tribes. Completed projects include a standardized sanitary survey tool for beach managers to identify pollution sources at beaches. Nine grants were issued providing $525,000 for state and local governments to pilot the use of the tool to assess 60 beaches in the Great Lakes, which will pave the way to implementing measures to reduce beach water contamination. In addition, Asian Silver Carp, Largescale Silver Carp, and Black Carp were listed as injurious under the Lacey Act; and the operation of the electric carp barrier in Illinois was continued, to prevent the spread of these species into the Great Lakes.

In addition to these multiagency actions, EPA has an important role in the Great Lakes in implementing environmental laws. For example, under the Clean Water Act, we have an important tool in the Great Lakes Water Quality Guidance (the Guidance). The Guidance consists of Federal regulations at 40 CFR 132 that establish consistent water quality standards and implementation requirements applicable to all Great Lakes States and Tribes. It includes a significant number of new water quality criteria for specific pollutants to protect aquatic life, human health and wildlife within the Great Lakes basin. The Guidance also includes methods to derive additional water quality criteria for other pollutants for which EPA has not published criteria.

The Guidance also references how the water quality standards are to be implemented in the context of National Pollutant Discharge Elimination System (NPDES) permits under the Clean Water Act. There is an emphasis on bioaccumulative chemicals of concern (BCCs), for which the Guidance establishes more restrictions, including a general ban on the use of mixing zones, and more restrictive antidegradation procedures for new or increased discharges of BCCs.

EPA published the final Guidance on March 23, 1995. Since that time, EPA has been working with the Great Lakes States that developed rules to implement the Guidance. The last State submitted its rules to EPA for review in February, 1998. EPA completed final action on all the State submittals by October, 2000. As part of its final action, EPA promulgated some provisions of the Guidance for those States where the State rules were inconsistent with the Guidance. The most notable of these was promulgation of whole effluent toxicity procedures applicable to Indiana, Michigan, Ohio and Wisconsin. EPA also signed addenda to the NPDES Memoranda of Agreement with each State that clarified how important elements of the States' implementation rules would be interpreted.

We have also made significant progress in incorporating revised permit limits into NPDES permits that reflect the Guidance. The percentage of NPDES permitted discharges to the Lakes or major tributaries that had permit limits reflecting the Guidance's water quality standards has increased from 62% in 2002 to 95% in 2007.

Status of the Great Lakes and Future Challenges

Several months ago, EPA and its partners published The State of the Great Lakes 2007 report, which presents information about the Great Lakes basin ecosystem. It represents the combined efforts of many scientists and managers in the Great Lakes community representing federal, Tribal/First Nations, State, provincial and municipal governments, non-government organizations, industry, academia and private citizens.

The 2007 report indicates good news stories that are hallmarks of progress:

- Levels of most contaminants in herring gull eggs and predator fish continue to decrease.
- Phosphorus targets have been met in Lake Ontario, Lake Huron, Lake Michigan and Lake Superior.
- The Great Lakes are a good source for municipally-treated drinking water.
- Sustainable forestry programs throughout the Great Lakes basin are employing environmentally-friendly management practices.
- Lake trout stocks in Lake Superior have remained self-sustaining, and some natural reproduction of lake trout is occurring in Lake Ontario and in Lake Huron, after many years when this did not occur due to the presence of contaminants, among other factors.
- Lake sturgeon are naturally reproducing in Lake Ontario and in the St. Lawrence River. Spawning and reproduction has been documented in the Niagara River.
- Mayfly (*Hexagenia*) populations have partially recovered in western Lake Erie.
- In 2006, the percentage of beach days available for swimming increased above 85% for the first time since tracking of this indicator began in l997.

The 2007 report also identifies areas that are cause for concern:

- Extensive nuisance growth of the green alga *Cladophora* has reappeared along the shoreline in many places in four of the five Great Lakes.
- Type E botulism outbreaks have lead to fish and bird kills.
- Phosphorus levels are still above guidelines in Lake Erie.

- Non-native species (aquatic and terrestrial) are pervasive throughout the Great Lakes basin, and they continue to exert ecological impacts on native species and communities, as well as having economic impacts.
- Populations of *Diporeia*, the dominant, native, bottom-dwelling invertebrate, which used to represent up to 30% of the food resources for fisheries, continue to decline in Lake Michigan, Lake Huron, and Lake Ontario, and they may be extinct in Lake Erie.
- The lower food web in Lake Huron has diminished with the resultant collapse of many forage fish and predator fish populations, having extensive economic impacts.
- Groundwater withdrawals for municipal water supplies and irrigation, and the increased proportion of impervious surfaces in urban areas, have negatively impacted groundwater levels.
- Long range atmospheric transport is a continuing source of PCBs, mercury, and other contaminants to the Great Lakes basin, and can be expected to be significant for decades.
- Land use changes along the shoreline continue to threaten natural habitats in the Great Lakes and St. Lawrence River ecosystems.
- Some species of amphibians and wetland-dependent birds are showing declines in population numbers, in part due to wetland habitat conditions.
- The Great Lakes climate is changing: winters are getting shorter; annual average temperatures are growing warmer; extreme heat events are occurring more frequently; duration of lake ice cover is decreasing as air and water temperatures are increasing; and heavy precipitation events, both rain and snow, are becoming more common. These effects have the potential to profoundly impact the ecosystem of the Great Lakes.

As you can see, there is much more to be done and many management challenges remain. We will continue to work toward solving these problems in collaboration with other Federal Agencies under the IATF, as well as other partners at the international, State and local levels.

Conclusion

In closing, Madam Chair, the Administration looks forward to working with you and all of our partners to continue making important progress in the Great Lakes. A cleaner, healthier, and more sustainable future for the Great lakes depends on continued innovation and collaboration among all levels

of government and the private sector. Mary and I would be happy to answer any questions that you may have.

United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure, House of Representatives

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GREAT LAKES INITIATIVE

EPA and States Have Made Progress, but Much Remains to Be Done If Water Quality Goals Are to Be Achieved

Statement of David Maurer
Acting Director, Natural Resources and Environment

GAO-08-312T

January 23, 2008

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Highlights

Highlights of GAO-08-312T, a testimony before the Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure, House of Representatives

GREAT LAKES INITIATIVE

EPA and States Have Made Progress, but Much Remains to Be Done If Water Quality Goals Are to Be Achieved

Why GAO Did This Study

Millions of people in the United States and Canada depend on the Great Lakes for drinking water, recreation, and economic livelihood. During the 1970s, it became apparent that pollutants discharged into the Great Lakes Basin from point sources, such as industrial and municipal facilities, or from nonpoint sources, such as air emissions from power plants, were harming the Great Lakes. Some of these pollutants, known as bioaccumulative chemicals of concern (BCC), pose risks to fish and other species as well as to the humans and wildlife that consume them. In 1995, the Environmental Protection Agency (EPA) issued the Great Lakes Initiative (GLI). The GLI established water quality criteria to be used by states to establish pollutant discharge limits for some BCCs and other pollutants that are discharged by point sources. The GLI also allows states to include flexible permit implementation procedures (flexibilities) that allow facilities' discharges to exceed GLI criteria.

This testimony is based on GAO's July 2005 report, *Great Lakes Initiative: EPA Needs to Better Ensure the Complete and Consistent Implementation of Water Quality Standards* (GAO-05-829) and updated information from EPA and the Great Lakes states. This statement addresses (1) the status of EPA's efforts to develop and approve methods to measure pollutants at the GLI water quality criteria levels, (2) the use of permit flexibilities, and (3) EPA's actions to implement GAO's 2005 recommendations.

To view the full product, including the scope and methodology, click on GAO-08-312T. For more information, contact David Maurer at (202) 512-3841 or maurerd@gao.gov.

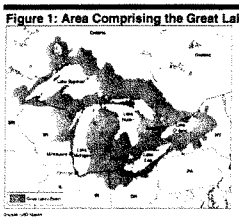
What GAO Found

As GAO reported in 2005, developing the sensitive analytical methods needed to measure pollutants at the GLI water quality criteria level is a significant challenge to achieving GLI's goals. Of the nine BCCs for which criteria have been established, only two—mercury and lindane—have EPA-approved methods that will measure below those criteria levels. Measurement methods for the other BCCs are either not yet approved or cannot reliably measure to GLI criteria. Without such measurement, it is difficult for states to determine whether a facility is exceeding the criteria and if discharge limits are required in the facility's permit. As methods become available, states are able to include enforceable discharge limits in facilities' permits. For example, since EPA approved a more sensitive method for mercury in 1999, the number of permits with mercury limits has increased from 185 in May 2005 to 292 in November 2007. EPA and state officials expect this trend to continue. Similar increases may occur as more sensitive analytical methods are developed and approved for other BCCs.

Flexibilities included in permits allow facilities' discharges to exceed GLI water quality criteria. For example, one type of flexibility—variances—will allow facilities to exceed the GLI criteria for a pollutant specified in their permits. Moreover, the GLI allows the repeated use of some of these permit flexibilities, and does not set a time frame for facilities to meet the GLI water quality criteria. As a result, EPA and state officials do not know when the GLI criteria will be met.

In the 2005 report, GAO made a number of recommendations to EPA to help ensure full and consistent implementation of the GLI and to improve measures for monitoring progress toward achieving GLI's goals. EPA has taken some actions to implement the recommendations. For example, EPA has begun to review the efforts and progress made by one category of facilities—municipal wastewater treatment plants—to reduce their mercury discharges into the basin. However, until EPA gathers more information on the implementation of GLI and the impact it has had on reducing pollutant discharges from point sources, as we recommended, it will not be able to fully assess progress toward GLI goals.

Figure 1: Area Comprising the Great Lakes Basin



Madam Chairwoman and Members of the Subcommittee:

I am pleased to be here today to discuss our work on the Great Lakes Initiative (GLI), and its impact on water quality in the Great Lakes Basin.[1] As you know, millions of people in the United States and Canada depend on the Great Lakes—the largest system of freshwater in the world—as a source of drinking water, recreation, and economic livelihood. During the 1970s, it became apparent that pollutants discharged into the basin from point sources, such as industrial and municipal facilities, or from nonpoint sources, such as air emissions from power plants and agricultural runoff, were harming the Great Lakes. Because less than 1 percent of the Great Lakes' water recycles or turns over each year, on average, many of these pollutants stay in place, settling in sediments or bio-accumulating in fish and other aquatic species. As a result, some of these pollutants, such as mercury and dioxin, known as bioaccumulative chemicals of concern (BCC), pose risks to those species as well as to the humans and wildlife that consume them.

In 1990, following a series of binational agreements aimed at improving environmental conditions in the Great Lakes Basin, the Congress passed the Great Lakes Critical Programs Act. This act, which amended the Clean Water Act, required the Environmental Protection Agency (EPA) to publish water quality guidance on minimum water quality standards and antidegradation policies for protecting existing water quality. In response, in 1995, EPA published the *Final Water Quality Guidance for the Great Lakes System*, otherwise known as the GLI, to control over 100 toxic pollutants and protect aquatic life, wildlife, and human health. Through the GLI, EPA established stringent water quality criteria—numeric values to be used by states to set pollutant discharge limits for point sources—for 9 BCCs and 20 other pollutants found in the basin. In addition, the GLI established methodologies that the states are to use in developing criteria for the remaining pollutants. Meeting the criteria established by GLI requires sensitive analytical methods that allow measurement of pollutant concentrations at or below the level established by GLI water quality criteria. These methods allow states to determine if a facility is exceeding the criteria and if a discharge limit is required in the facility's permit as well as to assess the facility's compliance. The Great Lakes Critical

[1]The Great Lakes Basin includes the five Great Lakes—Superior, Michigan, Huron, Ontario, and Erie—and a large land area that extends beyond the lakes, including their watersheds, tributaries and connecting channels.

Programs Act required that the eight Great Lakes states—Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin—adopt provisions consistent with GLI into their environmental regulations and point source permit programs within 2 years of issuance of GLI guidance.

As you requested, my testimony today focuses on (1) the status of EPA's efforts to develop and approve methods needed to measure pollutants at the GLI water quality criteria level, (2) the use of permit flexibilities, and (3) the actions EPA has taken to implement the recommendations we made in our 2005 report on the GLI to better ensure full and consistent implementation of GLI and monitor progress in meeting GLI goals.[2] My testimony is based on the 2005 report and additional information we have obtained from EPA and the Great Lakes states. Our testimony primarily focuses on the nine BCCs for which EPA has developed GLI water quality criteria. Most of these BCCs are responsible for fish consumption advisories in the Great Lakes.

We conducted this performance audit from October 2007 through January 18, 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. We determined that the data provided were sufficiently reliable for purposes of this testimony.

In summary:

- As we reported in 2005, developing the sensitive analytical methods needed to determine whether GLI water quality criteria are being met is a significant challenge to fully achieving GLI's goals. At the time of our report, a method that allowed measurement of the pollutant at or below the GLI criteria had been developed and approved for only two of the nine BCCs—mercury and lindane. Mercury and lindane remain the only BCCs for which an approved method is available that measures pollutant concentrations below the GLI criterion. Once EPA approves an analytical method, Great Lakes states are able to issue point source permits that require facilities to use that method unless an

[2]GAO, *Great Lakes Initiative: EPA Needs to Better Ensure the Complete and Consistent Implementation of Water Quality Standards*, GAO-05-829 (Washington, D.C.: July 27, 2005).

alternative procedure has been approved by the EPA region. Methods have been developed for the remaining seven BCCs, but these methods either have not yet been approved or only allow for measurement above the GLI criteria. For example, because chlordane has a water quality criterion of 0.25 nanograms per liter but can only be measured down to a level of 14 nanograms per liter, it cannot always be determined if the pollutant is exceeding the criterion. When methods are developed that can measure pollutant concentrations at or below the level established by GLI water quality criteria, a more pervasive problem of high pollutant levels in the Great Lakes Basin waterbodies than previously recognized may be revealed and could result in additional permits with discharge limits. For example, the number of permits with mercury limits increased from 185 in May 2005 to 292 in November 2007. EPA officials attribute this increase to the development of a more sensitive method for mercury in 1999 and EPA and state officials expect this trend to continue. Similar increases may occur as more sensitive analytical methods are developed and approved for other BCCs.

- Although permits may include BCC discharge limits, the GLI authorizes states to use flexibilities that allow facilities' discharges to exceed GLI water quality criteria. For example, one type of flexibility—variances—will allow facilities to exceed the GLI criteria for a particular pollutant specified in their permits. Furthermore, the GLI allows the repeated use of some of these flexibilities and does not set a time frame for facilities to meet the GLI water quality criteria. As a result, EPA and state officials could not tell us when the use of these flexibilities will be discontinued or when the GLI criteria will be met.

- EPA has taken some actions to implement the recommendations we made in our 2005 report to help ensure the full and consistent implementation of the GLI and to improve measures for monitoring progress toward achieving GLI's goals. First, EPA implemented our recommendation to fully develop the GLI Clearinghouse and make it available to the Great Lakes states. Second, as we recommended, EPA is beginning to gather and track information to assess the progress of GLI implementation although the information collected is limited to municipal wastewater treatment plants. Third, to ensure the equitable and timely implementation of GLI among all the Great Lakes states, EPA has increased its efforts to resolve disagreements with the state of Wisconsin on the adoption and implementation of GLI provisions. Finally, although EPA disagreed with our recommendation to issue a permitting strategy for mercury to ensure a more consistent approach for controlling mercury by the states, it has continued to support state

implementation efforts by assessing which approaches are most effective in reducing mercury discharges by point sources.

Progress Made in Developing Analytical Methods Will Ultimately Result in More Permits with BCC Discharge Limits

The ability to accurately and reliably measure pollutant concentrations is vital to successfully implementing GLI water quality criteria. Without this ability, it is difficult for states to determine if a facility's discharge is exceeding GLI water quality criteria and if a discharge limits are required. For example, because chlordane has a water quality criterion of 0.25 nanograms per liter but can only be measured down to a level of 14 nanograms per liter, it cannot always be determined if the pollutant is exceeding the criterion. As we reported in 2005, developing the analytical methods needed to measure pollutants at the GLI water quality criteria level is a significant challenge to fully achieving GLI goals. Although methods have been developed for the nine BCCs for which GLI water quality criteria have been established, EPA has only approved the methods to measure mercury and lindane below GLI's stringent criteria levels. Analytical methods for the other BCCs either have not received EPA approval or cannot be used to reliably measure to GLI criteria levels. Once EPA approves an analytical method, Great Lakes states are able to issue point source permits that require facilities to use that method unless the EPA region has approved an alternative procedure. According to EPA officials, specific time frames for developing and approving methods that measure to GLI criteria have not yet been established. EPA officials explained that developing EPA-approved methods can be a time-consuming and costly process. Table 1 shows the status of the methods for the nine BCCs.

Table 1: Status of BCC Analytical Methods

BCC	Status of method to measure GLI water quality criteria
Chlordane	Measures above the GLI criterion
Dieldrin	Measures above the GLI criterion
DDT	Measures at the GLI criterion but not yet approved by EPA*
Hexachlorobenzene	Measures above the GLI criterion
Lindane	Measures below the GLI criterion and approved by EPA
Mercury	Measures below the GLI criterion and approved by EPA
PCBs	Measures above the GLI criterion
2,3,7,8-TCDD	Measures above the GLI criterion
Toxaphene	Measures above the GLI criterion

Source: GAO analysis of EPA information.

[a]An analytical method exists for DDT; however, this method does not measure this pollutant at the GLI criterion level. A more sensitive method has been developed but it is in draft and EPA has not yet approved it.

As we reported in 2005, if pollutant concentrations can be measured at or below the level established by GLI water quality criteria, enforceable permit limits can be established on the basis of these criteria. The Great Lakes states' experience with mercury illustrates the impact of sufficiently sensitive measurement methods on identifying pollutant discharges from point sources. Methods for measuring mercury at low levels were generally not available until EPA issued a new analytical method in 1999 to measure mercury concentrations below the GLI water quality criterion of 1.3 nanograms per liter of water. This more sensitive method disclosed a more pervasive problem of high mercury levels in the Great Lakes Basin than previously recognized and showed, for the first time, that many facilities had mercury levels in their discharges that were exceeding water quality criteria. Since this method was approved, the number of permits with discharge limits for mercury rose from 185 in May 2005 to 292 in November 2007. Moreover, EPA and state officials are expecting this trend to continue. As EPA officials explained, it may take up to two permit cycles—permits are generally issued for 5-year periods—to collect the monitoring data needed to support the inclusion of discharge limits in permits. EPA officials are expecting a similar rise in permits with discharge limits for polychlorinated biphenyls (PCBs) when detection methods are approved.

Permit Flexibilities Allowing Discharges in Excess of GLI Water Quality Standards Delay Achievement of GLI Goals

Permit flexibilities often allow facilities' discharges to exceed GLI water quality criteria. These flexibilities can take several forms, including the following:

- *Variance.* Allows dischargers to exceed the GLI discharge limit for a particular pollutant specified in their permit.
- *Compliance schedule.* Allows dischargers a grace period of up to 5 years in complying with a permitted discharge limit.
- *Pollutant Minimization Program* (PMP). Sets forth a series of actions by the discharger to improve water quality when the pollutant concentration cannot be measured down to the water quality criterion. A PMP is often used in conjunction with a variance.
- *Mixing Zone.* Allows dischargers to use the areas around a facility's discharge pipe where pollutants are mixed with cleaner receiving waters to dilute pollutant concentrations. Within the mixing zone, concentrations of pollutants are generally allowed to exceed water quality criteria as long as standards are met at the boundary of the

mixing zone. This flexibility expires in November 2010 with some limited exceptions.

These flexibilities are generally only available to permit holders that operated before March 23, 1997, and are in effect for 5 years or the length of the permit.[3] GLI allows states to grant such permit flexibilities under certain circumstances, such as when the imposition of water quality standards would result in substantial and widespread economic and social impacts. Table 2 shows the number and type of BCC permit flexibilities being used as of November 2007 in the Great Lakes Basin for mercury, PCBs, and dioxin, as well as BCC discharge limits contained in permits.

Table 2: Number and Type of BCC Permit Flexibilities Used and BCC Discharge Limits in Great Lakes Basin Permits

	IL	IN	MI	MN	NY	OH	PA	WI	Total as of Nov. 2007
Mercury									
Variance	0	2	136	0	0	15	0	2	155
PMP	0	2[a]	136[a]	3[b]	[c]	25[d]	0	31[e]	197
Compliance Schedule	0	12	0	3	[c]	48	0	0	63
Mixing Zone	0	0	0	0	[c]	20	0	[f]	20
Mercury discharge limits contained in permits	0	16	136	4	49	83	0	4	292
PCBs									
Variance	0	0	0	0	0	0	0	0	0
PMP	0	0	0	1	[c]	0	0	0	1
Compliance Schedule	0	0	0	1	[c]	0	0	0	1
Mixing Zone	0	0	0	0	[c]	1	0	0	1
PCB discharge limits contained in permits	0	2	7	1	39	1	0	0	50
2,3,7,8-TCDD;Dioxin									
Variance	0	0	0	0	0	0	0	0	0
PMP	0	0	0	1	[c]	0	0	0	1
Compliance Schedule	0	0	0	1	[c]	0	0	0	1
Mixing Zone	0	0	0	0	[c]	0	0	0	0
Dioxin discharge limits contained in permits	0	0	2	1	0	0	0	0	3
Total Flexibilities Used[g]	0	16	272	10	[c]	109	0	33	440

[3]Mixing zones are available for facilities that were discharging the pollutant or facilities that were under construction on the date that the GLI took effect in that state.

	IL	IN	MI	MN	NY	OH	PA	WI	Total as of Nov. 2007
BCC discharge limits for mercury, PCBs, and dioxin contained in permits	0	18	145	6	88	84	0	4	**345**

Source: GAO analysis of state permit data.

[a]These PMPs are used as a condition of a variance in a permit.

[b]These PMPs are associated with compliance schedules.

[c]Currently, no variances have been granted by the New York State Department of Environmental Conservation (NYSDEC). However, the department was unable to determine the number of permitted facilities that had other flexibilities, and the number of flexibilities used. According to NYSDEC, 51 facilities could use these permit flexibilities.

[d]These 25 PMPs are used as both a condition of a variance (15) and associated with compliance schedules (10).

[e]Two of these PMPs are used as a condition of a variance in a permit. In general, Wisconsin officials are using PMPs in lieu of discharge limits to address mercury.

[f]Wisconsin officials were unable to provide data on the number mixing zones used for mercury.

According to EPA and state officials, in many cases, facilities cannot meet GLI water quality criteria for a number of reasons, such as technology limitations, and the flexibilities are intended to give the facility time to make progress toward meeting the GLI criteria. With the exception of compliance schedules, the GLI allows for the repeated use of these permit flexibilities.[4] As a result, EPA and state officials could not tell us when the GLI criteria will be met.

EPA Has Taken Some Actions to Ensure Consistent Implementation of the GLI as Recommended in Our 2005 Report

In our 2005 report, we described several factors that were undermining EPA's ability to ensure progress toward achieving consistent implementation of GLI water quality standards. To help ensure full and consistent implementation of the GLI and to improve measures for monitoring progress toward achieving GLI's goals, we made a number of recommendations to the EPA Administrator. EPA has taken some actions to implement the recommendations contained in our 2005 report, as the following indicates:

- *Ensure the GLI Clearinghouse is fully developed.* We noted that EPA's delayed development of the GLI Clearinghouse—a database intended

[4]The GLI does not provide a sunset date for permit flexibilities other than mixing zones, which are set to expire in 2010 with limited exceptions. Individual compliance schedules cannot be used for more than the 5-year period they establish; however, after the schedules expire, facilities may use other permit flexibilities such as variances.

to assist the states in developing consistent water quality criteria for toxic pollutants—was preventing the states from using this resource. To assist Great Lakes states in developing water quality criteria for GLI pollutants, we recommended that EPA ensure that the GLI Clearinghouse was fully developed, maintained, and made available to Great Lakes states. EPA launched the GLI Clearinghouse on its Web site in May 2006 and in February 2007, EPA Region 5 provided clearinghouse training to states. The clearinghouse currently contains criteria or toxicity information for 395 chemicals. EPA officials told us that the clearinghouse is now available to the states so they can independently calculate water quality criteria for GLI pollutants. EPA officials told us that some states, including Ohio, Wisconsin, and Illinois, plan on updating their water quality standards in the near future and believe that the clearinghouse will benefit them as well as other states as they update their standards.

- *Gather and track information to assess the progress of GLI implementation.* In 2005, we reported that EPA's efforts to assess progress in implementing the GLI and its impact on reducing point source discharges have been hampered by lack of information on these discharges. To improve EPA's ability to measure progress, we recommended that EPA gather and track information on dischargers' efforts to reduce pollutant loadings in the basin. EPA has begun to review the efforts and progress made by one category of facilities—municipal wastewater treatment facilities—to reduce their mercury discharges into the basin. However, until EPA develops additional sources of information, it will not have the information needed to adequately assess progress toward meeting GLI goals.

- *Increase efforts to resolve disagreements with Wisconsin.* Although we found that the states had largely completed adoption of GLI standards, EPA had not resolved long-standing issues with Wisconsin regarding adoption and implementation of GLI provisions. To ensure the equitable and timely implementation of GLI by all the Great Lakes states, we recommended that that the EPA Administrator direct EPA Region 5, which is responsible for Wisconsin, to increase efforts to resolve disagreements with the state over inconsistencies between the state's and the GLI's provisions. Wisconsin officials believe the GLI provisions are not explicitly supported by Wisconsin law. Subsequently, EPA and Wisconsin officials have held discussions on this matter, and neither Wisconsin nor EPA officials believe that these disagreements are significantly affecting GLI implementation. However, they have been unable to completely resolve these issues. We found that similar issues have also surfaced with New York.

- *Issue a permitting strategy for mercury.* Because we found that Great Lakes' states had developed inconsistent approaches for meeting the GLI mercury criterion, including differences in the use of variances, we recommended that EPA issue a permitting strategy to ensure a more consistent approach. EPA disagreed with this recommendation, asserting that a permitting strategy would not improve consistency. Instead, the agency continued to support state implementation efforts by developing guidance for PMPs, evaluating and determining compliance, and assessing what approaches are most effective in reducing mercury discharges by point sources. One such effort is EPA Region 5's review of mercury PMP language in state-issued permits for wastewater treatment facilities. This review resulted in recommendations to the states in May 2007 to improve the enforceability and effectiveness of PMP provisions. However, additional efforts will be needed to ensure consistency at other types of facilities, such as industrial sites, across the Great Lakes states.

In closing, Madam Chairwoman and Members of the Subcommittee, although progress has been made with mercury detection and increased knowledge of wastewater treatment facilities' pollutant discharges to the Great Lakes, information is still lacking on the full extent of the problem that BCCs pose in the Great Lakes. As methods are developed to determine whether facilities' discharges for other BCCs meet GLI criteria and EPA approves them, and as more permits include discharge limits, more information will be available on pollutant discharges in the basin. Even with these advances, however, extensive use of permit flexibilities could continue to undercut reductions in pollution levels and the ultimate achievement of GLI's goals.

This concludes my prepared statement. I would be happy to respond to any questions that you or Members of the Subcommittee may have at this time.

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STATEMENT OF CHRISTINA MUEDEKING
CENTRAL REGIONAL ASSISTANT CHIEF
NATURAL RESOURCES CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
BEFORE THE
HOUSE TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
January 23, 2008

Ms. Chairwoman, thank you for the opportunity to appear today to discuss conservation activities in the Great Lakes Basin. The U.S. Department of Agriculture (USDA) mainly contributes to Great Lakes water quality improvement by helping private landowners meet their conservation goals, using a site-specific, locally-led process. USDA, however, is also a partner in a number of broader efforts unique to the Great Lakes Basin.

Great Lakes Interagency Task Force

Since we last testified about the Great Lakes before this Subcommittee in 2004, USDA was named a member of the Great Lakes Interagency Task Force. This Task Force was formed in 2004 by Executive Order and is led by the Environmental Protection Agency (EPA). The Regional Working Group's Work Plan includes action items for Federal agencies to help protect and restore the Great Lakes. Two USDA agencies, the Natural Resources Conservation Service (NRCS) and the U.S. Forest Service, are currently assisting with its implementation. We also work closely with the Great Lakes Regional Collaboration.

Great Lakes Provision of the 2002 Farm Bill

The Great Lakes Basin Program for Soil Erosion and Sediment Control was initiated in 1991 and codified with specific legislative language in the 2002 Farm Bill. The Great Lakes Program is coordinated by the Great Lakes Commission, in partnership with USDA, EPA, and the Army Corps of Engineers. Under the Program, Federal and State partners provide funding to the Commission for protecting and improving Great Lakes water quality by controlling soil erosion and sedimentation.

USDA and the Great Lakes Basin Program

As one of the principal Great Lakes Basin Program partners, NRCS has responsibility for providing on-farm technical assistance to farmers for the application of erosion control practices to reduce erosion and delivery of associated nutrients and pesticides within the Basin. In addition to its work through Farm Bill conservation programs, NRCS has supported the Great Lakes Basin Program through its Conservation Technical Assistance Program (CTAP). Under CTAP, NRCS provides technical assistance supported by science-based technology and tools to help people conserve, maintain, and improve their

natural resources. A recent history of CTAP support for the Basin Program is in the table below:

FY 2002	$1,250,000
FY 2003	$2,500,000
FY 2004	$3,000,000
FY 2005	$2,500,000
FY 2006	$2,500,000

In addition to supporting land conservation treatment methods, the Great Lakes Basin Program provides regional information and education to developers, contractors, homeowners and to the public.

Farm Bill Programs

Over 5 years ago, Congress passed the 2002 Farm Bill, which included an unprecedented commitment to natural resource conservation on private lands. The bill provided an increase of more than $17 billion in conservation programs funding. The legislation addressed a broad range of emerging conservation challenges faced by farmers and ranchers, including soil erosion, wetlands and grasslands conservation, wildlife habitat improvement, and farm and ranchland protection. The 2002 Farm Bill provides private landowners with the opportunity to participate in a variety of voluntary assistance programs, including cost-share, land rental and retirement, stewardship and technical assistance programs. The Farm Bill placed a strong emphasis on the conservation of working lands, ensuring that lands remain both healthy and productive.

NRCS has several programs that have a direct impact on Great Lakes water quality: the Environmental Quality Incentives Program (EQIP), Wetlands Reserve Program (WRP), Conservation Technical Assistance Program, Watershed and Flood Prevention Operations Program, and the Great Lakes Basin Program. Through these programs, in FY 2006 NRCS obligated an estimated $87 million in financial and technical assistance to landowners within the Great Lakes Basin to assist with agricultural non-point source pollution reduction and wetland restoration. Since FY 2006, NRCS programs have created, restored or improved over 20,000 wetland acres within the Great Lakes Basin.

NRCS Program Activities

Following are a number of examples of NRCS program activities in the Great Lakes Basin:

- *NRCS and Lake Erie Partners Implement 10-year Water Quality Improvement Project*
  Long-term water quality monitoring by USDA and its partners shows that the Maumee River is the largest single contributor of non-point source pollution in the Western Lake Erie Basin. The high sediment load in the Maumee is due to the size of the watershed and the high percentage of the watershed that is in intensively cultivated cropland.

The Maumee River has the largest drainage area of any of the Great Lakes tributaries, draining more than 4.2 million acres in Ohio, Indiana, and Michigan. It provides water to metropolitan Toledo, Ohio, and Fort Wayne, Indiana. A partnership of USDA's Natural Resources Conservation Service (NRCS) and Agricultural Research Service, and the U.S. Geological Survey and Heidelberg College has identified conservation tillage and buffers, nutrient and manure management planning, wetland restoration, and controlled drainage as conservation practices that can reduce the amount of nutrients that enter Lake Erie through the Maumee River.

NRCS is carrying out resource assessments along the Blanchard River, one of the Maumee River's major contributing streams, which will aid the development of watershed management plans that will include the conservation practices listed above. These assessments will be completed in fiscal year 2008 and will guide the implementation of Farm Bill conservation programs along the river for 10 years.

- *NRCS Grant Funds Conservation Outreach to Great Lakes Basin Absentee Landowners*
  In February 2007, NRCS awarded a $541,000 Conservation Innovation Grant (a competitive grants component of EQIP) to the Missouri and Mississippi Divide Resource Conservation and Development Council (RC&D) for a project to encourage absentee landowners to use filter strips and other conservation practices on their agricultural land. The 3-year project seeks to reduce the amount of nutrient and sediment flowing in three pilot regions in the Great Lakes Basin. The project also aims to improve the ability of basin conservation organizations to market conservation practices to absentee landowners, with the long-term goal of establishing a national conservation center for absentee landowners.

- *Special Water Quality Project in Western Lake Erie Watersheds*
  In FY 2007, Ohio NRCS implemented an EQIP water quality project in select western Lake Erie watersheds. The project included an incentive for producers to develop a water-quality based conservation plan and a nutrient management plan that exceeded minimum conservation levels. Over $2 million in financial assistance was provided to producers under this special project.

- *Integrated Pest Management Along Lake Erie (PA)*
  Pennsylvania NRCS is partnering with Pennsylvania Cooperative Extension to implement an Integrated Pest Management (IPM) program through EQIP with grape producers operating within a mile of the Lake Erie shoreline. The program, designed to reduce pesticide runoff to Lake Erie, has attracted a significant amount of producer interest, with $850,000 requested so far for FY 2008.

New Farm Bill

In January 2007, USDA released its Farm Bill proposals, based on more than 50 public listening sessions we held around the country. The proposals strengthen USDA's

commitment to conservation by increasing conservation funding by $7.8 billion over 10 years. The proposals also include recommendations for streamlining programs, increasing outreach to beginning and socially disadvantaged farmers and ranchers, and supporting the development of market-based approaches to conservation. Perhaps of particular interest to stakeholders in the Great Lakes Basin, USDA proposed creation of a Regional Water Enhancement Program.

Regional Water Enhancement Program

In its proposals for the Farm Bill currently under development, USDA included a new program (within the existing EQIP) called the Regional Water Enhancement Program (RWEP). This program, which USDA recommends funding at $1.75 billion over 10 years, would improve water quality and water conservation on working lands on a regional scale.

The RWEP would address an important missing component in the Federal government's conservation assistance—watershed-based, coordinated water quality and water conservation projects. The cooperative approach to water quality improvements in the Great Lakes Basin is an example of the type of coordinated action that would be encouraged under RWEP.

Key elements of USDA's RWEP proposal include:

- A focus on one or two key water quantity/quality objectives per project area.
- Use of multiple conservation tools (including farmland management practices, easement purchases, and ecosystem restoration assistance) to enable partners and landowners the flexibility to achieve improved water quantity/quality goals.
- Performance incentives to encourage high producer participation rates in project areas and achieve cooperative conservation outcomes.
- Targeted funding to farmers and ranchers for work on agricultural landscapes, including crop, pasture, grazing, and orchard lands, and non-industrial private forestlands.
- Interim performance targets that must be achieved to ensure timely results and retain eligibility for renewed funding.

Assessing Our Gains

While we have excellent information about how our resources are distributed with respect to contract and project data, it is challenging for any natural resource agency to fully quantify the resource outcomes for those programs. The Conservation Effects Assessment Project (CEAP) was initiated in 2003 by NRCS to estimate the effects of conservation practices currently in place on the landscape. The objective of this effort is to provide decision-makers with a scientific accounting of environmental benefits achieved through conservation programs. This initiative involves not only NRCS, but also the Agricultural Research Service, the Cooperative State, Research, Education and Extension Service, other Federal and State agencies, and scientists at several land grant universities. Research and assessment efforts are currently underway.

As part of CEAP, a regional assessment for the Great Lakes Basin is being carried out to determine the extent to which current conservation practices are reducing pollutant loads from cropland in the Basin. The assessment will also include estimates of the remaining need for conservation practices and will provide estimates of further load reductions that are possible.

Specifically, the assessment will include estimates of reductions in sediment, nutrients, and pesticides both at the field level and in-stream to assess reductions in loads delivered to the Great Lakes. In addition to the regional assessment, a CEAP watershed study is underway for the Rock Creek watershed in Ohio, which drains into Lake Erie. Led by scientists from Heidelberg College, this case study is evaluating historical water quality monitoring data to evaluate the extent to which soil erosion control practices and nutrient management practices have reduced the delivery of agricultural pollutants into Lake Erie. Using models, the researchers will also simulate alternative conservation management approaches to determine what additional gains can be made using conservation programs. The Great Lakes regional assessment and the Rock Creek special study are scheduled for completion in 2009.

Ms. Chairwoman, we know that USDA is making important contributions to water quality improvements in the Great Lakes, through the actions of private landowners on the ground. We look forward to continuing our close cooperation with stakeholders at all levels as we coordinate our conservation activities and measure the results. I thank Members of the Subcommittee again for the opportunity to appear here today, and would be pleased to respond to any questions that Members of the Subcommittee might have.

TESTIMONY OF CHARLES WOOLEY, ACTING REGIONAL DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, BEFORE THE HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

January 23, 2008

Mr. Chairman and Members of the Subcommittee, I am Charles Wooley, Acting Regional Director of the U.S. Fish and Wildlife Service's (Service) Midwest Region. I am pleased to have the opportunity to provide you with an update on progress toward improving water quality in the Great Lakes and its relationship to one of the Administration's environmental priorities, restoring and protecting the Great Lakes. Specifically, I would like to discuss the Service's ongoing commitment to restore, protect and enhance the water quality of the Great Lakes, including progress regarding the Great Lakes Interagency Task Force.

The Great Lakes are the largest single source of fresh surface water in the Western Hemisphere. The Great Lakes ecosystem drainage covers over 288,000 square miles, with approximately 9,000 miles of shoreline, 5,000 tributaries and 30,000 islands. The Service's survey data indicate that fishing, hunting and wildlife watching generate nearly $18 billion in annual revenue in the Great Lakes region, including $1.5 billion from sport fishing alone. In collaboration with federal, state and provincial agencies, conservation organizations, and private landowners, the Service addresses natural resource issues that affect the fish, wildlife and habitats of the Great Lakes Basin, as well as the 35 million people who live there.

In pursuing our mission of conserving, protecting, and enhancing fish and wildlife and their habitats, the Service recognizes the critical connection between clean water and healthy fish and wildlife resources. We apply our authorities and numerous species- and habitat-based programs to a range of issues that affect water quality and, in turn, our trust fish and wildlife resources, throughout the Great Lakes. In addition, the Service recognizes its tribal trust responsibility and the important role of the tribal nations in protecting the Great Lakes. The Great Lakes region is the ancestral homeland of 33 federally recognized Indian tribal nations whose reservations are located in the basin or who retain treaty-guaranteed rights to hunt, fish or gather in the basin. Tribal communities rely on Great Lakes natural resources to meet their subsistence, economic, cultural, medicinal, and spiritual needs.

In May 2004, the President signed Executive Order 13340 affirming the federal government's commitment to address environmental and resource management issues in the Great Lakes Basin. The Service is a strong supporter and participant in the Great Lakes Interagency Task Force created by the Executive Order, including our involvement on the Aquatic Invasive Species and Species and Habitat priority issue teams. We continue to engage in a number of efforts initiated by the Executive Order through the Interagency Task Force, and work closely with the Great Lakes Regional Collaboration.

The programs and projects discussed below highlight partnership efforts among members of the Great Lakes Interagency Task Force and others concerned with Great Lakes wetlands conservation, invasive species, contaminants, and other important basin-wide issues.

Habitat and Fish and Wildlife

The Great Lakes region has lost more than half its original wetlands and 60 percent of its forest lands, and the region has only small remnants of other native habitat types such as savannah and prairie. These changes are of concern because of their impact on native fish and wildlife communities, which play a critical role in maintaining ecosystem health and function and contribute to the social and economic vitality of both the region and the nation.

In 2004, the President announced an initiative to restore, enhance, and protect three million acres of wetlands nationwide over five years. Specific to the Great Lakes region, federal, state and private partners have joined in an equally shared effort to protect, restore, and enhance 200,000 acres of wetlands in the Basin over the next several years.

In support of this effort, the Service coordinated a request for all Federal agencies in the Basin to quantify their contributions of wetland acres protected, restored, and enhanced based on the methods to collect such information nationally for the President's annual Council of Environmental Quality wetlands status report. Information collected from the Federal agencies show that a total of 64,000 acres of wetlands have been protected, restored, and enhanced in the Great Lakes since January 2006. Of this total, the Service contributed almost 39,000 acres – about 60 percent – of the total. This level of contribution to shared goals highlights the significance of the Service's authorities, programs, and field-presence to work with partners to identify and implement important projects that benefit both water quality and fish and wildlife.

In the Great Lakes, the Service oversees a number of programs that have a direct relationship to water quality and fish and wildlife health. Service staff in our 58 field stations within the Great Lakes Basin, as well as two regional offices and the Washington Office, coordinate with partners on a day-to-day basis to identify, plan, implement, and monitor projects, and leverage resources. Typically, these programs focus on habitats, such as wetlands, that provide positive benefits to water quality including filtering sediments and attenuating wave action, and essential fish and wildlife habitat. Other programs take action to identify and address sources of contamination impacting water quality and fish to restore affected resources. Through these programs, the Service provides technical and financial resources to create, protect, improve, and restore thousands of acres of wetlands in the Great Lakes Basin each year.

Within the Great Lakes Basin, foremost among the programs the Service oversees is the North American Wetlands Conservation Act (NAWCA), which encourages public-private partnerships to protect, enhance, restore, and manage wetlands and other habitats for migratory birds and other wildlife resources in North America. Since 1991, the Service has awarded 182 NAWCA grants totaling $76 million, to restore, protect and enhance 422,000 acres in the Great Lakes Basin. Partners have contributed additional funds of more than $227 million to these projects.

In addition to matching grants provided under NAWCA, the Service provides technical and financial assistance through the Partners for Fish and Wildlife Program (Partners). The Partners program works directly with agencies, outside organizations, and private landowners to deliver cooperative conservation in the Great Lakes Basin. Since 2002, the Service's Partners Program has helped restore more than 5,400 acres of wetland and upland habitats on private lands and improve more than 407 stream miles in the Basin. Partners' biologists also provide biological

expertise to the U.S. Department of Agriculture regarding agriculture conservation programs and facilitate Farm Bill activities by assisting private landowner enrollment. Water quality, a key factor in healthy fish populations, is vastly improved by Farm Bill conservation programs that reduce erosion and sedimentation. Farm Bill programs also restore aquatic habitats by removing barriers to fish passage and re-establishing streamside vegetation, which serves as a natural filter to reduce the amount of nutrients and sediments entering streams.

Similar to the Partner's program, the Service's Coastal Program features non-regulatory, innovative partnership-based efforts to identify and protect some of the most valuable fish and wildlife habitat and species in the Great Lakes Basin. In 2006, the Great Lakes Coastal Program funded 26 projects that protected, restored, or enhanced 5,600 acres of coastal fish and wildlife habitat and eight miles of stream habitat. The most extensive Coastal Program wetlands restoration in the Great Lakes is taking place in western Lake Erie, where the Service is working with state and local government to control invasive plants on nearly 6,000 acres of wetlands.

To complement these activities, the Service also awards National Coastal Wetlands Conservation Grants to States to acquire, restore, or enhance coastal wetlands for long-term conservation benefits to wildlife and habitat. This competitive program is funded under provisions of the 1990 Coastal Wetlands Planning, Protection and Restoration Act. In 2007, the Service awarded more than $2.7 million to Great Lakes states. Partners contributed $2.4 million in additional dollars to conserve more than 5,000 acres of coastal wetland habitat.

Another important Service program in the Great Lakes is the Service's Environmental Contaminants program. This program is the *primary* Federal technical assistance program providing expertise in fish and wildlife eco-toxicology. The program contributes to the maintenance and improvement of Great Lakes water quality by making this expertise available to help agencies, tribes and stakeholders understand and address water quality issues arising from pollutant inputs. This includes efforts to prevent pollution from spills, investigation of sufficient water quality standards necessary to support fish and wildlife resources, and any subsequent restoration of fish and wildlife habitats and resources injured by releases of hazardous substances (Natural Resource Damage Assessments or NRDA). For example, the Service is working with partners including the Environmental Protection Agency and the U.S. Geological Survey on several NRDA cases that have recently demonstrated significant cleanup and restoration progress, including the Fox River/Green Bay, Wisconsin; Grand Calumet River, Indiana; Kalamazoo River, Michigan; Saginaw River and Bay, Michigan; and Ashtabula River and Harbor, Ohio. Through settlements reached under our NRDA and Restoration Program, the Service restored and enhanced 955 acres of wetlands in 2005, and another 3,300 acres in 2006. In Wisconsin, the NRDA program is helping to acquire and restore valuable habitat to replace natural resources injured due to the release of PCBs into the Fox River and Green Bay.

Finally, through the Great Lakes Fish and Wildlife Restoration Act (Act), reauthorized by Congress in 2006, the Service continues to lead activities related to invasive species, fish and wildlife habitat restoration, and collection and management of related information and ecosystem health indicators. In 2006, the Service approved two projects that will restore a total of 350 acres of coastal wetlands in Sandusky County, Ohio, and St. Clair County, Michigan. These

projects will provide high-quality spawning, feeding and rearing habitat for a wide variety of fish and other aquatic species, as well as waterfowl and other wetland-dependent wildlife.

Invasive Species

Introduction and establishment of invasive species in the Great Lakes is occurring at an alarming rate. More than 160 non-native aquatic species are established in the Great Lakes, and during the last several decades, populations of non-native species have been discovered at an average rate of one every eight months. Invasive species can inflict ecological damage – 42 percent of the threatened and endangered species in the United States are affected by invasive species. Prevention of invasive species introductions and control of established populations of invasive species are critical to sustaining and enhancing ecosystem integrity and the social, economic and cultural uses the Great Lakes ecosystem supports.

As co-chair of the Aquatic Nuisance Species (ANS) Task Force, along with the National Oceanic and Atmospheric Administration, the Service provides technical and financial assistance to the ANS Great Lakes Regional Panel to help States develop ANS management plans and to support prevention, control and outreach activities in the region. Currently, the ANS Task Force is developing a National Management and Control Plan for the Asian Carp. One component of the plan includes our recent addition of both black and silver carp to the list of injurious wildlife under the Lacey Act (18 U.S.C. 42). Biologists are concerned that these species could spread and compete with native species for food and habitat, having both ecological and economic impacts and threatening the multimillion-dollar Great Lakes fishery, and those of other watersheds. Adding silver and black carp to the list of injurious wildlife prohibits the importation and interstate transport of the species. However, an injurious wildlife listing does not prohibit intrastate transport, use, or possession of the species within States.

In addition to the Asian carp, the Service works to combat the spread of other invasive species in the Great Lakes, including the round goby, zebra mussels, and sea lampreys. Working with our partners through outreach programs such as the Stop Aquatic Hitchhikers! Campaign and the 100th Meridian Initiative, the Service supports efforts to educate the public on ways to prevent the spread of these harmful organisms. In turn, these outreach programs support Service control efforts, such as a program begun in the 1950's to reduce the abundance of sea lampreys. This control effort has paved the way for recovery of self-sustaining populations of native lake trout in portions of the Upper Great Lakes. While total elimination of sea lamprey populations from the Great Lakes in unlikely, historic sea lamprey populations have been reduced by 90 percent and control will continue to become more important as lake trout restoration activities expand in the Upper Great Lakes.

The Service is also working with the Midwest Natural Resources Group, a partnership of 13 federal agencies, to develop an action plan to coordinate and develop inventories, mapping and treatment for terrestrial invasive species in the basin.

Information and Indicators

The Service believes a successful restoration strategy for the Great Lakes must also include an informed decision making process based on consistent methods to measure and monitor key

indicators of the ecosystem's function. Such measurements need to occur before and after the initiation of restoration efforts implemented on local and basin-wide scales. Once collected, information must be compiled and communicated consistently to inform the restoration process, decision makers and the public. These activities will provide resource managers, elected officials and other stakeholders with the timely, accurate and cost-effective information necessary for making objective, science-based decisions for the protection and restoration of the Great Lakes ecosystem, and to sustain healthy societies, economic activities and natural systems.

The Service's National Wetlands Inventory (NWI) has the primary responsibility for mapping and inventorying all wetlands and surface waters of the United States. The Emergency Wetlands Resources Act of 1986 (Act) and subsequent amendments to the Act define the responsibilities of the NWI, which include determining, mapping, and inventorying the status, extent, characteristics, and functions of wetland, riparian, deepwater and related aquatic habitats to promote the understanding and conservation of these resources.

Knowing where and what types of wetlands and deep water aquatic habitats are currently on the landscape is critical when targeting, planning, and implementing Great Lakes basin and coastal wetland restoration and protection projects. The NWI is a mapping and management tool widely used by many, from landowners to Congress, to understand the nature and extent of our wetlands and surface water systems. NWI is vital to a variety of applications; including transportation planning, flood management, water supply management, recreation, wildlife management, pollution prevention, and land management and development.

In the past, the mapping process utilized small scale, high altitude aerial photography, which was adequate to start mapping wetlands for the states. However, the advent of geospatial information systems (GIS), coupled with the increased regulatory program needs for higher resolution maps, has challenged NWI to meet the expanding demands of users.

Progress is being made in updating NWI maps in the Great Lakes. Since June 2006, Wisconsin is allowing the conversion of its existing Wisconsin Wetland Inventory maps to NWI for the state with a few counties being updated per year. Ducks Unlimited has teamed up with NWI to partially update maps for parts of Ohio, Michigan, Illinois, and Indiana. The current, national update rate for NWI is about one percent per year.

We have learned that wetlands clean and filter our waters, as well as sequester and store vast amounts of carbon. Restoring more wetlands means that more carbon is stored. Water quality is also a function of wetland quality and quantity - healthy, intact wetlands in the basin will mean better water quality for the Great Lakes.

The Service's NWI Program in the Great Lakes is working with Canadian agencies to use radar mapping approaches to not only map wetlands and surface water but to also track water level changes across all water and wetland features in the Basin. In addition, the Service is partnering with the U.S. Environmental Protection Agency to conduct a new National Wetland Condition Assessment starting in 2011 to provide a baseline assessment of the quality of our wetlands. There may be enough information with this new study to provide an assessment of the Great Lakes Basin, as well.

Conclusion

In closing, the Service is committed to working with our many partners to ensure healthy fish and wildlife resources in the Great Lakes and to enhance and restore the health of this ecosystem.

This concludes my testimony. I appreciate the opportunity to appear before the Subcommittee, and I am pleased to answer any questions.

National Association of Conservation Districts

January 28, 2008

The Honorable Eddie Bernice Johnson
Chairwoman
Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
United States House of Representatives
B-376 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairwoman Johnson,

The National Association of Conservation Districts (NACD) represents the nation's 3,000 conservation districts and 17,000 men and women who serve on their governing boards. Conservation districts are local units of government established under state law to carry out natural resource management programs at the local level.

On behalf of the nation's 3000 conservation districts, NACD requests that you accept these written comments for the record regarding the hearing held on January 23, 2008 titled "Progress Toward Improving Water Quality in the Great Lakes" in the Subcommitttee on Water Resources and Environment, Committee on Transportation and Infrastructure of the United States House of Representatives.

Should you have questions regarding this testimony, the work of NACD or conservation districts, please do not hesitate to contact Keira Franz, Director of Legislative Affairs in our Washington, D.C. office at 202-547-6223.

Sincerely,

Steve Robinson
Acting President

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conserving natural resources *for our future*

National Association of Conservation Districts

Testimony of the National Association of Conservation Districts
Submitted to the
House Committee on Transportation and Infrastructure
Subcommittee on Water Resources and Environment
January 23, 2008

The National Association of Conservation Districts (NACD) represents the nation's 3,000 conservation districts, their 16,000 board members and 7,000 employees. Established under state law, conservation districts are local units of state government charged with carrying out programs for the protection and management of natural resources at the local level. Conservation districts work with federal, state, and other local agencies to provide technical assistance landowners and other partners to address natural resource issues.

Whether addressing local resource needs related to water quality, soil erosion, and nutrient management, or providing educational materials and outreach to local communities on proper resource use, the work of conservation districts helps provide cleaner air and water for the communities they serve. Conservation districts in the eight-state Great Lakes Basin have employed multiple strategies utilizing a range of federal, state and local programs to engage landowners and community partners to address water quality issues in the surrounding watershed. This testimony will focus on these efforts by conservation districts, and outline the progress they are making to protect water and soil resources in the Great Lakes Basin.

In **Ohio**, Soil and Water Conservation Districts are engaged in multiple water quality projects affecting streams that drain into Lake Erie.

The Huron County Soil and Water Conservation District has utilized federal Environmental Protection Agency (EPA) 319 Grants since 1995 to assist landowners in the replacement of nearly 150 failing septic systems, installing filter strips and fencing along streams, and providing cost share for manure handling equipment on livestock operations.

The conservation district and its partners have also utilized farm bill funding, receiving over $10 million under the 2002 Farm Bill including more than $2 million for the Environmental Quality Incentives Program (EQIP). They have helped producers develop nutrient management plans to implement 50,000 acres of precision farming, construct 62 Water and Sediment Control Basins, 30 miles of sod waterways and 40 chemical containment facilities to reduce runoff and improve water quality in waterways. The district and its partners have also helped landowners that currently enroll about 7,000 acres in the Conservation Reserve Program (CRP) and 1,200 acres in the Conservation

Reserve Enhancement Program (CREP), both of which retire working agricultural lands for a period of time to reduce erosion into streams and improve soil quality.

The Erie County Soil and Water Conservation District, one of Ohio's nine coastal counties, has utilized a variety of federal and state programs to maintain and improve the quality of water draining into Lake Erie.

Between 2005 and 2007, the conservation district helped landowners enroll 10,895 acres under the EQIP program, and 13,860 acres under the Conservation Security Program (CSP). Both programs have helped established a variety of conservation practices that impacts water quality, including pest and nutrient management, secondary containment for agrichemicals, stream fencing, animal waste facilities, prescribed grazing, and Comprehensive Nutrient Management Plans (CNMPs).

In 2006, the Erie SWCD partnered with the Friends of Old Woman Creek, applying for and receiving a personnel grant to hire a watershed coordinator for the Firelands Coastal Tributaries Watershed Program. Primarily focused on Old Woman Creek and Pipe Creek in Erie County, the program has brought together 14 supporting partners, governmental, non-profits, educational institutions and private funders to highlight and promote watershed stewardship to local citizens.

Funding for this four year grant program is provided by the Ohio Department of Natural Resources (ODNR), Division of Soil and Water Conservation and the National Oceanic and Atmospheric Administration (NOAA) through the Ohio Office of Coastal Management. The grant provides $140,000 over the four year grant cycle with NOAA and ODNR each providing $70,000 to the program. The most notable effort coming out of the first year of the program is a volunteer monitoring program on the two creeks that is utilizing the expertise of local governmental labs to process and provide valuable data for the program. This data will be utilized in preparing the community-driven watershed action plan for Old Woman Creek in future phases of the project.

Conservation Districts in **Michigan** are also addressing water quality issues in some unique and creative ways. The Calhoun Conservation District is another example of how federal dollars assisted local conservation efforts. Building on successful efforts through Section 319 funds and a unique locally coordinated partnership effort, accelerated financial and technical assistance has been made available to implement EPA approved watershed management plans and Best Management Practices (BMPs). Those management strategies aim to address the following resources: water quality (surface and ground water), species at risk (plants and animals), wildlife habitat (grassland species), and wetlands.

The Rice Creek and Battle Creek River watersheds, both sub-basins to the Kalamazoo river system in southern Michigan, were prioritized by the Natural Resources Conservation Service (NRCS) through a Partnership and Cooperative Agreement signed by the NRCS State Conservationist, Michigan Department of Environmental Quality and

over 30 units of government, businesses and private sector organizations. The agreement was modeled after Section 2003 of the 2002 Farm Bill, which allows up to 5% of the State's allocation of Farm Bill funding to be used within this priority area. The broader intention of the partnership is to leverage partner funding, streamline the various agencies and conservation programs and avoid duplicated efforts. Since its conception, this partnership effort has received local, state and national recognition and has become a model for other 319 watershed projects. Although $500,000 in 319 funds were awarded to the District to implement the watershed plans, well over $3 million in additional funding has been allocated to projects in the watersheds.

Like many efforts, this example demonstrates how 319 dollars provide a great deal more to local conservation than their base allocation.

The Charlevoix Conservation District, in partnership with federal, state and local partners, received and utilized $216,000 in a Section 319 Grant to implement the Lake Charlevoix Watershed Project. Lake Charlevoix is located on Michigan's western shore and discharges into Lake Michigan. In implementing the project, the district had three primary goals: reduce and prevent nonpoint source pollution to the Lake Charlevoix watershed, conduct information and education programs, and increase community involvement.

An initial assessment of the watershed identified resource concerns, and projects were implemented to address those concerns with a broad audience. Projects included reducing pollution from stormwater runoff and from shoreline properties, addressing long-term strategies to improve road/stream crossings, providing educational materials to the agricultural community on nonpoint source pollution, promoting land stewardship, providing information to improve forest management, and providing youth education.

The Allegan Conservation District has utilized over $225,000 in a Section 319 Grant with a variety of state and local partners to leverage matching funds in developing a Water Management Plan for the Gun River Watershed, a tributary of the Kalamazoo River which feeds into Lake Michigan.

The conservation district completed a Water Management Plan to assess the resource needs and identify priorities of the Gun River Watershed. The resulting Gun River Watershed Implementation Project has resulted in the installation of BMPs through Farm Bill programs, primarily EQIP, to work with landowners throughout the watershed. BMPs installed include 1000 acres of cover crops, 3000 acres of no-till crops, and 1000 linear feet of stream bank stabilization and buffer strips, all of which result in reductions of sediment and nutrients from the watershed.

The South St. Louis Soil and Water Conservation District in **Minnesota** has worked in partnership with the Minnesota Pollution Control Agency, the Minnesota Department of Natural Resources and the City of Duluth in utilizing EPA 319 Nonpoint Source and

NOAA Coastal Zone Management funding to identify restoration strategies and goals and provide community outreach in their watershed.

As a result of their combined efforts, the partnership has been able to complete restoration efforts and reduce urban runoff in the Miller Creek Watershed, an urban trout stream that runs through the City of Duluth. Numerous projects were implemented to improve water quality including the establishment of riparian buffer, the installation of streambank stabilization and stream habitat structures, a demonstration stormwater practice at Lake Superior College to provide public education on urban stormwater management, and outreach to local businesses and landowners regarding nonpoint BMPs.

The Miller Creek Watershed partnership demonstrates how a coordinated federal, state, and local effort to address natural resource concerns at the local level can improve water quality.

In **Wisconsin,** the Douglas County Land and Water Conservation Department addresses many factors affecting current erosion in the South Shore Lake Superior watershed, such as: a geologically young landscape, land uses of the late 1800's to early 1900's which still impact modern erosion processes, site specific soil characteristics, and current land cover types.

A study was conducted through the Ashland, Bayfield, Douglas, & Iron Counties Land Conservation Department that resulted in a recommendation for a large-scale watershed management approach to reduce erosion along south shore streams and improve watershed health by slowing the flow of runoff from the uplands to waterways. The study identified particular sub-watersheds where spring snowmelt, combined with poor cover type, produces large amounts of water flowing off of the landscape and through stream channels, destabilizing and eroding stream banks. The study found this erosion process can be mitigated by restoring conifers to critical sub-watersheds, particularly the steep slopes, so that spring snowmelt does not occur at once but rather more slowly over a longer time period. This finding led to a workshop where hydrologists and foresters met to share this data and discuss the benefits of a regional effort to restore conifers and limit regeneration of large areas of same-aged aspen cover types. Also, because of this partnership and study, conservation efforts in both funding and staff time are being targeted to those areas of greatest concern.

The Hog Island/Newton Creek site located in the Superior Harbor, within the City of Superior, was one of the first contaminated sites to be remediated by Great Lakes Legacy Act funding. Douglas County has been diligently working with EPA to produce a restoration plan to accompany the remediation effort that includes activities ranging from shallow wetland restoration to educational interpretive trails and signs. This effort has involved many partners, including the City of Superior which manages recreational facilities located on county land nearby. This restoration by Douglas County and EPA will serve as a model for other sites in the Great Lakes to follow.

Douglas County has been one of many partners working towards the citing of a new NERR Freshwater Center in the St. Louis River Estuary, located in the City of Superior, Douglas County. This center would serve many purposes including: research of the unique "Headwaters of the Great Lakes" St. Louis River Estuary and providing local educational and public outreach resources. The presence of this caliber of facility in Superior and Douglas County will help support other local high-level research and development activities and elevate the public importance of natural resources, such as the St. Louis River estuary, and all of the benefits people derive from these resources.

Conservation Districts in **New York**, like other Conservation Districts in the Great Lakes Basin, undertake projects through the Great Lake Basin Program for Soil Erosion and Sedimentation Control, managed by the Great Lakes Commission. The Yates County Soil and Water Conservation District received a grant from the Commission to address stormwater run-off from construction and development activities in the Seneca and Keuka Lake Watersheds. The National Pollutant Discharge Elimination System Phase II permit program includes communities with populations under 100,000 and through this grant a program was developed to outline the state's Phase II regulatory framework. This included design and construction practices for stormwater management and aided in the understanding of the regulatory framework. Work included education, outreach and technical assistance for stakeholders in the area, including municipal governments and other conservation districts. Training was provided for Conservation District staff so they could provide assistance in their local areas. This project partnered with others in the communities to increase the understanding of the requirements, and practices to be utilized in the local area. *(Information provided by the Great Lakes Commission)*

New York also has an active state based program, the Agricultural Environment Management program or AEM. Conservation Districts work with local farmers in their community to become involved in the AEM program. Farmers are provided technical and financial assistance to adopt conservation practices as appropriate to their farming operation whether it is water quality or appropriate habitat. This program has been very successful in New York and includes over 10,000 farms in the state.

The Genesee County Soil and Water Conservation District undertakes efforts to work with individual farmers on the conservation needs of their operations. One example if their work with a dairy operation to install conservation practices with assistance from EQIP funding, Finger Lakes Lake Ontario Watershed Protection alliance funds and the New York State Partners for Fish and Wildlife Service. The practices included, the installation of over 2,000 feet of electric fence to exclude livestock from four acres of stream bank, stabilization of erosion that was leading into a nearby creek, a nutrient management plan for the operation, including manure, silage and soil samples to address the needs of the land.

Each of these efforts by conservation districts reduces pollution in streams and consequently improves water quality in the Great Lakes. These are a few examples of the work being done by conservation districts, with many more undertaking the same or very

similar efforts to improve and protect our natural resources. From comprehensive planning, to directly implementing conservation projects, to conducting outreach and education with landowners on proper resource management, conservation districts continue to work at the local level through a variety of approaches to protect soil and water resources. By working with a variety of partners and stakeholders, conservation districts are able to increase conservation benefits realized from the investment of federal funds by leveraging state and local dollars to maximize improvements to water quality. Through these efforts, conservation districts are continuing their 70 year legacy of protecting natural resources in the Great Lakes.

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