Great Lakes Restoration Initiative

FY2010 Report to Congress and the President

Great Lakes RESTORATION

Prepared By:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN PARTNERSHIP WITH THE GREAT LAKES INTERAGENCY TASK FORCE

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TABLE OF CONTENTS

Message from the Acting Great Lakes Interagency Task Force Chair

Sections:

I. Executive Summary
II. Background
III. Program Accomplishments and Planned Activities
    a. Strategic Coordination
    b. Focus Area 1: Toxic Substances and Areas of Concern
    c. Focus Area 2: Invasive Species
    d. Focus Area 3: Nearshore Health and Nonpoint Source Pollution
    e. Focus Area 4: Habitat and Wildlife Protection and Restoration
    f. Focus Area 5: Accountability, Education, Monitoring, Evaluation, Communication and Partnerships
    g. Planned Activities
IV. Financial Reporting
V. Accountability

Appendices:

A. GLRI Action Plan Measures of Progress
B. Organizations Receiving GLRI Funding

MESSAGE FROM THE ACTING GREAT LAKES INTERAGENCY TASK FORCE CHAIR

U.S. ENVIRONMENTAL PROTECTION AGENCY ACTING ADMINISTRATOR BOB PERCIASEPE

The Great Lakes are an environmental and economic treasure for our nation. The region is home to more than 30 million Americans and its waters support 1.5 million jobs and $62 billion in wages each year. As the source of 95 percent of our nation's fresh surface water, the health of the Great Lakes is essential to the health of the American people.

For these reasons and others, protecting and preserving the Great Lakes is a critical responsibility. The Great Lakes Restoration Initiative (GLRI) is an unparalleled partnership with states, municipalities, tribes, businesses, public interest stakeholders, and legislative leaders to resuscitate the waters that affect the way of life for millions.

Working with this wide range of stakeholders, the GLRI is addressing long-standing and emerging challenges, and setting a new standard of care for the Great Lakes. The GLRI Action Plan strategically targets the most pressing challenges outlined by regional residents and businesses: protecting waters from urban, suburban, and agricultural runoff, restoring the area's 530,000 acres of wetlands, reducing toxic pollution, combating invasive species, and implementing strict accountability measures.

As this report details, with the improved coordination and increased effectiveness of 11 federal departments and agencies, the GLRI is beginning to show results. I look forward to our continued work on this important economic, environmental and health initiative.

Bob Perciasepe

Acting Chair, Great Lakes Interagency Task Force

Acting Administrator, U.S. Environmental Protection Agency

SECTION I – EXECUTIVE SUMMARY

The Great Lakes Restoration Initiative (GLRI) is the product of a long history of bipartisan and multi-jurisdictional dedication to the Great Lakes. Following many years of stakeholder and federal collaboration, in 2009, as part of the FY 2010 President's Budget, the Administration proposed the historic GLRI, including significant additional federal funding to address the longstanding environmental challenges in the region. In February 2010, at a Council of Great Lakes Governors meeting, the Obama Administration released an Action Plan to guide this initiative. The GLRI Action Plan, which covers FY 2010-2014, identifies five priority restoration "Focus Areas":

- Focus Area 1: Toxic Substances and Areas of Concern
- Focus Area 2: Invasive Species
- Focus Area 3: Nearshore Health and Nonpoint Source Pollution
- Focus Area 4: Habitat and Wildlife Protection and Restoration
- Focus Area 5: Accountability, Education, Monitoring, Evaluation, Communication and Partnerships

Through the GLRI, the federal government is investing in the region's environmental and public health. The GLRI is off to a successful start, as the result of a coordinated interagency process involving 11 departments and agencies. In its first Fiscal Year (covered by this report) this interagency partnership set priorities and goals, distributed funds, established accountability mechanisms, and initiated projects.

Projects under the first year of the GLRI have only recently begun -- with the ecological impact from these investments still unfolding – but the partnership of governmental agencies and stakeholders is beginning to show early results. For example:

- The U.S. Fish & Wildlife Service (USFWS) used GLRI funding to implement more than 120 on-the-ground projects, such as the Shiawassee River wetlands project in Michigan that resulted in converting 141 acres of agricultural land to wetlands. This effort was completed with the help of vigorous collaboration between USFWS and partners such as Ducks Unlimited and the Saginaw Bay Watershed Initiative Network.

- The U.S. Environmental Protection Agency (EPA) provided an emergency transfer of $13.5 million to the U.S. Army Corps of Engineers (USACE) to fund barriers to keep Asian carp—an invasive species that could significantly damage the Great Lakes—from reaching the Chicago Area Waterway System via the adjacent Des Plaines River. USACE completed the work under-budget in fall 2010, with the remaining funds directed to other high priority projects.

- USFWS transferred $640,000 to the Indiana Department of Natural Resources (Indiana DNR) to build a temporary barrier to keep Asian carp from migrating up the Wabash River to Ohio's Maumee River watershed when the two rivers connect during heavy rainstorms. The Indiana DNR completed its work in a matter of months.

Each of these successes advances the goals of the Action Plan: to ensure that fish are safe to eat; water is safe to drink; beaches and waters are safe for swimming, boating and recreating; native species and habitats are protected and thriving; no community suffers disproportionately from the impacts of pollution; and the Great Lakes are a healthy place for people and wildlife to live. They also advance specific annual "Measures of Progress."

The GLRI's successes go beyond the ecological and public health benefits accomplished. U.S. taxpayers see extraordinary value for their investments as the GLRI's federal partners coordinate to ensure that all programs and projects are harmonized to ensure maximum impact.

The public is also able to track progress for hundreds of projects by using the Great Lakes Accountability System (GLAS) online at http://glri.us under the "Projects" tab.

As this report details, efforts to prevent invasive species from entering the lakes, rebuild habitat, clean up toxics and toxic hotspots, reduce polluted runoff, and track progress are underway during the GLRI's first full year, reflecting a strong emphasis on accountability, urgency, and action.

About This Report

This report presents an overview of progress under the GLRI. It covers FY2010 funding, FY2010 performance on GLRI Action Plan measures of progress, and examples of program accomplishments. Many projects that received funding in FY2010 have implementation schedules that extend into FY2011 and beyond. Consequently, this report includes data collected through March 2011. Data on direct spending are taken from EPA financial systems. Updated information on the projects described here and additional GLRI activities is available at http://glri.us.

EPA, with its Administrator serving as chair of the Great Lakes Interagency Task Force, is required by the 2010 Appropriations Conference Report, 111-316, to submit this report to Congress:

> Beginning in 2011 and each year thereafter, the Agency is directed to provide detailed yearly program accomplishments and compare specific funding levels allocated for participating Federal agencies from fiscal year to fiscal year.

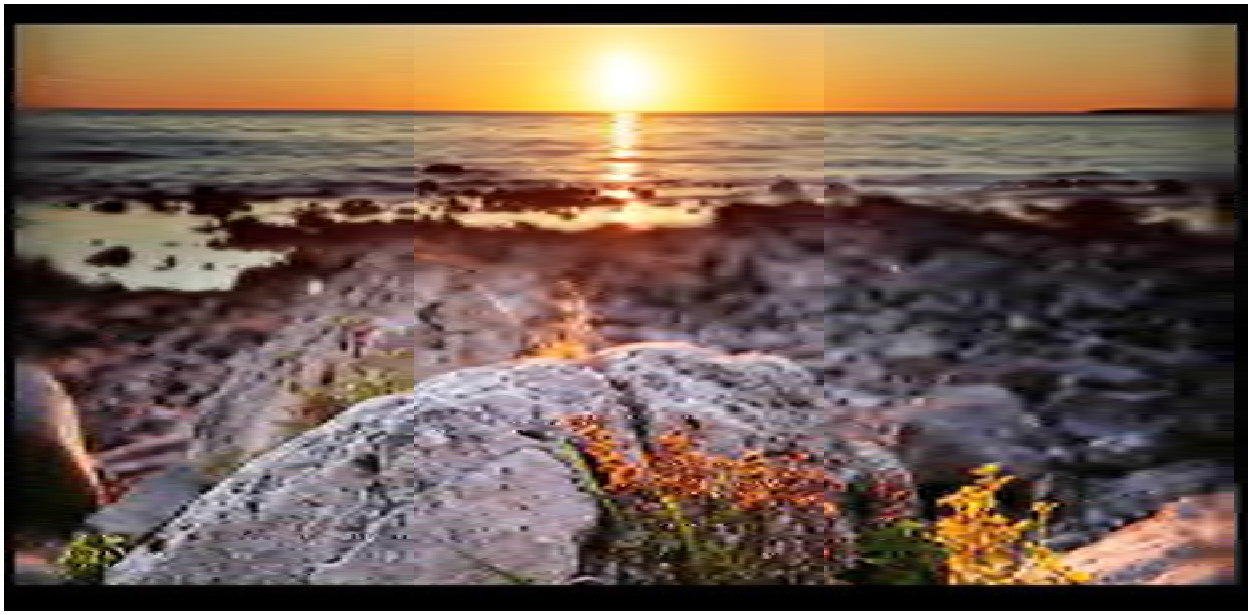
This report also satisfies the reporting requirements of the GLRI Action Plan:

> Annual reports to the President, beginning in 2011, will describe accomplishments to date, action planned for the coming year, and progress toward meeting ecosystem goals and targets.

To avoid duplicative and unnecessary reporting, this Congressionally-required report is intended to replace the Report to Congress on the Great Lakes Ecosystem called for by Section 118 of the Clean Water Act.

SECTION II – BACKGROUND

The Great Lakes watershed includes parts of two nations, eight U.S. states, two Canadian provinces, more than 40 tribes, and more than one-tenth of the U.S. population. Leaders from the watershed have recognized that more than a century of environmental degradation had taken a significant toll on the waters that serve as the lifeblood of the region.



Nelson Point State Park, Wisconsin

As a result, bipartisan and multi-jurisdictional entities converged to highlight the need for comprehensive Great Lakes economic and ecological recovery. In 2002 and 2003, the Great Lakes states developed comprehensive 'Priorities' for restoration, the Government Accountability Office found dozens of state and federal programs that would be more effective through coordination under a shared, overarching strategy, and a bipartisan group in Congress introduced legislation for such coordination and to provide significant restoration funding.

The federal government worked to take action. On May 18, 2004, Presidential Executive Order 13340 required increased federal agency coordination. In 2005, federal agencies helped facilitate more than 1,500 leaders and members of the public contributing to development of the Great Lakes Regional Collaboration *Strategy*. And in 2009, significant additional federal funding was proposed by the President and appropriated by Congress in Fiscal Year (FY) 2010 leading to the creation of the Great Lakes Restoration Initiative (GLRI). The Obama Administration, in conjunction with a February 2010 Council of Great Lakes Governors meeting, released a GLRI Action Plan to guide investments for FYs 2010-2014. These efforts and the dedication of hundreds of state, local, tribal, business, academic, and public interest leaders, among others, resulted in the GLRI.

The GLRI invests in the region's environmental, economic, and public health through a coordinated interagency process. As outlined in the Action Plan,[1] this unprecedented program focuses on five major restoration priorities: (1) Toxic Substances and Areas of Concern; (2) Invasive Species; (3) Nearshore Health and Nonpoint Source Pollution; (4) Habitat and Wildlife Protection and Restoration; and (5) Accountability, Education, Monitoring, Evaluation, Communication, and Partnerships.

To coordinate work under the Action Plan, the EPA Administrator chairs the Great Lakes Interagency Task Force (IATF). IATF member departments and agencies are:

U.S. Environmental Protection Agency (EPA)
White House Council on Environmental Quality (CEQ)
U.S. Department of Agriculture (USDA)
U.S. Department of the Army (DOA)
U.S. Department of Commerce (DOC)
U.S. Department of Health and Human Services (HHS)
U.S. Department of Homeland Security (DHS)
U.S. Department of Housing and Urban Development (HUD)
U.S. Department of the Interior (DOI)
U.S. Department of State (DOS)
U.S. Department of Transportation (DOT)[2]

The IATF, through its Regional Working Group (RWG), selects the best combination of programs and projects using principles and criteria such as:

- Ability to achieve strategic and measurable environmental outcomes;
- Feasibility for prompt implementation, for achieving tangible results quickly , and the ability to leverage resources; and
- Using opportunities for interagency/inter-organizational coordination and collaboration.

The GLRI's FY 2010 $475 million budget was applied strategically, implementing projects with states, tribes, municipalities, universities, and other organizations. Agencies are expected to maintain their base level[3] of Great Lakes ecosystem restoration activities, and identify new activities and projects to support the environmental outcomes described in the Action Plan.

[1] http://greatlakesrestoration.us/pdfs/glri_actionplan.pdf
[2] The GLRI is comprised of 11 federal departments or agencies, many of which may contain multiple agencies. For example, the U.S. Department of the Interior includes the Fish & Wildlife Service, Geological Survey, Bureau of Indian Affairs, and National Park Service, each of which participates in the GLRI.
[3] As a starting point for identifying their base level of Great Lakes ecosystem restoration activities, agencies were asked to use the March 2008 OMB Great Lakes Restoration Crosscut Report to Congress.

Moreover, the GLRI leverages other funding from cities, tribes, states, and private sources that, taken together, will help promote a healthy, functioning Great Lakes ecosystem for future generations to use and enjoy.

In conjunction with a February 2010 Council of Great Lakes Governors meeting, EPA Administrator Jackson released the GLRI Action Plan. The Action Plan guides GLRI funding priorities for all participating agencies, targeting efforts in the five major restoration priorities. The Action Plan also establishes ambitious environmental goals and objectives and 28 measures of progress.

The Action Plan's release allowed the IATF to target projects and apply funds to the most critical and result-oriented projects. By spring 2010, EPA finalized interagency agreements (IAs) and grants with the federal and binational agencies participating in the GLRI. These IAs, totaling more than $255 million of FY 2010's $475 million budget, direct the agencies to supplement and enhance their Great Lakes restoration activities, including supporting the critical work done by the many partner organizations receiving funds through grants and cooperative agreements. Working collaboratively, the partnership of federal agencies succeeded in efficiently distributing the first year of GLRI funding, thereby providing resources for results-oriented projects and achieving considerable progress.

SECTION III – PROGRAM ACCOMPLISHMENTS AND PLANNED ACTIVITIES

In its first Fiscal Year (covered by this report) the interagency partnership set priorities and goals, distributed funds, established accountability mechanisms, and initiated projects. Almost 600 unique projects aligned with the Action Plan have been awarded funds. Appendix B includes a full listing of partner organizations and stakeholders that have received funding to protect and restore the Great Lakes under the GLRI.

This map from http://glri.us depicts locations of GLRI projects throughout the basin.

As described in Section II, the GLRI prioritizes on strategic and measureable environmental outcomes. The Action Plan establishes ambitious environmental goals, objectives, and 28 measures of progress with benchmarks for success. Appendix A includes additional information pertaining to each of the GLRI Action Plan measures.

The GLRI Action Plan, based on the Great Lakes Regional Collaboration *Strategy*, identifies the most significant ecosystem problems and efforts to address them in the five major focus areas of the GLRI:

- **Focus Area 1: Toxic Substances and Areas of Concern** – includes pollution prevention and cleanup of the most polluted areas in the Great Lakes.
- **Focus Area 2: Invasive Species** – includes efforts to institute a "zero tolerance policy" toward new invasions, including preventing the establishment of self-sustaining populations of invasive species such as Asian carp.
- **Focus Area 3: Nearshore Health and Nonpoint Source Pollution** – includes a targeted geographic focus on high-priority watersheds and polluted runoff reductions from urban, suburban, and agricultural sources.
- **Focus Area 4: Habitat and Wildlife Protection and Restoration** – includes bringing wetlands and other habitat back to life, and the first-ever comprehensive assessment of the entire 530,000 acres of Great Lakes coastal wetlands to target restoration and protection efforts strategically and using the best science.

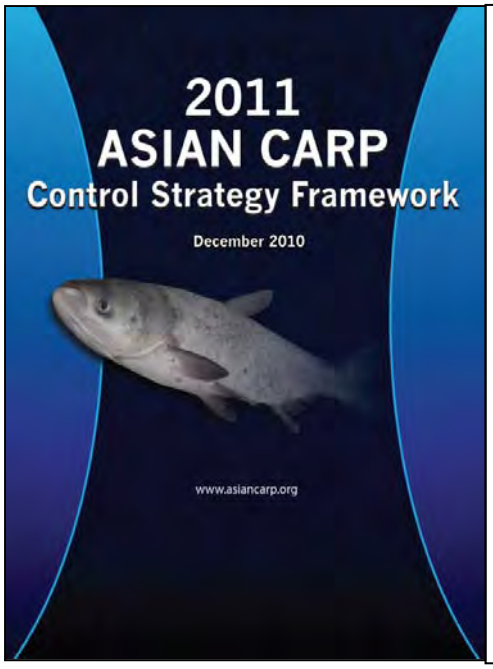
- **Focus Area 5: Accountability, Education, Monitoring, Evaluation, Communication and Partnerships** – includes the implementation of goal- and results-based accountability measures, learning initiatives, outreach, and strategic partnerships.

The GLRI supplements the significant work already being accomplished by agencies, states, and other partners supporting Great Lakes restoration. Progress in each of these five focus areas is necessary to ensure that the GLRI is successful in achieving Great Lakes restoration. For example, cleaning up toxic pollution without restoring habitat will not fully restore the ecosystem, just as preventing invasive species without cleaning up the nearshore zone will not fully restore the ecosystem. These elements of the Action Plan work together to achieve the Action Plan's environmental restoration goals: to ensure that fish are safe to eat; water is safe to drink; beaches and waters are safe for swimming, surfing, boating and recreating; native species and habitats are protected and thriving; no community suffers disproportionately from the impacts of pollution; and the Great Lakes are a healthy place for people and wildlife to live.

Strategic Coordination

Close coordination among restoration partners has improved GLRI implementation, which ensures that U.S. taxpayers see increased value for their investments. By spring 2010, EPA finalized Interagency Agreements (IAs) and grants with the federal and binational agencies participating in the GLRI. These IAs, totaling more than $255 million of the FY 2010 $475 million budget, ensure coordination, provide accountability and direct the work of the agencies. These interagency efforts have resulted in the following coordination successes that go beyond activities under any single focus area, among others:

- Contaminated Sediment (Focus Area 1 – Toxic Substances and Areas of Concern) – Coordination between EPA (environmental dredging) and DOD's Army Corps of Engineers (USACE) (navigation dredging) on contaminated sediment dredging projects in toxic hotspot Areas of Concern (AOCs) has resulted in optimizing the use of taxpayer dollars.
- Asian Carp (Focus Area 2 – Invasive Species) – Federal, state, and municipal agencies developed an *Asian Carp Control Strategy Framework* to ensure integration of efforts. Specifically, these efforts resulted in harmonized Asian carp environmental DNA (eDNA) monitoring and surveillance by assigning a program manager to oversee the successful transfer and development of data across state, federal, and non-governmental entities. Complementary risk assessments to evaluate potential Asian carp impacts are also underway through the work of USFWS and U.S. Geological Survey (USGS), USACE, DOC's National Oceanic and Atmospheric Administration (NOAA), DHS's Coast Guard (USCG), Fisheries and Oceans Canada, and the Ontario Ministry of Natural Resources. These integrated efforts can inform future management actions and avoid costly duplication of effort.



Asian Carp Regional Coordinating Committee

The Obama Administration formed the Asian Carp Regional Coordinating Committee (ACRCC) in 2009 to ensure coordinated and comprehensive action to keep the fish from establishing self-sustaining populations in the Great Lakes. The ACRCC is led by the White House Council on Environmental Quality and includes the U.S. Army Corps of Engineers, U.S. Coast Guard, U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Environmental Protection Agency, the National Oceanic and Atmospheric Administration, U.S. Department of Transportation and all eight Great Lakes states, as well as the Great Lakes Fishery Commission, the Metropolitan Water Reclamation District of Greater Chicago, and the City of Chicago. The Administration is executing a comprehensive, multi-tiered *Asian Carp Control Strategy Framework* first released in May 2010. The effort received significant GLRI funding at its outset.

- Assessing Nearshore and Coastal Conditions (Focus Areas 1, 3 & 5 – Toxic Substances and Areas of Concern, Nearshore Health and Nonpoint Source Pollution, and Accountability, Education, Monitoring, Evaluation, Communication and Partnerships) – EPA's 2010 National Coastal Conditions Assessment (NCCA), a non-GLRI program supporting state monitoring field work at 50 base sites in each Great Lake, was enhanced by GLRI efforts. Utilizing already deployed NCCA monitoring resources, GLRI funded the collection of additional measurements, including phytoplankton species composition, at the 50 base sites in each Great Lake. GLRI also enhanced NCCA efforts by funding sampling at an additional 150 sites in the Great Lakes nearshore zone. These enhancements to NCCA improved the capacity of states to report comprehensively on their coastal water resources. Results will inform necessary steps for restoring aquatic habitats, identify which contaminants are found in fish, and inform future management actions to keep the water safe for swimming, surfing, and other recreation.

Focus Area 1: Toxic Substances and Areas of Concern

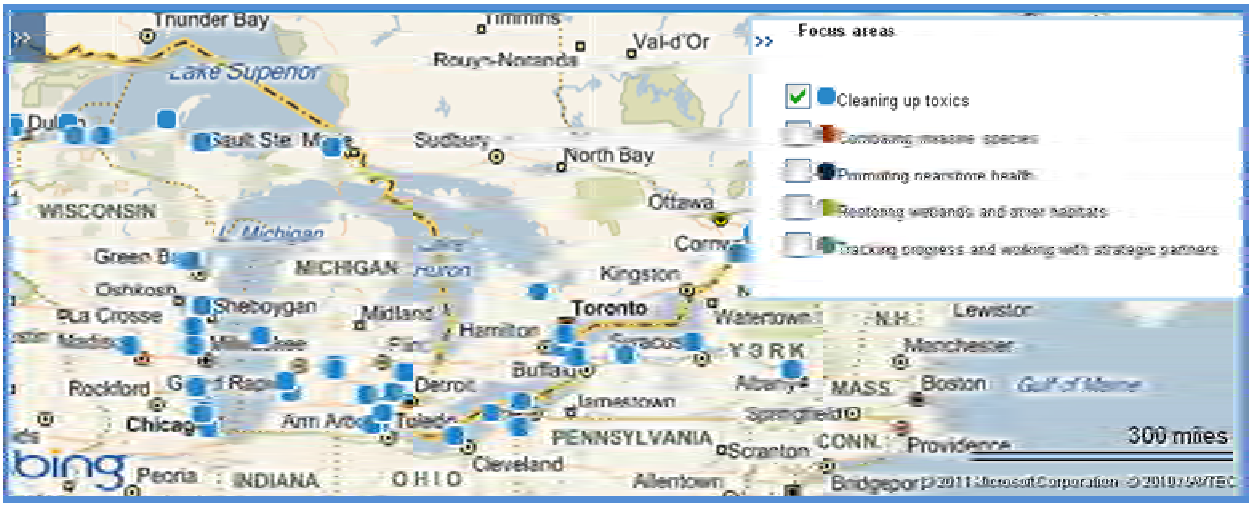
Although pollution being released into the Great Lakes has been reduced, "legacy contamination" from the past continues to re-circulate and remains a public health concern. Though some contaminant levels have declined over the years, such legacy pollutants continue to be present at levels above those considered safe for humans and wildlife, warranting fish consumption advisories in the Great Lakes. Urban communities in or near these areas and indigenous communities that still live off the land in or near these areas of the basin are particularly at risk from consumption of contaminated fish.

Persistent toxic substances continue to be released into the Great Lakes from contaminated sediments, industrial and municipal point sources, the cycling of legacy contamination within the lakes, and nonpoint sources including atmospheric deposition, agricultural and urban runoff, and contaminated groundwater. In addition to well-known toxicants like mercury, polychlorinated biphenyls (PCBs), and

banned pesticides, chemicals of emerging concern such as pharmaceuticals, have been detected in the Great Lakes. Progress in this focus area is critical to public, fish, and wildlife health in the Great Lakes.

With 2010 GLRI funds, tree planting in the Ashtabula AOC (OH) is helping to restore habitat loss and fish and wildlife populations.

The work underway in this focus area will lead to toxic chemical cleanups in the Great Lakes and mitigate the effects those chemicals have on ecosystem and human health. Work has focused on Areas of Concern (AOCs), places in the Great Lakes with the largest legacy of toxic pollution. The U.S. and Canadian governments have identified 43 such areas: 26 wholly in U.S. waters, 12 wholly in Canadian waters, and 5 that are shared by both countries. Two Canadian AOCs have been delisted and one U.S. AOC has been delisted, leaving 30 AOCs within the U.S. or shared with Canada. Each AOC contains up to 14 possible Beneficial Use Impairments (BUIs) resulting from the legacy of toxic pollution and impairing ecosystem function and human enjoyment of the area. The cornerstone to improving many AOCs and eliminating the legacy of toxic pollution is contaminated sediment removal or treatment. The Great Lakes Legacy Act (GLLA), enacted in 2002 and reauthorized in 2008, is now part of the GLRI and provides funding for these activities. A strategic suite of projects in the AOCs, supplemented with other pollution prevention and reduction projects, will protect human health by making fish consumption safer, by safeguarding drinking water, and by assessing and preventing releases of chemicals of emerging concern.



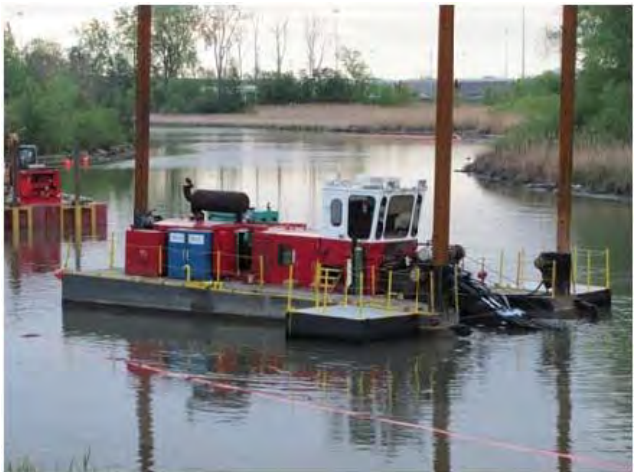
This map from http://glri.us depicts locations of projects throughout the basin related to the Toxics and Areas of Concern focus area.

Approximately 90 projects throughout the Great Lakes basin funded in FY 2010 and totaling approximately $104 million are working to achieve the goals, objectives, and measures for this focus area. Significant work includes:

- The USACE is repairing and making modifications to the dredged material disposal facility in Buffalo, NY, to allow for the placement of 450,000 cubic yards of contaminated sediments from the Buffalo River. This $8.24 million project, in combination with other USACE and GLLA dredging projects in the area, will result in the removal of approximately 1 million cubic yards of contaminated sediments from this AOC, moving it closer to de-listing.

NOAA is using GLRI funds to determine concentrations of PCBs in eggs that will be protective of lake sturgeon populations. In this image: USFWS Biological Technician, lower Niagara River

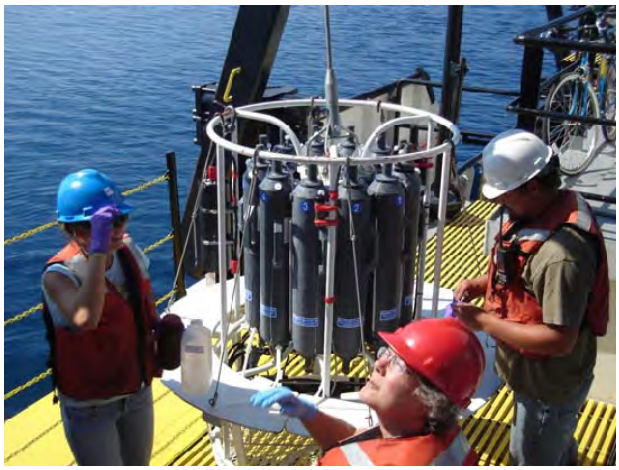
- The USFWS is investing more than $5 million to design ecological restoration work and help remove BUIs at AOCs across the Great Lakes. For example, USFWS provided $208,000 to the Cuyahoga Remedial Action Plan coordinating group to restore habitat in the lower Cuyahoga River, OH.
- NOAA is working to identify the concentration of PCBs in lake sturgeon eggs. Results will inform cleanup and restoration decisions in AOCs and natural resource damage assessments to improve habitat quality and fishery protections.
- Fifty grants totaling $50 million to states, tribes, local communities and non-profits were awarded to fund approximately 70 projects to restore beneficial uses in AOCs.
- Through GLRI efforts by EPA and USACE, up to 730,000 cubic yards of sediment are anticipated to be remediated at the Milwaukee Estuary AOC (WI), the Muskegon Lake AOC (MI), the St. Marys River AOC (MI), the Buffalo River AOC (NY), and the River Raisin AOC (MI).



EPA is removing contaminated sediment from the bottom of the Ottawa River, located in the Maumee River AOC (Toledo, OH). This project was funded with pre-GLRI funds, but the GLRI will enable additional projects that will remove contaminated sediment.

- To prevent additional pollutant loads from exacerbating current problems, federal, state, tribal and local governments have coordinated 17 GLRI grants totaling more than $8.6 million. Expected results include a reduction in releases of:
  - Mercury by more than 2,500 lbs/year
  - Lead by 9,800 lbs/year
  - Nutrients by 2.8 million lbs/year
  - Pesticides by more than 32,000 lbs/year
  - Pharmaceuticals, through collections totaling more than 11 million pills, and
  - E-waste, through collections totaling 8 million lbs.

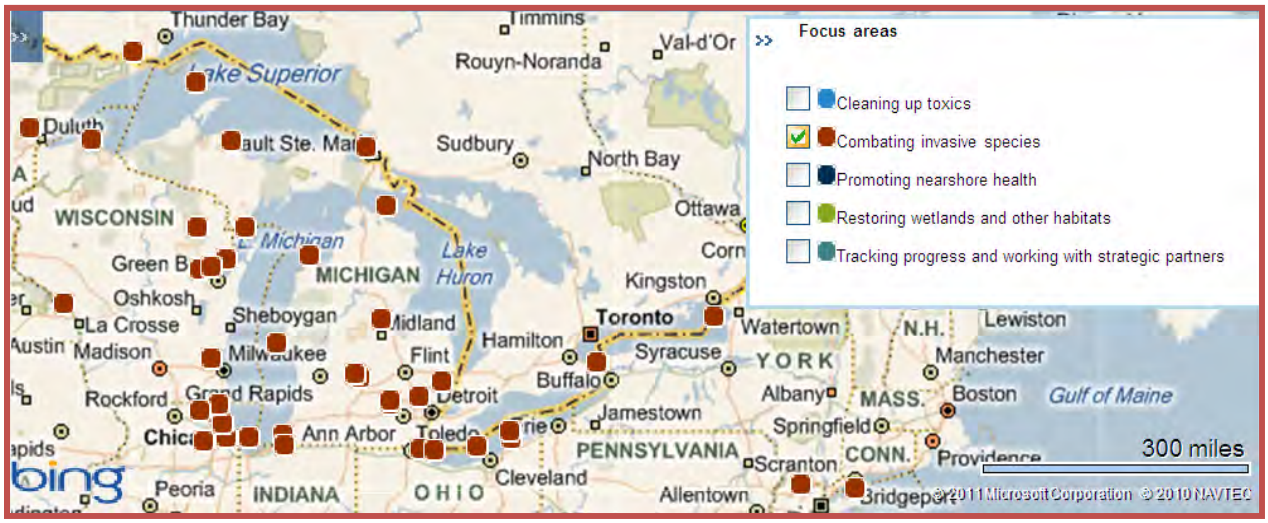
- USGS and EPA are conducting Great Lakes-wide sampling to determine the source of mercury accumulating in fish. GLRI funding allowed USGS to acquire a more precise sampling system. Information resulting from the first use of this sampling system has provided a more sophisticated understanding of how mercury enters Great Lakes food webs, which will help inform effective restoration and mitigation strategies.



Scientists aboard EPA's *Lake Guardian* prepare to deploy a water sampling system that is capable of acquiring samples that USGS can assess for mercury.

Focus Area 2: Invasive Species

Introduction and establishment of non-native species can significantly undermine Great Lakes protection and restoration. Rapidly reproducing and spreading invasive species can degrade habitat, harm native species, and jeopardize food webs. The Great Lakes also can act as an invasion pathway to the heartland of our nation, providing the opportunity for species to spread to inland lakes, the 31 states within the Mississippi River watershed, and beyond. Because invasive species populations are very difficult and potentially impossible to eradicate once established, prevention is the most cost-effective approach for dealing with organisms that have not yet arrived. However, more than 180 non-native species already exist in the Great Lakes. Those existing populations of non-native species need to be controlled to maintain conditions for long-term protection and restoration of native species. The GLRI is supporting federal, state, tribal, and community invasive species prevention and control efforts. Progress in this focus area is critical to the restoration of the Great Lakes.



This map from http://glri.us depicts locations of projects throughout the basin related to the Invasive Species focus area.

For this reason, the GLRI is working to close the door on new invasions by preventing introductions from major invasion pathways such as canals and waterways, maritime commerce, recreational use, and organisms bought and sold in commerce (e.g., bait and the pet trade.) The GLRI is also supporting the expansion of invasive species control activities throughout the basin. Federal agencies, communities throughout the Great Lakes basin, and the Great Lakes states are all advancing their control efforts, plans, and on-the-ground actions.

In FY 2010, the GLRI funded approximately 60 projects in the Great Lakes basin—totaling approximately $78 million—that work to achieve invasive species goals, objectives, and measures. Significant work includes:

- The GLRI invested more than $37.9 million toward preventing the spread of Asian carp[4]:
  - The USACE built a barrier along the Des Plaines River and a flow blockage on the Illinois and Michigan canal to prevent the spread of Asian carp into the Chicago Area Waterway System during flood events.
  - Indiana DNR rapidly built an interim barrier at Eagle Marsh to reduce the risk of Asian carp moving from Indiana's Wabash River watershed to Ohio's Maumee River watershed, which in turn flows into Lake Erie.
  - After a commercial fisherman contracted by Illinois DNR captured

Illinois Department of Natural Resource and USFWS fisheries biologists show Asian carp specimens that were recovered from the Illinois River to U.S. Senator Richard Durbin (IL).

[4] Additional information, and the *Asian Carp Control Strategy Framework*, can be found on http://asiancarp.org.

an adult bighead carp in Lake Calumet upstream of the electric Dispersal Barrier, federal agencies and their partners launched an intensive rapid response effort. An additional 11 days of sampling in Lake Calumet, the Calumet River, and Calumet Harbor by federal, state, tribal, and university crews yielded no additional Asian carp. An additional 334 water samples from the area also did not indicate the presence of bighead or silver carp DNA.

A U.S. Coast Guard Boarding Officer checks the salinity of a ballast water tank to ensure it has been exchanged.

  - To help support future control efforts, USGS is pursuing promising new technologies (including sound waves, pheromones, and selective biocides) to control Asian carp.

- EPA and USFWS invested $2.2 million for the development of promising technologies to help protect the Great Lakes from invasive species that could be spread through ballast water carried into the Great Lakes by oceangoing ships.
- The DOT's Maritime Administration supported enhanced performance testing, leading to three bench-scale screening tests of ballast treatment systems, three land-based tests, and preparatory engineering work in support of two ship-board treatment tests. These technologies are intended to control the discharge of invasive species from ballast water.
- The National Park Service (NPS) and the U.S. Forest Service (USFS) have quickly expanded their control efforts under the GLRI, removing invasive species from more than 1,000 acres of public land. USFS enhanced the multi-partner Cooperative Weed Management Area program in six existing areas and established six new areas in the region. In addition, USFS invested $3 million in 12 communities to support strategic efforts to mitigate the impacts of the emerald ash borer. USFWS and EPA invested more than $12 million to support control actions by states, communities, and organizations on more than 6,000 additional projected acres.

Portable high-pressure, high-temperature boat washing units were deployed in and around the Ottawa National Forest in Michigan's Upper Peninsula to help prevent the spread of invasive species. This project created 10 summer jobs for local residents.

- The Great Lakes states are also advancing the implementation of their Aquatic Nuisance Species Management Plans, as developed under Section 1204 of the Aquatic Nuisance Species Prevention and Control Act and approved by the National Aquatic Nuisance Species Task Force. USFWS has provided more than $14 million to the eight Great Lakes states[5] to implement their Aquatic Nuisance Species Management Plans and enhance rapid response capabilities. This allowed Illinois and Indiana to initiate rapid response efforts to address Asian carp. Other Great Lakes states are

[5] Illinois received $8 million (including $3 million to implement Asian Carp Framework). The remaining states (Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin) received $792,000 each.

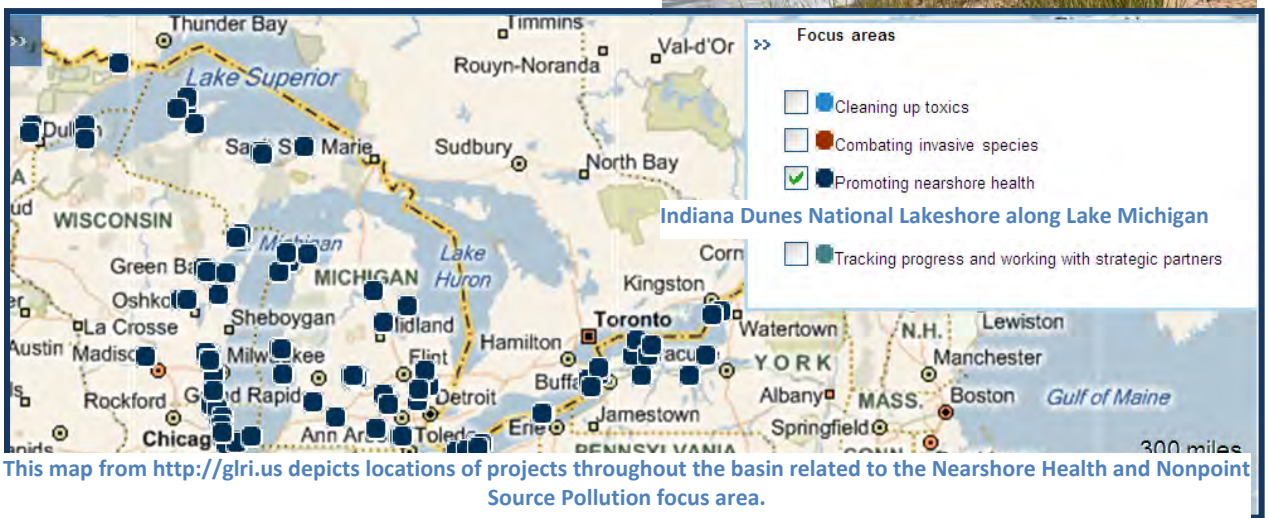
developing contingency plans for Asian carp and other high risk species. This funding also supports enhanced on-the-ground and in-the-water actions, inspections of recreational boats, tracking of results, and outreach.

- GLRI has allowed the Great Lakes Fishery Commission to investigate the use of pheromones as bait for sea lamprey trapping operations on 20 Great Lakes tributaries. This has increased capture by about 25 percent and is estimated to have saved an additional 200,000 pounds of fish from sea lamprey predation. In addition, three new reproductive pheromones and a sea lamprey necromone (a natural repellent) were identified that show strong promise for use.
- USDA Animal and Plant Health Inspection Service (APHIS), working with Cornell University and Michigan State University, expanded efforts to diagnose and anticipate fish kills. More than 100 bacterial isolates have been revived from frozen fish samples of previous widespread fish kills. Extensive biochemical characterization has begun on these isolates to help interpret past yellow perch and rainbow trout/steelhead trout fish kill events and inform future management actions.
- USFWS, USFS, and NPS, working through grants to Great Lakes Sea Grant universities and the environmental non-profit group *Wildlife Forever*, have developed new invasive species outreach materials and supported several television programs. More than 50 million travelers have been exposed to education materials and billboards, and tens of millions of viewers have seen educational television programs supported by these efforts.
- NRCS used Contribution Agreements through the NRCS Conservation Technical Assistance Program to get conservation on land in need of improvement or treatment. One agreement approved was designed to control invasive species within two watersheds in partnership with the Lake County Forest Preserve District in Illinois. A second partnership with the Chicago Park District, involves acres of woody invasive treatment in Rainbow Park, a 104-acre beachfront park located on Lake Michigan that offers recreational services to a wide area of South Chicago. Both projects will improve shoreline and recreational areas used by thousands of annual visitors.

Focus Area 3: Nearshore Health and Nonpoint Source Pollution

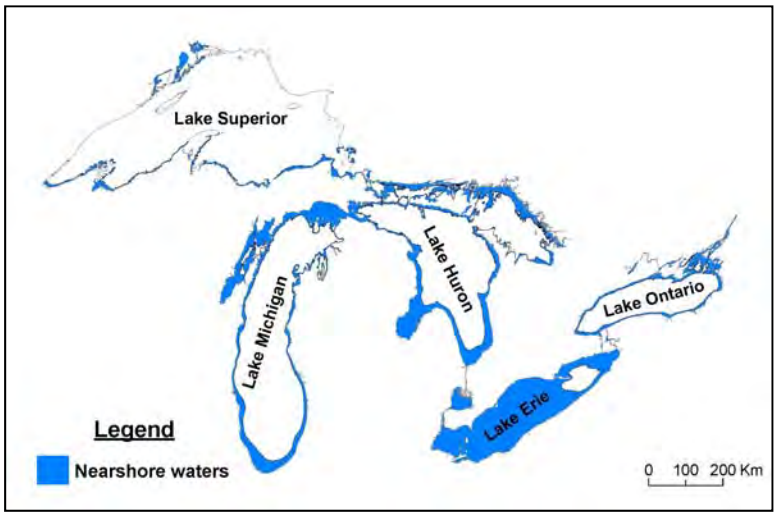
Most residents and visitors experience the Great Lakes along the nearshore environment - through fishing, swimming, boating, or other forms of recreation. The nearshore also supplies drinking water for municipalities and habitat for many species. Nearshore water quality has, however,

Indiana Dunes National Lakeshore along Lake Michigan



This map from http://glri.us depicts locations of projects throughout the basin related to the Nearshore Health and Nonpoint Source Pollution focus area.

become degraded. Increased nutrients, sedimentation, and alteration of nearshore habitat have contributed to excessive growths of *Cladophora* algae, incidence of harmful algal blooms, and outbreaks of avian botulism that have led to significant ecosystem alteration. *Cladophora* and harmful algal blooms have also led to increased beach closings. Progress in this focus area is critical to the restoration of the Great Lakes, because the nearshore is the principal area in which people interact with the Great Lakes. Moreover, degraded water quality in the nearshore can undermine larger lake restoration efforts.



The projects underway in this focus area will make progress toward reducing sediment and nutrient loadings into the Great Lakes, which will reduce human health risks and ecosystem degradation posed by bacteria, viruses, pathogens, and other nuisance biological growths. Progress in this area under the GLRI is tied directly to protecting drinking water and improving the recreational use of the Great Lakes. To foster effective restoration or protection of nearshore waters, projects also focus on improving the ability of decision-makers to identify and implement appropriate actions.

Approximately 125 projects throughout the Great Lakes basin funded in FY 2010 and totaling approximately $87 million are underway. These projects build upon prior efforts already underway in the Great Lakes basin to achieve the goals, objectives, and measures for this focus area. Examples of major accomplishments include:

The aquatic nearshore begins at the shoreline and extends offshore to the depth at which warm surface waters typically reach the lake bottom in early fall, generally 20m - 30m below the surface. Terrestrial nearshore areas range from narrow beaches to inland features influenced by Great Lakes processes.

- NOAA developed and launched a Lake Erie Harmful Algal Bloom Experimental Forecast Bulletin for *Microcystis* blooms to inform public health and environmental officials in a timely manner and to assist them in effective decision-making. The weekly bulletin depicts the location, future movement, and intensity of harmful algal blooms in the Western Basin of Lake Erie.
- USGS, NOAA, and EPA are working in collaboration at more than 50 Great Lakes beaches to develop decision-making tools and rapid assessment approaches that provide improved and useful information to beach managers so they can give timely and more accurate announcements to the public about beach health and daily swimming conditions. The tools also help to determine the sources and environmental factors that affect the prevalence of pathogenic bacteria and viruses at Great Lakes beaches, thereby allowing beach mangers to identify and mitigate those sources.

- USACE completed a feasibility study for restoration of the Cat Island chain and 1,200 acres of coastal habitat in Green Bay, WI, while providing for disposal of sediments dredged from the harbor. The restoration will be initiated in FY 2012.
- Avian botulism has killed more than 80,000 birds in the Great Lakes since 2000 and may be the most significant cause of wild bird mortality worldwide. USGS scientists have developed a rapid and inexpensive assay for detecting type *E botulinum* toxin in the blood of affected birds. The previous testing method was more time consuming and expensive. The newly developed assay now makes possible a rapid diagnosis of this deadly disease, and it provides a valuable tool in the effort to protect Great Lakes water birds such as the common loon.
- NPS, USGS, universities, and other non-profit institutions conducted unprecedented collaborative investigations of nearshore ecosystem health and avian mortality in Lake Michigan, focusing particularly on Sleeping Bear Dunes National Lakeshore on the west coast of Michigan. This intensive effort will inform management options for limiting the impacts of avian botulism.
- USGS installed 30 real-time, continuous, water quality monitoring gauges across the Great Lakes basin that are equipped with multi-sensor probes. Information and data on the occurrence and distribution of sediments, contaminants, and nutrients in rivers are needed to provide critical baseline information to resource managers and to quantify how much tangible progress is being made in the future as restoration actions are implemented.
- EPA invested $432,000 in beach information technology that allows beach water quality data and notices about beach closings to be processed more rapidly and posted online. EPA also fostered collaboration among local, state and federal beach management entities around the Great Lakes that will identify contamination sources at 521 Great Lakes beaches during the summer of 2011 in order to more effectively implement restoration actions.
- EPA worked to complete design plans for the spring 2011 installation of green infrastructure projects to reduce nonpoint source pollution to Green Bay, WI, and to design plans for the spring 2011 implementation of a stormwater infiltration system to reduce bacterial contamination at Bryant Park Beach in Traverse City, MI.
- During 2010 NRCS used GLRI funds to assist farmers in implementing conservation practices to reduce erosion, nutrients and/or pesticide loading. For example, the Great Lakes Commission received $5 million in GLRI funds through a Cooperative Agreement with NRCS to administer the Great Lakes Basin Program for Soil Erosion and Sediment Control. In August 2010, the Great Lakes Commission awarded nine grants totaling $4,300,033. The projected impact will be a reduction of over 24,000 tons in soil erosion from watersheds which contribute sediment directly to the Great Lakes.

Focus Area 4: Habitat and Wildlife Protection and Restoration

The health of Great Lakes habitats and wildlife depends upon the protection and restoration of ecosystems: coastlines, wetlands, rivers, connecting channels, and watersheds. For example, wetlands help cleanse water that sustains wildlife, upland habitats support pollinators, and coastlines such as

dunes house rare species. Great Lakes habitat losses have led to an altered food web, compromised biodiversity, and poorly functioning ecosystems. Progress in this focus area is critical to the restoration of the Great Lakes, as proper ecosystem functions provide benefits for humans and wildlife.

This map from http://glri.us depicts locations of projects throughout the basin related to the Habitat and Wildlife Protection and Restoration focus area.

Work in this focus area will make significant progress toward restoring the health of Great Lakes habitat. It includes projects that will open miles of rivers for fish passage, lead to the recovery of important plant and wildlife species, and remove habitat-related BUIs in Great Lakes AOCs. Approximately 240 projects throughout the Great Lakes basin funded in FY 2010 and totaling approximately $143 million will help to achieve the goals, objectives, and measures for this focus area. Significant work includes:

- The Sustain Our Great Lakes program, funded in part by GLRI, is a public-private partnership between EPA, USFWS, USFS, NOAA, the National Fish and Wildlife Foundation, and the ArcelorMittal steel company. Current projects are restoring more than 100 miles of stream riparian habitats and more than 1,500 acres of wetlands. One project, the Upper Manistee Riparian Corridor Restoration Project in the Lake Michigan basin, is removing 12 dams and improving a stream road crossing along the North Branch of the Manistee River and Flowing Well Creek. The project is expected to result in 14 stream miles restored for fish passage, a natural flow regime for 20 miles of stream, restoration of the native brook trout population, and restoration of native vegetation on 650 acres of wetland and upland habitats.

Upper Manistee Riparian Corridor Restoration, Lake Michigan: this is one of 12 dams to be removed to restore 20 stream miles for native brook trout.

- NOAA's habitat programs are funding five projects expected to protect more than 1,600 acres of Great Lakes coastal habitat through land acquisitions in Wisconsin and Ohio. Nine other habitat restoration projects are expected to restore more than 700 acres of habitat and open more than 100 miles of river for fish passage. One project, the St. Lawrence River Project in the Lake Ontario basin, will install fish passages and excavate river channels at several locations in the Upper St. Lawrence River of New York resulting in the restoration of 110 acres of marsh ecosystem and its natural hydrology, which serves as fish spawning habitat.

Shiawassee Flats Floodplain Wetland Restoration Project, Lake Huron; One hundred forty one acres were restored in this project.

- The USFWS is funding numerous projects to identify, restore, and protect important habitat for fish and wildlife. Eleven projects funded through the Great Lakes Fish and Wildlife Restoration Act Grant Program will restore 5,700 acres of wetlands and reconnect 240 miles of river habitat. For example, the Shiawassee Flats Floodplain Project in Michigan will convert a 141-acre farm field to a Flint River floodplain wetland. For more information on this project please visit http://vimeo.com/15229501.
- The USFWS invested $518,400 in GLRI funding to purchase two Merlin Avian Radar Systems to inform decisions to site, construct, and operate wind projects in sustainable ways that avoid or minimize adverse effects to Great Lakes migratory birds and bats. USFWS will deploy these avian radar units throughout the Great Lakes to identify important migratory and stopover sites along the Great Lakes. For more information on this project, and other USFWS efforts under the GLRI, please visit http://www.youtube.com/watch?v=0apJDbf6mQ8.
- NPS is removing or redesigning large non-natural obstructions, such as docks and breakwalls, in streams and coastal areas of several national parks in order to restore nearshore and wetland habitats for fish spawning, rearing, and for aquatic wildlife such as amphibians and reptiles. The Isle Royale National Park project in Lake Superior will remove concrete blocks and a breakwall, restoring three acres of nearshore and beach habitat as well as the longshore sediment migration process.

Isle Royale National Park, Lake Superior; the concrete dock and breakwall are being removed to restore habitat and enable natural sediment migration.

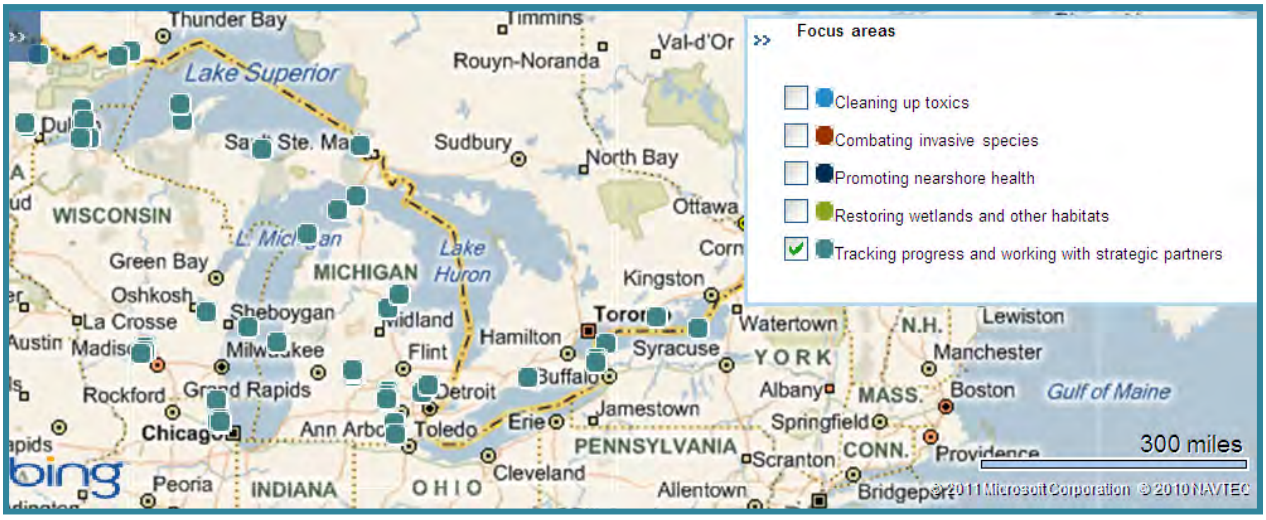
- Thirty-four projects have been funded by EPA to restore habitat in AOCs and remove habitat-related BUIs. In the River Raisin AOC, three projects will restore approximately 25 acres of Great Lakes marsh and 25 acres of lakeplain prairie at Sterling State Park. The projects will repair dikes and install water control for 310 acres of marsh, which will provide much needed stopover habitat for shorebirds and also facilitate invasive plant control.
- The Bureau of Indian Affairs has funded 20 tribes to improve tribal natural resources. Projects have protected and enhanced more than 500 acres of tribal wetlands and more than 1,000 acres of wild rice beds.

Menominee Tribe, Lake Michigan; the Menominee Tribe's Menominee High School culture class and Historic Preservation Department are spreading wild rice seed.

- EPA is collaborating with a consortium of 12 agencies and academic institutions to assess conditions in all Great Lakes coastal wetlands. A binational group of scientists has identified priority indicators for marsh birds, amphibians, invertebrates, fish, wetland extent, wetland type, and water chemistry. The agencies and their partners are implementing a five-year monitoring plan to establish baseline data and provide information to decision-makers in order to implement the appropriate actions.
- With NRCS assistance, the NY Thousand Islands Land Trust enrolled 133 acres of land on Grindstone Island into the Wildlife Habitat Incentive Program. The Land Trust will manage the land as early successional (shrub land) habitat to provide critical nesting sites for a number of species, in particular, the Golden-winged warbler, a bird species of special concern in New York State. The Valley has been identified as the most important nesting area in the state for the Golden-winged warbler, providing 15 percent of the species' total nesting habitat. NRCS also approved conservation contracts with Tribal groups which will result in improved fish passage on over 70 miles of rivers and streams.

Focus Area 5: Accountability, Education, Monitoring, Evaluation, Communication and Partnerships

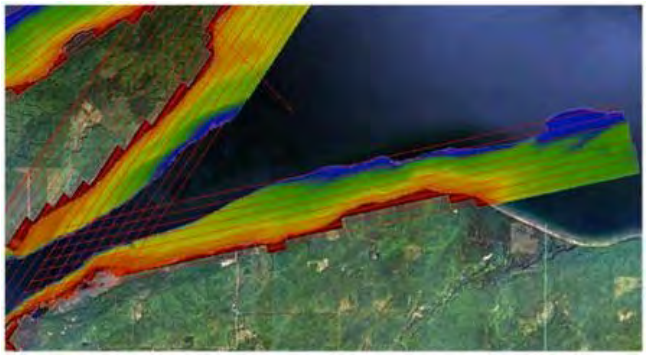
Effective accountability tools, monitoring, and assessment are vital for the GLRI to be successful in helping to restore the Great Lakes. Measuring indicators of overall ecosystem function provides information that decision-makers need to evaluate restoration progress and ecosystem health. Improved knowledge, scientific coordination, and consistency in data collection will support informed decisions and assessments to make future restoration even more effective. The GLRI also supports educating the next generation and enhancing partnerships for restoration.



This map from http://glri.us depicts locations of projects throughout the basin related to the Accountability, Education, Monitoring, Evaluation, Communication and Partnerships focus area.

Approximately 80 projects throughout the Great Lakes basin funded in FY 2010 and totaling approximately $63 million are improving restoration decisions and education efforts under this focus area. This work includes important large-scale cooperative efforts to enhance existing programs that measure and assess the chemical, physical, and biological integrity of the Great Lakes ecosystem. Examples of major accomplishments include:

- EPA has developed the Great Lakes Accountability System (GLAS) as the primary mechanism for collecting information to monitor and report on the progress of the GLRI – to ensure public accountability. GLAS is a web-based reporting system (http://glri.us) that tracks each GLRI-funded project. GLAS helps to show the link between each project and the goals, objectives, and measures of progress outlined in the Action Plan. See Section V for more information on GLAS.
- NOAA is investing in five projects to provide information and management tools to state and local resource managers to help them develop plans to adapt to the impacts of climate change. NOAA collected 900 linear kilometers of bathymetric LIDAR (light detection and ranging) nearshore depth and coastal elevation data along priority shoreline areas of Lake Superior. These priority areas were determined by input from over fifteen stakeholder groups. The LIDAR data can be used by resource decision makers for implementing more effective restoration projects, planning remediation of stamp sands, and protecting and restoring essential habitat. Data is currently being used to study shoreline recession rates on Michigan's Upper Peninsula and to assess how lake level changes will alter the landscape and management strategies for Lake Superior.



An example of LIDAR (light detection and ranging) data collected in Lake Superior by NOAA; the colored contours illustrate the depth in the nearshore of Lake Superior near Huron Bay (east of the Keweenaw Peninsula). Information collected can help with implementing restoration projects.

- NOAA, USGS, and EPA are enhancing efforts to support the implementation of the Great Lakes Observing System to provide critical data on the chemical, physical, and biological integrity of the Great Lakes necessary to determine and guide restoration activities. EPA awarded three grants for almost $3 million to support observing systems in AOCs. NOAA installed continuous observation buoys in Great Lakes nearshore areas as part of their observing network. USGS is providing equipment to support observing efforts for collection of nutrient, sediment, and flow data in Great Lakes tributaries, embayments, and nearshore areas to determine and guide restoration efforts.
- The Lakewide Management Plan Program has begun to implement more than 50 on-the-ground action projects, focusing on areas such as watershed restoration, toxic chemical reduction, prevention of aquatic invasive species, and protection or rehabilitation of critical habitat. For example:
  - EPA, USGS, and collaborating scientists conducted an intensive monitoring campaign in Lake Michigan in 2010 to address critical data gaps that currently limit restoration efforts.
  - EPA funded educational opportunities through grants to improve tribal and general public understanding of the permit process and possible impacts of mining in the Lake Superior basin.
  - EPA also funded a project to recruit, train, and certify marina operators on proper fuel storage, spill prevention, and invasive species issues across the Great Lakes.

Deployment of nearshore monitoring equipment on EPA's *Lake Guardian*

- The GLRI is helping to develop education curricula to engage teachers, students, resource personnel, and citizens in research, restoration, and outreach activities associated with the Great Lakes and their watersheds.

Example of an invasive species outreach poster from the National Park Service

Planned Activities

While results from FY 2010 work begin to emerge, the federal partnership plans and implements GLRI activities for FY 2011 and subsequent years.[6] The plans and anticipated results for FY 2011 and subsequent years are addressed in the relevant President's Budget request and Congressional Justification. The GLRI will continue to make strategic investments in the five focus areas of the Action Plan, with an emphasis on completing on-the-ground action and achieving the Action Plan measures of progress. To meet these goals, the federal partners continue to coordinate to prioritize restoration activities based on experiences to date. See Section IV for information on FY 2011 federal agency funding distributions. The federal agencies are also continuing to make improvements to the accountability mechanisms in place for GLRI. See Section V for more information on accountability. The agencies will also work to ensure that they are relying upon sound science by consulting with EPA's independent Science Advisory Board.

[6] For a full description and detailed budget information on FY2011, please see pages 268 – 284 of EPA's FY2011 Justification of Appropriations Estimates for Committee on Appropriations (http://www.epa.gov/budget/2011/fy_2011_congressional_justification.pdf).

SECTION IV – FINANCIAL REPORTING

The $475 million GLRI investment in FY 2010 represented an unparalleled opportunity to make significant progress to restore and protect the Great Lakes. With this investment came the concurrent responsibility for effective financial stewardship. Federal agencies have met this challenge through the implementation of processes to distribute and track funds in alignment with the Action Plan. The agencies utilized multiple funding mechanisms, including IAs and funds transfers, competitive grant processes, and capacity-building grants to states and tribes to support effective project implementation. Almost 600 unique projects aligned with the Action Plan have been funded for Great Lakes protection and restoration.

Table 1 – GLRI FY 2010 Funding – Interagency Agreements (As of 3/31/2011)

Agency	FY 2010 President's Budget	FY 2010 Actual Allocation[7]	FY 2010 Total Obligations
DHS – USCG	$6,850,000	$6,350,000	$6,350,000
DOC – NOAA	$32,170,000	$30,536,774	$30,536,774
DOD – USACE	$45,896,000	$49,706,678	$46,714,855
DOI – BIA	$3,000,000	$3,416,000	$3,416,000
DOI – NPS	$10,450,000	$10,505,000	$10,505,000
DOI – USFWS	$57,501,000	$69,348,690	$69,348,690
DOI – USGS	$14,980,000	$23,717,195	$23,717,195
DOT – FHWA	$2,500,000	$2,500,000	$2,500,000
DOT – MARAD	$3,000,000	$4,000,000	$4,000,000
HHS – ATSDR	$5,500,000	$5,500,000	$5,500,000
USDA – APHIS	$3,000,000	$1,884,768	$1,884,768
USDA – FS	$15,058,000	$15,458,000	$15,458,000
USDA – NRCS	$33,642,000	$34,092,000	$34,092,000
IA Subtotal	$233,547,000	$257,015,105	$254,023,282
EPA[8]	$241,453,000	$217,984,895[9]	$216,766,141
GLRI Total	**$475,000,000**	**$475,000,000**	**$470,789,423**

[7] Federal agencies work collaboratively to ensure that GLRI funding is used for the highest priority Great Lakes projects. The FY 2010 Allocations reflect adjustments made to address emerging priorities (e.g., keep Asian carp from becoming established in the Great Lakes) and to maximize environmental outcomes. These figures represent adjusted agency allocations as of March 31, 2011.

[8] The EPA figures include all internal EPA operational costs, grants, and funding of less than $1 million to federal and binational agencies not separately identified in the President's budget. EPA plans to provide funding of less than $1 million to these agencies again in FY 2011.

[9] Components of the EPA figure are: (i) grants totaling $164,627,379 (including grants to the Great Lakes Fisheries Commission and the International Joint Commission, organizations identified in the FY 2010 President's Budget); (ii) support costs (payroll, travel, general expenses, and working capital) totaling $13,154,416; and (iii) contracts and miscellaneous interagency agreements (each less than $1 million) totaling $40,203,100.

Chart 1 – FY 2010 Actual Allocations

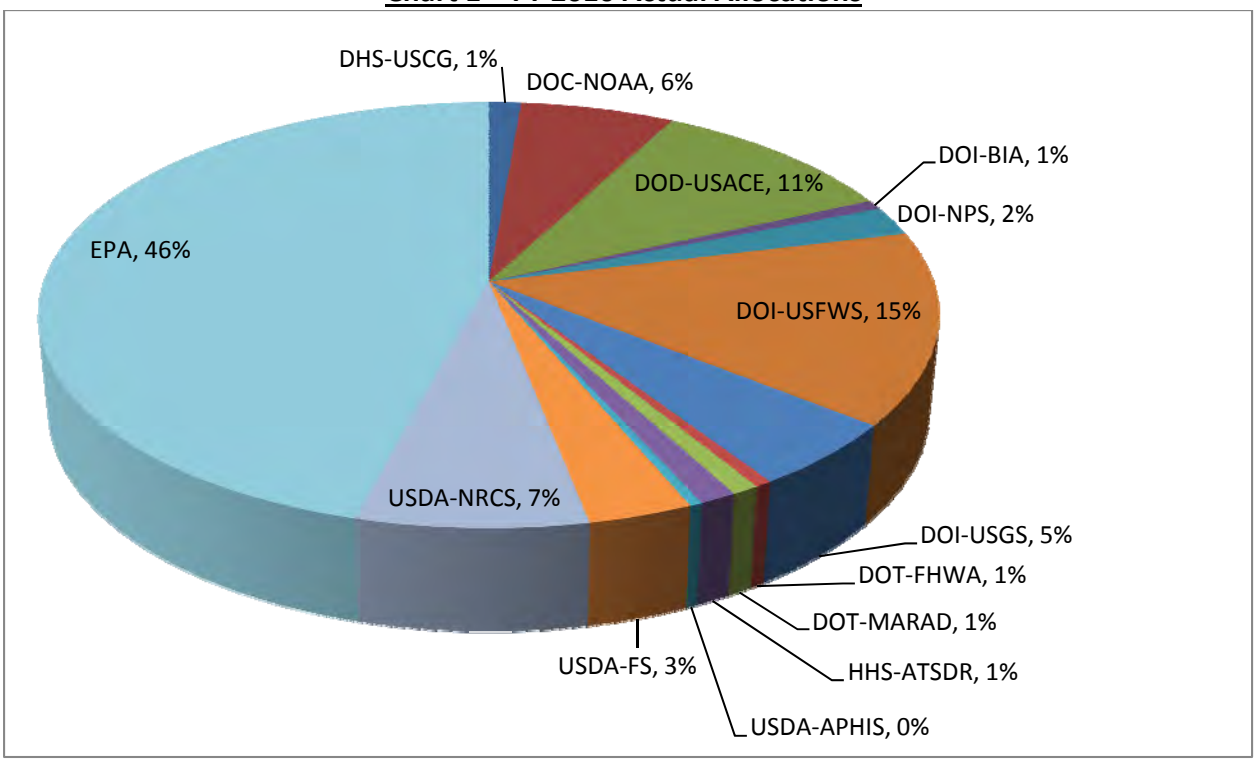
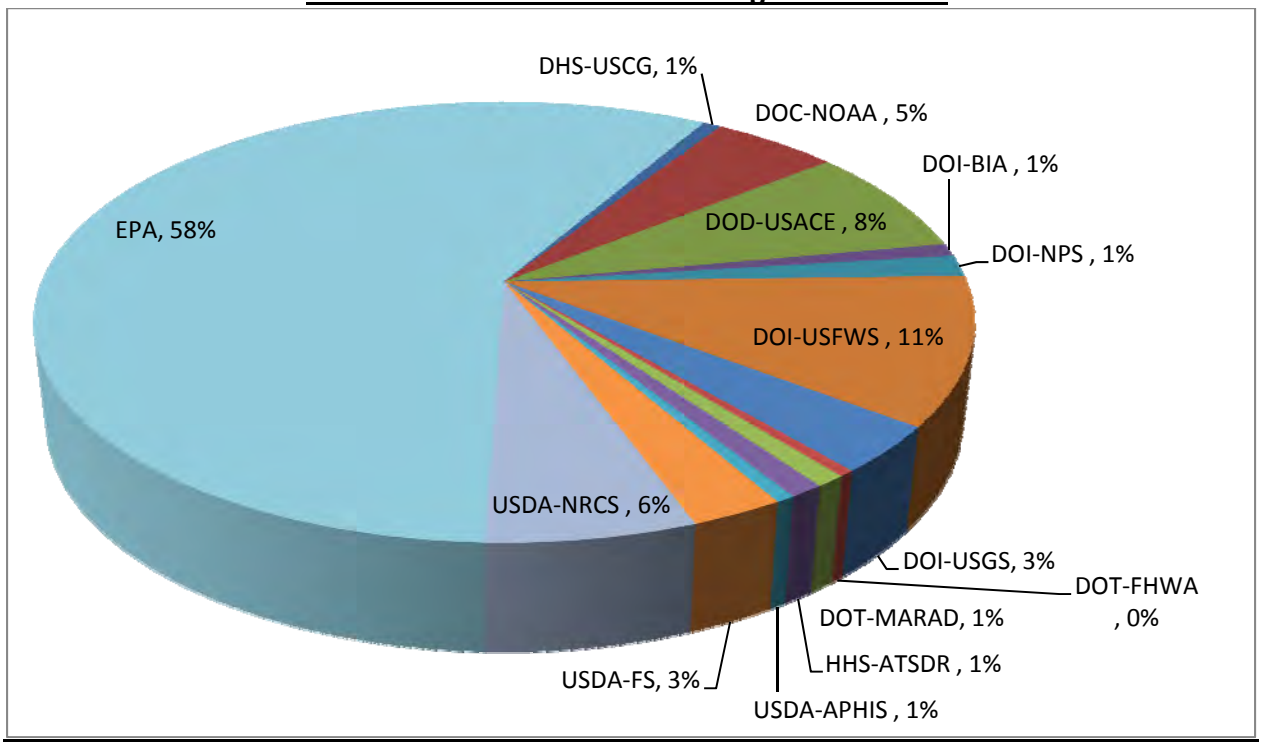


Chart 2 – FY 2011 President's Budget Allocations



SECTION V – ACCOUNTABILITY

In response to the President's call for improved transparency and fiscal stewardship, the federal agency partners established accountability mechanisms, management practices, and third-party oversight to effectively manage the GLRI. Guided by the comprehensive and collaboratively developed GLRI Action Plan, GLRI partners are implementing the Great Lakes Accountability System (GLAS). In late 2011, the EPA's Science Advisory Board is also expected to provide an independent scientific review of the GLRI's scientific foundation to ensure that the GLRI is being guided by the best available science.

Great Lakes Accountability System

The 2010 Appropriations Conference Report requires EPA to develop a process that "*ensures monitoring and reporting on the progress of the Great Lakes Restoration Initiative*." As part of fulfilling that requirement, EPA has worked with the IATF to develop and operate the Great Lakes Accountability System (GLAS). The initial purpose of GLAS was for the public to know who received GLRI funding, what projects were being funded, and where those projects were located. It functions as a clearinghouse for information on GLRI-funded projects. Primary recipients (organizations that receive GLRI awards directly from federal agencies) and sub-recipients (organizations that have been delegated to report on GLRI projects by their primary recipients) are required to report into GLAS. The agencies will continue to improve the transparency and functionality of GLAS in providing information on the GLRI.

Consultation with EPA Science Advisory Board

Science is at the foundation of the GLRI. To ensure the GLRI has the best information to enable it to prioritize work on the most pressing ecological threats, the EPA Science Advisory Board (SAB) in 2011 will conduct an independent scientific review of the GLRI Action Plan. The SAB has identified potential panelists for conducting the review, will begin the review in summer 2011, and plans to present a report to EPA in fall 2011.

APPENDIX A – GLRI ACTION PLAN MEASURES OF PROGRESS

The GLRI Action Plan, detailing five Focus Areas and clear Measures of Progress to be achieved within each Focus Area, was established by the IATF. Projects initiated with FY 2010 GLRI funding are expected to achieve the results detailed in the GLRI Action Plan, albeit on a delayed schedule, since most GLRI project funding was awarded at the end of FY 2010 and most implementation will begin in 2011.

The FY 2010 "Actual" column includes results through FY 2010, where such information is available. In the same column, “NA” indicates that FY 2010 data are not available.

Measure of Progress	Performance Data				Unit
	FY 2010		FY 2011	FY 2012	
	Target	Actual	Target	Target	
Focus Area 1: Toxic Substances and Areas of Concern Approximately 90 projects totaling $104 million are working to achieve the goals, objectives, and measures for this focus area.					
1. Number of Areas of Concern in the Great Lakes where all management actions necessary for delisting have been implemented (cumulative). [1]	1	1	1	3	AOCs
Additional Information: Baseline of 1 (Oswego River, NY, delisted in 2006). Universe of 31.					
2. Number of Beneficial Use Impairments removed within Areas of Concern. [1]	20	12	26	31	BUIs Removed
Explanation of FY 2010 Actual: Performance delayed because of funding delays and the lag time between cleanup (such as Legacy Act sediment remediation) and monitored environmental response; however, missing this target will not adversely impact the long term goal of delisting BUIs. To accelerate progress in removing BUIs, EPA is making increased FY 10 and FY 11 GLRI funding available to state agencies and local AOCs, specifically targeting certain AOCs for delisting, and systematically identifying the specific projects necessary for delistings. Through these actions, the Great Lakes National Program Office expects that by the end of FY 11, the target for removing a cumulative total of 20 BUIs will have been met. *Additional Information:* Baseline of 11. Universe of 261.					
3. BUI delisting project starts at AOCs (cumulative).	60	NA	80	110	Projects
Additional Information: Baseline of 0 project starts. Universe of 30 national and binational AOCs, 261 BUIs. Baseline represents the starting point for the measure.					
4. Cubic yards of contaminated sediment remediated (cumulative from 1997) in the Great Lakes. [1]	6.3	7.3	8.0*	8.7*	Cubic Yards (Million)

Measure of Progress	Performance Data				Unit
	FY 2010		FY 2011	FY 2012	
	Target	Actual	Target	Target	
Explanation of FY 2010 Actual: Through the Great Lakes Legacy Act, Superfund, and other contaminated sediment cleanup efforts, approximately 7.3 million cubic yards have been remediated in the Great Lakes basin at 20 (of 31) AOCs as well as twelve non-AOC sites. *Additional Information:* Baseline of 5.5 million cubic yards (2007). Universe of 46 million cubic yards. *Targets in Action Plan adjusted upward during President's Budget development because the FY 11 target was exceeded.					
5. Pollution (in pounds) collected through prevention and waste minimization projects in the Great Lakes basin (cumulative). [1]	10	NA	15	25	Million Pounds
Additional Information: Baseline of 0 pounds.					
6. Cumulative percentage decline for the long-term trend in concentrations of PCBs in Great Lakes fish. [1]	34	43	37	40	Percent (Decline)
Explanation of FY 2010 Actual: This data measure is based on samples taken in 2008 due to time lags in data gathering and processing. *Additional Information:* Baseline of 0% (2000). Average concentrations at lake sites from 2000 were: Lake Superior - .78 ppm; Lake Michigan – 1.6 ppm; Lake Huron - .78 ppm; Lake Erie – 1.2 ppm; and Lake Ontario – 1.2 ppm. The average concentrations at lake sites from 2008 were: Lake Superior- .55 ppm; Lake Michigan- .94 ppm; Lake Huron- .53 ppm; Lake Erie- .85 ppm; and Lake Ontario- .98 ppm.					
Focus Area 2: Invasive Species Approximately 60 projects totaling $78 million are working to achieve the goals, objectives, and measures for this focus area.					
1. Rate of non-native species newly detected in the Great Lakes ecosystem. [1]	1.3*	1.18	1.1**	1.0	Species per year
Explanation of FY 2010 Actual: The current rate of invasion has now dropped to a cumulative average of 1.18 species per year over the eleven-year 2000-2010 timeframe. *Additional Information:* Baseline of 1.3 species per year. The average rate of non-native species newly detected in the Great Lakes ecosystem over the ten-year period before the GLRI was 1.3 species per year (13 species over 10 years). As tracked by NOAA's Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS), no new species were detected in 2010. Note that one species was added to GLANSIS in 2010, the Chain pickerel (Esox niger), representing a reassessment and expert re-categorization of available data rather than a new ANS detection. (It was first detected in Lake Erie in 1985.) The total number of established nonindigenous species in the Great Lakes basin is 182. *Baseline and FY 10 target in Action Plan **FY 11 target in Action Plan					
2. Acres managed for populations of invasive species controlled to a target level (cumulative).	1,000	NA	1,500	2,600*	Number of Acres
Additional Information: Baseline of 0 acres. *Targets in Action Plan adjusted downward during the FY 12 CJ process.					

Measure of Progress	Performance Data				Unit
	FY 2010		FY 2011	FY 2012	
	Target	Actual	Target	Target	
3. Number of multi-agency rapid response plans established, mock exercises to practice responses carried out under those plans, and/or actual response actions (cumulative).	4	NA	4*	10*	Number of Responses or Plans
Additional Information: Baseline of 0 rapid response exercises/actions. *Targets in Action Plan adjusted downward during FY 12 CJ process.					
4. Number of recreation and resource users contacted on best practices that prevent the introduction and spread of invasive species. (cumulative)	1,000,000	NA	1,750,000	4,750,000	Users
Additional Information: Baseline of 0 users.					
Focus Area 3: Nearshore Health and Nonpoint Source Pollution Approximately 125 projects totaling $87 million are working to achieve the goals, objectives, and measures for this focus area.					
1. Five-year average annual loadings of soluble reactive phosphorus (metric tons per year) from tributaries draining targeted watersheds. [1]	0.0	NA	0.0*	0.5*	Percent Reduction in Average Loadings
Additional Information: Baselines, 2003-2007, for Fox River (212), Saginaw River (133), Maumee River (623), St. Louis River (TBD), and Genesee River (85). Data for Genesee River are from 2006 and 2007 only. *Targets in Action Plan adjusted downward during FY 12 CJ process.					
2. Percentage of beaches meeting bacteria standards 95 percent or more of beach days. [1]	86%	NA	87%	Not Applicable	% Beaches
Additional Information: Baseline of 86% (2006). Universe of 100%. This measure will be removed in FY 2012 and replaced with the following measure which better aligns with national beach measures: Percent of days of the beach season that the Great Lakes beaches monitored by state beach safety programs are open and safe for swimming. The FY 12 target for this replacement measure is 94%.					
3. Extent (sq. miles) of Great Lakes Harmful Algal Blooms[1]	0%	NA	4%	7%	% Reduction
Explanation of FY 2010 Actual: EPA's FY 2011 Request For Applications specifically asks for projects to calculate this metric from 2008 – 2012. Projects are in place to achieve progress toward meeting ecosystem goals and targets. *Additional Information:* Baseline of 2008 data, to be estimated soon. Biological responses to nutrients loadings are also dependent on other factors such as water temperature, timing and intensity of precipitation, and hydrologic features. Year-to-year variability in these features may mask local improvements in nutrients management. Satellite imagery may provide data for days during which HABs are reported by shoreline observers or boaters.					

Measure of Progress	Performance Data				Unit
	FY 2010		FY 2011	FY 2012	
	Target	Actual	Target	Target	
4. Annual number of days U.S. Great Lakes beaches are closed or posted due to nuisance algae[1]	0% (200 Days)	NA	4% (192 Days)	7% (186 Days)	% Improvement
Explanation of FY 2010 Actual: We expect 2010 data necessary to report this measure to be available in May 2011. *Additional Information:* Baseline of 200 beach days (estimate). This metric will be added to national surveys for beach managers for 2010. Nuisance algae can include *Cladophora*, HABs or other species, all of which are believed to be aggravated by elevated levels of phosphorus in the water					
5. Annual volume of sediment deposition in defined harbor areas in targeted watersheds (cu yards) [1]	0% 1 million cubic yards	NA	1% .99 million cubic yards	1% .99 million cubic yards	% Improvement
Additional Information: Baseline of 2008 data; Toledo Harbor (1 million cubic yards)[2].					
6. Acres in Great Lakes watershed with USDA conservation practices implemented to reduce erosion, nutrients, and/or pesticide loading. [1]	2% 168,300 acres	NA	2%* 168,300 acres	8%* 178,200 acres	Percent Increase (Acres)
Additional Information: Baseline of 165,000 acres. *Targets in Action Plan adjusted downward during FY12 CJ process.					
Focus Area 4: Habitat and Wildlife Protection and Restoration Approximately 240 projects totaling $143 million are working to achieve the goals, objectives, and measures for this focus area.					
1. Miles of rivers reopened for fish passage	1,000	NA	1,500	2,500	Miles
Additional Information: Baseline of 0 miles. Universe of 20,000 miles.					
2. Number of fish passage barriers removed or bypassed.	100	NA	150	250	Barriers
Additional Information: Baseline of 0 barriers. Universe of 5,000 barriers.					
3. Number of species delisted due to recovery. [1]	0	NA	0*	1	Species
Explanation of FY 2010 Actual: Final assessment of projected accomplishments to be made by the USFWS in 2011-2012. *Additional Information:* Baseline of 0 species (2009). Universe of 28 listed species in the Great Lakes. *Targets in Action Plan adjusted downward during FY 12 CJ process.					
4. Percent of recovery actions implemented for priority listed species. [1]	16% 68/414	NA	33% 138/414	51% 211/414	% Implemented

Measure of Progress	Performance Data				Unit
	FY 2010		FY 2011	FY 2012	
	Target	Actual	Target	Target	
Explanation of FY 2010 Actual: Final assessment of projected accomplishments to be made by the USFWS in 2011-2012. *Additional Information:* Baseline of 0 actions (2009). Universe of 414 recovery actions. Numerator: # recovery actions implemented for Great Lakes priority listed species. Denominator: Total recovery actions for Great Lakes priority listed species, as defined in species recovery plans. Note that many recovery actions are implemented annually (i.e., update landowner records, monitor current populations, evaluate threats, etc.). Recovery actions are implemented until the threshold for action "completion" is met, as defined in each species recovery plan.					
5. Percent of populations of native aquatic non-threatened and non-endangered species self-sustaining in the wild (cumulative). [1]	33%: 48/147	NA	33%* 48/147	35%* 52/147	Percent of Populations
Explanation of FY 2010 Actual: Final assessment of projected accomplishments to be made by the USFWS in 2011-2012. *Additional Information:* Baseline *of* 27%; 39/147 populations (2009). Universe of 147 populations. Numerator: # of populations of native aquatic non-T&E and non-candidate species that are self-sustaining in the wild. Denominator: total # of native aquatic non-T&E and non-candidate populations. *Targets in Action Plan adjusted downward during FY12 CJ process.					
6. Number of acres of wetlands and wetland-associated uplands protected, restored and enhanced (cumulative).	5,000	NA	5,000*	7,500*	Acres
Additional Information: Baseline of 0 acres. Universe of 550,000 acres. *Targets in Action Plan adjusted downward during FY 12 CJ process.					
7. Number of acres of coastal, upland, and island habitats protected, restored and enhanced (cumulative).	15,000	NA	15,000*	20,000*	Acres
Additional Information: Baseline of 0 acres. Universe of 1,000,000 acres. *Targets in Action Plan adjusted downward during FY 12 CJ process.					
8. Percent of U.S. coastal Great Lakes wetlands assessed.	20%	NA	40%	60%	% Assessed
Additional Information: Baseline of 0 %. Universe of 100%.					
9. Number of habitat-related BUIs removed from the 27 U.S. AOCs so impaired. [1]	9	NA	12	18	BUIs Removed
Additional Information: Baseline of 4 BUIs. Universe of 75 BUIs. Also included as part of Measure 2, Focus Area 1.					
Focus Area 5: Accountability, Education, Monitoring, Evaluation, Communication and Partnerships Approximately 80 projects totaling $63 million are working to achieve the goals, objectives, and measures for this focus area.					

Measure of Progress	Performance Data				Unit
	FY 2010		FY 2011	FY 2012	
	Target	Actual	Target	Target	
1. Improve the overall ecosystem health of the Great Lakes by preventing water pollution and protecting aquatic systems (using a 40-point scale.) [1]	23	22.7	23.4	23.9	Scale
Explanation of FY 2010 Actual: FY 10 results are based on FY08/FY09 data and do not yet factor in the progress expected under the GLRI. The decline was not indicative of an overall decline in ecosystem health, but was principally due to an underlying problem with reporting on the beaches component of the index. That problem (an unanticipated adjustment in the number of beaches reported by state) will be addressed in the future by using a more appropriate measure, one linked directly to national beach reporting. *Additional Information:* Baseline of 20 points (2002). Universe of 40 points.					
2. Number of priority LaMP projects that are completed.	10	NA	12	15	Projects Completed
Additional Information: Baseline of 0 projects.					
3. Number of educational institutions incorporating new or existing Great Lakes protection and stewardship criteria into their broader environment education curricula.	0	NA	2	6	Institutions
Additional Information: Baseline of 0 institutions. Educational institutions include: state departments of education, primary and secondary school districts, colleges, universities, zoos, aquaria, museums, and nature/resource centers. Curricula will meet relevant official standards.					

[1] Results from this Action Plan measure are achieved through GLRI funding as well as other non-GLRI federal and/or state funding.

[2] USACE dredges the federal shipping channel at Toledo Harbor each year. This area receives the highest rate of sedimentation in the Great Lakes, coming from the Maumee River watershed. Even small improvements in the rate of sedimentation here would reflect considerable efforts in the watershed to reduce erosion and farm runoff. Alternately, USACE conducts bathymetric surveys of commercial harbors each year, from which the volume of new fluvial sediment can be calculated for targeted watersheds. Because USACE does not dredge every location of every harbor each year, the estimated accumulation from a designated area over time will reflect the relative amount of sediments deposited from the tributary. This approach is currently in development.

APPENDIX B – ORGANIZATIONS RECEIVING GLRI FUNDING

The following is a full list of partner organizations and stakeholders receiving funding to protect and restore the Great Lakes (http://glri.us). In addition, many more entities identified projects to fulfill the Action Plan, but these projects could not be supported with FY 2010 funding.

GLRI FY 2010 Funding Recipients

1854 Authority (Inter-Tribal Agency)

Alger Conservation District

Alliance for the Great Lakes

Alliance of Rouge Communities

Bad River Band of Lake Superior Chippewa Indians

Bay Mills Indian Community

Bay-Lake Regional Planning Commission

Bird Studies Canada

Brown County (WI)

Brown County (WI) Land & Water Conservation Dept.

Buffalo Niagara Riverkeeper

Buffalo State College

Calhoun Soil Conservation District

Center for Transformation of Waste Technology

Central Michigan University

Chicago Park District

City of Chicago

City of Frankenmuth

City of Hancock

City of Ishpeming

City of Kenosha

City of Marysville

City of Monroe

City of Port Huron

City of Toledo

Clarkson University

Clinton River Watershed Council

Community Action Duluth

Conservation Resource Alliance

Conservation Technology Information Center

Cornell University

White House Council on Environmental Quality

Cuyahoga County (OH) Board of Health

Cuyahoga County (OH) Engineer`s Office

Cuyahoga County (OH) Soil and Water Conservation District

Delta Institute

Dept. of Agriculture – Cooperative State Research, Education, and Extension Service

Dept. of Agriculture-Animal and Plant Health Inspection Service

Dept. of Agriculture-Natural Resources Conservation Service

Dept. of Agriculture-U.S. Forest Service

Dept. of Commerce-National Oceanic and Atmospheric Admin.

Dept. of Defense-U.S. Army Corps of Engineers

Dept. of HHS-Agency for Toxic Substances and Disease Registry

Dept. of HHS-Fed. Occupational Health

Dept. of Homeland Security-U.S. Coast Guard CT

Dept. of Interior-Bureau of Indian Affairs MN

Dept. of Interior-National Park Service NE

Dept. of Interior-U.S. Fish and Wildlife Service MN

Dept. of Interior-U.S. Geological Survey MI

Dept. of Transportation-Federal Highway Admin.

Dept. of Transportation-Maritime Administration

Door County (WI) Soil & Water Conservation Department

Ducks Unlimited Inc.

Environment Canada

Environmental Solutions & Innovations, Inc

Erie County (NY)

Erie County (PA) Conservation District

Finger Lakes Association

Fond Du Lac Band of Chippewa

Friends of the Detroit River

Friends of the Forest Preserves

Grand Portage Band of Chippewa

Grand Traverse Band of Ottawa and Chippewa Indians

Grand Traverse Conservation District

Grand Valley State University

Great Lakes Commission

Great Lakes Fishery Commission

Great Lakes Indian Fish and Wildlife Commission

Great Lakes Observing System Regional Association

Great Lakes United

Great Lakes WATER Institute, University of Wisconsin-Milwaukee

Groundwork Milwaukee Inc.

Health Research Inc.

Houghton Keweenaw Conservation District

Huron County (OH) Soil & Water Conservation District

Huron Pines

Illinois Department of Natural Resources

Illinois Department of Public Health

Illinois-Indiana Sea Grant

Indiana Department of Environmental Management

Indiana Department of Natural Resources

Indiana State University

Indiana University

International Joint Commission

Izaak Walton League of America

Jefferson County (NY) Soil & Water Conservation District

Kalamazoo Nature Center Inc.

Keweenaw Bay Indian Community

Lake County (IL) Stormwater Mgmt Commission

Lake County Forest Preserve District

Lake Superior Center

Little Traverse Bay Bands of Odawa Indians

Loyola University of Chicago

Macomb County (MI)

Macomb County (MI) Health Department

Manitowoc County (WI) Soil & Water Conservation

Metropolitan Mayors Caucus

Michigan Department of Agriculture

Michigan Department of Community Health

Michigan Dept. of Natural Resources & Environment

Michigan State University

Michigan Technological University

Milwaukee Metropolitan Sewerage District

Minnesota Department of Health

Minnesota Department of Natural Resources

Minnesota Pollution Control Agency

Montclair State University

Muskegon County (MI) Soil Conservation District

National Parks of Lake Superior Foundation

New York State Dept. of Environmental Conservation

New York State Education Department

Niagara County (NY) Soil & Water Cons. District

Northeast Ohio Regional Sewer District

Northeast Recycling Council Inc.

Northeastern Ohio Universities College of Medicine

Northland College

Northwest Regional Planning Commission

NSF International

NY State Office of Parks; Recreation & Historic Preserv.

Oconto County (WI) Land Conservation Division

Ohio Department of Health

Ohio Department of Natural Resources

Ohio Environmental Council

Ohio Environmental Protection Agency

Ohio Lake Erie Commission

Ottawa County (MI)

Ozaukee County (WI)

Park District of Highland Park

Partners For Clean Streams Inc.

Pennsylvania Dept of Environmental Protection

Pigeon River Intercounty Drain Drainage Board

Purdue University

Red Cliff Band of Lake Superior Chippewa

Regional Science Consortium

River Alliance of Wisconsin Inc.

Saginaw Chippewa Indian Tribe

Saint Regis Mohawk Tribe

Sault Ste. Marie Tribe of Chippewa Indians

Save the Dunes Conservation Fund

Science Museum of Minnesota

Southeast Michigan Council of Governments

SRC Inc.

SUNY Research Foundation

SUNY-College of Environmental Science and Forestry

The Nature Conservancy-MI

The Nature Conservancy-NY

The Nature Conservancy-OH

The Nature Conservancy-WI

The Ohio State University College of Public Health

The Pennsylvania State University

The Stewardship Network

U.S. Environmental Protection Agency

University of Illinois at Chicago

University of Illinois at Urbana-Champaign

University of Iowa

University of Michigan

University of Minnesota

University of Notre Dame

University of Rhode Island

University of Toledo

University of Wisconsin Extension

University of Wisconsin-Green Bay

University of Wisconsin-Madison

University of Wisconsin-Oshkosh

University of Wisconsin-Superior

Urban Ecology Center

Village of Egg Harbor

Village of Lake Bluff

Village of Lake Linden

Village of Mount Pleasant

Village of Shorewood

Waukegan Harbor AOC Citizens Advisory Group

Wayne State University

Western Pennsylvania Conservancy

Western Reserve Land Conservancy

Wildlife Forever

Wisconsin Department of Health & Family Services

Wisconsin Department of Natural Resources