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**Great Lakes Restoration and Protection Priorities:
An Overview of Programs, Funding Streams and Critical Gaps
Prepared for the Council of Great Lakes Governors**

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INTRODUCTION

This report provides an overview of current Great Lakes programs and funding streams directed toward restoration and protection of the Great Lakes. These funding streams are organized by Priority as set forth in the nine Restoration and Protection Priorities adopted by the Great Lakes Governors in their October 1, 2003 letter. This report also identifies potential revenue streams for Great Lakes restoration and protection needs, as well as critical program and revenue gaps that challenge restoration and protection needs.¹

The purpose of the report is to assist the Great Lakes Governors in providing focus and coordination to promote the restoration and protection priorities. The report is also meant to document the commitment of State resources to restoring and protecting the Great Lakes. The quality of life in the Great Lakes region depends on the quality of the Great Lakes themselves. The Great Lakes support a tremendous amount of biological diversity. They also support a number of activities and uses, including drinking water, tourism, commerce, recreation, and economic development. While a substantial number of restoration efforts are underway throughout the region, the Great Lakes could be better served through better coordination among federal, State, local and bi-national policies and programs that serve these many uses. The current imperfect coordination often results in inefficient duplication of efforts, missed opportunities, and lack of synergy among the many programs and agencies attempting to promote the health and prosperity of the Great Lakes community.

By organizing a comprehensive strategy around nine clear restoration and protection Priorities, the Great Lakes Governors have undertaken a critical first step in efforts to bring coherence, efficiency and coordination to the multiple programs and government agencies addressing the Great Lakes.

¹ The report is based upon review of program, policy and funding materials and literature, as well as interviews with stakeholders in the Great Lakes. While wide-ranging, the investigation is not comprehensive. Additional consultation with key stakeholders and analysis of relevant materials is needed to further understand programs and funding streams related to restoration and protection of the Great Lakes.

The Governors' Restoration and Protection Priorities are:

1. Ensure the sustainable use of our water resources while confirming that the States retain authority over water use and diversion of Great Lakes waters.
2. Promote programs to protect human health against adverse effects of pollution in the Great Lakes ecosystem.
3. Control pollution from diffuse sources into water, land and air.
4. Continue to reduce the introduction of persistent bio-accumulative toxics into the Great Lakes ecosystem.
5. Stop the introduction and spread of non-native aquatic invasive species.
6. Enhance fish and wildlife by protecting and restoring coastal wetlands and fish and wildlife habitats.
7. Restore to environmental health the Areas of Concern identified by the International Joint Commission as needing remediation.
8. Standardize the methods by which information is collected, recorded and shared within the region.
9. Adopt sustainable use practices that protect environmental resources and may enhance the recreational and commercial value of our Great Lakes.

Through a series of workshops organized as a partnership between the Council of Great Lakes Governors, the Great Lakes Commission and Sea Grant it has become clear that there is broad support among stakeholders in the Great Lakes for the nine Priorities, with general belief that they cover the restoration and protection needs of the Great Lakes Basin.

The Great Lakes Governors, working with the Great Lakes Premiers, are making significant headway through the Charter Annex 2001 initiative in addressing sustainable use, management and diversion of Great Lakes water. However, the perception that the governance structures in the Great Lakes for addressing remaining restoration and protection activities is fragmented and confused is forcefully stated in the U.S. General Accounting Office April 2003 report on Great Lakes restoration programs and funding streams.² The Great Lakes Governors, as primary stewards of the Great Lakes in the United States, are well positioned to address these needs for better coordination. Further, the Governors should coordinate their efforts in partnership with other governmental entities and non-governmental organizations that impact the Basin, including federal agencies, bi-national commissions, the Great Lakes mayors and relevant stakeholders. Relevant to the need for collaboration among authorities and interests in the Basin, there is suggestion that the issue of broad governance and institutional reform is a fundamental and even a primary issue for restoration and protection of the Great Lakes. Further, strategic coordination among the States in pursuit of resources from existing programs has the potential to focus funding on the Governors' Priorities more effectively, particularly in regard to habitat restoration, brownfield rehabilitation and critical scientific research. These considerations will be discussed further in Parts II and III of this report.

² *Great Lakes: An Overall Strategy and Indicators for Measuring Progress are Needed to Better Achieve Restoration Goals*, GAO-03-515 (April 2003).

Another repeatedly stated concern regarding the Priorities is the perception that there is a need for further understanding about how the Priorities relate to each other. Major focus in this regard is how the commitment to control of invasive species relates to the enhancement of commerce within the Basin. The view most frequently stated is that these Priorities are not necessarily opposed to one another, but that potential tensions exist that must be directly and carefully addressed among critical stakeholders engaged in programs relevant to these particular Priorities.

A widely expressed view is that it is critical for the Great Lakes community to recast the image of the Basin, nationally and internationally, highlighting its unique ecological resources and environmental importance, in order to marshal the financial and political support necessary to restore and protect the Great Lakes. The Governors' adoption of the nine Priorities is recognized as a crucial step in advancing a shared understanding of the Great Lakes that can address the foregoing concerns, and raise the prominence of the Great Lakes as a uniquely valuable ecosystem.

The following discussion is in three parts, focusing on current program and funding streams, other potential revenue streams, and programmatic and revenue gaps and options.

Part I. Identification of existing Great Lakes programs directed toward restoration and protection as outlined in the Governors' Priorities.

The General Accounting Office (GAO) has identified 148 federal and 51 State programs funding restoration in the Basin. Of these, 33 federal and 17 State programs are specific to the Great Lakes. In addition to the GAO report, States provided more detailed information on the resources they have committed to restoration and protection activities in the Great Lakes. See attached matrices summarizing estimated current State and federal funding commitments to Great Lakes restoration and protection organized both by the Governor's nine Priorities and State-by-State.

Part II. Identification of new revenue streams that could address Great Lakes restoration and protection needs prioritized by the Governors.

House Bill, HR 2720 (Sponsored by Congressmen Rahm Emanuel (D-IL), Tom Reynolds (D-NY) and others)

- Would provide \$800 million/year for 5 years with a 30% State cost share, including in-kind contributions.
- States would receive \$48-\$240 million (a 6% minimum, 30% maximum of overall funding).
- State block grants would be based on a formula weighting population, water usage, area within the watershed, number of critical areas and Areas of Concern.
- Funds would implement individual State management plans and address specified purposes (similar to those in the HR 2720).
- Prohibits use of grants for road projects, beautification projects and projects to address statutory violations.

Senate Bill, S. 1398 (Sponsored by Senators Mike DeWine (R-OH), Carl Levin (D-MI) and others)

- Would provide \$600 million/year for 10 years with a 20% non-federal cost share, including in-kind contributions.
- States would receive \$36-\$180 million (a 6% minimum, 30% maximum of overall funding).
- EPA would issue grants to States, municipalities and other applicants for contaminated sediment cleanup, wetland restoration, invasive species control and prevention, wildlife and fisheries habitat improvement, public access, water quality, sustainable water use, nonpoint source pollution reduction and other projects.
- EPA would receive funding priorities from an Advisory Board.
- Prohibits the use of grants for expenses related to lobbying, litigation, or design, implementation or evaluation of research projects.

Great Lakes Legacy Act of 2002

- Authorizes up to \$50 million/year through 2008.
- 35% non-federal match.
- \$10 million approved in 2003, and \$22.5 million approved in 2004.
- Projects must be in an Area of Concern and either implement a remediation plan, monitor or evaluate contaminated sediments, or prevent further or renewed sediment contamination.

Ocean Policy Trust Fund

The U.S. Commission on Ocean Policy recently recommended establishing a Trust Fund based on revenue from offshore oil and gas development and other revenues from new and emerging offshore uses (such as wind power and offshore aquaculture). The goal is to establish a stable revenue stream for implementing the new comprehensive national ocean policy as well as ensuring more of these funds go to ocean and coastal management.

State Funding

The States of Ohio, New York, Michigan and Pennsylvania have, in recent years, created Statewide environmental bond funds that can be used for Great Lakes restoration and protection. Current financial constraints on State governments due to economic challenges limit the ability to expand debt-based financing of restoration and protection efforts by bonding against general revenue or dedicated revenue streams and enterprise funds.

- “Matching funds” present challenges for State and local governments. Some State and local governments oppose additional matching fund programs since they cannot provide match under current budget situations.
- Revolving and low-interest loans have the potential to provide support for projects, but also present challenges. These programs can provide long-term support of restoration and protection projects, but most do not address non-point pollution and habitat problems. Furthermore, adequate funding for these programs has not been appropriated during the most recently concluded Congressional session.

Potential Use of Federal Non-Great Lakes-Specific Programs

While the effort to create new funding initiatives to address the Restoration and Protection Priorities of the Governors, commensurate with the ecological value of the Great Lakes is a

critical focus for the Great Lakes community, use of existing environmental programs to advance Priorities in the Basin is important for the ecosystem. Clearly, this approach will not leverage the magnitude of resources needed in the Basin. The approach will require site-specific efforts to secure funding on a case-by-case basis, attentive to the particular conditions of each case. However, identification of potential funding opportunities, layering of programs, and coordination among the States can advance particular projects with measurable impacts for the Governors' Priorities.

For instance, under Section 1135 of the U.S. Water Resources Development Act (WRDA), the Corps of Engineers is authorized to restore natural habitat that has been negatively affected by a Corps project, including the placement of contaminated dredge material in wetlands. Federal funding is capped at \$5 million, and there is a 75%/25% federal/non-federal cost share for each project. The non-federal share can be provided by land and in-kind services. The funding is appropriated to a discretionary fund managed by the Corps, which can lead to complications and time delays, as competing project demands arise in the course of a project.³

Section 206 of WRDA allows the Corps to restore degraded aquatic ecosystems whether or not the degradation is associated with a Corps project. Historically, these projects have involved restoration of wetlands and riparian habitat, or changes to hydrological regimes. The cost share required in Section 206 projects is 65%/35% federal/non-federal, with land and in-kind services counting toward the non-federal share. As with the Section 1135 program, the project funding is appropriated to a discretionary fund managed by the Corps.

Brownfield remediation serves the goals set forth in Priorities 3 and 9 of controlling pollution and advancing the economic vitality of the Basin. Coordinating efforts to leverage funds for brownfield projects from existing programs should be pursued. The U.S. Environmental Protection Agency provides brownfield grants to support planning and redevelopment efforts nation-wide. Similarly, the U.S. Department of Housing and Urban Development provides a nation-wide Brownfield Economic Development Initiative (BEDI) grant program, and a Section 108 loan guarantee that is part of the Community Development Block Grant program, which can leverage significant funding for brownfield efforts. It is worth exploring the potential for the Great Lakes States to identify a suite of brownfield projects within the Basin that could be jointly pursued as part of the Restoration and Protection Priorities. Adopted by the Great Lakes States as a joint effort, a comprehensive suite of projects might leverage significant federal investment and focus efforts with EPA/BEDI grants, and Section 108 loan guarantees.

³ A current debate regarding use of 1135 funds within the City of Chicago illustrates the potential for delay and conflict. The Corps determined in 1999 that it would use 1135 funds to assist in the restoration of wetland habitat known as Indian Ridge Marsh, which happens to be tributary to the Great Lakes, and onto which the Corps had placed contaminated dredge material. Recently, a request by another agency was made for 1135 funds to assist dredging a contaminated water way known as "Bubbly Creek" that is tributary to the Chicago Sanitary and Ship Canal, and which is attracting upper-market residential development. Given funding constraints, the recent request is actually competing with the previous determination to use 1135 funds to restore the Indian Ridge wetland habitat, and a delay in commitment of project funds has ensued.

The Sea Grant Colleges' programs within the States' university systems issue regular research grants on ecological and economic matters relative to water resources. Research projects have included work on invasive species, habitat restoration, coastal cities economies and brownfield redevelopment, which are relevant to the Priorities. An effort by the Great Lakes States to structure requests for grant proposals by the Great Lakes Sea Grant programs within their university systems, which are coordinated to the Priorities, could leverage investment in science and research more directly relevant to Basin needs.

The U.S. EPA has progressively pursued Supplemental Environmental Projects (SEPs) as part of its enforcement programs. SEPs direct settlement funds from enforcement programs to specific environmental projects, rather than direct the monies to the federal treasury. SEP projects have included investment in wetland rehabilitation and brownfield clean-ups.⁴ A joint effort could be explored among the Great Lakes States to coordinate with the federal government SEP determinations in connection with the Great Lakes Restoration and Protection Priorities.

Coordination among the Great Lakes States to pursue existing funding opportunities for projects that transcend State boundaries and fall within the Restoration and Protection Priorities could help focus existing programs to more effectively address the Priorities. This may better deliver existing resources to strategic programs.

Part III. Identification of programmatic and revenue gaps, and options for addressing these challenges.

There is a range of programmatic and revenue gaps that cross multiple Priorities as well as gaps that apply to specific Priorities. The following will identify the "cross Priority" issues, and then discuss critical gaps applicable to particular Priorities.

1. Principal "cross Priority" gaps:

A. Lack of consistent accounting or tracking method for Great Lakes restoration programs, expenditures or funding used by federal, State and local governments.

- Consistent accounting and tracking methods do not exist, in part because the scope of both the relevant agencies and relevant funding programs goes beyond the Great Lakes. This lack of a consistent accounting or tracking method for Great Lakes restoration programs, expenditures or funding presents a serious impediment to quantifying commitments and understanding the effectiveness of resource allocations.

⁴ See, for example, April 18, 2003, settlement of RCRA suit with Chicago Specialties, LLC, which included a \$310,000 investment in a wetland rehabilitation in an adjacent area, which happened to be in the Lake Michigan watershed. <http://www.epa.gov/region5/orc/enfactions/enfactions2003/law-mm.htm>. In 1997, EPA settled a lawsuit with Sherwin Williams that included a SEP for a \$950,000 investment in a brownfield remediation. http://www.usdoj.gov/opa/pr/1997/January_97/042enr.htm.

- There is a need for standardization of program and funding commitments in order to effectively and efficiently marshal and direct scarce resources to restoration and protection Priorities.⁵

B. Annual, Project-based Funding Is a Problem.

- Current funding is principally project-specific and on an annual basis. The restoration and protection needs of the Basin require multi-year program and funding commitments.
- There is a need for long-term, stable funding of programs, rather than annual project specific appropriations.
- There is no present means to assure long-term funding of programs commensurate with the temporal, territorial and ecological scale of the Great Lakes.
- The resulting small, discrete, unrelated, competing annual project grants are incommensurate with Governors' Priorities and ecosystem needs that are on larger temporal and territorial scale.
- There is a need for a new structure for funding priorities that engages Governors' leadership, and the collaboration of the federal government, rather than fragmenting efforts around shifting bureaucratic guidelines.
- State funding of programs through multi-year bond issues have been more stable and have provided for longer-term effort and program design. This approach can serve as an example of how to better ensure long term Great Lakes Restoration and Protection. It should be noted, however, that in some States the proceeds from multi-year bond funds can only be committed through a single budget cycle.

C. Need for Broader Agreement on Basin Agenda.

- There is a need for broadly shared understanding of the Priorities and the inter-relation of programs and projects.
- Pursuing long-term funding commensurate with program needs to serve the Governors' Priorities requires that a broader consensus among governments and stakeholders in the Basin be established.
- There needs to be the development of shared indicators by which to measure progress on the nine Priorities.
- The Great Lakes community must make a clear, strong case for financial support for the Basin to those outside the Basin; development of a comprehensive ecological agenda is crucial in this regard.

D. Broad governance issues.

- There is broad consensus that Great Lakes governance and institutions need greater clarity as to authority, jurisdiction and relationship to one another. Many stakeholders express concern that the multiplicity of institutions that are engaged in the Great Lakes is a source of confusion that impedes efficient development of restoration and

⁵ Confusion over program and funding commitments is cognate with and contributes to the confusion over the collection, storage, analysis and access to ecological data critical for restoration and protection of the Great Lakes, which is the focus of the Governors' Priority number 8.

protection programs and policies, and requires clarification. With clearer divisions of responsibility, the many Great Lakes stakeholders can more effectively work towards restoration goals.

- The GAO analysis of Great Lakes restoration programs found that the state of governance, with “the myriad of current strategies and coordination efforts makes it difficult to determine which organization is in charge.”⁶ The GAO recommends that this confusion be remedied by adoption of a “publicly accepted, comprehensive plan” with “clearly defined responsibilities for coordination” guided by an “overarching strategy and governance process.”⁷
- The position of the Great Lakes Governors is that governance over the waters of the Basin must reside within the Great Lakes community with the Governors and Premiers serving as primary stewards for the resource. This principle presents the legal and policy base for organizing restoration and protection of the Great Lakes under the stewardship tenets of the Public Trust Doctrine, which holds that navigable waters and underlying lands within States are assets held in trust for the people of the State, with the Governors acting as trustees over the assets with stewardship responsibility to guarantee the public’s right to use of the waters for commerce, navigation, fishing, aesthetic enjoyment and ecological value.⁸

E. The interconnection of hydrological resources, land use practices, natural resource integrity and environmental quality is not adequately recognized or addressed in regulatory programs, policies and practices, impeding an “ecosystem” approach to the Great Lakes.

- There is a need to bridge the gap between water agencies and land use authorities.
- There is a need to bridge the gap between environmental regulators and natural resources agencies.

2. The following section discusses program and funding gaps in the context of the nine Priorities, though some of the gaps are relevant to more than one Priority. Where appropriate, suggestions are made as to how identified gaps can be addressed.

Priority 1. Ensure the sustainable use of our water resources while confirming that the States retain authority over water use and diversion of Great Lakes waters.

- The Governors and Premiers are working to implement the Great Lakes Charter Annex 2001. Drafts of the Annex implementing agreements were released for a 90 day public

⁶ GAO, *Great Lakes: Overall Strategy and Indicators for Measuring Progress are Needed to Better Achieve Restoration Goals*, p. 35, GAO-03-515 (April 2003).

⁷ *Ibid.*

⁸ The leading case on the Public Trust Doctrine is *Illinois Central Rail Road Co. v. Illinois*, 146 U.S. 387 (1892), holding that the Illinois General Assembly’s attempted transfer of Lake Michigan lake bed to a private entity is prohibited by the Public Trust Doctrine. There is much legal analysis of this case and the Doctrine. *See, e.g.,* Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 *Mich. L. Rev.* 471 (1970); Douglas L. Grant, *Underpinnings of the Public Trust Doctrine: Lessons From Illinois Central Railroad*, 33 *Ariz. State L. J.* 849 (Fall, 2001); and J.D. Kearney and T.W. Merrill, *The Origins of the American Public Trust Doctrine: What Really Happened in Illinois Central*, 71 *U.Chi.L. Rev. No.3* pp. 799-931 (Summer 2004).

comment period beginning on July 19, 2004. The full development and implementation of the Annex will require actions by multiple legislatures and the establishment of administrative structures to oversee the Annex process.

- Ongoing research, modeling and monitoring of ecosystem functions, impairments and rehabilitation will be required as part of the Annex decision-making process and administration, underscoring the need for effective coordination of programs and efficient deployment of resources to support research, modeling and monitoring activities.
- The programmatic costs and funding sources to support the programs have not been quantified or identified.

Priority 2. Promote programs to protect human health against adverse effects of pollution in the Great Lakes ecosystem.

- There is a strong, widely shared perception that the aging state of sewer systems and the outfall from combined sewer systems presents a major funding gap within the Basin, which is directly relevant to this Priority due to the release of bacteria and other wastes from failing and aging sewer systems.
- The program structure exists to address sewer system and outfall failures, engaging federal, State and local governments. A significant gap exists regarding how to meet very large funding needs nation-wide and in the Basin.⁹ The portion attributable to sewer system needs in the Great Lakes cannot be determined based on current national data. Meeting the federal portion of this cost presents a significant funding issue, and State and local governments in and outside of the Basin are concerned about their ability to meet cost share requirements.
- A further gap in programs and funding relevant to this Priority is presented by the accelerating failure of on-site wastewater management infrastructure, such as septic systems. For instance, much residential development following the Second World War included septic systems as a temporary management strategy, with the anticipation that the septic systems would be replaced by sewer interconnections, which in many cases have not occurred. The dimension of the problem presented to the Great Lakes ecosystem by releases from non-sewered systems has not been calculated or quantified, and presents an important gap in programs and funding to protect human health and safety from the adverse affects of pollution in the Basin.
- Bacterial contamination of beaches and coastal areas in the Basin presents a direct threat to human health and safety within the Great Lakes. The governance structure is limited, fragmented and based on scientifically out-dated assumptions regarding the source and behavior of bacteria in beach and near coast environments.
- There is no uniform method or protocol for bacteria monitoring or response. Testing regimes in the Basin run from daily sampling to no sampling. Testing focuses on E. coli bacteria as the indicator bacteria, but recent investigations by the United States Geological Survey in cooperation with the USEPA and local governments casts significant doubt on the adequacy of E. coli as an indicator. The presumption that the

⁹ USEPA, *Clean Watersheds Needs Survey 2000 – Report to Congress*, EPA-832-R-03 (August 2003).

source of E. coli is human waste from failed sewer systems and other urban point sources near beaches and coastal areas may be fundamentally flawed, with recent research demonstrating that environmental and broad Lake processes are central to occurrence of bacteria loading. Investment in scientific research, standardized practice and protocol and governance realignment is needed to better protect public health and economic resources.¹⁰

Priority 3. Control pollution from diffuse sources into water, land and air.

There is a widely shared consensus that protection and restoration of the Great Lakes depends in significant part on the control of multiple diffuse pollution sources and pathways to the Lakes. The principal general categories of such sources and pathways include:

- Non-point source run-off, from agriculture, urban areas and construction activities,
- Air deposition,
- Brownfields, and
- Urban infrastructure and run-off.

A detailed list containing specific identification, characterization and quantification of clean-up and control options and costs to address these “diffuse sources” of pollution does not exist. Funding of remedial investigations and feasibility studies is a necessary precondition for framing a strategy to address this Priority.

Priority 4. Continue to reduce the introduction of persistent bio-accumulative toxics into the Great Lakes ecosystem.

- Similar to other areas of contamination of the Great Lakes relevant to Priorities 2 and 3, major gaps exist in programs and funding information for the level of study, analysis, management and control of persistent bio-accumulative toxics and their effects on the Great Lakes. This includes basic science research, data collection and analysis, as well as development of regulatory structures to address the generation, release and control of contaminant sources and streams that are not adequately addressed under current legal regimes.

¹⁰ The U.S. Environmental Protection Agency’s focus on E. coli is set forth in a draft guidance, *Ambient Water Quality Criteria for Bacteria*, (EPA 440/5-84-002, 1986). The assumption of the draft guidance is that humans are the source for E. coli on beaches. Recent studies by the USGS in southern Lake Michigan indicate that most sources for E. coli are non-point sources, and from animal feces, particularly gulls. Leading investigators are Richard Whitman and Sharyl Rabinovici of the USGS. See, e.g., R.L. Whitman, M.B. Nevers, and P.J. Gerouvac, “Interaction of Ambient Conditions and Fecal Coliform Bacteria in Southern Lake Michigan Beach Waters: Monitoring Implications,” *Natural Areas Journal* 19 no. 2 (1999), 166-171. See also, Whitman et al, “Foreshore Sand as a Source of Escherichia coli in Nearshore Water of a Lake Michigan Beach,” *Applied and Environmental Microbiology*, September 2003, p. 5555-5562, Vol. 69, No. 9. On the economic impacts of beach closure decisions, see R. Bernknopf, D. Coursey, H. Henderson, S. Rabinovici, and R. Whitman, “Using Benefit Transfer to Estimate the Value of Safe Beach Recreation in Southern Lake Michigan.” United States Geological Survey, Center for Science Policy, Menlo Park, CA; United States Geological Survey, Biological Resource Division, Lake Michigan Ecological Research Station, Porter, IN; Policy Solutions, Ltd., Chicago, IL; University of Chicago, Chicago, IL. Prepared for the Great Lakes Beach Conference, Chicago, Illinois, February 2001.

- The current review of the Great Lakes Water Quality Agreement provides a context for addressing these issues and advancing institutional matters relevant to Priority 4. In 1972, the U.S. and Canada signed the Agreement to restore the health of the Great Lakes and St. Lawrence River ecosystem.
- The Great Lakes Binational Toxics Strategy involves the governments of Canada and the United States in a framework to coordinate actions to eliminate from the Great Lakes persistent toxic pollutants, particularly bio-accumulative toxics.
- The Great Lakes Toxic Substances Control Agreement entered into by the Great Lakes Governors seeks to foster cooperation among the governments in the Basin to study, monitor and control toxic pollution in the Great Lakes. The need for more intense federal engagement in the study, monitoring and control of toxics is identified as a major need by the agreement.

Priority 5. Stop the introduction and spread of non-native aquatic invasive species.

- Different “gaps” apply to managing the invasive species that are already present and prohibiting the introduction of new species.
 - Prohibiting the introduction of new species is understood to be an immediate, acute issue. It is clear what the major vectors for introduction are: ballast water, the Chicago Sanitary & Ship canal, aquaculture and trade in live fish.
 - The key is the performance of already identified tasks to establish barriers, adopt regulations and enforce them. To that end, the Governors have called for the passage of the National Aquatic Invasive Species Act (NAISA). There are also funding requirements associated with these actions, but the activities are clear and what is principally needed is the funding to act on the activities. Private/Public partnerships may be of particular value in addressing this Priority.
- Addressing invasive species already in the Great Lakes is more complicated from research, program and monitoring perspective.
 - Research on control of invasive species already in the system is needed.
 - Among the promising directions is restoring native fish populations that can prey on invasive species. Sustained, scientific investigation of how to create a more stable and healthily functioning system through re-establishing native populations is a promising area.¹¹

¹¹ For example, Lake Sturgeon appears to be very effective in controlling zebra mussel and goby populations. Both are scarce where there are Lake Sturgeon populations, suggesting a promising inter-relationship of rehabilitation of native species, restoration of habitat and control of invasive species. There is a need to test the assumption and determine whether re-establishing Lake Sturgeon on broader scale is possible means of controlling the zebra mussels and goby, and, if so, how to roll out on larger scale. A promising area for investigation is in the Huron-Erie corridor. Lake Sturgeon could be introduced at scale, and then monitored as to whether they effectively drive down zebra mussel and goby populations. This pilot project would need a five-year program of about \$500,000 to \$1 million per year to do effectively.

Priority 6. Enhance fish and wildlife by protecting and restoring coastal wetlands and fish and wildlife habitats.

- There is a coincidence of CGLG's Priorities for native fish rehabilitation, habitat restoration and management of invasive species.
- The presence of invasives does more to harm native species than just compete with native species for food, habitat, etc. There seems to be a serious impact on the health of key native populations when they prey primarily on certain invasive species.¹²
- There is a clear gap in scientific data and analysis, and funding of the scientific work necessary to address this data and analytical gap at appropriate local, regional and ecosystem scales.

Priority 7. Restore to environmental health the Areas of Concern (AOC) identified by the International Joint Commission as needing remediation.

- Funding to address AOCs comes from a variety of sources, including federal, State, local government and private foundation programs, such as the Army Corps of Engineers, U.S. EPA, NOAA, and State bond funds and Great Lakes Protection Fund projects.
- The International Joint Commission puts estimates for cleanup of U.S. Areas of Concern (AOCs) at nearly \$8 billion.¹³

Great Lakes Legacy Act funding is one mechanism to fund AOC remediation.

- Funding of \$22.5 million has been secured for 2005.
- There is currently no funding secured beyond 2005.
- There are complications in implementing expenditures:
 - GLNPO capacity/restrictions on implementation.
 - Restrictions/impediments in delivery of funds to States and CGLG Priorities.

Priority 8. Standardize the methods by which information is collected, recorded and shared within the region.

- Despite steps in the right direction through efforts like the Great Lakes Coastal Wetlands Consortium, there is a lack of consistent scientific data, including sampling

¹² For instance, the health and reproductive capacity of Lake Trout seems to be undercut by preying on alewives. Alewives carry a chemical that breaks down the thiamin in the Lake Trout, which undercuts their ability to reproduce and the viability of the eggs, and seems to cause premature death in adult Lake Trout to some extent. There is a need to fully examine this and test potential for immediate response through injection of fish with B1 complex, and for a longer-term, more sustainable approach of restocking native fish that build the thiamin of the Lake Trout, e.g., chubs. Such a multi-year program in restocking and investigating would run \$1 million per year.

¹³ From "Status of Restoration Activities in Great Lakes Areas of Concern: A Special Report." April 2003. Report of the International Joint Commission: "The United States Government, however, has currently estimated that costs of \$7.4 billion (USD) will be required to address the wastewater infrastructure and sediment improvements necessary to restore beneficial uses in selected Areas of Concern for which detailed information is available." Page 6 of Executive Summary.

protocol, investigation methodology, ecological data, analytical framework, and central information repository. With the understanding that federal and State agencies need to track information for programs that often operate beyond the scope of just the Great Lakes, guidelines can be developed to better track the impact of such programs on the Great Lakes.

Priority 9. Adopt sustainable use practices that protect environmental resources and may enhance the recreational and commercial value of our Great Lakes.

There is broad agreement that successful adoption of the foregoing eight Priorities would protect the Great Lakes and enhance their recreational and commercial value.

- Of particular interest for many stakeholders is a focus on revitalization of lakefront and coastal properties, where control of non-point source run-off and recreational enhancement can improve the economic and ecological health of the resource.
- In urban areas in particular, lakefront property is frequently undervalued and underutilized because of actual and perceived contamination. Focusing on Brownfield clean-up and environmentally sound shoreline revitalization can advance sustainable use practices within the Basin.
- Similarly, attention to bacterial contamination of the Lakes with adverse impact on beach and coastal water access, as discussed in connection with Priority three above, joins ecological and economic concerns. Funding of basic science and development of institutional practices to better manage access to lakefront resources is needed.
- The development of standard accounting methods and standards for valuing ecological resources is a necessary precondition to leverage investment in environmentally sound infrastructure and management practices that protect and restore the Great Lakes and related resources. Adoption of the Government Accounting Standards Board (GASB) directives, particularly directive 34 that mandates consideration of long-term performance and maintenance expenses in financial disclosures by governments, presents a potential for developing the accounting structure to better advance sustainable use practices in the Basin.

CONCLUSION

A plethora of programs, policies, agencies and associated funding streams are directed to the restoration and protection of the Great Lakes. The size of the funding commitments and the relationship of the multiple programs and agencies are at present not readily quantifiable or clearly identifiable. The very multiplicity constitutes an impediment to effective and efficient implementation of restoration and protection goals for the Great Lakes. The agreement by the Great Lakes Governors on a concrete set of restoration and protection Priorities provides a context for analyzing the existing data, identifying critical gaps in information and programs that frustrate pursuit of the Priorities, and suggest ways for addressing the gaps. The foregoing report is intended to provide an overview of the current state of programs and funding relevant to the Priorities, and identify critical gaps in understanding and programming that need to be addressed to advance the Governors' Priorities.

Introduction to Estimated Federal and State Spending Tables

Because federal and State agencies need to track information for programs that often operate beyond the scope of just the Great Lakes, gathering consistent information on Great Lakes-specific federal and State spending on restoration and protection is difficult. These problems are caused in significant part due to the lack of shared tracking and accounting systems for such programs among the multiple State and federal agencies engaged in the area.

Retrospective accounting for authorizations, appropriations and actual spending is therefore complicated and, in a period of serious resource constraints, unreasonably burdensome to comprehensively achieve. It is recommended that federal and State governments consider the development of guidelines to track and account for prospective resource commitments to the Great Lakes to facilitate accurate future tracking of Great Lakes related expenditures. Indiana recently developed a matrix for tracking Great Lakes spending by Priority, which can provide a helpful beginning for the coordination of accounting efforts among the States and federal governments.

The States provided information by Priority to the Council of Great Lakes Governors; some States updated program information after the May 2004 workshop that was held by the Council. Reflective of their different tracking systems that have been developed for a variety of differing needs, States provided a mix of annual and multi-year funding (bond, loan and grant funds and other programs). The timeframe was not always identified. Different States included different programs (e.g., some included underground storage tank and pollution prevention programs). The Great Lakes Basin boundary covers different portions of the States; sometimes a State cannot easily break out Great Lakes-specific spending under a State-wide program. The development of prospective accounting guidelines as recommended above would help in providing greater clarity in accounting for expenditures in this complicated area.

For federal spending, the 2003 GAO Report Appendix IV for FY92-01 was used. A Northeast-Midwest summary of federal FY00-04 funding and EPA's Great Lakes National Program Office (GLNPO) information for the last 5-10 years of funding also was used. Programmatic information is not consistent. No attempt was made to capture all the nation-wide programs, a portion of which is spent in the Great Lakes Basin. It is our understanding that pursuant to the President's May 18, 2004 Executive Order, the White House Office of Management and Budget is creating an inventory of existing nation-wide programs and their impacts on Great Lakes restoration and protection. Finally, it should be noted that the descriptions in the GAO report often covered several Priorities.

Table 1

A Comparison of Reporting on Multi-Year Funding Programs

	Total Great Lakes Restoration and Protection Money as reported by the GAO and by States	As Reported in the April 2003 GAO Report, Page 4 (FY92-01)		As reported by the States in 2004 for Multi-year funding programs (FY 92-04)
		Federal FY92-01	State FY92-01	State FY 92-04
	TOTAL	\$745,000,000	\$956,000,000	\$4,963,235,314

Using comparable numbers and timeframes, this table reflects the difficulty in reporting how the States and the federal government are spending funds in support of Great Lakes restoration and protection.

It should be noted that on Page 4 of the GAO report it was estimated that \$358 million had been spent by the U.S. Army Corps of Engineers for legislatively directed projects. This amount is in addition to the estimated \$387 million the Federal government spent on Great Lakes restoration and protection via 33 different federal programs specifically focused on the Great Lakes. The Army Corps of Engineers dollars were not included in Appendix IV of the GAO report, and therefore are not reflected in Table 4 of this report.

In addition, it should be noted that in the third total column, the amount does not include State Great Lakes annual funding during this time period. An approximation of current State annual funding levels is outlined in Table 2, below.

Table 2
Estimated Current Annual Great Lakes Restoration and Protection
Spending reported by the States

Estimated Current State Annual Restoration and Protection Spending by Priority*		
	Priority	State Annual
1	Ensure the sustainable use of our water resources while confirming that the States retain authority over water use and diversions of Great Lakes waters.	\$1,285,000
2	Promote programs to protect human health against adverse effects of pollution in the Great Lakes ecosystem.	\$2,589,360
3	Control pollution from diffuse sources into water, land and air.	\$1,397,000
4	Continue to reduce the introduction of persistent bioaccumulative toxics into the Great Lakes ecosystem.	\$1,280,000
5	Stop the introduction and spread of non-native aquatic invasive species.	\$3,590,900
6	Enhance fish and wildlife by restoring and protecting coastal wetlands, fish and wildlife habitats.	\$2,890,000
7	Restore to environmental health the Areas of Concern identified by the International Joint Commission as needing remediation.	\$148,000
8	Standardize and enhance the methods by which information is collected, recorded and shared within the region.	\$525,000
9	Adopt sustainable use practices that protect environmental resources and may enhance the recreational and commercial value of our Great Lakes.	\$11,240,000
	Total	\$24,945,260

Estimated Current Annual Restoration and Protection Spending by State*	
State	Annual Spending
Illinois	\$2,842,000
Indiana	\$331,000
Michigan	\$1,033,360
Minnesota	\$1,849,500
New York	\$1,410,500
Ohio	\$11,937,000
Pennsylvania	\$1,426,900
Wisconsin	\$4,115,000
Total	\$24,945,260

*As noted in the report, States varied in the programs they included, and whether they put a timeframe on the spending.

Table 3

**Estimated State Multi-Year Spending on Great Lakes Restoration and Protection
FY 92-04***

	Priority	Multi-Year Bond, Grant & Loan Programs	State	Multi-Year Bond, Grant & Loan Programs
1	Ensure the sustainable use of our water resources while confirming that the States retain authority over water use and diversions of Great Lakes waters.	\$17,660,000	Illinois	\$639,695,925
2	Promote programs to protect human health against adverse effects of pollution in the Great Lakes ecosystem.	\$2,005,434,370	Indiana	\$96,100,000
3	Control pollution from diffuse sources into water, land and air.	\$1,483,032,400	Michigan	\$1,686,646,600
4	Continue to reduce the introduction of persistent bioaccumulative toxics into the Great Lakes ecosystem.	\$691,882,336	Minnesota	\$44,410,030
5	Stop the introduction and spread of non-native aquatic invasive species.	\$7,773,678	New York	\$667,308,635
6	Enhance fish and wildlife by restoring and protecting coastal wetlands, fish and wildlife habitats.	\$116,411,800	Ohio	\$755,662,624
7	Restore to environmental health the Areas of Concern identified by the International Joint Commission as needing remediation.	\$421,203,730	Pennsylvania	\$14,828,500
8	Standardize and enhance the methods by which information is collected, recorded and shared within the region.	\$10,494,000	Wisconsin	\$1,058,583,000
9	Adopt sustainable use practices that protect environmental resources and may enhance the recreational and commercial value of our Great Lakes.	\$209,343,000		
	Total	\$4,963,235,314		\$4,963,235,314

*As noted in the report, States varied in the programs they included. The lifespan of the multi-year programs reviewed for this report began on or after FY92 and ended on or before FY04.

Table 4

**Estimated Federal and State Restoration and Protection Spending by Priority
(Information taken from April 2003 GAO Report and separately
reported by States)**

		Information taken solely from the April 2003 GAO Report, Appendix IV		State Reports on Multi-Year Funding Programs* (July 2004)
		Federal FY92-01	State FY92-01	State FY 92-04
1	Ensure the sustainable use of our water resources while confirming that the States retain authority over water use and diversions of Great Lakes waters.	\$2,684,296	N/A*	\$17,660,000
2	Promote programs to protect human health against adverse effects of pollution in the Great Lakes ecosystem.	\$26,400,000	N/A*	\$2,005,434,370
3	Control pollution from diffuse sources into water, land and air.	\$40,562,200	N/A*	\$1,483,032,400
4	Continue to reduce the introduction of persistent bioaccumulative toxics into the Great Lakes ecosystem.	\$107,590,210	\$461,800,000	\$691,882,336
5	Stop the introduction and spread of non-native aquatic invasive species.	\$26,400,280	\$5,199,600	\$7,773,678
6	Enhance fish and wildlife by restoring and protecting coastal wetlands, fish and wildlife habitats.	\$35,590,650	\$58,191,100	\$116,411,800
7	Restore to environmental health the Areas of Concern identified by the International Joint Commission as needing remediation.	\$78,723,950	\$466,341,100	\$421,203,730
8	Standardize and enhance the methods by which information is collected, recorded and shared within the region.	\$114,038,000	\$1,747,700	\$10,494,000
9	Adopt sustainable use practices that protect environmental resources and may enhance the recreational and commercial value of our Great Lakes.	\$64,096,000	\$2,084,296	\$209,343,000

*Does not include State Great Lakes Annual funding during this time period. Only approximate current State Great Lakes Annual funding could be provided by the States.

*The Governors had not adopted their nine Priorities when the GAO report was developed. Consequently, while the States and federal government may have expended funds in support of these Priorities during this time period, those expenditures could not be easily broken out into these categories.

ADDITIONAL NOTES FOR TABLE 4:

The GAO report was used because getting more recent Great Lakes-specific federal spending by Agency or Department was difficult in a limited timeframe. The White House Office of Management and Budget has initiated a review of federal programs and their impacts on the Great Lakes which is due in the Spring of 2005.

The GAO's program descriptions often covered several Priorities, so there is redundancy in the above numbers. In addition, Appendix IV of the GAO report was used exclusively to provide this breakdown of funding by Priority. Therefore, for example, funding used by the Army Corps of Engineers on behalf of Great Lakes restoration and protection (estimated at \$358 million during the same time period) is not included in this breakdown.

Priorities 3, 6 & 7: A number of programs cited by the GAO report could have been placed under both Priorities 3 and 7, and could easily have been added to 6 as well.

Because of the large dollar amount, the sum for those programs was simply split between Priorities 3 and 7.

Priority 5: For FY00-04, GLNPO states that they spent \$1.7 million to combat invasive species. The Northeast-Midwest Institute (NEMW) cites approximately \$57million during the same fiscal period. This disparity of reporting is reflective of the difficulty inherent in tracking programs that may benefit the Great Lakes.

Priority 6: For FY00-04, GLNPO reports spending \$6.65 million on restoration. NEMW cites \$10 million in Great Lakes Legacy funding during the same time period.

Priority 7: For FY00-04, GLNPO reports spending \$9.5 million on contaminated sediments clean up and an additional \$962,000 to address a Lake Erie Area Of Concern.

Priority 9: For FY00-04, NEMW reports that \$66.49 million was spent by the Great Lakes Seaway Development Corporation in support of this Priority.

Total: As previously stated, the GAO's program descriptions often covered several Priorities, so there is redundancy in the numbers where broken out by Priority. Accordingly, the "Total" amount spent by the Federal government in support of Great Lakes Restoration and Protection from FY 92-01 cannot be derived from this table. As previously noted, on page four of the GAO report it is estimated that approximately \$745 million was spent by the Federal government and \$956 million was spent by the Great Lakes States in support of Great Lakes restoration and protection.