

**Appendix C.
Great Lakes Regional Collaboration
Issue Areas**

The following is a list of five of the areas (Aquatic Invasive Species, Habitat/Ecosystem Restoration, Coastal Health, AOC's/Contaminated Sediments and Nonpoint Source Pollution) where the Corps of Engineers has current authorities to provide assistance.

Under each *issue area* where the Corps could provide assistance is: a) a *short definition of the identified need* that underlies each priority; b) a list of all relevant strategies pertaining to this particular priority including *specific strategic goals and objectives to meet the identified need*; c) a summary of Corps programs with relevance to this priority and actions necessary to meet the identified need. Lastly, the recommendations of the Great Lakes Regional Collaboration toward the remediation of the issue area are described.

1. Aquatic Invasive Species (AIS)

Need:

- ◆ Prevention and control of invasive AIS is one of the greatest, if not currently the largest ecosystem concern of Great Lakes stakeholders.

Strategies:

- *Great Lakes governors and premiers: A Great Lakes Action Plan for the Prevention and Control of Nonindigenous ANS*
 - Principles drawn from existing laws, policies, and programs to guide ANS prevention and control plans in each of the states and provinces and to build a basis for communication and cooperation.
 - The *Plan* aims at three goals:
 - 1) Prevent the unauthorized introduction of nonindigenous aquatic species;
 - 2) Limit the spread of established ANS within the region;
 - 3) Minimize the harmful ecological, economic, social, and public health impacts resulting from ANS already present.
 - Selected strategic actions:
 - Management programs:
 - Evaluate technologies and management practices that eliminate or minimize the risk of introduction and spread in an ecologically sound and economically responsible manner.
 - Research and monitoring:
 - Establish ecological and other criteria to guide the design and implementation of new control strategies.
 - Provide technical, scientific, and financial assistance for the implementation of control measures that meet accepted criteria.
- *Great Lakes Commission: Great Lakes Program to Ensure Environmental and Economic Prosperity*
 - Priority: Curtailing the introduction of invasive species.
 - Selected priority actions:
 - ⊖ Dispersal barrier demonstration (Section 1202(i), NISA): construct, maintain, and evaluate the dispersal barrier in the Chicago Sanitary and Ship Canal and undertake related control activities.

- ⊖ Sea lamprey barriers (Section 1135(c), WRDA 1986, as amended): prevent and control the spread of Asian carp and sea lamprey and construct a second dispersal barrier in the Chicago Sanitary and Ship Canal.
- *Strategic Vision for the Great Lakes Fishery Commission for the First Decade of the New Millennium*
 - Prioritizes integrated management of sea lamprey.
- *USGS Strategic Plan FY 2000 – FY 2005*
 - Development of control strategies for ANS invasions as a strategic direction for the scientific activities of the USGS.
- *FWS Strategic Plan 2000-2005*
 - Prevention and control of ANS invasions, such as the zebra mussel in the Great Lakes, as a long-term goal of the FWS.
- *D9 Regional Strategic Assessment*
 - ANS prevention and enforcement of NISA (open ocean ballast water exchange) are a key element of the regional strategy of the Ninth Coast Guard District (D9).
- *Ninth District FY2001 Strategic Plan*
 - Selected key actions:
 - Awareness-raising to motivate federal government actions to prevent ANS introductions in the Great Lakes;
 - Increasing education of commercial and recreational vessel operators on ANS prevention; and
 - Enforcing ballast water regulations.
- *Lakewide Management Plans*
 - Lake Michigan LaMP*
 - Control and manage ANS
 - Coordinate with the GLFC on ANS and other issues
 - Lake Superior LaMP 2000*
 - Encourage interjurisdictional coordination and information sharing to maximize the effectiveness of programs already in place
 - Lake Huron Initiative:*
 - Undertake efforts to better understand and control sea lamprey and other ANS.
- *Section 309 Strategy and Assessment for Pennsylvania's CZM*
 - Develop an ANS management plan in coordination with the Great Lakes Commission and the Council of Great Lakes Governors.
- *Great Lakes United: A Citizen's Action Agenda for Restoring the Great Lakes-St. Lawrence River Ecosystem*
 - Phase out unsustainable navigation practices, such as dumping ballast water, and halt navigation system expansion plans until the problem of invasive species introduction is resolved.

Corps Great Lakes Programs:

- *Chicago Sanitary and Ship Canal Dispersal Barrier*
 - Investigation and identification of environmentally sound methods to prevent or reduce the dispersal of invasive aquatic species between the Great Lakes and the Mississippi River basins.

- *Environmental Improvements*
 - Section 506, WRDA 2000 authorized Great Lakes Fishery and Ecosystem Restoration (GLIFR), which can be used for the control of sea lamprey throughout the Great Lakes basin.
- *Aquatic Plant Control*
 - Section 205 of WRDA 1999 allows control of Eurasian Water milfoil and other invasive aquatic nuisance plants.
- *Aquatic Plant Control Research*
 - Develop ecologically based, integrated management strategies for Eurasian Water milfoil and other submerged invasive aquatic nuisance plants.
 - Develop technologies to prevent the introduction and spread of nonindigenous aquatic plant species.
 - Develop technologies to replace nonindigenous aquatic plants with native species.

Regional Collaboration Recommendations for AIS

The AIS Strategy Team offers the following five recommendations. Dollar figures have been included in the recommendations, where available. The dollar amounts provided are often incomplete estimates; more realistic figures should be developed.

1.(a) Ship and barge-mediated introductions and spread of AIS in the Great Lakes should be eliminated, through the immediate promulgation of environmentally protective standards for ballast water, and the implementation of effective ship-board treatments and management measures. Specifically:

- Immediately require, verify, and enforce (in the current shipping season under existing authorities) that ocean-going vessels in the no ballast on board condition (NOBOB) implement practices that are an improvement over current practices;
- Immediately require, verify, and enforce best performing ship-board ballast water treatment and hull management methods for ocean-going vessels (with a set approval period), with continued upward ratcheting of the treatment floor as treatment performance improves. Approved treatment must be to an environmentally protective standard by 2011;
- Immediately require monitoring, reporting, and public dissemination of all ballasting activities, prevention practices, and outcomes such that progress toward the goal is measurable and enforcement practical;
- Review and apply best-performing ballast water management practices to non-oceangoing vessels operating exclusively within the Great Lakes (including application of ballast water treatment for new ships) to eliminate the spread of AIS already introduced into the system; and
- Immediately and significantly expand research, testing, and evaluation of policies and technologies as alternatives to on-board treatment. Alternatives to be investigated should include (but not be limited to) cargo transfer, shore-based treatment, use of Clean Water Act discharge permits, and state/regional actions. Programs under which these investigations can be conducted include the Ballast Water Technology Demonstration Program and the Environmental Technology Verification Program. These investigations will hasten development of effective shipboard treatment systems. If shipboard treatments are shown to be inadequate, the team recommends implementation by 2011 of effective alternatives that prohibit ballast water from ocean-going ships from being discharged into the Great Lakes.

Rationale: The failure to install meaningful and enforceable regulations for treatment of ballast water from ballasted and NOBOB ocean-going ships remain a major inhibitor for achieving the protection and

restoration of the Great Lakes. Moreover, some AIS have limited means to disperse throughout the Lakes without the help of ships. Clearly, the status quo is unacceptable and does not protect the Great Lakes. Ocean-going ships are the prime vectors for AIS introductions into the waters of the Great Lakes; so stopping those introductions is a top priority. Also, preventing the spread of AIS by the Great Lakes shipping industry is also a priority, so ballast water management practices for ships that operate within the Great Lakes should be reviewed and modified. Quick passage and immediate implementation of comprehensive federal legislation is required to prevent ship-mediated introductions of AIS into the Great Lakes. The government has significant authority under existing law to take immediate action, particularly in the management of NOBOB ships. Shipboard treatment actions must be fully implemented now, and evaluated well in advance of 2011. This will require immediate action by the Coast Guard to promulgate ballast water regulations. In addition, research and planning on alternatives is needed immediately so that methods may be applied by 2011, in the event best-performing shipboard treatment fails to fully protect the Great Lakes and the nation.

Cost: \$13.2 million annually for five years.

1.(b) Federal, state, and/or local governments must enact measures that ensure the region's canals and waterways are not a vector for AIS, including full federal funding of the Chicago San-Ship Canal barrier and the sea lamprey control program. Specific recommendations are to:

- Complete construction of barrier II, make barrier I permanent, provide federal funds to operate both dispersal barriers in the Chicago Waterway system, and complete a study of options for permanent hydrological and/or biological separation of the Great Lakes and Mississippi River systems;
- Fully examine options and their economic benefits and costs to prevent the spread of AIS via the Lake Champlain Canal and other canal systems linking the Great Lakes with other basins;
- Close or modify, through the use of physical barriers or control structures, canals that have fallen into disuse or disrepair—if rebuilt, prevent passage of aquatic invasive species;
- Prohibit development of new cross-drainage basin connections;
- Address intermittent flood-related connections;
- Initiate measures to prevent or reduce the movement of AIS into stream segments opened up by dam/impediment removal or culvert construction, and fully consider benefits to native species and impacts from AIS when evaluating cost-benefits of proposed fish passage projects;
- Develop and implement AIS monitoring plans to provide comprehensive monitoring and reporting of AIS through the canal vector; and
- Fully fund the Great Lakes Fishery Commission's sea lamprey control program.

Rationale: A unified (federal) approach is preferred, but some canals and waterways are under state or local jurisdiction that will require state or local legislation. Canals facilitate the conveyance of bulk goods and commodities and are used for recreational activities, but they also facilitate the spread of AIS by allowing cross-basin transfer between watersheds. Canal closure can re-establish the natural geographic separation of the Great Lakes from other drainage basins. Work to complete the barrier system on the Chicago Waterway is moving forward, and provisions supporting this project exist in the pending NAISA legislation and in the Senate version of the Water Resources Development Act of 2005 (S. 728). New legislation is needed to study options for hydrological separation and to address issues in other canals, particularly in un-used waterways. Existing canals and waterways should include dispersal barriers, flood control barriers, physical barriers, and other provisions to ensure hydrologic separation of historically disconnected watersheds. Wherever possible, canals that

have fallen out of use should not be improved and, in fact, should contain physical barriers to prevent the free-flow of organisms. Dam removal, while often an important element of habitat rehabilitation, should be done carefully, with full coordination of federal, state, and local agencies, so as not to solve one problem by creating another, an AIS pathway. The sea lamprey control program, successfully carried out by the Great Lakes Fishery Commission, should be fully funded so that this species, which entered the system through canals, remains under suppression.

Cost: \$45 million annually for five years.

1.(c) Federal and state governments must take immediate steps to prevent the introduction and spread of AIS through the trade and potential release of live organisms. Specifically:

- Develop a list of species of concern for the Great Lakes basin and an immediate moratorium by the States on the trade of species on that list, until the species are screened and approved for trade;
- Implement provisions of the pending NAISA legislation, as introduced, that establish a federal screening process for organisms proposed for trade;
- Modify the pending NAISA legislation mandating that the screening process should classify species proposed for trade into three lists—prohibited, permitted, and conditionally prohibited/permitted;
- Modify NAISA to clearly state that the screening process established must place the burden of proof of non-injuriousness on the importer;
- Allocate sufficient resources to heighten the number of species under the Lacey Act as “injurious,” to prevent the interstate transportation of harmful species; the Fish and Wildlife Service FWS should list black, bighead, and silver carps as injurious under the Lacey Act;
- Significantly increase resources for the enforcement of laws governing the trade of live organisms; and Develop and implement risk models for organisms in aquaculture.

Rationale: The trade of live organisms is vibrant. Hundreds of millions of fish and hundreds of thousands of invertebrates, plants, and other organisms are traded live each year. However, serious problems and many loopholes in the trade regime exist. In many cases, trade is unregulated, facilitating importation, interstate commerce, and trade among the pathways that pose the greatest risk for introduction of invasive species into the Great Lakes ecosystem. This recommendation is designed to close the loopholes in the trade regime. It calls for an immediate listing of species and a state moratorium on trade of those species. It supports the provisions of NAISA that establish a screening process and it proposes that the screening process be based on a three-list approach. The recommendation also improves the implementation of key federal laws that restrict the interstate transportation of injurious species and calls for increased law enforcement to ensure the laws are implemented properly. Underlying the recommendation is the requirement that the burden of proof demonstrating that an organism is not injurious is placed on person(s) who proposes to import it. When the screening process is developed pursuant to NAISA, it will be important to place the burden of proof on the importer. Placing the burden on the government to demonstrate injuriousness (which occurs usually after it is too late to address the problem, if at all) does little to contain the spread of AIS through trade, and does not protect the Great Lakes.

Cost: \$17 million annually for five years.

1.(d) Establish a Great Lakes Aquatic Invasive Species Integrated Management Program to implement rapid response, control, and management programs and assess the effectiveness of those programs. This program, which will require authorization, must:

- Allocate funds for development and implementation of State and Interstate Aquatic Nuisance Species Management Plans through the Aquatic Nuisance Species Task Force, with a particular emphasis on the immediate use of techniques to control or slow the spread of AIS;
- Develop voluntary agreements and codes of best practices for industrial trade groups;
- Encourage investigation of economic requirements and incentives (e.g., bonds or insurance) to prevent new introductions;
- Establish a revolving fund for rapid response actions;
- Establish an interagency, Great Lakes Federal Rapid Response Team, that will conduct activities on federal lands, and in other locations with State, Tribal, and local cooperation;
- Allocate funds to implement a system of enhanced monitoring and ecological surveys in the Great Lakes;
- Support additional research to develop and implement new control methods for uncontrolled species of concern;
- Establish a coordinated data management system, through the Smithsonian Institution, the Great Lakes Environmental Research Laboratory, or other suitable entity, to develop an accessible, integrated, and centralized database that allows for the reporting and tracking of AIS infestations;
- Ensure overall coordination and accountability through the Invasive Species Council, including developing regular and comprehensive reports summarizing the status of AIS activities (including those of the Aquatic Nuisance Species Task Force and the Great Lakes Panel on ANS in implementing the National Invasive Species Management Plan), formulating a complete AIS federal budget request, overseeing progress in addressing AIS, evaluating the collective response to AIS, and communicating AIS needs and problems to Congress and the public. The National Invasive Species Management Plan should include specific focus on AIS in the Great Lakes.

Rationale: The Government Accountability Office (formerly the General Accounting Office) observed that more than 20 federal agencies in ten departments are involved in AIS management and that States also play a significant role and much better coordination of federal, state, and local actions is needed. One entity should be empowered to coordinate the AIS actions in the Great Lakes. For example, fifty years ago the governments of the U.S. and Canada mandated and funded the development of successful control techniques for sea lampreys. A similar mandate is required for other AIS. Part of improved coordination is the systematic collection and free dissemination of AIS information. There must be a central place for the public, researchers, managers, and others to report AIS infestations. This information, in turn, should be available to anyone and should be used in implementing AIS programs. To achieve better detection and management of AIS, States and the federal government must cooperate in the development of AIS management plans, including plans allowing for monitoring, rapid response, and control. Moreover, codes of best practices for industry and the use of economic incentives (for example insurance and posting of bonds prior to engaging in practices where there is a risk of unintentional release) would significantly help industry participate in AIS management. When an AIS is first detected in the Great Lakes, States and the federal government must be prepared with pre-approved plans and funds to mount a rapid response action. Implementing an integrated pest management program in the Great Lakes will result in immediate cost-effective benefits.

Cost: \$44 million annually for five years.

1.(e) Federal, state and tribal agencies, academic institutions and other organizations should receive adequate support to conduct and evaluate cost-effective AIS vector-specific outreach and education programs. These programs should focus on behavior change and responsibility of resource users. Specifically, the following actions should be taken:

- Support programs that educate Great Lakes boaters and anglers on how to take preventive actions against AIS;
- Continue AIS-focused Hazard Analysis and Critical Control Point (HACCP) training and plan implementation for research and management agencies within and outside of the Great Lakes basin;
- Support a program that educates all facets of the Great Lakes maritime commerce industry including ports, carriers, shippers, mariners, resource users and users of goods produced from cargoes transported to and from the Great Lakes by ships, about the urgency and cost-effectiveness of preventing/containing AIS, the status of prevention, and what is needed to advance prevention; and
- Support a new comprehensive AIS Organisms-in-Trade educational campaign including the bait industry, modeled on the Sea Grant AIS-HACCP and Pet Industry Joint Advisory Council/Sea Grant/USFWS “abitattitude” campaigns.

Rationale: People of all walks of life play a role in preventing the introduction and spread of AIS and, therefore, must be involved. Education and outreach are critical in an effective program to address AIS. Several entities have developed and implemented extremely successful educational campaigns (e.g., Sea Grant’s HACCP program, U.S. Fish and Wildlife Service/Aquatic Nuisance Species Task Force’s Stop Aquatic Hitchhiker™ campaign, and Pet Industry Joint Advisory Council/Sea Grant/U.S. Fish and Wildlife Service Habitattitude™ campaign). These programs should be expanded, emulated, and applied to all aspects of AIS, and particularly applied to reach people who pose the greatest risks of AIS introductions. The proposed educational campaign targeting maritime commerce, for instance, would involve shippers, ports, consumers, and others touched by the marine shipping industry, thus involving all people who work in and benefit from shipping. Effective educational campaigns rely on repetition and sustained messages from multiple sources.

Cost: \$19.5 million annually for five years.

2. Great Lakes Habitat/Ecosystem Restoration

Needs:

- ◆ Establishing management priorities and restoration goals.
- ◆ Full-scale restoration of the Great Lakes ecosystem.

Strategies:

- *Great Lakes Program to Ensure Environmental and Economic Prosperity*
 - Intended to form the basis for a consensus-based Great Lakes Restoration Plan to be developed under the leadership of the Council of Great Lakes Governors with input from the larger Great Lakes community.
 - The GLC program has seven priorities for the Great Lakes basin: 1) cleaning up toxic hot spots; 2) curtailing the introduction of exotic species; 3) reducing nonpoint source pollution; 4) restoring and conserving wetlands and critical coastal habitat; 5) ensuring the sustainable use of Great Lakes water resources; 6) strengthening the decision support capability of the Great Lakes community; and 7) enhancing the commercial and recreational value of Great Lakes waterways.
 - Priority: “Restoring and conserving wetlands and critical coastal habitat“
 - See Appendix I for selected priority actions.
- *U.S. Policy Committee for the Great Lakes: Great Lakes Strategy 2002*
 - Fulfill the GLWQA and restore and maintain the biological, chemical, and physical integrity of the Great Lakes.
- *U.S.-Canadian Binational Toxics Strategy*
 - Provides a framework to reduce or eliminate persistent toxic substances from the Great Lakes basin.
- *Lakewide Management Plans*
 - The *LaMPs* for Lakes Erie, Michigan, Ontario, and Superior, and the *Lake Huron Initiative* develop ecosystem objectives for each lake and target the restoration of impaired beneficial uses (drinkable, swimmable, fishable).
- *U.S. EPA Region 5 and Region 5 States: Joint Commitment to Achieve Shared Water Goals*
 - Based on the GLWQA, the water goals for U.S. EPA Region 5 and the Region 5 states are 1) healthy aquatic communities; 2) fish populations with safe levels of contaminants; 3) designated swimming waters are swimmable, 4) public water supplies are consistently safe to drink; and 5) the quantity and quality of critical aquatic habitat, including wetlands, will be maintained or improved.
- *New York State 25 Year Plan for the Great Lakes*
 - New York’s commitment to the goals of the GLWQA.
- *Strategic Plan for the IJC*
 - Assist Canada and the U.S. in the implementation of the GLWQA.
- *NOAA (CZM): Sustaining America’s Coastal Communities and Resources*
 - Specifies environmental restoration goals for the CZM: 1) improve and sustain coastal water quality; and 2) protect, enhance, and restore coastal land and water habitats
 - Specific objectives include federal-state cooperative efforts, both in terms of program operations and policy, to achieve these goals.
 - Restore coastal habitats impacted by toxic pollution and other disturbances
- *NOAA: New Priorities for the 21st Century*
 - Restore the Great Lakes through an ecosystem-based management strategy that includes 1) monitoring and observing Great Lakes areas and associated communities to provide basic information on habitats, resources, human activities, and uses; 2) characterizing Great Lakes resources, processes, and

human impacts; and delivery of products to facilitate sound management decisions; 3) model development and data integration to assess the ecosystem and predict its future state; and 4) informing and advising decision makers about safe and wise uses of Great Lakes resources.

- Increase the percentage of restored habitat.
- *NOAA/Restore America's Estuaries: National Strategy to Restore Coastal and Estuarine Habitat*
 - Formal restoration of certain sensitive coastal wetland areas of the Great Lakes region.
- *NRCS Strategic Plan 2000-2005*
 - Restore wetland ecosystems and fish and wildlife habitat by
 - 1) Identifying priority wetlands;
 - 2) Identifying community goals for wetland and fish and wildlife conservation;
 - 3) Integrating multiple use planning in wetland and wildlife conservation approaches;
 - 4) Technical assistance for delineation of wetland areas; and
 - 5) Working with partners and private groups to enhance habitat for game species.
- *Lakewide Management Plans*
 - Lakes Erie LaMP 2000:*
 - Habitat restoration action plan identifies proposed habitat restoration projects
 - Lakes Michigan LaMP:*
 - Identify the eco-rich areas in the basin, the connecting corridors and flyways, the fish spawning areas, the status of protection, and provide the data on line.
 - Lakes Superior LaMP 2000:*
 - Action plans focus on information gathering on specific aquatic resources
 - Lake Huron Initiative:*
 - Restore plant and animal habitat in the Lake Huron Basin.
 - Selected key actions:
 - Establish a priority list of projects for restoration of important habitats including critical tributary reaches.
 - Encourage the development of restorative activities in riparian zones, environmental corridors, and buffer zones.
 - Design and implement projects to restore habitat and lost ecosystem functions at degraded sites.
 - Develop means to financially and technically assist dam owners in dam removal and habitat restoration.
- *Great Lakes Fishery Commission: A Joint Strategic Plan for Management of Great Lakes Fisheries*
 - Prioritizes sustainable fish communities and the associated ecological and economic benefits.
- *Strategic Direction of the Great Lakes Committee of the NACD*
 - Identifies nonpoint water quality issues as a priority issue and gives strategic guidance for the organization on how to address the issue.
- *Strategic Vision for the Great Lakes Fishery Commission for the First Decade of the New Millennium*
 - Advocates interagency efforts to restore coastal habitat.

- *Great Lakes United: A Citizen's Action Agenda for Restoring the Great Lakes-St. Lawrence River Ecosystem*
 - Appeals to U.S. and Canadian governments to use current political momentum for developing a broad-based, sufficiently funded, and effective restoration plan for the Great Lakes.
 - Makes specific recommendations on how to address challenges facing the lakes, such as toxic clean-up, sustaining and restoring water quantities and flows, air and water quality standards, and protecting and restoring species and habitat. Some of the key points of the agenda are recommendations to
 - 1) Fully restore the 43 Great Lakes AOCs by 2015, and
 - 2) Reverse wetlands losses and increase the amount of protected Great Lakes wetlands by one million acres by 2025.

Corps Great Lakes Programs:

- *John Glenn Great Lakes Basin Program*
 - An opportunity to develop a strategic plan for the Corps of Engineers that
 1. Identifies water resources management priorities in the Great Lakes basin;
 2. Sets restoration goals for Great Lakes programs and proposed projects; and
 3. Defines the role and responsibilities of the organization in a coordinated, full-scale restoration effort for the Great Lakes ecosystem.
- *Great Lakes Habitat Initiative*
 - Integrates existing Federal State and non-governmental programs.
 - Identifies site-specific projects and restoration actions.
- *Great Lakes Fishery and Ecosystem Restoration*
 - Support ecosystem restoration in the Great Lakes.
- *Aquatic Ecosystem Restoration*
 - Restore aquatic habitat in lakes and streams.
- *Beneficial Use of Dredged Material*
 - Restore aquatic and ecologically related habitat, including wetlands, by using sediments dredged from federal navigation projects.
- *Environmental Improvements*
 - Restore the quality of ecosystem functions impaired by Corps civil works projects.
- *Planning Assistance to States*
 - Provide assistance to states in the planning for the development, utilization, and conservation of water and related land resources.
- *Tribal Partnership Program*
 - Provide assistance to Indian tribes in the planning for the development, utilization, and conservation of water and watershed resources.

Regional Collaboration Recommendations for Habitat/Ecosystem Restoration

Habitat Conservation and Species Management Funding Should Be Increased by \$288.7M/year.

While there are currently a variety of targeted authorization levels, appropriations have failed to match the authorized funding levels. As appropriations shrink, there is a growing expectations gap between those who supported legislative actions to achieve results and those entities implementing protection and restoration programs. As funding is diminished, program effectiveness is diminished. As an example, under the Farm Bill Wetland Reserve Program there is a program to restore wetlands, but there is not enough funding to meet the demand and it is oversubscribed for private landowner enrollment. Similar appropriation shortfalls are evident in budgets related to other federal legislation designed to protect and restore the critical habitats and promote important species management needs of the United States. Therefore, the recommended actions are premised on a tiered approach to reflect different options for the implementation approaches, which include:

- Increasing appropriations to match previously authorized levels;
- Increasing the authorized funding level where existing levels are inadequate to achieve specified results; and creating new authorizations and appropriations where program gaps currently exist.

These recommended actions are a significant step towards meeting habitat/species goals, but reaching full restoration and protection objectives for the entire basin will require more resources and more time. Federal, state, tribal, and local government involvement along with private or industrial landowner implementation is crucial for all of the recommendations including funding.

The outcomes resulting from these recommended actions should be measurable. The immediate measure of project success may be, for example, the amount of area impacted by the project. After a few years, the assessment may shift to species numbers and/or population diversity in response to the habitat changes.

The Overall Recommendation for habitat conservation and species management funded at \$288.7 million annually should be allocated as listed below.

2. (a) Native Fish Communities in Open water/Nearshore Habitats - \$20 million annually

Provide 20 million additional dollars annually for efforts to promote the restoration and protection of native fish communities in the near shore and open lake waters. Fishery resources and associated uses are among the most sensitive of all uses made of the Great Lakes and are an integral part and indication of ecosystem quality. This funding would support implementation of the fishery goals and objectives developed via the Joint Strategic Plan for Management of Great Lakes Fisheries, adopted in 1981 and updated in 1985 and 1997 by all state, provincial, tribal, and federal agencies with fisheries management authority in the Great Lakes. This funding would be used for research, population assessments, restorative stocking efforts, predictive fisheries modeling, development of regulations, and enforcement surveillance to protect stocks and promote sustainable harvests.

2. (b) Wetlands – \$188.7 million annually

To achieve the goals of the Great Lakes regions specified in the North American Waterfowl Plan and related Joint Ventures, target 57 million new dollars annually for acquisition, restoration, and other protection tools for wetlands. Wetland restoration costs are estimated between \$1,000 and \$1,700 per restored acre, based upon average costs of wetland restorations undertaken by Ducks Unlimited and USDA's Wetland Reserve Program. An estimated sixty-six percent of historic Great Lakes wetlands have already been lost. Therefore, primary emphasis would be on wetland protection and restoration directed at achieving a net increase of wetlands in the basin, and would include a monitoring component. Currently, authorizations exist in several federal agencies. Improved coordination and joint targeting efforts could lead to project designs and locations that provide both nonpoint source pollutant controls (for water quality benefits) as well as increased amounts of critical wetland habitat.

2.(c) Riparian Habitats – Great Lakes River Restoration - \$40 million annually

There is currently no national program to specifically support restoration of the physical integrity of our nation's rivers. Rivers are critically important to the establishment of self-sustaining Great Lakes fish communities and estuarine fish and wildlife populations. Congress should therefore develop legislation to restore Great Lakes rivers. It should provide \$40 million annually to implement watershed projects that restore the hydrology, protect and restore the riparian habitats for wildlife, restore in-stream habitats needed for fish spawning or nursery sites, and promote access for anadromous fish migrations while restricting exotic species expansions. The program could work jointly with USDA programs like the CREP riparian buffer programs to achieve systemic results through improved inter-governmental coordination and watershed targeting. Funding should be allocated to states and tribes on a formula basis based on watershed size, tributary miles, populations in the basin, and miles of Great Lake shoreline.

2.(d) Coastal Shore and Upland Habitats - \$40 million annually

The Collaboration recommends creating a coastal shore and upland habitat conservation program to coordinate funding to ensure Great Lakes native species and communities of greatest conservation need are protected, restored, and appropriately managed. We further recommend an increase in funding for existing landowner incentive programs to encourage private and corporate landowners to conserve habitat and help to protect important native species. With recommended funding levels of \$40 million per year for five years, we expect the results to be the prevention of habitat and species loss and the conservation of coastal shore and upland habitats supporting healthy populations of numerous species. This funding should be directed to existing state, tribal and federal natural resource management programs. Funding would also provide grants for cost share projects, acquisitions, easements or other incentives for private and corporate landowners and municipal governments to provide long term habitat and species protection and restoration efforts. There are common priority themes, which would drive protection and restoration of coastal and upland areas across the basin and include:

- Habitats specified in endangered species recovery plans;
- Habitats that represent rare, threatened or endangered species;
- Rare or unique habitats like islands or dunes or rocky coastlines; and
- Habitats critical to species restoration programs.

While these themes are categorized as common priorities, monitoring, indicators, and measurable objectives, they would differ across the basin in recognition of the natural variations. It may therefore

be necessary to suggest a temporal approach to monitoring which evolves as the projects develop and the biological systems subsequently begin to respond.

3. Coastal Health and Environmental Infrastructure

Need:

- ◆ To separate combined sewers and to upgrade wastewater treatment facilities to eliminate accidental sewage discharges that threaten coastal health.

Strategies:

- *Great Lakes Commission: Great Lakes Program to Ensure Environmental and Economic Prosperity*
 - Priority: “Controlling Nonpoint Source Pollution“
 - See Appendix I for selected priority actions

Corps Great Lakes Program:

- The Section 154 program authorizes the Corps to provide environmental assistance to non-Federal interests in northern Wisconsin, in the form of design, construction and reconstruction assistance for water-related environmental infrastructure and resource protection and development projects, including projects for wastewater treatment and related facilities, water supply and related facilities, environmental restoration, and surface water resource protection and development.
- Section 569 of the Water Resources Development Act of 1999 provided authorization for the Corps to establish a program to provide environmental assistance to non-Federal interests in northeastern Minnesota. Work under Section 569 may be in the form of design and construction assistance for water-related environmental infrastructure and resource protection and development projects.
- Section 594 Program (authorized by Water Resources Development Act of 1999) is to provide design and construction assistance to non-Federal interests for carrying out water-related environmental infrastructure and resource protection and development projects in the State of Ohio.

Regional Collaboration Recommendations for Coastal Health

Based on assessments that identify existing pollution sources and potential threats to water quality, multiple actions are available to remediate and prevent adverse impacts on human health in nearshore waters. These include control/abatement and remediation of direct and indirect pollution sources into coastal and tributary Great Lakes waters, and protection of drinking source water quality. The following actions are required to achieve the Coastal Health goals for a minimum risk to human health within the Great Lakes.

3.(a) Eliminate to the extent provided by existing regulation inputs of untreated or inadequately treated human and industrial waste to Great Lakes basin waters through implementation of wet weather programs, including improvements to wastewater treatment systems.

- U.S. EPA and the States should fully implement, enforce, and report on their wet weather control programs to identify and correct deficiencies to ensure the requirements of the CWA are achieved in a timely manner.
- As part of a 55/45 percent federal/local cost share, \$7.535 billion in federal grants should be made available over five years. These monies would then support state and local resources in the amount of \$6.21 billion, thereby raising \$13.70 billion to fund wastewater treatment improvements.

\$10 million should be made available over five years to the three U.S. EPA regions to review and upgrade their Great Lakes wet weather programs—including the CSO Control Policy, NPDES permit issuance and enforcement, and storm water management—to ensure that issues are addressed comprehensively. \$40 million²⁴ should be made available over five years to the Great Lakes States to administer a new grants program, review, and upgrade all of their wet weather programs (including NPDES permits and enforcement), and implement anti-degradation rules in relation to sewage system expansions.

Rationale: Direct sources of contamination affecting coastal health are those that originate from a single, identifiable, fixed point such as rivers, streams, sewer pipes, septic systems, or a point of industrial discharge. Aging or overburdened sewage infrastructure, which can release raw sewage to source waters in urban areas through sanitary sewer overflows (SSOs) or CSOs, still exist in many Great Lakes municipalities where storm and sanitary systems remain co-mingled. Substantial reduction of the discharge of untreated sewage into the Great Lakes will reduce health risks for bathers and bacteria load in drinking water supplies. Given the potential impact on human health, overflows of untreated human and industrial waste into Great Lakes waters must be controlled through comprehensive solutions that may include structural controls such as separating storm and sanitary sewers, constructing storage capacity or controlling infiltration/inflow; non-structural controls such as land use planning and aggressive use of best management practices to allow no net increase in storm water run-off; and regulatory controls such as issuing, updating, and enforcing National Pollutant Discharge Elimination System (NPDES) permits.

Cost: \$13.75 billion in new funds over five years, with \$7.54 billion provided by the federal government and \$6.21 billion provided by non-federal partners.

3.(b) Identify indirect pollution sources capable of adversely impacting Great Lakes coastal health and, upon identification, promulgate and enforce regulations, provide public education, promote research, and initiate remediation to reduce the impact of these sources.

- These may include, but are not limited to, bacterial loading from foreshore beach sand and submerged sediments, avian/animal deposition, algal blooms (can appear during dry weather, but are caused by nutrient loading during wet weather and aquatic invasive species), bather shedding, and untreated onboard boater waste.
- State and local public health agencies provide public education and/or incentives to reduce impacts from nutrient-loading, household and industrial products, attraction of nuisance wildlife, improper discharge of onboard boater waste, and bather shedding.

- Request that the Great Lakes Sea Grant Network make this an education/outreach priority for the region and a component of a Great Lakes Centers for Ocean Science Education Excellence (COSEE) program through NSF.
- State and local governments promulgate and enforce existing regulations which take action against boaters who discharge waste to the nearshore or open waters of the Great Lakes.
- Require regulations regarding the availability of adequate toilet and shower facilities based on projected bather density to receive BEACH Act grant funds.
- Assess extent of contaminated sediments, especially in Areas of Concern, that contribute to water quality concerns. (Addressed in AOC/Sediments chapter.) Research to clarify sources and transport of biotoxins (i.e., botulism) through food web.

Rationale: Indirect sources of contamination are sources whose origination cannot be traced to a single point such as a storm drain or sewer outfall. The effects of indirect sources of contamination are diffuse and, therefore, determining their origin may require intensive investigation. For example, determining a correlation between increased bacterial level density at the bathing beach and various coastal processes, predominating weather conditions, and natural and human sources is often difficult. Remediating contamination sources responsible for indirect pollution water quality failures will reduce human health risks, increase availability/access to Great Lakes recreation, improve ecosystem health, promote sustainable practices, decrease economic loss (millions of dollars are lost each year due to beach closures), and increase commercial benefits.

Cost: Depends on indirect pollution sources identified at individual beaches based on annual sanitary surveys. The costs associated with conducting educational campaigns and initiating remediation range between \$20,000 and \$1 million per source identified, based on the size of the population served, the extensiveness of the impact, and the need for infrastructure improvements. The cost would be shared between state and local agencies (possible through fines levied against offenders in some instances) and through the availability of federally approved loans or grant funding.

3. (c) Standardize, test, and implement a risk-based approach to manage recreational water.

- U.S. EPA to build the approach upon existing water quality monitoring programs and employ the latest technology for microbial assessment and standardized sanitary survey criteria, based on a holistic watershed assessment.
- U.S. EPA to take responsibility for accelerating the process necessary for field testing and approval of real-time test methodologies.
- Once these two tools are in place they can be tested at the local level, adopted by the federal government, and implemented at the state and tribal level.
- Federal, state, tribal and local municipalities have begun to work together to standardize the microbial assessment of recreational water and these working groups can also standardize the sanitary inspection process.

Rationale: Beach and coastal assessment methods (microbial and physical) are the front lines of defense for determining when contaminant influxes are most likely to impact human health in the context of surface water encounters. Tools available to beach managers and authorities responsible for monitoring these water bodies should accurately reflect risk, provide timely notification to the public, and enable investigation of potential contamination sources (both direct and indirect) thus leading to remediation of these sources.

Cost: \$2.0 million annually to the Great Lake states to standardize, trial, and implement a risk based approach to beach/coastal assessment, a portion of which could be appropriated from U.S. EPA

BEACH Act funds (assuming that they are re-appropriated at the federal level). \$7.2 million for U.S. EPA to conclude and analyze data from National Epidemiological and Environmental Assessment of Recreational (NEEAR) Water Study (\$9.0 million of the total cost of \$16.2 million has already been funded).

3. (d) Protect drinking source water quality.

- U.S. EPA will establish ambient water quality criteria for parasites, pathogens, and disinfectant by-product (DBP) precursors for states to implement.
- The Clean Water State Revolving Fund (CWSRF) should be fully funded, and states should implement programs to assure that ambient water quality, following conventional treatment, does not pose an unacceptable risk to consumers.
- States should work with public water systems to reduce vulnerabilities identified in the source water assessments.

Rationale: In addition to effective implementation and enforcement of existing Safe Drinking Water Act (SDWA) and CWA requirements by EPA and the states, this action requires a combination of enhanced federal policy requirements to include ambient water quality criteria for parasites, pathogens and disinfectant by-product precursors, full federal funding and greater flexibility in how State Revolving Funds may be used. Ambient water quality criteria related to drinking water following conventional treatment are needed to support source water protection programs. Water quality criteria for pathogens, such as cryptosporidium, have not been promulgated under CWA authority, nor have criteria for DBP precursors been developed, while risk-based standards are being developed for finished water supplied by public water systems.

Cost: Fund the CWSRF at least to the level appropriated for FY 2004 (\$1.35 billion nationally and \$225 million to the Great Lakes States).

3. (e) Use the Drinking Water State Revolving Fund to improve drinking water infrastructure and support source water protection.

- The Drinking Water State Revolving Fund (DWSRF) should be fully funded and increased flexibility should be given in how the funds may be used by the states and local municipalities for water infrastructure improvements.
- States and local public water supply systems to implement and enforce infrastructure improvement plans that include security measures to address resource/facility vulnerabilities and critical infrastructure facilities governed under the Bioterrorism Act.

Rationale: Protection of drinking water quality by public and private water supply systems throughout the Great Lakes basin must be improved. In addition to effective implementation and enforcement of existing Safe Drinking Water Act (SDWA) requirements by U.S. EPA and the states, this action requires a combination of enhanced federal policy requirements to include full federal funding and greater flexibility in how State Revolving Funds may be used to upgrade drinking water infrastructure, systems, and implementation of water infrastructure improvement plans with security measures for vulnerable resources/facilities to reduce chemical contaminant and bioterrorism risks to drinking water supplies.

Cost: Fully-fund the DWSRF at levels authorized by the SDWA (\$260 million to the Great Lakes States) through 2010.

4. Soil Erosion, Contaminated Sediments and Areas of Concern (AOC's)

Need:

- ◆ Reduce excess sediment and nutrient loadings to the Great Lakes, and to mitigate contaminated sediments that result in Areas of Concern (AOC's)

Strategies:

- *Great Lakes Commission: Great Lakes Program to Ensure Environmental and Economic Prosperity*
 - Priority: "Controlling Nonpoint Source Pollution"
 - See Appendix I for selected priority actions
- *Great Lakes Remedial Action Plans*
 - Allows capability to formulate cleanup plans for contaminated sediments in the Great Lakes.
- *Lakewide Management Plans*
 - *Lakes Michigan LaMP:*
 - Promote watershed planning, including agricultural pollution prevention

Lake Ontario LaMP Update 2003:

 - Promote public outreach on pollution prevention.

Lake Huron Initiative:

 - Identify and prioritize remedial actions to prevent sedimentation.
- *NRCS Strategic Plan 2000-2005*

Protection of water resources from agricultural nonpoint sources by

 - 1) Watershed-level planning assistance for nonfederal and tribal lands;
 - 2) Promoting innovative watershed-level approaches in areas with challenges by the urban-rural interface; and
 - 3) Protecting rivers and streams from excess nutrient loadings.
- *NOAA's New Priorities for the 21st Century*

Increase the number of Great Lakes areas (incl. coastal watersheds) with (federal, state, local, or non-governmental) ecosystem management plans using best management practices and approaches.
- *NOAA (CZM): Sustaining America's Coastal Communities and Resources*

Sustain coastal water quality.
- *Strategic Direction of the Great Lakes Committee of the NACD*

Priorities:

 - 1) Non-point water quality issues
 - 2) Erosion and sediment control
 - 3) Implementing water quality plans

Continue to work with the Corps on the Great Lakes Sediment Transport Models program.

Corps Great Lakes Program:

- *Great Lakes Sediment Transport Models*
 - Develop models to assist state and local resource agencies across the basin in evaluating alternatives for soil conservation and nonpoint source pollution.
 - Support state and local measures that will reduce the loading of sediments and pollutants to navigation channels and AOCs.
- *Great Lakes Remedial Action Plans*
 - Intended to plan and design cleanup work of persistent and toxic contaminated sediments.
- *Environmental Dredging*
 - Provides the physical dredging operations for cleanup of contaminated sediments; cost shared work with a non-Federal sponsor.
- *Planning Assistance to States*
 - Provide assistance to states in the planning for the development, utilization, and conservation of water and related land resources.
- *Tribal Partnership Program*
 - Provide assistance to Indian tribes in the planning for the development, utilization, and conservation of water and watershed resources.

Regional Collaboration Recommendations for AOC's and Contaminated Sediments

The following recommendations address obstacles to restoring the AOCs by

- addressing inefficiencies in the Great Lakes Legacy Act and increasing available funding to a level sufficient to reach the goal of cleaning up all contaminated sediment sites in the AOCs by 2020;
- providing for the program capacity needed to develop measurable endpoints, design and implement remedial actions, and measure results;
- making better use of existing programs and funds through increased coordination at the federal, state, local and tribal levels; and;
- working toward better alternatives to removal and disposal of sediments.

Great Lakes Legacy Act Funding, Amendments, Reauthorization and Guidance

Over the next five years, the Administration should request and Congress should appropriate \$150 million annually for the Great Lakes Legacy Act to remediate contaminated sediment sites in the AOCs. Continued funding at this level over an additional ten years will be needed to achieve the goal of cleaning up all known contaminated sediment sites in Great Lakes AOCs by 2020.

The Great Lakes Legacy Act should enhance and accelerate the pace of sediment remediation in the AOCs by serving as the primary remediation authority or supplementing existing remediation programs addressing contaminated sediments (such as CERCLA, RCRA, state remediation statutes and WRDA § 312, among others). Congress should amend the Act to allow for more efficient implementation of the program, as follows:

- The “maintenance of effort” language in the Legacy Act should be dropped because it is not appropriate in the context of sediment remediation where costs often vary widely from year

to year and, as a result, it can lead to inadvertent disqualification of otherwise eligible and valuable projects.

- The life of appropriated Legacy Act funds should be extended beyond two years (as envisioned by the Legacy Act) to accommodate both responsible remediation and long-term monitoring of the effectiveness of implemented remedies, which is consistent with the 2002 *Great Lakes Strategy*.
- The current 35 percent level of matching funds/in-kind services required under the Legacy Act from the nonfederal sponsor at “orphan sites” should be adjusted to 25 percent, or at a minimum, Legacy Act funds should be available for planning and design work with no match or reduced match, in order to “tee-up” projects and maintain momentum.
- The current limitation in the Legacy Act, which requires exclusive federal agency project implementation, precludes disbursement of funds to other entities to assume the lead in project implementation. This requirement restricts the efficient implementation of remedial work in some cases, and should be amended to allow direct disbursement of project funds, which would allow for greater flexibility in implementing the program.

U.S. EPA should develop guidance to clarify and reiterate the Legacy Act’s original intent to permit potentially responsible parties (PRPs) to participate as the non-federal sponsor for projects funded under the Act. The guidance should confirm that PRPs are neither excluded from eligibility to serve as nonfederal sponsors nor absolved from their liability for remediation of contaminated sediments under federal and state remediation programs. The eligibility of PRPs to provide some or all of the nonfederal share of a Legacy Act package should be evaluated on its merits on a site-specific basis, in the context of the concept of “added value.” Examples of circumstances where PRP participation in Legacy Act project funding would provide “added value” include, but are not limited to, sites where an “orphan share” exists or where the remedy will be enhanced (such as where the scope—quality or quantity—of the remediation is improved, innovative methods are employed or the remediation will be accelerated).

Rationale: Before the Great Lakes Legacy Act, there was no specific federal authorization for a contaminated sediments remediation program for the AOCs. The Act fills this gap and holds the potential for an accelerated sediment remediation program that builds on considerable preparatory work by federal, state, local, and tribal agencies and PRPs to evaluate contaminated sediments and to design and implement remedial options.

Appropriations under the Legacy Act have lagged substantially behind authorized levels. U.S. EPA received \$9.9 million in FY 2004 and \$22.3 million in FY 2005, compared to authorized funding of \$50 million annually for remedial activities. If Congress were to appropriate the full \$50 million annually, the interim milestone of delisting ten AOCs by 2010 can be achieved. However, this spending level will not be adequate to reach the ultimate goal of remediating all contaminated sediment sites in the AOCs by 2020. Based on estimated volumes of contaminated sediments and depending on the remediation options selected, \$150 million (on average) each year matches up with both resource needs and state, local, and tribal capacity to plan and implement remedial projects.

AOC Program Capacity

- The Administration should request and Congress should appropriate \$10 million annually to the Great Lakes states and community-based coordinating councils in the AOCs; and \$1.7 million to U.S. EPA’s Great Lakes National Program Office for regional coordination and program implementation.

- Furthermore, the U.S. Army Corps of Engineers Great Lakes Remedial Action Plan Program, authorized in Section 401 of the Water Resources Development Act of 1990, should be included in the President's budget to enable the Corps to participate in the Federal-State AOC Coordinating Committee and to request funding for projects that advance restoration of the AOCs.

Rationale: Restoration of the AOCs is critical to the restoration of the Great Lakes, yet the Clean Water Act provides no specific regulatory authority or funding for the AOC program. The decline in program effectiveness in the late 1990s, which corresponds directly to declining federal financial support and the associated loss of federal, state, tribal, and local programmatic capacity, is testament to the need to build and maintain core capacity among the partners involved in AOC restoration. Current funding levels should be enhanced to the recommended levels to ensure adequate technical capacity at the federal, state, local, and tribal levels so that large-scale cleanup programs, such as the Great Lakes Legacy Act, are utilized effectively.

To further enhance AOC program capacity, U.S. EPA and each state, in consultation with local AOC advisory groups, should establish cooperative agreements that outline their respective roles and responsibilities, priorities, anticipated outcomes, resource needs, staffing levels, and procedures for documenting and reporting progress.

The core funding recommended above also will enable more rapid development of the delisting targets that are a necessary foundation of remedial projects. Federal, state, local, and tribal partners should collaboratively develop delisting targets for each U.S. AOC by the end of 2008, in accordance with the Delisting Principles and Guidelines adopted by the U.S. Policy Committee in December 2001.

Federal-State Collaboration

The existing U.S. EPA/State RAP Work Group should be expanded to a Federal-State AOC Coordinating Committee to better coordinate efforts and optimize existing programs and authorities to advance restoration of the AOCs.

Rationale: No single agency at any level of government has the legal authority or programmatic resources to fully restore the AOCs. Further, the current lack of a coordinating mechanism means existing resources are not used as effectively as they could be. A sustained, outcome-oriented collaborative process is needed to effectively consolidate existing resources available for restoring the AOCs.

The Federal Interagency Task Force is charged under the Executive Order with coordinating the Great Lakes activities of federal agencies. While this is a valuable objective, much of the work to restore the AOCs is administered at the state, tribal, and local levels. Therefore, a broader collaborative framework is needed. The Coordinating Committee should act as a clearinghouse to move specific projects forward through technical assistance, data collection and sharing, identification of available resources, and joint work efforts. States should help local AOC councils and tribes access the support of the Coordinating Committee, plan and schedule restoration work, and identify nonfederal matching funds as necessary.

Promote Development of Environmentally-Sound Sediment Treatment and Destruction Technologies, Beneficial Re-Use of Sediments, and Best Available Disposal Options.

U.S. EPA, the U.S. Army Corps of Engineers, the states, and the tribes should actively examine innovative approaches to the ultimate disposition of contaminated sediments as an alternative to the current practice of disposing of them in Confined Disposal Facilities (CDFs) or landfills. Congress should fully fund, at \$3 million annually over the next five years, the research and development program authorized in Section 306 of the Great Lakes Legacy Act. This research will test and promote viable treatment technologies that allow for the separation, immobilization, neutralization or destruction of contaminants in sediments, in-situ or upon removal. A significant focus of this work should be on the development of technologies that produce no new contaminants and do not release contaminants to the environment.

Rationale: While it undoubtedly improves the condition of waterways, the removal and transporting of contaminated sediments to a disposal facility simply relocates the contamination. Disposal facilities can be difficult and expensive to site and build, and the lack of adequate disposal capacity keeps cleanups from moving forward. Alternatives to disposal would address these issues. Federal, state, local, and tribal agencies should examine the feasibility of developing facilities where dredged sediments can be managed for disposal, treatment, destruction and/or beneficial re-use at a single location. Treatment technologies for decontamination and/or beneficial re-use of the dredged material at the facility should be included in project costs. In order to increase limited disposal capacity, the Corps and state and tribal agencies should encourage local communities to “mine” existing CDFs to facilitate the environmentally-sound beneficial re-use of dredged materials. There should be early, broad public outreach in siting decisions regarding disposal or treatment of contaminated sediments.

5. Non-Point Source Pollution and Brownfield Remediation

Needs:

- ◆ To identify and map areas of known non-point pollution sources.
- ◆ Establishing management priorities for Brownfield remediation.

Strategies:

- *Great Lakes Program to Ensure Environmental and Economic Prosperity*
 - The GLC program has seven priorities for the Great Lakes basin: 1) cleaning up toxic hot spots; 2) curtailing the introduction of exotic species; 3) reducing nonpoint source pollution; 4) restoring and conserving wetlands and critical coastal habitat; 5) ensuring the sustainable use of Great Lakes water resources; 6) strengthening the decision support capability of the Great Lakes community; and 7) enhancing the commercial and recreational value of Great Lakes waterways.
- *U.S.-Canadian Binational Toxics Strategy*
 - Provides a framework to reduce or eliminate persistent toxic substances from the Great Lakes basin.

- *Lakewide Management Plans*
 - The *LaMPs* for Lakes Erie, Michigan, Ontario, and Superior, and the *Lake Huron Initiative* develop ecosystem objectives for each lake and target the restoration of impaired beneficial uses (drinkable, swimmable, fishable).
- *U.S. EPA Region 5 and Region 5 States: Joint Commitment to Achieve Shared Water Goals*
 - Based on the GLWQA, the water goals for U.S. EPA Region 5 and the Region 5 states are 1) healthy aquatic communities; 2) fish populations with safe levels of contaminants; 3) designated swimming waters are swimmable, 4) public water supplies are consistently safe to drink; and 5) the quantity and quality of critical aquatic habitat, including wetlands, will be maintained or improved.
- *New York State 25 Year Plan for the Great Lakes*
 - New York's commitment to the goals of the GLWQA.
- *Strategic Plan for the IJC*
 - Assist Canada and the U.S. in the implementation of the GLWQA.
- *NOAA (CZM): Sustaining America's Coastal Communities and Resources*
 - Specifies environmental restoration goals for the CZM: 1) improve and sustain coastal water quality; and 2) protect, enhance, and restore coastal land and water habitats
 - Specific objectives include federal-state cooperative efforts, both in terms of program operations and policy, to achieve these goals.
 - Restore coastal habitats impacted by toxic pollution and other disturbances
- *NOAA: New Priorities for the 21st Century*
 - Restore the Great Lakes through an ecosystem-based management strategy that includes 1) monitoring and observing Great Lakes areas and associated communities to provide basic information on habitats, resources, human activities, and uses; 2) characterizing Great Lakes resources, processes, and human impacts; and delivery of products to facilitate sound management decisions; 3) model development and data integration to assess the ecosystem and predict its future state; and 4) informing and advising decision makers about safe and wise uses of Great Lakes resources.
 - Increase the percentage of restored habitat.
- *NOAA/Restore America's Estuaries: National Strategy to Restore Coastal and Estuarine Habitat*
 - Formal restoration of certain sensitive coastal wetland areas of the Great Lakes region.
- *NRCS Strategic Plan 2000-2005*
- *Lakewide Management Plans*
 - *Lakes Erie LaMP 2000:*
 - Habitat restoration action plan identifies proposed habitat restoration projects
 - *Lakes Michigan LaMP:*
 - Identify the eco-rich areas in the basin, the connecting corridors and flyways, the fish spawning areas, the status of protection, and provide the data on line.
 - *Lakes Superior LaMP 2000:*
 - Action plans focus on information gathering on specific aquatic resources
 - *Lake Huron Initiative:*

- Restore plant and animal habitat in the Lake Huron Basin.
- Selected key actions:
 - Establish a priority list of projects for restoration of important habitats including critical tributary reaches.
 - Encourage the development of restorative activities in riparian zones, environmental corridors, and buffer zones.
 - Design and implement projects to restore habitat and lost ecosystem functions at degraded sites.
- *Strategic Direction of the Great Lakes Committee of the NACD*
 - Identifies nonpoint water quality issues as a priority issue and gives strategic guidance for the organization on how to address the issue.
- *Great Lakes United: A Citizen's Action Agenda for Restoring the Great Lakes-St. Lawrence River Ecosystem*
 - Makes specific recommendations on how to address challenges facing the lakes, such as toxic clean-up, sustaining and restoring water quantities and flows, air and water quality standards, and protecting and restoring species and habitat.

Corps Great Lakes Program:

- *Planning Assistance to States*
 - Provide assistance to states in the planning for the development, utilization, and conservation of water and related land resources.
- *Tribal Partnership Program*
 - Provide assistance to Indian tribes in the planning for the development, utilization, and conservation of water and watershed resources.
- *Great Lakes Tributary Modeling*
 - Provide assistance to states in the planning for the development, utilization, and conservation of water and related land resources.

Regional Collaboration Recommendations for Non-Point Source Pollution

In general, programs need coordination at a higher level and a focus on mitigating specific problem areas, such as Areas of Concern. Although agencies offer grants to states, tribes, and local groups to address these concerns, the grants are given without any overall, interagency focus or strategy. Effectively targeting and addressing problems will require not only federal agency budget enhancements, but also coordination of efforts and data so that agencies at all levels concentrate their energies on the same priority problems. To this end, the NPS Strategy Team suggests designating or establishing an organization to coordinate efforts, roles, and initiatives among federal, state, and local agencies and private organizations in the Great Lakes basin.

5. (a) Between \$77 million and \$188.7 should be provided annually over five years to fund restoration of 550,000 acres of wetlands.

- USDA and U.S. EPA will form a task force that includes, at a minimum, USACE, USFWS, NOAA and other federal, state, tribal and local agencies. Agencies will work in partnership with other federal, state, and local agencies and organizations.

Rationale: More than 50 percent and perhaps as much as 70 percent of historic Great Lakes wetlands have already been lost. This loss (through filling or draining) is primarily due to agriculture, urban uses, shoreline development, and resource extraction. These same causes continue to threaten the natural Great Lakes wetlands that remain in existence today. The loss of wetlands poses special

problems for hydrological processes and water quality because of the natural storage and cleansing functions of wetlands.

Wetland priority areas for the Great Lakes exist in many active ongoing plans. To appropriately address NPS issues, wetland conservation efforts should occur throughout the watershed in areas strategically selected to best impact water quality concerns. Immediately available priority areas with active partnerships and implementation teams include: several watersheds currently active under USDA's Conservation Reserve Enhancement Programs in the Saginaw Bay watershed, the Maumee River watershed, and the western and central Lake Erie watersheds (OH and PA), River Raisin and Macatawa watersheds (MI), and Eastern Wisconsin riparian areas, and areas noted in the National Strategy to Restore Coastal and Estuary Habitats. The proposed funding would help restore up to 550,000 acres over the five year period, with an estimated restoration cost of \$1,000 per acre.

Cost: \$110 million annually for five years.

5. (b) \$335 million should be provided to restore 335,000 acres of buffers over five years.

- Funds will be used to create a new program to address education and installation of buffers in urban and suburban environments.
- USDA, NRCS, and FSA will be the lead agencies and will work in partnership with other federal (including USACE), state, tribal, and local agencies and organizations.
- Critical Geographies: Land areas draining to western and central Lake Erie, the Maumee River watershed, Green Bay, Saginaw Bay, Lake St. Clair, nearshore waters of Lake Michigan, and AOCs.

Rationale: Buffer strips include a variety of practices including riparian buffers, filter strips, grassed waterways, windbreaks, living snow fences, contour grass strips, cross-wind trap strips, field borders and other vegetative barriers. Vegetative buffer strips slow water runoff, trap sediment; enhance infiltration within the buffer while trapping fertilizers, pesticides, pathogens, and heavy metals; and reduce blowing soil in areas with strong winds.

The anticipated results and benefits of increasing riparian buffer acreage will be improved water quality based on a measurable reduction of sediment load and of fertilizer, pesticide, pathogen and heavy metal contaminants, subsequently improving overall stream and riparian ecology for fish and wildlife habitat. A history of the program indicates that landowner willingness to participate exceeds program goals and that a state's ability to increase its acreage goal is directly related to the availability of adequate funding.

Cost: \$67 million annually for five years.

5. (c) \$120 million should be allocated by 2010 to achieve a 40 percent reduction in soil loss in ten selected watersheds.

- By 2015, an additional \$48 million should be invested to reach a total of \$168,000,000.
- USDA and NRCS to lead in partnership with other federal (such as USACE), state, tribal, and local agencies and organizations. Utilize EQIP as the lead federal program to provide financial and technical assistance.

- Critical Geographies: Land areas draining to western and central Lake Erie, the Maumee River watershed, Green Bay, Saginaw Bay, Lake St. Clair, nearshore waters of Lake Michigan, and AOCs.

Rationale: Although conservation tillage has been heavily promoted in many areas of the Great Lakes region, many farmers still choose to use conventional tilling methods, which plow crop residues into the soil. Keeping crop residues can assist in preventing erosion between planting seasons. Achieving a 40 percent reduction in sediment loss from croplands will result in greater water clarity, greater desirable aquatic plant growth, less algae, better fish habitat, and less sedimentation of bays and harbors. The 40 percent reduction is largely consistent with the percent reduction in sediment and phosphorus loads (where information is available) to meet designated uses. Based on a cost of \$60/acre and a 2.5-ton/acre reduction in soil loss, this level of funding should lead to a 40 percent reduction in soil loss in these watersheds.

Cost: \$24 million annually over five years.

5.(d) \$106 million in funding should be provided to support the development and implementation of comprehensive nutrient and manure management on livestock farms.

- This includes \$96 million to assist the approximate 12,000 farms with more than 50 animals (estimated cost of \$8,000 per CNMP), \$5 million for educational material development grants, and \$5 million for increased technical assistance at NRCS.
- USDA and NRCS to lead in partnership with other federal, state, tribal, and local agencies and organizations.
- Critical Geographies: Phosphorous impaired watersheds and leading livestock producing counties.

Rationale: Manures and nutrients generated by livestock production facilities contribute to nonpoint source pollution in the absence of conservation planning. If poorly controlled, manure and nutrient products can contaminate surface and ground waters, cause odor problems, and serve as a source of infectious disease. Increased comprehensive management of nutrients and manure on livestock farms will greatly reduce livestock agriculture’s contribution to nonpoint source loading.

The anticipated results and benefits of the recommendation will be a 40-70 percent reduction in nonpoint source contribution of phosphorus from livestock agriculture. This result is from the fact that farms with certified CNMPs apply 20-30 lbs of phosphorous less per acre than farms that do not have CNMPs and minimize nutrients leaving the farm through site-specific conservation planning. The actions would provide livestock farmers with financial and technical assistance to complete certified CNMPs, reward farmers that complete and maintain CNMPs, and increase market demand for certified CNMP provider.

Cost: \$106 million over five years.

5.(e) \$18 million should be provided annually over five years to hydrologically improve ten urban watersheds of various sizes.

- Four federal agencies, the Army Corps of Engineers (USACE), the U.S. Geological Survey (USGS), United States Department of Agriculture (USDA), and U.S. EPA have resources, expertise, and experience to assist in various aspects of any new federal initiative. USDA

would modify/expand its focus to incorporate off-site impacts into their conservation programs. The CWA Section 319 funding for nonpoint source control programs would be used to address urban stream flow issues related to aquatic life impairments; however, traditional non-pollution abatement activities are the current focus. Lead agencies will work in partnership with other federal, state, tribal, and local agencies and organizations.

- **Critical Geographies:** The new program should focus on urbanized areas where runoff from development and the associated impairments directly affect natural waterways and their confluence with the Great Lakes or connecting waters. Likely candidates include smaller watersheds or sub-watersheds within the Duluth, Milwaukee, Green Bay, Gary, Detroit, Cleveland, Toledo, and Buffalo metropolitan areas.

Rationale: Alterations in the natural hydrology of surface and ground water in the Great Lakes basin, such as in the form of floods, droughts, reduced base flow, or altered timing of natural flow regimes, has resulted in changes to the structural and functional integrity of the physical, chemical, and biological elements in these ecosystems. Current federal assistance, regulatory and grant programs, and related state programs do not focus on in-stream flows in urban areas. A new, integrated federal initiative is needed to address flow regime issues in urban watersheds including infiltration and groundwater recharge. The anticipated results and benefits of protecting, conserving, and improving the hydrology of watersheds will be reduced infrastructure costs due to elevated stream flows and excessive sediment loadings, improved shipping capacity, increased public use, and improved aquatic ecosystem health. State and local governments should also review zoning and building codes, setback ordinances and planning efforts to ensure that they reflect the use of green infrastructure and low impact development

Cost: \$18 million per year over five years.

Other Identified Issue Areas

6. Balancing Economic and Environmental Needs

Need:

- ◆ Better balance economic and environmental needs in Great Lakes management.

Strategies:

- *Ecosystem Charter for the Great Lakes-St. Lawrence Basin*
 - Guiding principles and action items to manage the Great Lakes for environmental and economic sustainability.
- *Great Lakes Commission: Great Lakes Program to Ensure Environmental and Economic Prosperity*
 - Federal legislative and appropriations priorities of the Great Lakes states to manage Great Lakes resources for environmental and economic sustainability.
- *Great Lakes Governors and Premiers: Great Lakes Charter*
 - Water management principles for both environmental and economic purposes.
- *A Strategic Plan for the Great Lakes Commission*
 - Foster the protection as well as the sustainable use and development of Great Lakes resources.

- *NOAA (CZM): Sustaining America's Coastal Communities and Resources*
 - Strategic goals for the NOAA-administered CZM to sustain both coastal ecosystems and coastal economies.
- *Great Lakes Fishery Commission: A Joint Plan for the Management of Great Lakes Fisheries*
 - Manage interjurisdictional fisheries to meet associated needs for employment and income as well as a healthy aquatic ecosystem.
- *NRCS Strategic Plan 2000-2005*
 - Educate communities about the importance of watershed planning to protect both future economic growth and resource health.
- *SLSDC Fiscal Year 2003/2004 Strategic Plan*
 - Strategic goals include both the environment and trade development.
- *The Strategic Vision for the USGS in the Great Lakes-St. Lawrence Region*
 - Strategic goals include both ecological integrity as well as sustainable development.
- *New York State 25 Year Plan for the Great Lakes*
 - Integrated management of the Great Lakes-St. Lawrence system to sustain both the ecosystem and the economy.

Corps Great Lakes Program:

- *John Glenn Great Lakes Basin Program*
 - An opportunity to ensure the future use, management, and protection of water and related resources in the Great Lakes basin.
- *Great Lakes St. Lawrence Seaway Study*
 - Study to determine the existing state of the system (establishing a baseline condition) in terms of Economic, Environmental and Infrastructure status.
 - Develops a projection of the system in regard to Economic, Environmental and Infrastructure conditions by mid-century, assuming no improvements beyond those already planned or in progress.
- *Great Lakes Fishery and Ecosystem Restoration*
 - Support ecosystem restoration, fishery, and beneficial uses in the Great Lakes.
 - Develop an evaluation program to assess whether accomplished projects meet fishery and ecosystem restoration goals.
- *Dredging Operations and Environmental Research*
 - Balance operational and environmental needs.
 - Provide dredging project managers with technology for cost-effective operation, evaluation of risks associated with management alternatives, and environmental compliance.
- *Riverine Ecosystem Restoration and Flood Hazard Mitigation*
 - Studies and projects are intended to emphasize, to the maximum extent practicable and appropriate, nonstructural approaches to preventing or reducing flood damages.

- *Regional Sediment Management Demo Program*
 - RSM is intended to provide improved information on environmental as well as economic consequences of sediment management actions and a better understanding of potential tradeoffs.
 - RSM demonstrations encompass ecological and economic components.
- *Planning Assistance to States*
 - Planning assistance to states for the development, utilization, and conservation of water and related land resources.
- *Tribal Partnership Program*
 - Planning assistance to Indian tribes for the development, utilization, and conservation of water resources.

7. Program Funding

Need:

- ◆ Sufficient funding for critical water resources programs in the Great Lakes basin.

Strategies:

- *Great Lakes Commission: Great Lakes Program to Ensure Environmental and Economic Prosperity*
 - Federal appropriations priorities of the Great Lakes states
 - Recommendations to fund federal programs that have been authorized, yet inadequately funded, as well as important “new start” initiatives:
 - Great Lakes Restoration Plan:
 - Funding for the Great Lakes states, Great Lakes Commission, and Council of Great Lakes Governors through appropriate federal agencies
 - Corps of Engineers:
 - Chicago Sanitary & Ship Canal Dispersal Barrier
 - Environmental Dredging:
 - Acceptance of in-kind services and funds from nonfederal entities
 - Environmental Improvements
 - International Water Studies:
 - John Glenn Great Lakes Basin Program:
 - Cost-Sharing (Section 455[f]): Amend to allow use of in-kind services to satisfy nonfederal costshare requirements
 - Great Lakes Fishery and Ecosystem Restoration Program:
 - Amend section 506(f): Allow in-kind contributions for the nonfederal share for planning, design, and construction, and eliminate costshare requirement for post-construction monitoring and evaluation
 - Great Lakes Navigational System:
 - Great Lakes Remedial Action Planning and Sediment Remediation
 - Great Lakes Sediment Transport Models
 - Navigation Operation and Maintenance:
 - Soo Replacement Lock
 - Water Level Management and Monitoring:
 - Authorize a federal/state partnership and state grants program for forecasting, monitoring, mapping and trend analysis of water withdrawal and use

- FWS:
 - Aquatic Nuisance Species Surveillance and Control
 - Great Lakes Coastal Program
 - Great Lakes Fish and Wildlife Restoration Act
 - Acceptance of in-kind services and funds from nonfederal entities
 - Natural Resource Damage Assessment Program
 - North American Wetlands Conservation Act:
- NOAA:
 - Coastal Zone Management Program
 - Conservation and Reinvestment Act
 - Hydrographic Services Improvement Act
 - Authorizing language to maintain and upgrade 51 lake level monitoring stations
 - National Sea Grant College Program
- NRCS:
 - Great Lakes Basin Program for Soil Erosion and Sediment Control
- U.S. EPA:
 - CWA Section 106
 - CWA Section 319
 - Environmental Protection – Consolidated Research
 - Great Lakes Program
- USGS:
 - NAWQA
 - National Water Use Information Program
 - USGS Ground-Water Resources Program
- *Strategic Vision for the Great Lakes Fishery Commission*
 - Increase partnership funding for enhanced delivery of Great Lakes Fishery Commission programs.
- *Strategic Direction of the Great Lakes Committee of the NACD*
 - Support funding efforts of agencies involved in Great Lakes water quality issues.
- *Section 309 Strategy and Assessment for Pennsylvania’s Coastal Zone Management Program*
 - Utilize federal CZM grants more efficiently.
- *Northeastern Illinois Planning Committee: Strategic Plan for Water Resource Management*
 - Increase funding for wastewater treatment plant construction, floodplain mapping, and research on groundwater and surface water supplies in Northeastern Illinois.

Corps Great Lakes Program:

- *John Glenn Great Lakes Basin Program*
 - An opportunity to address funding needs for critical water resources programs in the Great Lakes basin.

8. Watershed Management Planning and Flood Protection

Needs:

- ◆ Improved watershed planning for integrated water resources management
- ◆ Environmentally sound flood mitigation solutions

Strategies:

- *NRCS Strategic Plan 2000-2005*
Protection of upstream watersheds from floods by using watershed-level, integrative approaches such as
 - 1) Helping watershed project sponsors to implement watershed protection plans;
 - 2) Addressing flood prevention in the context of comprehensive watershed planning; and
 - 3) Educating communities about the importance of watershed planning to risks from flooding.
- *Northeastern Illinois Planning Commission: Strategic Plan for Water Resource Management*
Strategic recommendations for improving watershed planning and coordination to reduce flood damages in Northeastern Illinois. With regard to the Corps' role in the region, the recommendations involve
 - Coordination with the Corps of Engineers and other federal agencies to address flood remediation needs;
 - Consideration of nonstructural over structural flood controls;
 - Method development to incorporate nonstructural and non-flood reduction benefits into the cost-benefit analyses for flood control projects; and
 - Identification of flood control projects with multiple benefits (including ecosystem restoration).
- *Lakewide Management Plans*
 - *Lakes Michigan LaMP:*
 - Promote watershed planning

Corps Great Lakes Program:

- *Riverine Ecosystem Restoration and Flood Hazard Mitigation*
 - Coordinate local flood damage reduction or riverine and wetland restoration studies with projects that conserve, restore, and manage hydrologic and hydraulic regimes and restore the natural functions and values of floodplains.
 - Studies and projects are intended to emphasize, to the maximum extent practicable and appropriate, nonstructural approaches to preventing or reducing flood damages.
- *Flood Plain Management Services*
 - Provide technical assistance to states, counties, and cities in planning the prudent use of land subject to flooding from streams and lakes.
- *Planning Assistance to States*
 - Provide assistance to states in the planning for the development, utilization, and conservation of water and watershed resources.

- *Tribal Partnership Program*
 - Provide assistance to Indian tribes in the planning for the development, utilization, and conservation of water and watershed resources.
- *Environmental Infrastructure*
 - Provide technical solutions to the alleviation of water-related problems on a local scale.

9. Waterfront Revitalization

Need:

- ◆ Reclaim and restore abandoned and polluted waterfront.

Strategy:

- *NOAA (CZM): Sustaining America's Coastal Communities and Resources*
Revitalization of urban waterfronts.
Cleanup and reuse of underused areas such as brownfields.

Corps Great Lakes Program:

- *Planning Assistance to States*
 - Provide assistance to states in planning for the development, utilization, and conservation of water and related land resources.
- *John Glenn Great Lakes Basin Program*
 - An opportunity to expand the current scope of brownfield-related activities from planning (Planning Assistance to States) to implementation by means of a new authority.

10. Monitoring and Management of Great Lakes Water Levels and Diversions

Need:

- ◆ Prevent net loss of water from the Great Lakes.

Strategies:

- *Great Lakes Charter*
 - Five principles for the management of Great Lakes water resources to conserve Great Lakes water levels and flows:
 - 1) Integrity of the Great Lakes basin
 - 2) Cooperation among jurisdictions
 - 3) Protection of Great Lakes water resources
 - 4) Notice and consultation of all Great Lakes governors and premiers prior to any new major use and consumption of Great Lakes water, and
 - 5) Cooperative programs and practices.
- *Strategic Plan for the IJC*
 - Prevent disputes and resolve issues concerning transboundary levels.
- *ISLRBC: Lake Ontario Outflow Strategy*
 - The ISLRBC of the IJC continuously reviews, discusses, and adapts the short-term (month-to-month) and long-term (several months) outflow

- strategy to meet the IJC Orders of Approval for the St. Lawrence Seaway and a hydropower project at the controlled outflow of Lake Ontario.
 - The IJC has also called on the ISLRBC to
 - (a) Review the current regulation of levels and flows in the Lake Ontario-St. Lawrence River System, taking into account the impact of regulation on affected interests;
 - (b) Develop an improved understanding of the system by all concerned; and
 - (c) Provide all the relevant technical and other information needed for the review.
 - After the review, which began in 2000 and is expected to take five years, the ISLRBC may recommend that the IJC further amends its Orders of Approval.
- *Section 309 Strategy and Assessment for Pennsylvania's CZM*
 - Fully participate in existing Great Lakes water quantity monitoring programs.
- *Illinois DNR Strategic Plan 2003-2008*
 - Asserts the lead role of the IL-DNR in controlling and regulating Lake Michigan water diversion and use in northeastern Illinois.
- *Great Lakes United: A Citizen's Action Agenda for Restoring the Great Lakes-St. Lawrence River Ecosystem*
 - Halt navigation system expansion plans until the problem of lower water levels from deeper channels is resolved;
 - Adopt a binding agreement for regulating the withdrawal of water from the Great Lakes based on sound science for protecting the ecosystem.

Corps Great Lakes Program:

- *International Water Studies- Surveillance of Northern Boundary Waters*
 - Provides technical information for recommendations of IJC boards regarding regulated flow releases
 - Coordination with Canadian counter-agency
 - Data collection and coordination on water levels, flow releases, and water supplies to the basin
- *John Glenn Great Lakes Basin Program*
 - The Biohydrological Information Base section (part b) investigates issues related to water quantity, especially in relation the Biohydrological system of the Great Lakes
- *Lake Michigan Diversion Accounting*
 - Make flow measurements, gauge records, make hydraulic and hydrologic computations, including periodic field investigations and measuring device calibrations, necessary to compute the amount of water diverted from Lake Michigan by the State of Illinois and its municipalities, political subdivisions, agencies, and instrumentalities
- *Planning Assistance to States*
 - Provide assistance to states in the planning for the development, utilization, and conservation of water and related land resources.
- *Tribal Partnership Program*
 - Provide assistance to Indian tribes in the planning for the development, utilization, and conservation of water and watershed resources.

11. Program and Project Management and Planning

Need:

- ◆ The Corps needs to more efficiently plan and manage programs and projects in the Great Lakes basin.

Strategies (of other agencies):

Not applicable.

Corps Great Lakes Program:

- *John Glenn Great Lakes Basin Program*
An opportunity to develop strategic goals for Great Lakes program and project management.