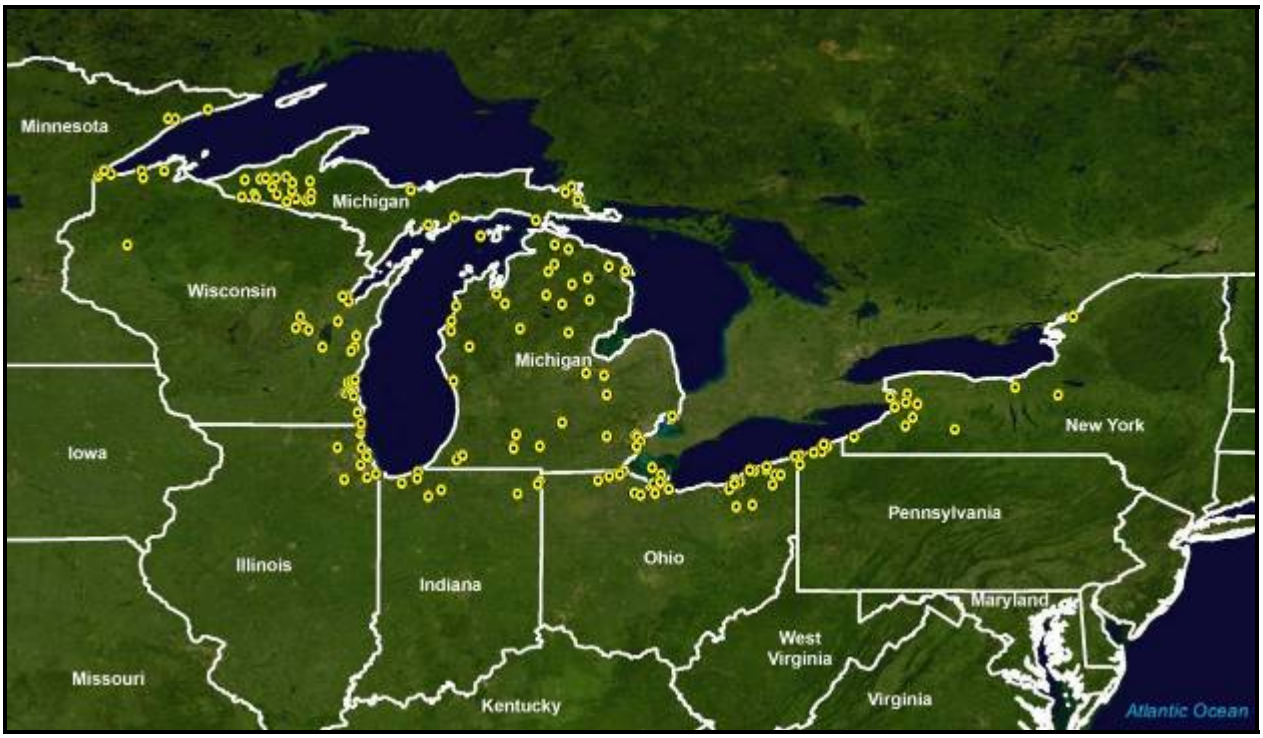
Great Lakes Habitat Initiative
Final Report and Implementation Plan



August 2008

Study Partnership

Council of Great Lakes Governors
Ducks Unlimited Inc.
Great Lakes Commission
Great Lakes Fishery Commission
Great Lakes Indian Fish and Wildlife Commission
Great Lakes and St. Lawrence Cites Initiative
Healing Our Waters – Great Lakes Coalition
Natural Resources Conservation Service
The Nature Conservancy
U.S. EPA, Great Lakes National Program Office
U.S. Geological Survey
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Wisconsin Department of Natural Resources

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EXECUTIVE SUMMARY

In March 2006, the Great Lakes Habitat Initiative (GLHI) was kicked off with a two-year initial study to develop tools for project tracking and funding, along with a short-term implementation plan for the protection and restoration of wetlands and aquatic habitat. This study builds upon the recommendations of the December 2005 *Great Lakes Regional Collaboration* Strategy *to Restore and Protect the Great Lakes* (*GLRC Strategy*). The GLRC is a partnership of federal, state, city, and tribal governments developed under Executive Order (EO) 13340, which established a national priority for the protection and restoration of the Great Lakes. The GLHI seeks to bridge the gap between the regional needs identified in the *GLRC Strategy* and the programs that provide funding for "on-the-ground" actions. The GLHI consisted of five primary tasks:

1. A **forum** for collaborative habitat restoration and protection. The initiative had to find and bring together environmental project development organizations.
2. Creation of a funding **programs database** that would collect existing information on funding sources and programs for habitat restoration and conservation that could be used within the Great Lakes watershed.
3. Development of a **project database** that gathered information from federal, state, local and nongovernmental organization (NGO) sources on potential and ongoing habitat restoration and conservation projects within the Great Lakes watershed.
4. Development of a lexicon of **project criteria** that are most appropriate to habitat projects, with a descriptive scale to differentiate the value or degree to which a project exemplifies each criterion. These criteria include ecosystem connectivity, hydrologic character, special status species, geomorphic character, etc.
5. Development of an **implementation plan(s)** for future habitat restoration and conservation projects in the Great Lakes watershed.

The U.S. Army Corps of Engineers (Corps) has engaged 11 agencies and organizations representing federal, state, tribal, and city governments and NGOs to collaborate under the GLHI. The GLHI was coordinated with other members and observers of the GLRC through periodic briefings at meetings of existing Great Lakes regional organizations. Partners are: the U. S. Environmental Protection Agency (USEPA) Great Lakes National Program Office; Ducks Unlimited Inc.; the U.S. Geological Survey (USGS); the U.S. Department of the Interior; the Council of Great Lakes Governors; the Great Lakes and St. Lawrence Cites Initiative; the Wisconsin Department of Natural Resources; the Great Lakes Fishery Commission; the Great Lakes Commission; The Nature Conservancy; the Great Lakes Indian Fish and Wildlife Commission; the U.S. Fish and Wildlife Service; and Natural Resources Conservation Service.
As part of the data collection and outreach effort, the Corps partnered with the Great Lakes Commission (GLC) to sponsor workshops in each of the Great Lakes states to raise awareness about the GLHI and solicit input from key state agencies. In the summer of 2007, workshops were held in each of the eight Great Lakes states: Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. While feedback from the workshop participants suggests that the goal of the workshops was met, one recurring theme that emerged from the state agencies is the need for additional federal resources to enhance liaison activities with the states and the numerous federal agencies carrying out restoration work in the Great Lakes watershed. In addition, there is a strong desire among state agencies for some type of assurance

that the project inventory will be used by multiple federal agencies and will help coordinate funding decisions. Data from nearly 200 projects from federal, state, and NGO agencies were recorded into the database. It was consensus that the life of the GLHI and the database will be extended beyond the conclusion of this phase of the study. This support also demonstrates the timeliness, importance, and need of the GLHI in the Great Lakes watershed.

The project database is a tool created by the GLHI to help identify and analyze the effects of potential habitat restoration and conservation projects within the Great Lakes watershed. The database will aid in characterizing the potential environmental benefits of the projects and how they can help achieve the various GLRC goals:

1. **Open and nearshore waters:** to support self-sustaining fish and wildlife communities
2. **Wetlands and associated uplands:** to provide a full range of ecosystem services including hydrologic retention, nutrient and sediment trapping, spawning, nesting, and nursery habitats, and other habitat needs of fish and wildlife
3. **Riverine and related riparian areas:** to ensure their connectivity to floodplains and tributary spawning, with more natural flow and sediment regimes
4. **Coastal and associated uplands**: to support the natural processes that sustain them

Although the GLHI is focused on the GLRC habitat/species issue area, the projects in the database also support the other goals of the *GLRC Strategy*, such as contaminated sediments, non-point source pollution, etc. By no means does the project database represent all the proposed, planned, designed, or implementable habitat restoration projects in the U.S. portion of the Great Lakes watershed; however, this collection of projects is a representative sample of the types of projects that are possible.

The projects' implementation plans and support statements provide a vivid picture of what is needed to truly begin to implement projects to achieve GLRC goals. The contributions each project is expected to make towards achieving specific *GLRC Strategy* goals and sub-goals are enumerated. In addition, each project is evaluated against environmental, economic, and social criteria from the project characterization criteria. The Corps has taken the idea one step further and laid out a menu of projects for each fiscal year from FY 2009 to FY2014. Projects that warrant specific mention here include Indian Ridge Marsh, IL; Ballville Dam Fish Passage, OH; Frankenmuth Dam Fish Passage, MI; Red Mill Pond, IN; Manistique River Lamprey Barrier, MI; and Burnham Prairie, IL because they have been determined to be of high value using the characterization criteria and could be implemented relatively quickly if fully funded. Programmatically speaking the Section 506 authority may offer the greatest opportunity to support GLRC Strategy Goals.

In order to sustain the momentum created during the development of the Great Lakes Habitat Initiative, it is recommended that the Steering Committee created for implementation be retained and renamed as the Habitat Subcommittee under the general direction and guidance of the Executive Committee of the Great Lakes Regional Collaboration. It is further recommended that the Habitat Subcommittee develop and execute a work plan to advance the implementation of the habitat goals from the GLRC *Strategy*. Actions that should be considered in the work plan of the Habitat Subcommittee include:

- Provide oversight of the use, updating, and improvement of the GLHI tools.
- Conduct periodic workshops on a state or other sub-regional level to enhance utilization of the GLHI tools and facilitate a dialogue on specific habitat projects and partnering opportunities.
- Facilitate coordination between non-federal partners of the GLRC and Federal Interagency Task Force on issues including the tracking of progress in the restoration of wetlands and other habitat in the region.
- Facilitate coordination of habitat conservation and restoration activities with existing regional and sub-regional interests, including those established under the North American Waterfowl Management Plan and Joint Strategic Plan for Management of Great Lakes Fisheries.

The GLHI was a short-term investment that created both “hard” and “soft” products. The “hard” products of the GLHI are a set of tools that can be used by diverse stakeholders for a variety of purposes related to the protection and restoration of habitat in the region. The “soft” products of the GLHI include the working relationship that was developed between the diverse agencies and organizations that participated in the implementation of this initiative. This experience helped expand our understanding of the similarities and differences between the partners and their management strategies, programs and limitations. It is this diversity of partners and programs that provides our strength as a region and will lead us to realize the habitat goals set by the GLRC *Strategy*.

1 – GREAT LAKES HABITAT INITIATIVE PURPOSE & PRODUCTS

In March 2006, the Assistant Secretary of the Army for Civil Works (ASACW) announced the selection of the Great Lakes Habitat Initiative (GLHI) as the largest of six projects funded across the United States for analyses of complex water resources issues within large, multi-jurisdictional watersheds. The GLHI is a two-year project designed to develop an implementation plan for the protection and restoration of wetlands and aquatic habitat which builds upon the recommendations of the December 2005 *Great Lakes Regional Collaboration* Strategy *to Restore and Protect the Great Lakes* (*GLRC Strategy*). The GLRC is a partnership of federal, state, city, and tribal governments developed under Executive Order (EO) 13340, which established a national priority for the protection and restoration of the Great Lakes. The GLHI seeks to bridge the gap between the regional needs identified in the GLRC Strategy and the programs that provide funding for "on-the-ground" actions.

The initial proposal for the GLHI was coordinated with federal, state, and local agencies and nonprofit organizations, and letters of support for the project were provided by the Great Lakes Fishery Commission, Great Lakes Commission, Great Lakes and St. Lawrence Cities Initiative, The Nature Conservancy, Ducks Unlimited, and the co-chairs of the Habitat/Species Team of the GLRC. The GLHI consists of five primary tasks:

1. A **forum** for collaborative habitat restoration and protection. The initiative had to find and bring together environmental project development organizations.
2. Creation of a funding **programs database** that would collect existing information on funding sources and programs for habitat restoration and conservation that could be used within the Great Lakes watershed.
3. Development of a **project database** that gathered information from federal, state, local, and nongovernmental organization (NGO sources on potential and ongoing habitat restoration and conservation projects within the Great Lakes watershed.
4. Develop a lexicon of **project criteria** that are most appropriate to habitat projects, with a descriptive scale to differentiate the value or degree to which a project exemplifies each criterion. These criteria include ecosystem connectivity, hydrologic character, special status species, geomorphic character, etc.
5. Development of an **implementation plan(s)** for future habitat restoration and conservation projects in the Great Lakes watershed.

2 – GREAT LAKES WATERSHED DESCRIPTION

The Great Lakes Habitat Initiative (GLHI) study area covers the U.S. portion of the Great Lakes watershed, which includes the connecting channels, historically connected tributaries, Lake St. Clair, and the St. Lawrence River to the 45th parallel of latitude (see Exhibit 1).

Exhibit 1 – Great Lakes Watershed in the United States

The Great Lakes system holds about 20 percent of the earth's total fresh surface water. It also includes more than 10,000 miles of coastline, over 530,000 acres of coastal wetlands, the world's largest system of freshwater dunes, more than 30,000 islands, and thousands of tributaries, streams, and glacial lakes. The surface area of the Great Lakes is about 94,710 square miles; their watershed covers 295,200 square miles and includes parts of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, Wisconsin, and Ontario.

This vast freshwater watershed is impressive not only because of its sheer size and natural beauty, but also because it holds the key to the economic prosperity, environmental health, and quality of life of 40 million residents in eight U.S. states and two Canadian provinces. A significant fraction of the U.S. gross domestic product (over $150 billion in goods) is generated annually in the Great Lakes region. The region owes this global significance largely to the Great Lakes freshwater system that fostered regional development and prosperity. Today, the lakes continue to serve as commercial waterways; supply water for agricultural, municipal, and industrial use; and provide numerous opportunities for outdoor recreation and tourism.

3 – GLHI PURPOSE & NEED

The Great Lakes have been the subject of several strategic initiatives ranging from water level regulation and navigation to habitat restoration and conservation. Recent efforts by the Great Lakes governors and President George W. Bush, under Executive Order 13340, have attempted to focus the efforts of the Great Lakes community and establish regional priorities.

The Great Lakes Habitat Initiative (GLHI) was conceived with the intention of developing the tools and site specific recommendations to help achieve the goals related to habitat and species restoration and conservation contained in the *Great Lakes Regional Collaboration Strategy to Restore and Protect the Great Lakes* (*GLRC Strategy*). The following paragraphs summarize previous strategic efforts on the Great Lakes and highlight some of the challenges to developing regional management plans.

3.1 - Watershed Issues

In 2003, the governors of the eight Great Lakes states sent a joint letter to Members of Congress outlining their nine priority issues for the restoration and protection of the Great Lakes. These priorities are:

- Sustainable use and management of water
- Protection of human health from pollution
- Control of non-point source pollution
- Reduction of loadings of persistent and toxic contaminants
- Stopping the introduction of invasive species
- Restoration and protection of wetlands and fish and wildlife habitat
- Restoring beneficial uses at Areas of Concern
- Standardized systems for information and indicators
- Sustainable economic development

These watershed priorities were subsequently endorsed by member mayors of the Great Lakes and St. Lawrence Cities Initiative.

3.2 - Great Lakes Regional Collaboration

On May 18, 2004, President Bush signed Executive Order (EO) 13340 (see Appendix A), which designated the resources of the Great Lakes as nationally significant and defined a federal policy to support local and regional efforts to restore and protect the Great Lakes ecosystem through the establishment of a regional collaboration. In the 20 months following that event, a number of activities were accomplished by federal agencies working in partnership with state, tribal, and local governments in response to this Executive Order. The Great Lakes and Ohio River Division (LRD) of the U.S. Army Corps of Engineers (Corps) has participated extensively in these activities.

EO 13340 established the Great Lakes Interagency Task Force, composed of Secretaries from the U. S. Departments of Agriculture, Agriculture, Army, Commerce, Homeland Security, Housing and Urban Development, Interior, State, and Transportation, as well as the U. S. Environmental

Protection Agency (represented by the Administrator) and Council on Environmental Quality (represented by the Chairman). Mr. Woodley, the Assistant Secretary for the Army for Civil Works (ASACW), is the Department of Army's representative on this task force.

The task force worked with the governors of the eight Great Lakes states, mayors, and tribal leaders to establish the GLRC. This partnership of federal, state, tribal, and local governments was officially formed in December 2004 in a ceremony attended by the ASACW who signed the group's Collaboration Charter.

The first goal of the GLRC was to develop a strategy for the protection and restoration of the Great Lakes within one year. The GLRC developed the *Strategy* by focusing on eight of the nine priorities that had been established by the Great Lakes governors and mayors (the water use priority was not addressed because the states already had an ongoing initiative on this issue). Teams were established to develop sections of the *Strategy* for each of the eight issue areas.

Over 1,500 stakeholders from federal, state, tribal, and local governments, industry, and interest groups participated on these teams. The GLRC completed its *Strategy to Restore and Protect the Great Lakes* in December 2005. The *GLRC Strategy* includes descriptions of the regional needs related to these eight issue areas, as well as numerous recommendations of near-term actions and detailed information on costs. A number of GLRC partners have worked to develop additional specificity to better inform near-term actions.

One of the eight priority issues included in the *GLRC Strategy* is to "enhance fish and wildlife by restoring and protecting coastal wetlands, and fish and wildlife habitats." The Habitat/species section of the *GLRC Strategy* summarizes key threats and issues that are keeping these habitats from reaching their desired states. These include: habitat destruction and fragmentation, alteration of natural flows and lake levels, invasive species, excessive sedimentation, and toxic contaminants. The *GLRC Strategy* also identified the priority systems where protection and restoration efforts should be focused: fish and wildlife populations in open and nearshore waters, wetlands, riverine habitats, coastal shores, and upland habitats. The *GLRC Strategy* provides long-term goals for each of these focus areas and some near-term recommendations. The near-term recommendations represent a blend of regulatory, policy, research, monitoring, management, and restoration actions. The *GLRC Strategy* also provides recommendations for increased funding to existing programs for habitat protection and restoration.

3.3 - Government Accountability Office Reviews

In two separate reports the Government Accountability Office (GAO, formerly the Government Accounting Office) has called attention to the lack of coordination in addressing environmental issues facing the Great Lakes. The first report, *An Overall Strategy and Indicators for Measuring Progress Are Needed to Better Achieve Restoration Goals*, GAO-03-515, was published in April 2003. This report found, for example, that "there are 148 federal and 51 state programs funding environmental restoration activities in the Great Lakes watershed. Most of these programs involve the localized application of national or state environmental initiatives that do not specifically focus on watershed concerns."

The second GAO report, *Organizational Leadership and Restoration Goals Need to Be Better Defined for Monitoring Restoration Progress*, GAO-04-1024 (September 2004), found that current monitoring of projects in the Great Lakes does not provide the comprehensive information needed to monitor restoration progress and assess the degree to which the parties are complying with various requirements and objectives. Other federal and state organizations are conducting monitoring efforts but, while useful, these efforts are designed to meet the goals of specific program objectives or are limited to specific geographic areas.

3.4 - Challenges of Regional Management

The biggest challenge to developing a regional management plan for habitat restoration is aligning the conflicting management policies of different agencies. In some cases, complementary management approaches can be developed over time. This section identifies some aspects of this conflict and suggests how some of these problems could become opportunities for new, effective ways of mixing existing and regional management procedures.

There are federal, state, local, and nongovernmental programs that restore and protect habitat, each with processes to guide these investments. Two aspects of these processes make them more or less well suited to the regional collaboration envisioned in the GLHI. The first consideration is whether project plans would be developed and available for entry into the GLHI project database before funds for construction were committed. The GLHI strategy was designed around that premise, but in some cases, projects are developed in response to grant announcements in which the funding is already in place. The second consideration is whether the criteria used in each program are flexible enough to use relevancy to the *GLRC Strategy* and evaluations relative to the project characterization criteria in the program evaluation. There is a continuum in programs that might be used for Great Lakes restoration projects, from programs where projects are designed publicly and program criteria are flexible, to programs in which projects are proposed after funds are made available and awarded strictly according to the ranking procedures of that program. The Corps' Section 1135 program is an example of the former, the U.S. Fish and Wildlife Service (USFWS) Cooperative Endangered Species Conservation Fund fits the latter. The Land and Water Conservation Fund, administered nationally by four federal agencies, falls in-between.

In the Section 1135 Ecosystem Restoration program, the Corps performs a planning study first. The project characterization criteria are fairly compatible with the criteria used to evaluate Section 1135 projects. Future funding may or may not require Congressional action between planning and construction, and often requires the candidate project to compete for funding with projects in that same national program but outside the Great Lakes region. Evidence that a group of 1135 projects has helped achieve accepted regional habitat goals might help Great Lakes projects compete against Section 1135 projects at the national level.

Many organizations do not make such a distinction between design and construction. To avoid spending money on planning projects that will not be built, these organizations commit to construction after a quick determination that a conceptual project is practical and meets the organization's mission. Granting programs follow still another process. For example, the USFWS awards grants to states under the Cooperative Endangered Species Conservation Fund

(authorized under section 6 of the Endangered Species Act) to buy property so as to assure the preservation of endangered species' important habitat. The national level of funding is determined by Congress, and based on that funding level, grant proposals are considered. The USFWS reviews grants that meet certain entry-level requirements (e.g., the state has to have an active cooperation agreement with the USFWS) and rates them based on the following criteria:

- Up to 20 points are awarded for the extent to which habitat acquisition would contribute to recovery of the species (5 points if the habitat is suitable to the species, 10 points if the acquisition is necessary to avoid a decline in the species, and 20 points if the acquisition is necessary to avoid extinction)
- Up to 22 points depending on the priority the USFWS has assigned to the importance of saving the particular species in question
- Up to 20 points based on the number of species that benefit and the status of the recovery plan for that species (more points for final than draft, more for a draft than for no draft)
- Up to 20 points for ecosystem benefits (with more points for habitat critical to the life cycle of the species, and more points if the acquisition would connect fragmented ecosystems)
- Up to 18 points for the level of cost-sharing provided (more points for exceeding the 25 percent minimum cost-share contributions or multiple-state applications)

Unlike the Corps 1135 program, project proposals generally come forward after the funding is made available, so the regional endorsement may have no effect on the amount of money the Great Lakes would receive from the Cooperative Endangered Species Conservation Fund program. But that does not mean there is no role for the projects database. One possible use of the database is for agencies to advertise the potential of proposed projects that were not funded so that directors of other programs might execute them under their programs. In addition, the funding programs database would help proponents of those unfunded projects find funding from another source.

Some programs that fall between these extremes; projects for these programs might be more suitable for coordinated evaluations. For example, the Land and Water Conservation Fund is a federal matching grant program administered by four federal agencies (the USFWS, the National Park Service, the U.S. Fish and Wildlife Service, and the Bureau of Land Management). Up to $900 million per year may be appropriated by Congress; some for state grants and some for federal acquisition. In fiscal years 2006 and 2007, the fund provided about $114 million for federal acquisition and $30 million for state grants. State funds are distributed according to population, not ecological requirements. State park directors solicit communities to apply for projects and distribute funds to worthy projects based on a scoring process (summarized from information provided by the Trust for Public Lands website and the GLHI Program Database). The federal acquisition funds are included in the President's annual budget based on specific project proposals, and the House Appropriations Committee compares projects with input from member Representatives before awarding funding to a limited subset of the proposed projects. In view of this process, the more thoughtful analysis enabled by the GLHI database could improve the competitiveness of projects for limited funding available through national programs.

4 – COLLABORATIVE STUDY TEAM

The U.S. Army Corps of Engineers (Corps) has invited senior managers from 11 agencies and organizations representing federal, state, tribal, and city governments and nongovernmental organizations (NGOs) to participate on the Steering Committee for the Great Lakes Habitat Initiative (GLHI). Since the project was initiated in June 2006, this steering committee has had the opportunity to discuss the GLHI either in person or via teleconference once every three months. The senior managers from these agencies and organizations have also been invited to participate on the project delivery team responsible for execution of the project. The GLHI is being coordinated with other members and observers of the Great Lakes Regional Collaboration (GLRC) through periodic briefings at meetings of existing Great Lakes regional organizations. The GLHI partners are:

- Council of Great Lakes Governors
- Ducks Unlimited Inc.
- Great Lakes Commission
- Great Lakes Fishery Commission
- Great Lakes Indian Fish and Wildlife Commission
- Great Lakes and St. Lawrence Cites Initiative
- Healing Our Waters – Great Lakes Coalition
- Natural Resources Conservation Service
- The Nature Conservancy
- USEPA, Great Lakes National Program Office
- U.S. Geological Survey
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Wisconsin Department of Natural Resources

4.1 - Public and Other Agency Participation

As part of the data collection and outreach effort, the Corps partnered with the Great Lakes Commission (GLC) to sponsor workshops in each of the Great Lakes states to raise awareness about the GLHI and solicit input from key state agencies. Many federal agencies were represented at these workshops, including the Corps, the USEPA, the USFWS, and the National Oceanic and Atmospheric Administration (NOAA). These workshops were intended to facilitate the entry of projects into the GLHI projects database, and also build stronger working relationships between state agencies, federal agencies, tribes and NGOs.

In the summer of 2007, workshops were held in each of the eight Great Lakes states. While feedback from the workshop participants suggests that the goal of the workshops was met, one recurring theme that emerged from the state agencies is the need for additional federal resources to enhance liaison activities with the states and the numerous federal agencies carrying out restoration work in the Great Lakes watershed. In addition, there is a strong desire among state agencies for some type of assurance that the project inventory will be used by multiple federal agencies and will help coordinate funding decisions.

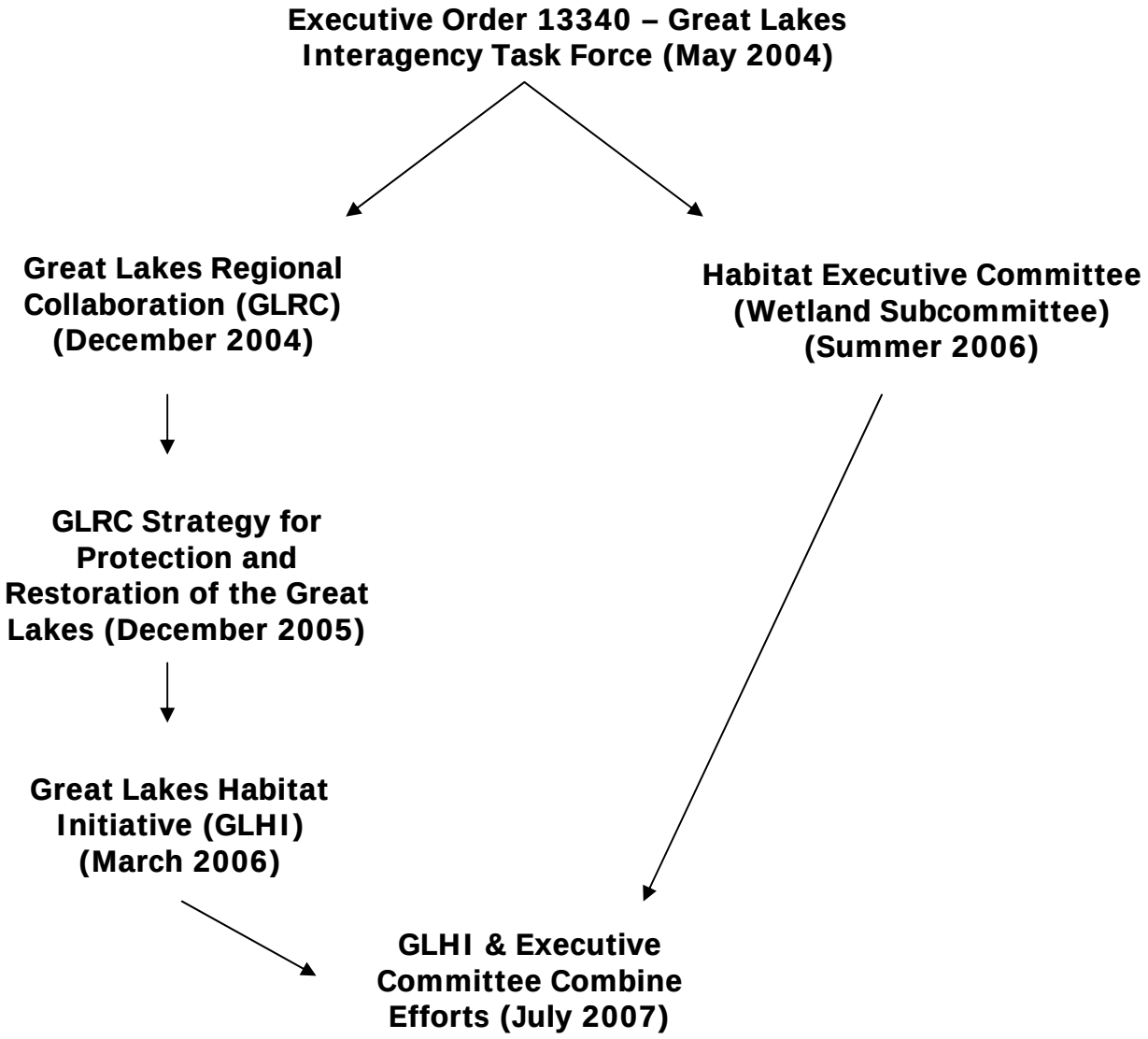
Participation from all members of the GLHI was excellent, from the senior team members serving on the steering committee to the project managers at the federal, state, and NGO level who took the time to enter their project information into the GLHI projects database. For example, in the spirit of collaboration at the federal level, NOAA provided the GLHI team with technical guidance and lessons learned concerning the creation of a large projects database. NOAA has designed and implemented the National Estuaries Restoration Inventory (NERI) database, which was created to track estuary habitat restoration projects across the nation. The guidance provided by NOAA proved to be invaluable to the GLHI team as it created the framework for the Great Lakes specific habitat database.

At the state, local, and NGO level participation and support were outstanding regarding the input of individual project data into the internet-based GLHI project database. Data from nearly 200 projects from federal, state, and NGO agencies were entered into the database in the summer of 2007. The eight state workshops, as well as numerous individual agency briefings, served to educate participants on the importance of the GLHI goals but more importantly, they provided the motivation and direction required to encourage active participation in populating the database. It is important to note that one reoccurring comment at the end of the informational briefings related to the lifespan of the GLHI and its project database. It was made absolutely clear that there was little interest in investing the resources necessary to populate “yet another” database if this was a one-time effort. Agencies are reluctant to collaborate unless they see some benefit, and that benefit would be small if the GLHI ceased to exist after fiscal year 2008. Agencies that supported the study by investing in these efforts were hopeful that the study goals and objectives would be extended beyond the conclusion of this phase of the study. This support also demonstrates the timeliness, importance, and need of the GLHI in the Great Lakes watershed.

4.2 - Wetlands Subcommittee

The Wetlands Subcommittee was established independently of the GLHI in the spring of 2006 by the Great Lakes Interagency Task Force to facilitate the implementation of wetlands-related goals in the *GLRC Strategy*. This included reviewing federal wetland management programs in order to identify possible improved program coordination, and working with non-federal partners on an equally-shared goal to protect and restore 200,000 acres of wetlands in the Great Lakes watershed. Recognizing the shared goals of the GLHI and the Wetlands Subcommittee, the two initiatives joined forces in summer 2007 to form one overarching Great Lakes Habitat/Wetlands Initiative (see Exhibit 2). By bringing the GLHI under the umbrella of the GLRC, the newly merged Great Lakes Habitat/Wetlands Initiative can help ensure that the collaboration on habitat and wetlands is maximized, eliminate redundancies, and sustain the tools that have been developed as part of the GLHI. It is envisioned that the GLHI project and program databases will be improved and maintained with the cooperation and support of GLRC members after the GLHI study is complete.

Exhibit 2 - Evolution of the Great Lakes Habitat Initiative (GLHI) Organization.



5 – A FORUM TO RESTORE GREAT LAKES HABITAT

Regardless of the differences noted above, all stakeholders recognize that the waters of the Great Lakes naturally integrate the effects of their various projects, and believe that it is preferable to plan and implement projects with knowledge of and in collaboration with other project proponents. The Great Lakes Habitat Initiative (GLHI) has established a basis for doing so in the future by creating five necessary products:

1. A **forum** for collaborative habitat restoration and protection. The initiative had to find and bring together environmental project development organizations. In the course of the study, those organizations developed into a community that better understands each others' perspectives and roles. The U.S. Army Corps of Engineers (Corps) arranged and facilitated community meetings and provided communication tools. Collaboration requires personal contact and familiarity, and this community is now in place and can continue to function in the future.

2. A **program database** that identifies funds for habitat restoration and protection for the Great Lakes. Ecologists who identify an opportunity to address problems can now more easily identify appropriate partners and funding sources for the work.

3. A visual **project database**. The GLHI Project Database created, for the first time, a long list of habitat restoration and conservation projects being pursued on the Great Lakes. The database includes information on the cost, timing, geographical location, and expected effects of these projects. These projects can be "viewed" using sophisticated GIS or user-friendly Web-based applications such as Google Earth.

4. Project **characterization criteria** that describe the data used by funding program managers to evaluate a project's eligibility; qualify and quantify project features to better evaluate its benefits; and ultimately make funding decisions. This is the first attempt to standardize the use of habitat restoration terminology on the Great Lakes. The project characterization criteria and subsequent analysis will help the proponents of Great Lakes habitat projects develop proposals that better address the *Great Lakes Regional Collaboration Strategy to Restore and Protect the Great Lakes (GLRC Strategy)*. The analysis will also help facilitate the integration of projects and funding programs, which is critical for achieving the GLRC goals.

5. Lastly, an **implementation plan(s)** for future habitat restoration and conservation projects in the Great Lakes Watershed. At a minimum the implementation plan will include projects that fall within Corps authorities for ecosystem restoration. Other GLHI partners have been invited to do the same for their respective authorities and programs. The Corps projects will be categorized to highlight a subset of projects that are most important in meeting *GLRC Strategy* goals. The main purpose of the implementation plan is to illustrate how a multi-agency implementation plan can be pursued if desired.

5.1 - A Collaborative Forum for Habitat Restoration and Protection

The forum is a "community" (an ongoing collective of people) that cuts across "stovepipes" (vertical organizational structures) and connects actions taken at the field level to the

management of the agency responsible for program oversight. GLHI workshops brought together environmental professionals from government agencies at all levels, as well as from environmental nongovernmental organizations (NGOs), all of whom broadly supported a common goal (restoration and protection of Great Lakes habitat) but previously had scant opportunity to consider the joint effect of their actions. Communities such as this are temporary without a small, but continual amount of funding to allow travel to meetings, maintenance of common databases, and facilitation of workshops to resolve issues that affect the entire community.

5.2 - Program Database

The GLHI Program Database is a searchable database of federal, state, local, and NGO programs that could fund environmental projects (Appendix B). The database includes 91 such programs. Each entry includes the program name, statutory authority, geographic focus (for example, whether is it national in scope or just for the Great Lakes) and a program description. Funding programs are also characterized using fifteen standard characteristics such as the nature of the actions funded by the program (e.g., habitat protection or habitat restoration) or the goal of the program (e.g., aquatic invasive species or Great Lakes coastal health). The entry also includes the form of assistance provided (project or grant, for example) and a description of eligibility and cost-sharing requirements. The amount of money actually allocated for each program in recent years is also shown, although in general, breakdowns of the Great Lakes portion of national programs were not available. Finally, the entries include information that a project proponent could use to estimate the chances of receiving funding for a particular type of project or research proposal, including a point of contact for information, and in some cases, information about the application process, selection criteria and degree of competition for funds.

5.3 - Project Database

The GLHI team developed a preliminary database structured to collect information about proposed habitat restoration and conservation projects that would be useful in designing an overall Great Lakes investment strategy. This database includes many, but not all of the habitat projects being developed around the Great Lakes. Agencies and organizations that were proponents of habitat projects were asked to populate the database. Most chose to provide a sample listing of their projects, rather than an exhaustive list, due to resource constraints and the uncertain long-term use of the database.

To allow more flexibility to describe the projects, the database includes several fields for a freeform narrative response so that project proponents can provide important information that may not fit in the predefined fields. The information in the database will be used to determine which elements in the *GLRC Strategy* would be addressed by each project. Additional tables present more detailed information on projects that support the goals in the Habitat/species component of the *Strategy*.

5.4 - Project Characterization Criteria

The U.S. Government Accountability Office (GAO) reports challenged organizations working on Great Lakes environmental issues to integrate their work so that it would more effectively and efficiently achieve the kind of goals established by the *GLRC Strategy*, but managing collective progress requires a shared language and standards for measuring environmental improvement; our work to date indicates that neither exists. Each organization making investment decisions in Great Lakes habitat projects has its own system for determining which projects will be funded. Some organization selection processes are mandated by law or longstanding agency policy, not unlike requirements provided in the Corps' Principles and Guidelines and engineering regulations and circulars. GLHI partner organizations considered and rejected the notion of developing cross-organization project ranking because it almost certainly would conflict with their internal requirements. That type of strict ranking was also perceived to be conflict-ridden and counter-productive.

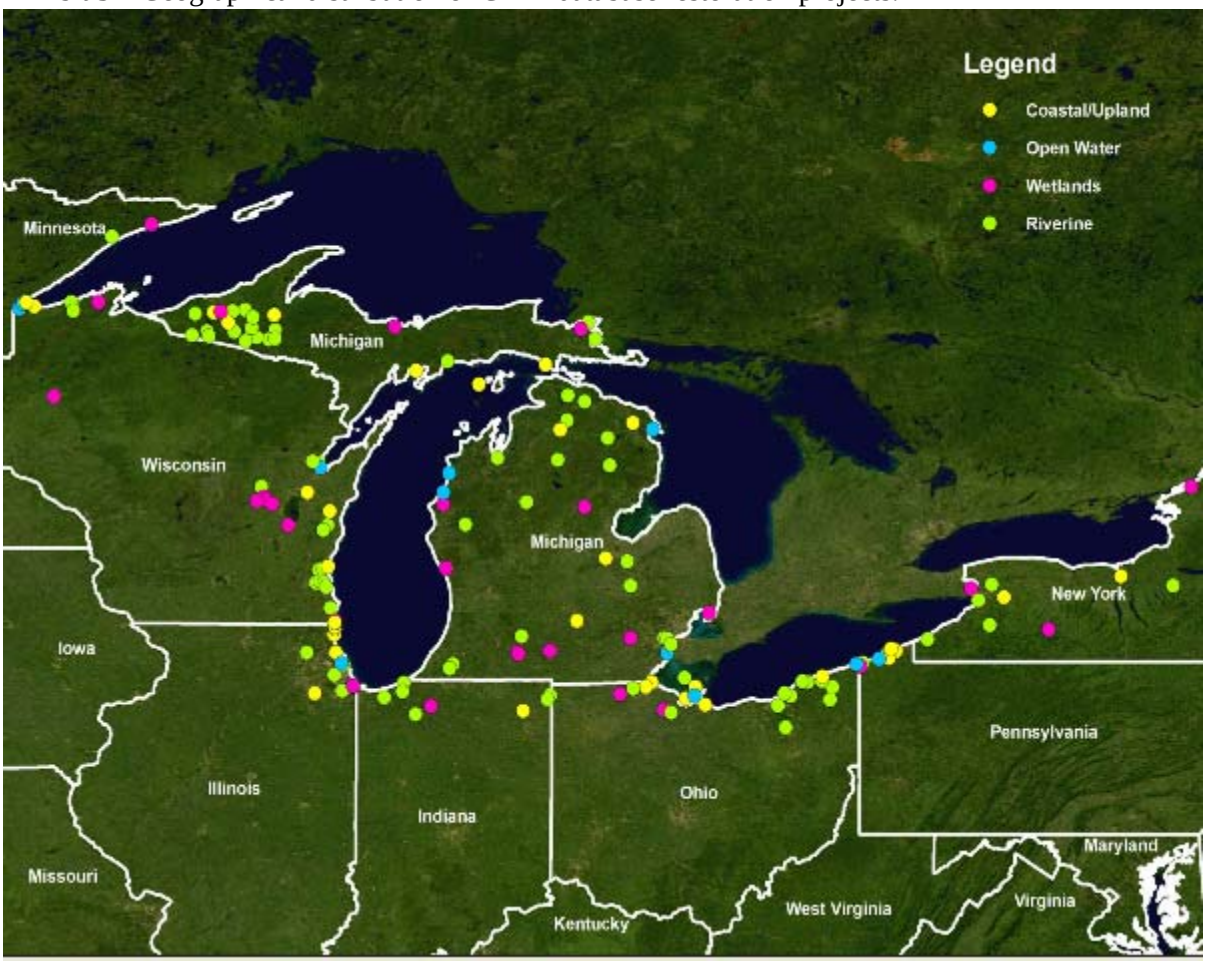
The Lexicon of Project Criteria is included in Appendix C. The establishment of these criteria begins to provide a means for more transparently assessing projects with respect to organizational and regional investment strategies. The project characterization criteria include ecological, social, and economic criteria that organizations commonly use to design projects and prioritize investments. The project attributes making up this common language are not intended to support a mandated cross-organizational project ranking scheme, but to illuminate how the organizational criteria support the *GLRC Strategy*..

The project characterization criteria are structured around the three main components of ecological, economic, and social outcomes. The lexicon includes a mix of quantitative measures, such as affected area, and qualitative characteristics, such as ecological connectivity.

6 – MEETING THE GLRC STRATEGY GOALS

This chapter presents the results of an analysis of the project database. The project database is a tool created by the Great Lakes Habitat Initiative (GLHI) to help identify and analyze the effects of potential habitat restoration and conservation projects within the Great Lakes watershed. The results of this analysis will help to characterize the potential environmental benefits of the projects and how the projects can help achieve the various Great Lakes Regional Collaboration (GLRC) goals. Although the GLHI is focused on the habitat/species issue area, these projects also support the other goals of the *Great Lakes Regional Collaboration Strategy to Restore and Protect the Great Lakes* (*GLRC Strategy*), such as contaminated sediments, non-point source pollution, etc. The projects were entered into the database through a volunteer initiative after a blanket call for data was delegated to federal, state, and local agencies and organizations. By no means does the project database represent all the proposed, planned, designed or implementable habitat restoration projects in the U.S. portion of the Great Lakes watershed; however, this collection of projects is a representative sample of the types of projects that are possible (see Exhibit 3).

Exhibit 3 – Geographical distribution of GLHI database restoration projects.



The *GRLC Strategy* identified four habitat types in the habitat and species chapter; open water/nearshore waters, wetlands, riverine/adjacent riparian, and coastal/upland. Under each habitat type near-term and long-term goals are identified and discussed in greater detail. The following sections of this chapter include an overview of habitat and species diversity in the Great Lakes watershed, a summary of the *GLRC Strategy* goals with respect to the four habitat types previously mentioned, and an analysis of projects in the database that support achievement of the goals for each habitat type. The analysis of projects in this chapter is based on their contribution to the GLRC habitat/species goals.

6.1 - Habitat/Species Issue Area

6.1.1 - Teaming with Life – the Diversity of the Great Lakes

When the first European explorers saw the Great Lakes, they believed they had found the seaway to China. Visitors and residents are still inspired by the sheer vastness of the lakes, but may be unaware of the array of interwoven habitat types that support a diverse set of species, some of which are only found within the Great Lakes watershed. The diversity of habitat types starts with boreal forests in the north and transitions to mixed and deciduous forest and tall grass prairie to the south. Other vital habitats, including wetlands, bogs, marshes, swamps, fens, streams, and rivers interlace the predominant biomes. Other communities are transitional, from the lake to upland (coastal shore habitats); these can be composed of sand dunes, low-lying swales, or forest. The dune and swale habitat is the largest collection of this freshwater ecotype on the planet. In addition to providing drinking water for millions of residents, the open/littoral habitats within the lakes support numerous fish and other aquatic species. Currently, there are 46 species of plants and animals that are endemic to the Great Lakes, meaning they are found nowhere else on earth. In addition, there are 279 species and habitat types documented as globally rare within the Great Lakes watershed.

6.1.2 - Under Pressure – State of Species and Their Habitats

Although the Great Lakes have instilled wonder and amazement in many people, past and present, the human settlement and growth of the population around the Great Lakes has not resulted in a positive benefit to the ecological integrity of the lakes. The health of the Great Lakes is tied to problems that begin on the land. For example, the Great Lakes region has lost more than half of its original wetlands and 60 percent of forest lands. Additionally, the region has lost a large majority of other habitat types such as savannah and prairie, with only small remnants remaining. Conversion of these habitats for human uses has contributed to numerous plant and animal extirpations throughout the Great Lakes watershed. Other threats are also tied to human activities within the region, such as loss of fish spawning and nursery areas, disruption of sediment transport, deposition of contaminants, unnaturally altered lake levels, and hydrological alterations to rivers and streams. As a result of the undeniable influence of landscape change (habitat fragmentation and alteration), invasive/non-native species have gained a foothold in these altered niches of the Great Lakes ecosystem, causing shifts in aquatic food webs and loss of terrestrial native species diversity in natural areas. Although the magnitude of change to the Great Lakes has been great during the last 200 years, the list of threats has only continued to grow and the intensity of the degradation may continue to increase as population centers continue to expand and more pressure is put on the resources of the Great Lakes.

6.2 – Achieving GLRC Goals

The GLRC strategy, with respect to habitat and species, is to protect or restore:

1. Open and nearshore waters: to support self-sustaining fish and wildlife communities. The GLRC goal is the restoration of spawning habitat, especially for reproducing native fish species, such as lake herring, deepwater ciscos, lake trout, yellow perch, walleye, lake whitefish, coaster brook trout, lake sturgeon, American eel, and Atlantic salmon as a significant component. Photo on left: a smallmouth bass (*Micropterus dolomieu*) in the littoral waters of Lake Huron.

2. Wetlands and associated uplands - to provide a full range of ecosystem services including hydrologic retention; nutrient and sediment trapping; spawning, nesting, and nursery habitats; and other habitat needs of fish and wildlife. The GLRC near-term goal is the restoration of 200,000 acres of wetlands and adjacent uplands. Photo on left: riverine wetland within Illinois Beach State Park Illinois, Lake Michigan.

3. Riverine and related riparian areas - to ensure their connectivity to floodplains and tributary spawning, with more natural flow and sediment regimes. The GLRC goal is the restoration of 10 tributaries to the Great Lakes: five barrier removal projects and five riparian habitat restoration projects. Photo on left: the Salmon Trout River, Lake Superior.

4. Coastal and upland habitat – to support and sustain them; such as sediment transport and lake level fluctuation. The GLRC goals are the restoration of 10,000 acres of coastal and upland habitats per year. Photo on left: Indiana Dunes National Lakeshore Lake Michigan

6.2.1 - Utilizing the Project Database

Habitat restoration projects attempt to restore at least a portion of the landscape. Potential restoration site boundaries are delineated by many means, and most importantly, almost all sites contain more then one habitat type, regardless of the primary habitat type targeted for restoration. For example, a stream restoration project site can be delineated as the segment of the flowing stream and the adjacent upland areas. Many riparian projects attempt to restore not only in-stream habitat characteristics but also a defined buffer area along the stream banks, which could include the restoration of forested wetlands or wet prairie, etc. When analyzing the array of projects entered into the database, one must be sensitive to the many ways in which each project could potentially help achieve more than one of the four habitat/species goals.

The following section addresses each of the habitat types and projects directed at attaining the four goals, as well as any secondary benefits of these projects. The habitat benefits from many projects result in overlapping effects to multiple habitat/species goals. Each species/habitat goal was treated to a separate analysis. For example, projects that indicate intent to restore open/nearshore waters were selected from the database and analyzed as a group. The full set of projects within the database was then considered for analysis of each subsequent habitat type (wetlands, riverine, etc.). The number of times any project was selected for analysis was dependent on the variety of habitats indicated as a part of the overall project restoration goal.

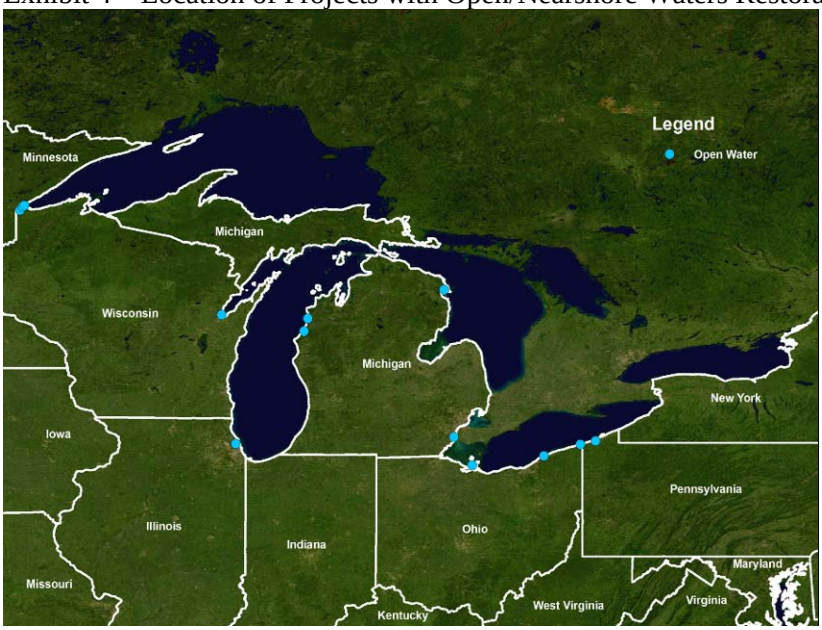
For each of the following sections, the overall characteristics of projects within each habitat/species goal are discussed, followed by a profile of a sample project. A summary of the total potential impacts of the projects contained in the project database for the Great Lakes region is detailed in the summary section.

1. Open/Nearshore Waters

A long-term GLRC objective is the restoration of diverse, healthy and safe natural habitats to meet the growth and reproductive needs of fish and wildlife, in accordance with the Joint Strategic Plan for the Management of Great Lakes Fisheries. These long-term goals hold the promise of self-sustaining native fish and non-native game fish populations, and robust competition against invasive species.

Within the Project Database, 41 projects have been identified as supporting the open and nearshore waters restoration goal of the GLRC (see Exhibit 4). If these projects were completed they would result in 4,858 acres of created and restored open/nearshore waters habitat to meet the reproductive needs of native fish species.

Exhibit 4 – Location of Projects with Open/Nearshore Waters Restoration Habitat Goals



Restoration actions proposed in these projects range from dredging of harbors to the creation or restoration of islands or reefs and other types of fish habitat. Other projects propose the removal of massive amounts of invasive species (i.e., Eurasian water milfoil) that cover important fish spawning areas. In addition, some projects have proposed enhancing important links between the Great Lake's resources, wildlife, and the needs of tribal people, such as studying and enhancing wild rice populations. Specific species identified as the focus of some of these projects include yellow perch, pike, lake trout, lake sturgeon, walleye, muskellunge, and various sunfish species. Non-fish species that would also benefit from these projects include migratory and resident waterfowl, benthic macroinvertebrates (a food source for many species, including fish) and species of concern such as Forster's and common terns.

In the course of restoring the area identified within the project boundaries, other habitat types will also be restored to the benefit of open/nearshore waters habitat. These same projects also propose to restore or improve 1,455 acres of riverine/riparian habitat, 1,784 acres of wetlands, and 4,614 acres of coastal/upland habitat.

Beyond their potential to improve open/nearshore waters habitat, these projects also work to achieve broader GLRC goals. The overall benefits that can be potentially derived from these projects and the type of restoration activities specified are not surprising considering the location of the open/nearshore waters habitat. Areas in need of restoration are typically located near old industrial complexes that have left relicts (i.e., contaminants, toxic pollution) of their past in the sediments downstream of their operations.

Furthermore, analysis of the projects that have the potential to affect open water/nearshore waters habitat shows that they all work to improve different aspects of ecosystem restoration as described in the Project Characterization Criteria (see Exhibit 5). Three striking trends are apparent from this analysis. All proposed projects will positively impact scarce habitats by either expanding the acreage of the habitat or improving the current quality of an area. Almost 100 percent of projects propose to increase to some degree the level of connectivity between suitable habitats. All but three projects include to some degree self-sustaining natural processes that will require little upkeep and maintenance. Also, a total of 26 projects have the potential to benefit species of concern on the federal, state, and local levels. Few projects, however, work to address environmental justice/equity or issues involved in subsistence harvest by tribal peoples.

Table 1 – Project Characterization Criteria, Summary of Open/Nearshore Water Restoration Projects

	High	**Medium**	**Low**	**N/A**
Connectivity	6	19	14	1
Scarcity	20	12	9	0
Geomorphic Condition	4	10	11	16
Hydrologic Character	6	13	7	15
Invasive Reduction	4	2	15	20
Recreation	5	23	2	11
Self-Sustaining	3	21	14	3
Special Species	9	5	12	15
Subsistence Harvest	1	0	2	37
Sacred Sites	0	0	0	41

	YES	**NO**
Environmental Equity	4	37
Natl. and Reg. Plans	36	5

Project Highlight: Cat Island Chain Restoration, Green Bay, WI, Lake Michigan

This project proposes to restore the Cat Island chain in the Lower Green Bay, which is a combination of nearshore, wetland, and upland habitat. This chain of islands has been severely eroded by wave action and varying lake levels. This project will help replenish the substrates of the islands while increasing the protection of emergent wetlands that are adjacent to the area. The islands are located at the mouth of Duck Creek. The islands will once again provide habitat for an array of species from nesting waterfowl (i.e., Common tern and Forster's tern), shorebirds, passerine species, and raptors. In addition, the protected emergent wetlands provide nursery habitat and spawning grounds for fish species and other aquatic species associated with coastal wetlands.

The proposal for this project includes the use of clean, dredged material to provide a base for the placement of various kinds of substrate. The type of substrate will determine the kind of species that will find the islands suitable. A variety of substrates are planned to attract a diversity of

species. The islands will then be planted with native vegetation to provide stability to the substrate and habitat for wildlife species. The project extent will be between one to two miles of islands, but will affect a much larger area by providing a barrier island chain that will protect an extensive coastal wetland complex of emergent and submergent vegetation.

This project is a cooperative effort between the Corps Detroit District and a non-federal sponsor, Brown County, WI, with assistance from the interagency Biota and Habitat Work Group, chaired by the USFWS. The project is currently in the feasibility phase with a projected cost for construction at 3.3 million dollars. The GLHI Project Characterization Criteria addressed by this project are summarized in Table 2.

Table 2 – Project Characterization Criteria Addressed by Cat Island Chain Restoration Project

	High	**Medium**	**Low**	**N/A**
Connectivity		X		
Scarcity	X			
Geomorphic Condition		X		
Hydrologic Character				X
Invasive Reduction				X
Recreation		X		
Self-Sustaining		X		
Special Species		X		
Subsistence Harvest				X
Sacred Sites				X

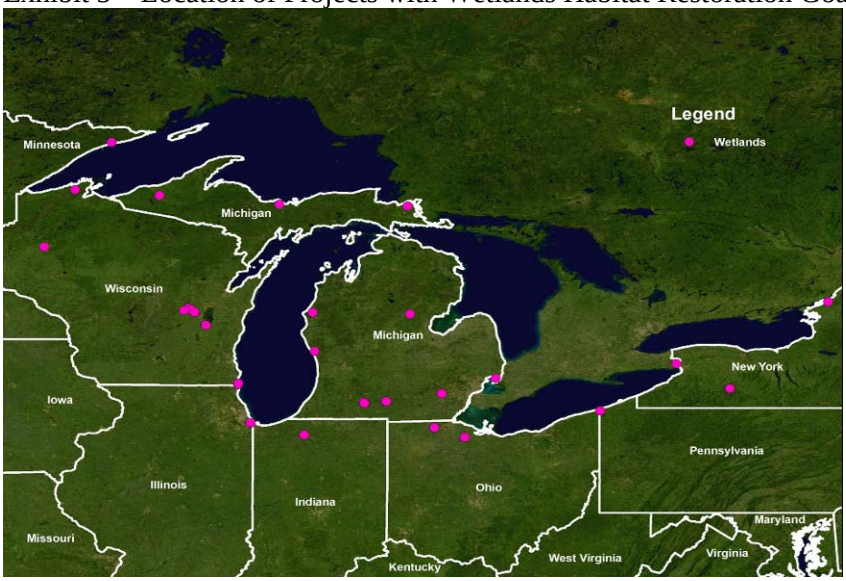
	YES	**NO**
Environmental Equity		X
Natl. and Reg. Plans		X

2. Wetlands

The *GLRC Strategy* sets a long-term goal of restoring 1 million acres of Great Lakes wetlands, and a near term goal of 550,000 wetland acres with 1.1 million acres restored in upland areas associated with these wetlands. These goals would help support a short-term goal of having at least 1.54 million breeding pairs of waterfowl. To measure and manage progress towards the wetland goal, the *Strategy* calls for better wetland inventory and mapping. The near-term pledge by governmental partners is 200,000 acres.

There were 98 projects identified from the project database that included wetland creation or restoration as one of their goals (Exhibit 5). These projects have the potential to create or restore approximately 62,282 acres of wetlands within the Great Lakes Watershed.

Exhibit 5 – Location of Projects with Wetlands Habitat Restoration Goals



Proposed restoration actions consist of the construction of barrier islands to protect emergent coastal wetlands from wave action, reinforcing earthen dams retaining water for moist soil impoundments critical to waterfowl habitat and reproduction, dredging excess sediment from emergent wetlands in the process of being filled in, and disabling a system of drain tile affecting the natural hydrology of wetlands. Non-structural actions include removal of invasive species that impede the growth and reproduction of native species and replanting of native vegetation to improve functionality of wetlands while providing suitable habitat for a variety of obligate wetland species. Other actions focus on the uplands (where adjacent unsustainable land use negatively affects the natural process of wetlands), such as the restoration of upland ravines that are experiencing severe erosion that add to the siltation problem of downstream wetlands. Numerous federal, state, and locally endangered and threatened species will benefit from these projects such as the Forster's tern, Common tern, piping plover, a species of tiger beetle, and the small-flowered primrose, to name but a few.

Generally, most projects include more than one habitat type as part of the restoration plan for a particular site. In the course of restoring these project areas, other habitat types will also be restored to the benefit of wetland habitat. These same projects propose to restore or improve 4,670 acres of open water/nearshore habitat, 44,477 acres of riverine/riparian habitat, and 107,429 acres of coastal/upland habitat.

These wetland projects also work to achieve the broader goals of the GLRC. For example, 57 projects address invasive species, 55 projects propose to alleviate problems with non-point source pollution, 27 projects will attempt to use or add to the knowledge base of indicators and information for the Great Lakes watershed, 15 projects address the issue of coastal health, and eight projects address the problems associated with toxic pollutants. A large problem facing many wetland areas is the effects of non-point source pollution (e.g., increased sedimentation rates and urban runoff). This fact is reflected by the large percentage of proposed projects that will attempt to deal with this issue. Also, the impact of invasive species is particularly hard felt in the Great Lakes, with marked differences in species composition in wetlands. Invasive species

are typically better competitors, thus displacing their native counterparts. Removal and prevention of invasive species is a typical component of restoration plans for degraded wetlands. This is reflected in the large number of projects that have indicated invasive reduction as a part of their restoration actions.

The potential impacts of these projects were then further analyzed in terms of the broader issues associated with habitat restoration with the use of the Project Characterization Criteria. The two issues that stand out among the wetland projects are connectivity and scarcity (see Table 3). Almost all projects have the potential to increase the connectivity of wetland habitat across the landscape. Also, because of the high functional value of wetlands and past destruction of wetlands, wetlands are ranked as a high level of scarcity within the Great Lakes watershed. All but three projects have indicated that the habitat will be restored to some level of natural function (self-sustaining) and will result in a low to minimum level of management. More than half the projects have indicated that the reduction of invasive species will be a part of their restoration plans. Federal, state, or local endangered and threatened species are currently found on a large majority of project sites, or the projects will add to the amount of suitable habitat available for these species. Although many projects are in some way a part of a larger national or regional plan, only a small portion address environmental justice equity issues. Likewise, only one project has indicated a high level of focus on a subsistence harvest issue.

Table 3 – Project Characterization Criteria, Summary of Wetland Restoration Projects

	High	**Medium**	**Low**	**N/A**
Connectivity	28	45	21	3
Scarcity	98	0	0	0
Geomorphic Condition	17	26	22	33
Hydrologic Character	19	33	16	30
Invasive Reduction	21	9	27	41
Recreation	16	42	15	25
Self-Sustaining	14	75	27	9
Special Species	25	21	18	34
Subsistence Harvest	1	0	4	92
Sacred Sites	0	2	4	92

	YES	**NO**
Environmental Equity	10	88
Natl. and Reg. Plans	89	9

Project Highlight: Red Mill Pond, LaPorte County, IN, Lake Michigan

Red Mill Pond is located within the Little Calumet Headwaters Nature Preserve in LaPorte County, Indiana. The tributary to the Little Calumet River has been impounded since the late 1800's, forming a shallow pond/emergent marsh where the vegetation has naturalized. The marsh covers 52 acres and is in excellent condition, containing not only a high diversity of plant species and almost no non-native or invasive species, but many locally rare and uncommon species as well, from plants to glacial relict fishes. The marsh is also fed by many small springs and seeps that discharge from the surrounding bluff areas. The current earthen dam is on the verge of failure. A new, passive water control structure is needed to preserve this high-quality marsh system.

The project proposes to install a new, low-impact water control structure just upstream of the current dam, approximately where a beaver dam is currently located. The gap between the old dam and the new water control structure will be restored to stream channel and replanted with native vegetation.

This project will be implemented through the cooperative effort of the Corps Chicago District and the LaPorte County Parks Department, with coordination from the Indiana Department of Natural Resources. The project is currently in the planning and design phase with implementation scheduled to occur in 2009. The project is estimated to cost 1.4 million dollars.
The GLHI Project Characterization Criteria addressed by this project are summarized in Table 4.

Table 4 - Project Characterization Criteria Addressed by Red Mill Pond Restoration Project

	High	Medium	Low	N/A
Connectivity		X		
Scarcity	X			
Geomorphic Condition		X		
Hydrologic Character	X			
Invasive Removal			X	
Recreation			X	
Self-Sustaining	X			
Special Species		X		
Subsistence Harvest				X
Sacred Sites				X

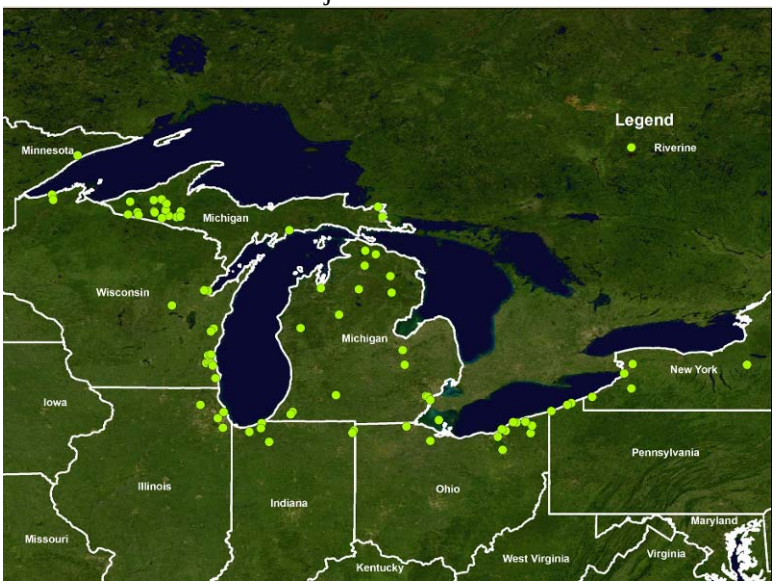
	YES	NO
Environmental Equity		X
Natl. and Reg. Plans	X	

3. Riverine Habitats and Related Riparian Areas

The long-term vision of the *GLRC Strategy* is a return of natural connectivity of floodplains with free access up tributaries to improve spawning and nursery production. In the near term, the *Strategy* calls for the restoration of ten Great Lakes tributaries (five tributary barrier projects and five riparian habitat projects) and the adoption of a method for characterizing the degree of hydrologic alteration.

The project database identified 114 projects that address riverine and adjacent riparian areas within the Great Lakes watershed. These projects propose to restore or improve the quality of 230 miles of stream/river and restore 52,222 acres of adjacent riparian area (see Exhibit 6).

Exhibit 6 – Location of Projects with Riverine Habitat Restoration Goals



Among the projects, seven dams are proposed for removal on three different tributaries and 11 fish passage structures are proposed for installation along 11 different water control structures. Other restoration measures include bank stabilization, in-stream habitat installation, removal of invasive species, installation of lamprey or carp barriers, culvert replacement, remeandering channelized streams and rivers, removal of concrete substrate lining, and reconnecting floodplains. Because some areas of the Great Lakes have experienced large-scale dumping of hazardous material from past industrial activities, area streams and rivers are now the repositories and dischargers of large quantities of polluted sediments. The removal of these sediments helps not only the local area of removal but also downstream, where the polluted sediments enter the littoral drift. Although the need is great in the Great Lakes, only a handful of projects have proposed the removal of toxic sediments because of the cost and other issues associated with these types of endeavors. More support of these projects is needed. A number of federal, state, and local listed endangered and threatened species are identified within the projects as receiving benefits from the restoration actions proposed; these species include the Eastern massasauga rattlesnake, Forster's tern, common tern, lake sturgeon, and greater redhorse. Other game fish species were also identified as targets for improvement of habitat and spawning grounds; these include the northern pike, walleye, and yellow perch.

Although these projects focus on restoring and enhancing riverine and riparian areas, other habitat types may be located within the same project site and would also be subject to restoration, to the benefit of riverine and riparian area. These same projects propose to restore or improve 1,065 acres of open water/nearshore habitat, 4,478 acres of wetland and 184,363 acres of coastal/upland habitat.

Looking at these projects in relation to the broader goals of the GLRC highlights the greater effects these projects could potentially have towards meeting the long-term goals of the GLRC. The analysis shows that 62 of these projects address non-point source pollution, 34 address or utilize indicators and information, 30 have proposed invasive species removal, 25 address coastal health, and 16 address toxic sediments as part of their restoration plan. The small number of projects addressing toxic sediments is not surprising given the high costs associated with removal and the difficulty of finding suitable disposal sites. The relatively large number of projects that propose to address non-point pollution reflects the highly urban environment through which many of the streams and rivers in need of restoration flow. These urban areas generally have increased sediment and rainwater runoff flushing into these aquatic areas resulting in excess sediment settling over sensitive in-stream habitat needed for fish spawning grounds and nursery habitat.

Further analysis of these projects with the use of the Project Criteria Characterization yields a broader look at other potential benefits from habitat restoration (see Table 5). Nearly all the projects in this category (108) have the potential to increase the connectivity of riverine habitat within the landscape, consistent with the nature of streams and rivers; many projects target reconnection of either of the adjacent floodplains or in-stream habitat features. All but two projects address habitat that is considered scarce on some level. A good trend shown by the analysis is the large number of projects that have the potential to result, to some degree, in a self-sustaining restoration by the end of implementation. This result is probably related to the large number of projects that have indicated that the restoration will result in a more natural hydrology

at the site. The restoration of the original or close to the original, hydrology can be the one function that will ensure a more self-sustaining system, with little human intervention needed after restoration actions are completed. Out of the 114 projects concerned with riverine/riparian habitat restoration, 21 also address subsistence harvesting issues, the greatest number of projects associated with any of the four habitat types.

Table 5 – Project Characterization Criteria, Summary of Riverine Restoration Projects

	High	**Medium**	**Low**	**N/A**
Connectivity	50	41	17	4
Scarcity	30	46	36	2
Geomorphic Condition	12	27	42	33
Hydrologic Character	36	29	15	34
Invasive Removal	11	4	19	80
Recreation	12	49	28	25
Self-Sustaining	31	42	33	8
Special Species	13	11	36	54
Subsistence Harvest	1	2	18	91
Sacred Sites	0	1	3	110

	YES	**NO**
Environmental Equity	21	93
Natl. and Reg. Plans	103	11

Project Highlight: Lake Sturgeon Habitat Restoration in the Upper Black River, MI, Lake Huron

The upper Black River is located within the Black Lake watershed located on the northern tip of Michigan's Lower peninsula. The upper Black is a high-quality coldwater stream that provides critical spawning habitat for the threatened lake sturgeon. The group called Sturgeon for Tomorrow identified areas of severe erosion along the banks of the upper Black through the

development of a Black Lake watershed plan. These areas are contributing unnaturally large amounts of sediment into the river and will eventually result in the siltation of the lake sturgeon stream habitat. A plan has been developed in concert with engineers and fishery experts to use bioengineering techniques to stabilize the erosion problem areas along the banks. Stabilization techniques include terracing, installation of coconut fiber logs and installation of live native plants. This restoration plan was developed through the cooperation between Sturgeon for Tomorrow and the Huron Pines Resource Conservation District. The project is in the implementation phase and has a projected cost of $100,000. The GLHI Project Characterization Criteria addressed by this project are summarized in Table 6.

Table 6 - Project Characterization Criteria Addressed by the Black River Sturgeon Restoration Project

	High	**Medium**	**Low**	**N/A**
Connectivity	X			
Scarcity		X		
Geomorphic Condition	X			
Hydrologic Character	X			
Invasive Removal				X
Recreation		X		
Self-Sustaining		X		
Special Species		X		
Subsistence Harvest				X
Sacred Sites				X

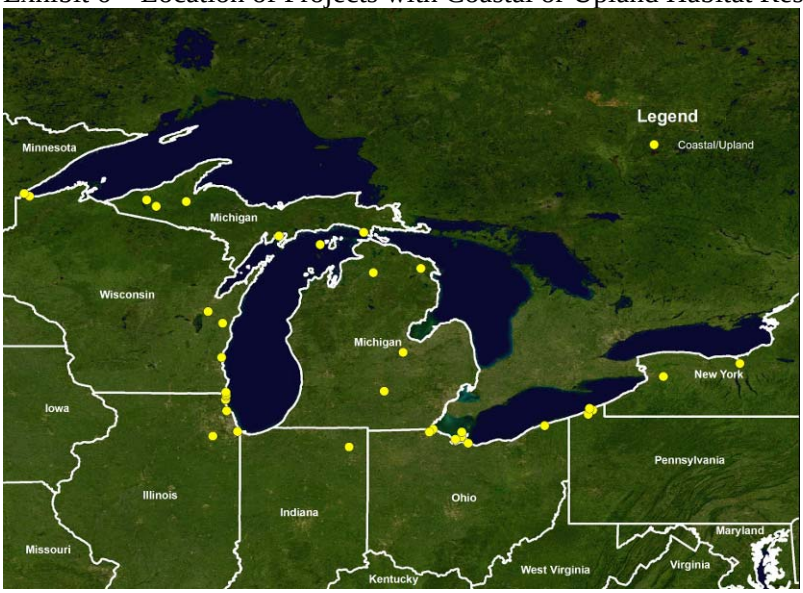
	YES	**NO**
Environmental Equity		X
Natl. and Reg. Plans	X	

4. Coastal and Upland Habitats

The vision of the *GLRC Strategy* is of coastal and upland habitats restored with natural physical processes (sedimentation, runoff, lake level fluctuation) or, in the case of highly altered environments, managed to emulate natural systems. In the shorter term, the GLRC objectives are to improve the ability to inventory the condition of these assets, to protect or restore 10,000 acres of high-priority coastal and upland habitats per year, and to conduct detailed monitoring of Areas of Concern in coastal shore areas.

The GLHI project database identified 98 projects that indicate coastal and upland habitats as a focus of their restoration plan. A total of 186,989 acres of coastal and upland habitat are proposed to be restored (see Exhibit 6).

Exhibit 6 – Location of Projects with Coastal or Upland Habitat Restoration Goals



Proposed restoration actions include toxic sediment removal or remediation, removal of invasive species within the critically imperiled coastal dune and swale communities, acquiring upland buffers along the coast, installing native plants as a way to stabilize upland areas and increase habitat diversity, erosion control along ravines, creation of rain gardens in uplands areas to treat urban stormwater runoff, and the creation or restoration of spawning habitat along the coast within the confluences of rivers and streams. Numerous species of concern were targeted as a priority of the habitat restoration plans, such as the federally listed copper belly watersnake and bivalves such as the White cat's paw pearly mussel, the Northern riffleshell, and the clubshell. State listed species such as the dusty goldenrod, along with other species rare and uncommon in the area, are also targeted.

Along with the restoration of coastal or upland areas within these project sites, other habitat types that occur within the project site are also slated for restoration. The projects identified as restoring coastal and upland habitat the restoration plans also propose to restore or improve 1,093 acres of open water/nearshore habitat, 9,307 acres of wetlands, and 51,345 acres of riverine and adjacent riparian habitat.

The broader goals of the GLRC are also recognized within the restoration plans proposed from the 98 projects identified as restoring coastal and upland habitat. A total of 53 projects address non-point source pollution, 43 projects address invasive species reduction, 29 projects address indicators and information, 21 projects address coastal health, 15 projects have proposed the removal or remediation of toxic pollution, and three projects address Areas of Concern and will attempt to remediate contaminated sediments.

The larger benefits from the potential impacts of these projects were assessed using the Project Characterization Criteria (see Table 7). Almost 100 percent of the proposed projects have indicated in their plans the restoration of a habitat that is scarce from either a nationwide perspective or locally rare. These projects will also substantially increase the connectivity between suitable habitat types across the landscape. A large portion of the implementation plans

also indicate that the project will result in a self-sustaining system with little to moderate human intervention. This result could be explained by the large number of projects that will attempt to restore a more natural hydrologic regime to their project sites. The reintroduction of natural hydrologic processes increases the chances of success of the project. Additionally, a large majority of projects are considered to be a part of a nationally or regionally recognized plan. Although 18 projects target issues of subsistence harvesting, this is still a small number compared to the overall number of projects entered into the database.

Table 7 – Project Characterization Criteria, Summary of Coastal & Upland Restoration Projects

	High	**Medium**	**Low**	**N/A**
Connectivity	37	36	21	3
Scarcity	41	40	16	1
Geomorphic Condition	14	21	34	29
Hydrologic Character	29	27	19	23
Invasive Removal	16	5	24	53
Recreation	11	32	28	27
Self-Sustaining	24	41	23	1
Special Species	25	14	30	29
Subsistence Harvest	1	0	17	79
Sacred Sites	0	2	4	92

	YES	**NO**
Environmental Equity	22	74
Natl. and Reg. Plans	90	8

Project Highlight: Grassy Island Remediation and Rehabilitation, MI, Detroit River

Grassy Island is located within the Detroit River, between the city of Wyandotte and Fighting Island. The 72-acre site was designated as a National Wildlife Refuge in 1961; however, the Corps had permission to use the island as a disposal facility for contaminated dredge material from the 1960s through 1982. The island and its surrounding shoals provide wildlife habitat for the Lower Detroit River. The island serves as a stopover point for migrating birds, such as waterfowl and peregrine falcons. In addition, the surrounding shoals and waters are home to a diverse warmwater fish species, such as rock bass, yellow perch, walleye and lake sturgeon, a state-listed species.

At this time, the project is in a study phase that includes biological as well as geo-technical surveys that will help determine the full impact of the polluted dredged materials. The study will also address the risks involved with allowing the contaminants to migrate out of the area farther downstream and potential solutions to this problem that will minimize the impact to the current biological communities.

The U.S. Fish and Wildlife Service is leading a cooperative effort with the Corps Detroit District, the Michigan Department of Environmental Quality, the U.S. Geological Survey, and the U.S. Environmental Protection Agency. No costs have been estimated for this project as yet. The GLHI Project Characterization Criteria addressed by this project are summarized in Table 4.

Table 8 - Project Characterization Criteria Addressed by the Grassy Island Restoration Project

	High	**Medium**	**Low**	**N/A**
Connectivity		X		
Scarcity	X			
Geomorphic Condition				X
Hydrologic Character				X
Invasive Removal	X			
Recreation			X	
Self-Sustaining		X		
Special Species		X		
Subsistence Harvest				X
Sacred Sites				X

	YES	**NO**
Environmental Equity		X
Natl. and Reg. Plans	X	

6.2.2 Summary of Potential Impacts of the Habitat Restoration Database

Table 9 presents a summation of potential total acres restored and total project costs for each habitat type and illustrates the analysis of each habitat type presented in the previous sections. The total costs for each habitat type are the result of all projects that indicate the goal of restoring a certain habitat type; the costs are not independent of one another because many of the projects contain more than one habitat type. However, the “total reported costs” of all projects is the simple summation of all reported costs per project, which is the amount required to fund all the habitat restoration projects entered into the habitat restoration database. The term “reported” is used because not all volunteers reported a cost associated with their project. This could be

because some of the projects were in very early stages without a completed cost estimate. Therefore, the total reported cost of the all projects understates the true cost of all the projects within the database.

Table 9 – Summary of Projects per Habitat Type and Overall Cost of Total Projects.

	Open/ nearshore waters	**Wetlands**	**Riparian**	**Coastal/Upland**
Acres Potentially Restored	4,858	62,282	52,222	186,989
Total Cost per Habitat Type	$194,380,000	$393,800,000	$343,100,000	$146,890,000
Total Reported Costs of all Projects	**$743,020,000**			

6.2.3 - Long Term Utility of the Project Database

The large amount of information that has been gleaned from the project database in terms of quantifying the benefits of the habitat restoration projects is hardly surprising. The project database was developed in partnership with a large contingent of regional stakeholders and GLRC participants and is the only multi-organizational tool available to identify site-specific actions that can lead to the fulfillment of the GLRC goals. With continued support and technical improvements, the project database could help lay the groundwork for long-term restoration of the Great Lakes. The Great Lakes region is a dynamic landscape with many stakeholders interested in the health of its vast resources. Therefore, new projects are being planned and designed every year, so maintenance of the database is vital to its usefulness. A truly unique aspect of the project database is the relative ease with which it can be updated and used, given the proper care and attention. This would require adequate but nominal funding. The benefits of utilizing this database as a living, evolving tool with the intent of improving communication and project effectiveness, outweighs the cost associated with its long-term viability.

The project database is now in its infancy and our ability to use this tool to support future decision making and facilitate coordination between stakeholders have yet to be fully realized.
It is important to note certain caveats regarding the use of this database. Its current limitations, which include, a less than robust quality control and less than full involvement of all organizations active the Great Lakes region, can lead to erroneous assumptions about the state of habitat restoration activities within the study area. One could look at the mapped locations of the project sites and conclude that some areas seem to have an abundance of restoration projects while others do not. However, the bunched project locations could be the result of vigorous efforts by regional or local organizations, while other projects in nearby areas may not have been reported. This document and further outreach efforts to call attention to the GLHI project database could increase the number of involved organizations. These actions, along with implementing a quality control system, will increase the accuracy and relevance of the database.

There are many public and private organizations with environmental goals similar to the GLRC's overall goals. The potential of the project database would allow anyone to perform a search of potential habitat restoration projects within the Great Lakes with specific goals in mind. Potential queries of the project database could include the following:

1. What types of projects are proposed within a certain locality, i.e., watershed, county, city, or town?
2. Which projects will result in protecting or restoring habitat for endangered species?
3. Which projects will result in greater wetland acres for waterfowl?
4. How many projects deal with stream habitat creation or restoration for fish habitat?

7 - IMPLEMENTATION PLANS

The goal of the Great lakes habitat Initiative (GLHI) is that habitat restoration and protection in the future would be a collaborative activity in which Great Lakes stewards could easily determine the greatest needs, the most suitable funding programs, and the synergies that could be gained by making a more effective use of programs and funding of federal, state, and local agencies along with the Tribal Nations and other stakeholders. The end result would be that the goals of the Habitat and Species Strategy Team of the Great Lakes Regional Collaboration (GLRC) would be met more quickly and more cost-effectively. To meet these goals, projects need to be implemented in a timely fashion.

The following sections are samples of the implementation plans that have been developed by several organizations participating in the GLHI. These implementation plans show how individual organizations can help achieve the GLRC goals related to habitat and the species they support. These implementation plans were developed by representatives from organizations using the methods and procedures that are prescribed in law, executive orders, policy, or regulations, or that otherwise govern the actions of the organization.

7.1 - Corps 5-year Implementation Plan

The proposed U.S. Army Corps of engineers (Corps) Implementation Plan provided in this section is both a prototype for an inter-organizational plan and a practical tool. As a prototype, it illustrates how the GLHI tools can be used to organize, justify, prioritize, and realize the investments of the Corps Great Lakes districts (Buffalo, Chicago, and Detroit) in terms of habitat restoration. As a practical tool, it helps display the regional impact of applying more of the Corps' national and regional authorities to fund Great Lakes projects.

7.1.1 - General Timeline

This report will be published after federal agencies complete their testimony in support of the president's FY 2009 budget. The implementation outlined here thus begins in FY 2010. The plan is to proceed with Corps habitat projects using the GLHI tools to assist with the identification, evaluation, and ranking of projects that can be implemented using Corps authorities in fiscal years 2009 through 2014. We also propose to continue the inter-organizational work of the GLHI with the goal of producing a comprehensive Great Lakes Collaborative Plan by incorporating non-Corps projects as soon as possible.

Table 10 - General Implementation Schedule for Corps Projects*.

	Fiscal Year						
	2008	2009	2010	2011	2012	2013	2014
Final GLHI Report							
Budget Testimony							
Implementation Plan Refinement							
Implementation Year 1							
Implementation Year 2							
Implementation Year 3							
Implementation Year 4							
Implementation Year 5							

* Orange represents study; green indicates implementation

7.1.2 - Corps Project Evaluation & Selection

The purpose of evaluating the current list of Great Lakes restoration projects is to identify those that have the potential to make the biggest difference in a meaningful time frame. The GLHI database has initiated this process and provides the means for these projects to be retrieved by Great Lakes stewards. In the near term, critical projects need to be identified and implemented to start restoring damaged and impaired habitats and ecosystems. The strategy and process used by the Corps to identify and evaluate projects are described in Chapters 4, 5, and 6 and are presented below.

Project Identification

The main purpose of the GLHI database is to assemble a comprehensive source of Great Lakes habitat and ecosystem restoration projects and pertinent information associated with them. To initiate the effort, federal, state, and local agencies and NGOs were invited to submit potential restoration projects via published notices, regional meeting presentations, direct consultations or contacts with interested individuals and other entities, etc. All of the restoration proposals were submitted through the GLHI webpage, along with requested data and information. After receiving input from these sources, the initial project proposals were screened to ensure that these were in fact ecological restoration projects in order to remain in the database. The final list of projects for this phase totaled 188. Among these 188 project proposals collected over the course of the project submittal period, there are 55 Corps projects currently logged into the database for use in this example implementation plan. Table 11 lists all of the Corps projects within the Great Lakes watershed and identifies the authority under which they are being pursued, what phase they are in, and an estimated total project cost, if available.

Table 11 - Corps Great Lakes Near-Term Restoration Capability.

Project ID	Project Name	Authority	Phase	Total Project Cost
91	Boardman River Dams	506	Feasibility	$ 5,000,000
173	Frankenmuth Dam Fish Passage	506	Feasibility	$ 2,400,000
174	Henry Ford Estate Dam Fish Passage	506	Feasibility	$ 2,200,000
180	Long Lake	206	Feasibility	$ 4,000,000
181	Orland Tract	206	Design	$ 6,000,000
182	Illinois Beach State Park	501b	Feasibility	$ 2,000,000
183	Red Mill Pond	506	Feasibility	$ 1,200,000
184	Dispersal Barriers	3061	Construction	$ 16,000,000
184	Great Lakes / Mississippi Basin Separation	3061	Reconn	$ 1,000,000,000
185	Grand Calumet River	312b	Feasibility	$ 275,000,000
186	Waukegan Harbor Outer	O&M	Design / NEPA	$ 8,000,000
186	Waukegan Harbor Inner	?	Design / NEPA	$ 57,000,000
187	Burnham Prairie	206	Conceptual	$ 1,035,000
188	Ft. Sheridan	104	Design	$ 1,260,000
190	Governors State	206	Conceptual	$ 1,410,000
191	Wolf Lake	206	Construction	$ 6,550,000
192	Waukegan River	506	Feasibility	$ 1,500,000
194	Indian Ridge Marsh	1135	Design	$ 10,700,000
201	Buffalo River	312b	Feasibility	$ 2,100,000
202	Ballville Dam Fish Passage	506	Feasibility	$ 4,000,000
203	Maumee Bay Habitat Restoration	905b	Feasibility	$ 40,000,000
204	Chautauqua Creek Fish Passage	506	Feasibility	$ 250,000
205	Ottawa River Navigation Habitat Restoration	204	Conceptual	$ 1,550,000
206	Wynn Road Confined Disposal Site #3	204	Conceptual	$ -
207	Arcola Creek Estuary	905b	Conceptual	$ -
208	Confined Disposal Facility #3 Oregon, Ohio	1135	Conceptual	$ 5,000,000
209	Cuyahoga River Stream Project	206	Conceptual	$ 3,500,000
210	Little Cuyahoga River	?	Conceptual	$ 3,500,000
211	Conneaut Harbor	1135	Feasibility	$ 3,800,000
212	Gull Point	1135	Conceptual	$ -
213	Sheldon Marsh Nature Preserve	1135	Feasibility	$ 6,000,000
214	Smokes Creek Relocation	1135	Feasibility	$ -
215	Onondaga Creek Syracuse Lakefront	206	Conceptual	$ 6,500,000
216	Mentor Marsh	?	Conceptual	$ -
217	South Park Lake	206	Conceptual	$ -
218	Trail Creek Lamprey Barrier	1135	Design Completed	$ 1,200,000
219	East Harbor State Park	1135	Feasibility	$ 3,500,000
220	Manistique River Lamprey Barrier	1135	Feasibility	$ 2,000,000
222	Springville Dam	506	Feasibility	$ 4,100,000
227	Upper Rouge River	1135	Feasibility	$ 10,500,000
229	Lower Rouge River	1135	Feasibility	$ 5,600,000
230	Secord/Smallwood	206	Feasibility	$ 430,000
234	Manistee Lake Ecosystem Restoration	905b	Conceptual	$ -
241	Rice Lake Restoration	203	Conceptual	$ 686,000
251	St. Mary's River Rock Cut Habitat Restoration	?	Conceptual	$ 2,500,000
252	Cat Island	204	Feasibility	$ 3,330,000
325	Lake Poygan Ecosystem Restoration	1135	Feasibility	$ 5,860,000
326	Underwood Creek	206	Feasibility	$ 10,400,000
334	Detroit River, Trenton	206	Feasibility	$ 6,100,000
338	Dowagiac River, Cassopolis	206	Feasibility	$ 1,040,000
367	Marion Mill Pond	206	Feasibility	$ 4,537,000
369	Flint River at Swartz Creek	1135	Feasibility	$ 14,600,000
370	Homer Lake	206	Feasibility	$ 1,467,000
373	Kalamazoo River	1135	Conceptual	$ -
374	Wilson Park Creek	206	Conceptual	$ -

* See funding program database Appendix B for Authority details

Project Suitability

All of the Corps projects identified in Table 11 would provide benefits to the Great Lakes watershed ecosystems; however, several of these projects already have sufficient funding for implementation or may have issues that would preclude them from being implemented within the near-term 5-year plan. The projects with sufficient funds to carry them through implementation were thus removed from further consideration. These are identified in Table 12. Also, projects that are too large for a 5-year plan and/or have issues with non-federal sponsors are not recommended for the 5-year plan, but are recommended to be part of a long-term plan since they do help benefit the Great Lakes. These projects are presented in Table 13.

Table 12 – Fully Funded Projects Removed from Near-Term Implementation Plan.

Project ID	Project Name	Authority	Phase	Total Project Cost	Federal	Non-Federal
188	Ft. Sheridan	104	Design	$ 1,260,000	$ 378,000	$ 882,000
191	Wolf Lake	206	Construction	$ 6,550,000	$ 4,257,500	$ 2,292,500
181	Orland Tract	206	Design	$ 6,000,000	$ 3,900,000	$ 2,100,000
218	Trail Creek Lamprey Barrier	1135	Design Completed	$ 1,200,000	$ 900,000	$ 300,000
184	Dispersal Barriers	3061	Construction	$ 16,000,000	$ 16,000,000	$ -
	Total			**$ 31,010,000**	**$ 25,435,500**	**$ 5,574,500**

Table 13 – Large or Problematic Projects Removed from Near-Term Implementation Plan.

Project ID	Project Name	Authority	Phase	Total Project Cost
184	Great Lakes / Mississippi Basin Separation	3061	Reconn	$ 1,000,000,000
185	Grand Calumet River	312b	Feasibility	$ 275,000,000
186	Waukegan Harbor Outer	O&M	Design / NEPA	$ 8,000,000
186	Waukegan Harbor Inner	312b/Superfund	Design / NEPA	$ 57,000,000

Project Screening

As an example of how the database can be used in another manner, the Project Characterization Criteria were used to identify critical projects that need to be implemented in the near term to begin a realistic restoration of the Great Lakes watershed. The results are presented in Table 14. Although 13 important projects were deemed implementable, it was considered more appropriate to include them in a long-term plan, so they were removed from the near-term 5-year plan. The remaining three projects deemed critical for the near-term 5-year plan are organized by their progress towards implementation. In order to achieve restoration objectives in a timely fashion, these prioritized projects ultimately need to secure funding within the specified 5-year implementation plan time frame.

Table 14 – Critical Projects Identified by Project Characterization Criteria*

Proj. ID	Project	Scarcity	Connectivity	T&E Species	Hydro	Geomorphic	Invasive Sp.	Recognition	Sustainablity
91	Boardman River Dams	Medium	High	Low	Medium	High	Low	Yes	Medium
173	Frankenmuth Dam Fish Passage	Medium	High	Medium	N/A	N/A	N/A	Yes	Low
180	Long Lake	High	High	High	High	Medium	Low	Yes	Medium
182	Illinois Beach State Park	High	Medium	High	Medium	Medium	Low	Yes	Medium
183	Red Mill Pond	High	Medium	Medium	Medium	Medium	Low	Yes	Low
187	Burnham Prairie	High	Medium	Medium	High	High	Medium	Yes	Medium
190	Governors State	High	High	Low	High	High	Low	Yes	Medium
192	Waukegan River	High	Medium	Medium	High	High	Medium	Yes	Low
201	Buffalo River	Medium	Medium	NA	Medium	Medium	N/A	Yes	Medium
202	Ballville Dam Fish Passage	Low	High	NA	High	Medium	N/A	Yes	Medium
203	Maumee Bay Habitat Restoration	High	Medium	High	Medium	Medium	Low	Yes	Medium
204	Chautauqua Creek Fish Passage	Medium	High	NA	High	Medium	Medium	Yes	Medium
205	Ottawa River Navigation Habitat Restoration	High	High	NA	N/A	Medium	N/A	Yes	Medium
206	Wynn Road Confined Disposal Site #3	High	High	High	Low	Medium	Low	Yes	Medium
207	Arcola Creek Estuary	High	High	High	Medium	Low	High	Yes	Medium
208	Confined Disposal Facility #3 Oregon, Ohio	High	Medium	Medium	Medium	Low	Low	Yes	Medium
210	Little Cuyahoga River	Low	Medium	NA	Medium	High	N/A	Yes	Medium
211	Conneaut Harbor	Low	Medium	NA	Medium	High	N/A	Yes	Medium
212	Gull Point	Low	Low	High	Low	High	Low	Yes	Medium
213	Sheldon Marsh Nature Preserve	High	High	High	Low	High	Low	Yes	Medium
214	Smokes Creek Relocation	Low	Medium	NA	Medium	Medium	N/A	Yes	Medium
215	Onondaga Creek Syracuse Lakefront	Medium	Medium	NA	Medium	Medium	N/A	Yes	Medium
216	Mentor Marsh	High	Medium	High	High	Medium	Low	Yes	Medium
219	East Harbor State Park	High	Medium	High	Low	Medium	Low	Yes	Medium
220	Manistique River Lamprey Barrier	N/A	High	N/A	N/A	N/A	Medium	Yes	High
222	Springville Dam	Medium	High	NA	High	Low	Medium	Yes	Medium
252	Cat Island	High	Medium	Medium	N/A	Medium	N/A	Yes	Medium
325	Lake Poygan Ecosystem Restoration	High	Medium	Medium	N/A	Low	N/A	Yes	Medium
326	Underwood Creek	Medium	High	Medium	Medium	Low	N/A	Yes	Medium
338	Dowagiac River, Cassopolis	High	Medium	N/A	Medium	High	N/A	Yes	Medium
367	Marion Mill Pond	High	High	N/A	Medium	Low	N/A	Yes	Medium
369	Flint River at Swartz Creek	High	High	N/A	Low	Low	N/A	Yes	Medium

* See Appendix C, Lexicon of Project Characterization Criteria.

7.1.3 – Project Implementation

Projects that best meet collaboration objectives for near-term (five years) critical needs were selected for implementation. The next manner in which the database can be used is to determine the sequencing of selected projects by considering implementation parameters, constraints, and phasing of planning and design stages. A set of typical Corps assumptions and rules to sequence and schedule implementation of projects were applied to the project database.

Assumptions

- Larger scale studies could begin in October 2009 based upon existing authorities
- All components should have construction initiated within the targeted 5 years
- All phases of study or implementation have a capable cost-sharing non-federal sponsor

Sequencing Rules

1. Projects that are ready for construction by having a completed design
2. Projects with a completed feasibility study
3. Projects that meet Corps criteria for engagement in a feasibility study
4. Projects that require analysis to determine whether they meet Corps criteria for feasibility phase

2009 Project Implementation

The implementation plan for FY 2009 would be to fully fund all the projects that need feasibility study funds and implementation funds. One project, Indian Ridge Marsh, needs about $5 million for implementation under Section 1135 in FY 2009. Projects that are in the feasibility phase need additional funding to be completed on schedule. Most of these projects have been initiated and are well along the way to a recommended plan for design and implementation. Table 15 shows that 32 Corps projects require funds to complete the feasibility phase. A conservative amount needed is about $13.8 million, which is summarized by authority in Table 16.

Table 15 – Critical Near-term Projects Requiring Study Phase Funding.

Project ID	Project Name	Authority	Phase	Total Project Cost	Required Study Funds
205	Ottawa River Navigation Habitat Restoration	204	Conceptual	$ 1,550,000	$ 387,500
206	Wynn Road Confined Disposal Site #3	204	Conceptual	$ -	$ 400,000
252	Cat Island	204	Feasibility	$ 3,330,000	$ 400,000
187	Burnham Prairie	206	Conceptual	$ 1,035,000	$ 258,750
190	Governors State	206	Conceptual	$ 1,410,000	$ 352,500
215	Onondaga Creek Syracuse Lakefront	206	Conceptual	$ 6,500,000	$ 400,000
180	Long Lake	206	Feasibility	$ 4,000,000	$ 200,000
326	Underwood Creek	206	Feasibility	$ 10,400,000	$ 400,000
338	Dowagiac River, Cassopolis	206	Feasibility	$ 1,040,000	$ 400,000
367	Marion Mill Pond	206	Feasibility	$ 4,537,000	$ 400,000
210	Little Cuyahoga River	506	Conceptual	$ 3,500,000	$ 400,000
216	Mentor Marsh	506	Conceptual	$ -	$ 400,000
91	Boardman River Dams	506	Feasibility	$ 15,000,000	$ 1,200,000
173	Frankenmuth Dam Fish Passage	506	Feasibility	$ 2,400,000	$ 600,000
183	Red Mill Pond	506	Feasibility	$ 1,200,000	$ 50,000
192	Waukegan River	506	Feasibility	$ 1,500,000	$ 250,000
202	Ballville Dam Fish Passage	506	Feasibility	$ 4,000,000	$ 400,000
204	Chautauqua Creek Fish Passage	506	Feasibility	$ 250,000	$ 200,000
222	Springville Dam	506	Feasibility	$ 4,100,000	$ 400,000
208	Confined Disposal Facility #3 Oregon, Ohio	1135	Conceptual	$ 5,000,000	$ 500,000
212	Gull Point	1135	Conceptual	$ -	$ 400,000
194	Indian Ridge Marsh*	1135	Design	$ 7,000,000	$ -
211	Conneaut Harbor	1135	Feasibility	$ 3,800,000	$ 400,000
213	Sheldon Marsh Nature Preserve	1135	Feasibility	$ 6,000,000	$ 500,000
214	Smokes Creek Relocation	1135	Feasibility	$ -	$ 400,000
219	East Harbor State Park	1135	Feasibility	$ 3,500,000	$ 400,000
220	Manistique River Lamprey Barrier	1135	Feasibility	$ 2,000,000	$ 400,000
325	Lake Poygan Ecosystem Restoration	1135	Feasibility	$ 5,860,000	$ 400,000
369	Flint River at Swartz Creek	1135	Feasibility	$ 14,600,000	$ 400,000
201	Buffalo River	312b	Feasibility	$ 2,100,000	$ 525,000
182	Illinois Beach State Park	501b	Feasibility	$ 2,000,000	$ 300,000
207	Arcola Creek Estuary	905b	Conceptual	$ -	$ 700,000
203	Maumee Bay Habitat Restoration	905b	Feasibility	$ 40,000,000	$ 1,000,000
	Total Study Funds Required				**$ 13,823,750**

Table 16 – Summary & Total of FY 2009 Funding Needs per Authority.

Authority	Study Funds	Construction Funds
104	$ -	$ -
203	$ -	$ -
204	$ 1,187,500	$ -
206	$ 2,411,250	
506	$ 3,900,000	$ -
1135	$ 3,800,000	$ 5,000,000
312b	$ 525,000	$ -
501b	$ 300,000	$ -
905b	$ 1,700,000	$ -
Total	**$ 13,823,750**	**$ 5,000,000**

2010 – 2014 Project Implementation

The 32 Corps projects that could be initiated in a 5-period offal under the following authorities:

- Section 204 Beneficial Use of Dredged Material – 3 projects
- Section 206 Aquatic Ecosystem Restoration – 7 projects
- Section 506 Great Lakes Fisheries & Ecosystem Restoration – 9 projects
- Section 1135 Project Modifications for Improvement of the Environment – 9 projects
- Section 312b Environmental Dredging – 1 projects
- Section 501b Illinois Shoreline Protection – 1 project
- 905b Analysis General Investigations – 2 projects

These projects are listed, by authority, in Table 17.

Table 17 – 5-year Implementation Funding Needs per Project

					Federal Funds Required				
Project ID	**Project Name**	**Authority**	**Start Year**	**Total Project**	**2010**	**2011**	**2012**	**2013**	**2014**
252	Cat Island	204	2011	$ 3,330,000		$ 2,497,500			
205	Ottawa River Navigation Habitat Restoration	204	2013	$ 1,550,000				$ 1,162,500	
206	Wynn Road Confined Disposal Site #3	204	2013	$ 5,000,000				$ 3,750,000	
180	Long Lake	206	2011	$ 4,000,000		$ 2,600,000			
187	Burnham Prairie	206	2011	$ 1,035,000		$ 672,750			
326	Underwood Creek	206	2011	$ 10,400,000		$ 6,760,000			
338	Dowagiac River, Cassopolis	206	2011	$ 1,040,000		$ 676,000			
367	Marion Mill Pond	206	2012	$ 4,537,000			$ 2,949,050		
190	Governors State	206	2013	$ 1,410,000				$ 916,500	
215	Onondaga Creek Syracuse Lakefront	206	2014	$ 6,500,000					$ 4,225,000
173	Frankenmuth Dam Fish Passage	506	2010	$ 2,400,000	$ 1,560,000				
183	Red Mill Pond	506	2010	$ 1,200,000	$ 780,000				
202	Ballville Dam Fish Passage	506	2010	$ 4,000,000	$ 2,600,000				
204	Chautauqua Creek Fish Passage	506	2010	$ 250,000	$ 162,500				
222	Springville Dam	506	2010	$ 4,100,000	$ 2,665,000				
192	Waukegan River	506	2011	$ 1,500,000		$ 975,000			
210	Little Cuyahoga River	506	2012	$ 3,500,000			$ 2,275,000		
91	Boardman River Dams	506	2014	$ 7,000,000					$ 4,550,000
216	Mentor Marsh	506	2014	$ 3,000,000					$ 1,950,000
208	Confined Disposal Facility #3 Oregon, Ohio	1135	2010	$ 5,000,000	$ 3,750,000				
220	Manistique River Lamprey Barrier	1135	2010	$ 2,000,000	$ 1,500,000				
211	Conneaut Harbor	1135	2012	$ 3,800,000			$ 2,850,000		
213	Sheldon Marsh Nature Preserve	1135	2012	$ 6,000,000			$ 4,500,000		
214	Smokes Creek Relocation	1135	2012	$ 5,000,000			$ 3,750,000		
325	Lake Poygan Ecosystem Restoration	1135	2012	$ 5,860,000			$ 4,395,000		
369	Flint River at Swartz Creek	1135	2012	$ 14,600,000			$ 10,950,000		
219	East Harbor State Park	1135	2013	$ 3,500,000				$ 2,625,000	
212	Gull Point	1135	2014	$ 6,000,000					$ 4,500,000
201	Buffalo River	312b	2013	$ 2,100,000				$ 1,365,000	
182	Illinois Beach State Park	501b	2012	$ 2,000,000			$ 1,300,000		
203	Maumee Bay Habitat Restoration	905b	2013	$ 40,000,000				$ 13,000,000	$ 13,000,000
207	Arcola Creek Estuary	905b	2014	$ 5,000,000					$ 3,250,000
TOTAL				**$ 166,612,000**	**$ 13,017,500**	**$ 14,181,250**	**$ 32,969,050**	**$ 22,819,000**	**$ 31,475,000**

7.1.5 – Corps Implementation Plan Summary

This example implementation plan shows that there is a great demand for federal funding to be specifically directed at the Great Lakes watershed (see Table 18). Over the next six years, about $136 million could be used to implement restoration projects. This assumes that each Great Lakes District (LRC, LRB and LRE) are properly staffed to see these projects through. Since it is estimated that the Section 206 Program is encumbered, shifting these projects into the 506 Great Lakes Fishery and Ecosystem Restoration (GLFER) authority would not only take additional pressure off of the 206 program, but allow for a great opportunity to kick-start a funding stream for an authority that has great potential to support *GLRC Strategy* goals. Fiscal year 2009 would particularly deal with allocating study funds in full to ensure that projects are ready for construction at their slated time slot. A detailed work plan would be created in the next phase of this study (Plan Refinement) to ensure that Corps Great Lakes districts and non-federal sponsors have the capability of maintaining an aggressive pace to bring these beneficial projects to fruition.

Table 18 – Summary of Federal Funding Needs by Authority and Year.

Authority	2009	2010	2011	2012	2013	2014	6-Year Total
204	$ 1,187,500	$ -	$ 2,497,500	$ -	$ 4,912,500	$ -	**$ 8,597,500**
206	$ 3,900,000	$ -	$ 10,708,750	$ 2,949,050	$ 916,500	$ 4,225,000	**$ 22,699,300**
506	$ 2,411,250	$ 7,767,500	$ 975,000	$ 2,275,000	$ 2,541,500	$ 6,500,000	**$ 22,470,250**
1135	$ 8,800,000	$ 5,250,000	$ -	$ 26,445,000	$ 2,625,000	$ 4,500,000	**$ 47,620,000**
312b	$ 525,000	$ -	$ -	$ -	$ 1,365,000	$ -	**$ 1,890,000**
501b	$ 300,000	$ -	$ -	$ 1,300,000	$ -	$ -	**$ 1,600,000**
905b	$ 1,700,000	$ -	$ -	$ -	$ 13,000,000	$ 16,250,000	**$ 30,950,000**
Total	**$ 18,823,750**	**$ 13,017,500**	**$ 14,181,250**	**$ 32,969,050**	**$ 25,360,500**	**$ 31,475,000**	**$ 135,827,050**

These proposed Corps projects would bring benefits to wetlands, rivers, streams, riparian zones and the Great Lakes proper. If implemented, these projects would aid in achieving the *GLRC Strategy* goals related to habitat and species restoration and conservation:

- Open and Nearshore Waters – 9 projects
- Wetlands – 32 projects
- Riverine – 17 projects
- Coastal and Uplands – 9 projects

These projects would affect tens of thousands of acres of the Great Lakes watershed. Table 14 shows that all 32 projects have positive outcomes according to the Corps budgetary criteria and mission objectives. These projects can accrue benefits by restoring scarce habitats such as ravines, restoring connectivity through dam removal, restoring critical habitat for endangered species such as the piping plover, bringing back spatial and temporal functionality of hydrology (by removing drain tiles and filling in ditches), returning fluvial geomorphic processes of rivers (by removing levees or remeandering the channel), and of course, by continuing to fight the battle against non-native species. For the most part, these projects will be self-sustaining once completed and have the eye of national and regional agencies, committees, and groups. Ancillary benefits to these fish and wildlife habitat improvements include: cleaner water for drinking and swimming, recreation opportunities, protection of culturally significant lands, removal of carcinogenic and chronic illness–causing material from waterways and lakes, and improved

aesthetics for the millions of Americans. It is with hope that this example of an implementation plan can be expanded to include all those stakeholders with projects aimed at restoring the integrity of the Great Lakes and preserving their majestic beauty.

7.2 – Partner Implementation Plans & Support

The suite of partner implementation plans range from words of support to project examples that show how restoring habitat and ecological function can revitalize the grandeur of the Great Lakes. Without the collaboration and trestled support among federal, state, and local entities, the restoration and preservation of the Great Lakes' ecological virility will not be realized. Examples of partnership ideas and concepts that will direct the future of the Great Lakes Habitat Initiative are presented below.

7.2.1 - Ducks Unlimited Inc.

The mission of Ducks Unlimited (DU) is to conserve, restore, and manage wetlands and associated habitats for North America's waterfowl. These habitats also benefit other wildlife and people. Since it was founded in 1937, DU has raised more than $1 billion for the conservation of more than 12 million acres of prime wildlife habitat throughout North America. DU is recognized as the world's largest private wetlands conservation organization and has over 70 years experience in this field. DU works cooperatively with landowners and managers, both public and private, to identify and then implement common sense, cost-effective solutions to environmental problems. A unique component of Ducks Unlimited is the integrated team effort of the biologists and engineers who combine their respective expertise to provide environmental services unsurpassed by any other organization. Together, this team of experts:

- Plan, design, and deliver all types of wetland and upland habitat restoration projects for a variety of waterfowl and other environmental needs, including wetland mitigation
- Deliver the complete package from planning and design through contracting, construction, and monitoring

The Great Lakes/Atlantic Regional Office (GLARO) of Ducks Unlimited, located in Ann Arbor, Michigan, is one of four DU regional offices. These offices coordinate and facilitate all aspects of DU's habitat conservation programs in the United States - transforming ideas, science, and wildlife ecology into completed landscape-based ecosystem projects. The GLARO has 39 full-time conservation staff including biologists, engineers, land surveyors, computer-aided design (CAD) technicians, construction managers, geographic information system (GIS) specialists, project coordinators, accountants, contract compliance managers, and administrative assistants. DU works extensively with federal grants and contracts and has staff trained in managing federal agreements.

Ducks Unlimited conservation is guided by science and designed to most efficiently address the critical life-cycle needs of waterfowl. Within the Great Lakes region, waterfowl habitat conservation efforts emphasize nesting and brood-rearing habitat and spring migration habitat. Efforts are guided by a strategic plan with designated priority areas. A summarized version of DU's strategic plan is available at *www.ducks.org*. In addition, DU is an active partner in the

North American Waterfowl Management Plan and is committed to helping the Upper Mississippi River/Great Lakes Region Joint Venture achieve its habitat goals, which largely coincide with DU's strategic planning. The Joint Venture implementation plan can be found at *www.uppermissgreatlakesjv.org*.

DU has been actively involved with the GLRC and development of the restoration strategy. The North American Waterfowl Management Plan (NAWMP) habitat goals were incorporated into the GLRC restoration strategy, and these are a high priority for DU conservation programs and a large focus of DU's efforts within the Great Lakes region. Abundant opportunities exist for wetland restoration and protection. DU is typically a welcomed partner in these efforts because of its incentive-based, cost-effective, common-sense approach to wetland conservation. Progress is limited primarily by availability of funding. DU conservation partners include all the state and federal natural resource agencies, U.S. and state departments of agriculture, many local and municipal governments, and a wide variety of non-governmental organizations including The Nature Conservancy, Pheasants Forever, Saginaw Bay Watershed Initiative Network, various land trusts, and many others.

The GLHI project database will provide an opportunity for DU to seek other partners to help fund habitat projects. DU expects to enter projects into the database when additional funds are needed. The database will also provide a source of potential projects in target areas as others include their projects, which will help DU find project opportunities of which it may be unaware. This will prove especially useful when DU is developing landscape projects for large grant requests from programs like the North American Wetlands Conservation Act and needs to locate multiple projects and partners within a specific geography. It will also help DU locate projects and partners that may need technical assistance with design and construction of a wetland restoration that DU might be able to provide. Some examples of DU projects in the Great Lakes watershed include:

Brancheau Wetland Restoration - The Brancheau property is a 155-acre parcel located in Monroe County, Michigan, that was acquired by the U.S. Fish and Wildlife Service (USFWS) Detroit River International Wildlife Refuge in 2003. The property includes 40 acres of agricultural fields adjacent to Lake Erie that have been diked on three sides to keep lake water out. This site is drained with tiles and ditches and must be pumped to facilitate agricultural production. This project will restore wetland functions to 40 acres on this site by breaking drain tiles and constructing a low-level berm to restore hydrology and to prevent flooding off-site properties. A water control structure will be installed in the berm to facilitate wetland management. The wetland will be managed to promote the establishment of desirable native wetland plants to provide high-quality habitat for resident and migratory wildlife and to control the invasion of invasive species such as *Phragmites* sp. Ducks Unlimited and the Detroit River International Wildlife Refuge will complete this project in the fall of 2008 with funding support from a grant through the USFWS and private donors.

Additional funds are currently being sought to complete the project. Partners supporting this project will be recognized at a dedication at the site, by a permanent sign, and through media.

Beaver Dam/Deep River Headwaters Conservation Area – This project will be conducted at the Beaver Dam/Deep River Headwaters Conservation Area and will restore approximately 200 emergent, scrub/shrub, and forested wetland acres, as well as 100 acres of native prairie and oak savanna. This property is located two miles west of Crown Point, Indiana, in Lake County and is a joint effort among the Lake Heritage Parks Foundation, the Indiana Department of Natural Resources, the USFWS, and Ducks Unlimited. This project has been surveyed and designed by DU, which will also provide the construction management and inspection for the project. This project will incorporate the excavation of over 4,300 cubic yards of soil, the placement of over 18,000 cubic yards of embankment, the installation of three water control structures, the installation of a 90-inch culvert, and the placement of 75 cubic yards of rock rip-rap. This project will benefit both breeding and migrating waterfowl, as well as many other game and non-game species. Additionally, improved water quality, flood water retention, and recreation opportunities will benefit the surrounding communities. Ducks Unlimited will work with all of the partners to coordinate press releases both during and after construction, and will erect a sign on site recognizing all of the organizations contributing to this large-scale habitat restoration project.

Ashland WMA Wetland Restoration Project – The St. Lawrence Valley (SLV) of northern New York State is universally recognized as an important area for breeding and migrating waterfowl, as well as for numerous species of grassland nesting songbirds and other wildlife. Ducks Unlimited has designated the SLV as a priority habitat focus area under its strategic plan for the Great Lakes Initiative. It is also a high priority for the USFWS and the New York Department of Environmental Conservation (NYDEC) under the Atlantic Coast Joint Venture of the North American Waterfowl Management Plan and North American Bird Conservation Initiative. DU has been working with a coalition of partners in the SLV for over 15 years to restore and protect wetland and grassland habitats important to waterfowl, other wildlife, and people.

In 2008, DU is partnering with NYDEC to build on that conservation effort by restoring approximately 70 acres of emergent marsh at Ashland State Wildlife Management Area. This project will involve constructing roughly 3,000 feet of low berm, averaging four feet in height, to pool water. As a part of the project, micro-topography will be developed within the impoundment to further diversify the restored habitat. The estimated cost of this project is $170,000. A proposed second phase to the project would increase the pool area to approximately 125 acres at a completion cost of $310,000. The second phase would establish a second pool and would require a sheet pile weir to handle water flow.

7.2.2 - Great Lakes and St. Lawrence Cities Initiative GLHI Implementation Plan

The Great Lakes Habitat Initiative (GLHI) builds upon the recommendations of the *GLRC Strategy to Restore and Protect the Great Lakes*, specifically those that address declining fish and wildlife habitat and species diversity. The GLHI identifies site-specific projects that can be implemented under existing funding programs to protect and restore wetlands and aquatic habitat in the Great Lakes region. The Great Lakes and St. Lawrence Cities Initiative (GLSLCI) supports the goals outlined under the GLHI to bring together projects, partners, and funding programs in order to accomplish on-the-ground action to protect and restore wetlands and aquatic habitat.

The GLSLCI is a coalition of more than 50 U.S. and Canadian mayors and other local elected officials that works to advance the protection and restoration of the Great Lakes and the St. Lawrence River. The GLSLCI's primary objectives are to help cities protect and restore their resource, ensure that cities have a seat at Great Lakes and St. Lawrence decision-making tables, and to share and disseminate best practices related to the protection and restoration of this resource.

Wetlands and aquatic habitat protection and restoration projects are conducted throughout the watershed by many partners, including cities. The GLSLCI will encourage the use of the GLHI funding database and project database with member cities to help connect funders, programs and projects. The GLSLCI will keep its membership informed of the GLHI and its products regularly. To the extent the GLSLCI is aware of a need or opportunity within a city regarding habitat and wetlands protection, it will encourage the city to first consult the GLHI databases. The GLSLCI will do its best to help bring funders, programs, and projects to the GLHI databases so that more acres of wetland and aquatic habitats become protected and are restored sooner.

7.2.3 - Great Lakes Indian Fish and Wildlife Commission

The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) is an intertribal, co-management agency committed to the implementation of off reservation treaty rights on behalf of its 11 Ojibwe member tribes that was formed in 1984 and exercises authority specifically delegated by its member tribes. The GLIFWC's mission is to help ensure significant, off-reservation harvests while protecting the resources for generations to come. GLIFWC member tribes are located in the states of Michigan (Bay Mills, Keweenaw Bay, and Lac Vieux Desert), Minnesota (Mille Lacs and Fond du Lac), and Wisconsin (Bad River, Lac Courte Oreilles, Lac du Flambeau, Red Cliff, Sokaogon, and St. Croix).

In general, the GLIFWC supports efforts to protect and restore all aspects of the ecosystem. The Ojibwe philosophy that all things are connected and interrelated emphasizes the ecosystem approach to protection, restoration, and management of natural resources. The GLHI is an important source of information for all partners in the restoration, protection, and management of wetlands and associated habitats. The GLIFWC will continue to inform its member tribes about the products developed through the GLHI and encourage their use.

Over time, the program database will be useful to the GLIFWC and its member tribes when they develop requests for funding projects. This tool, combined with the project database and lexicon of project criteria, will assist tribes in their protection and restoration efforts both on and off reservation. It is vital that adequate funding reaches the on-the-ground efforts of tribes and other partners so that the goals and recommendations of the *GLRC Strategy* can be achieved.

7.2.4 - U.S Environmental Protection Agency, Great Lakes National Program Office

The U.S. Environmental Protection Agency (USEPA) has the lead role for the federal government in the GLRC. The USEPA's Great Lakes National Program Office (GLNPO), established under the Clean Water Act, is a focal point for Great Lakes restoration and protection activities. GLNPO has been coordinating ongoing activities to implement the GLRC recommendations, developing and implementing mechanisms to promote accountability, identifying and resolving major implementation issues, communicating with stakeholders, and providing for ongoing public participation.

GLNPO has been an active participant in the GLHI. The GLHI builds on a basic tenet of the GLRC that encourages working together to achieve more than could be accomplished by working alone. Through its stakeholder forum and funding and project databases, the GLHI provides an easy way to pool knowledge, empower stakeholders with information, and facilitate communications among practitioners. The GLHI tools will help identify potential restoration projects, partners with shared interests, and funding sources, as well as track habitat restoration efforts. GLNPO will continue to participate and support the GLHI to accomplish more and quicker habitat restoration.

Projects that the USEPA is involved with to help accomplish GLRC habitat goals include the following examples:

The Sand County Foundation - This foundation partners with federal natural resource agencies, the USEPA, and other federal agencies to make it easier for private landowners to collaborate with federal and state agencies on ecological projects. The partnership conducted a workshop in spring 2008 to determine obstacles and opportunities for private land ecological projects to be done better, cheaper, and faster. The focus is on sustainable water quality, protecting wetlands, and improving habitat. The group will select one or more demonstration projects in the upper Mississippi River and Great Lakes watersheds to test and improve the program with the goal of nationwide application.

Duck and Otter Creeks Partnership Wetland Restoration Project - The Duck and Otter Creeks Partnership completed a wetland identification and restoration plan, which includes conceptual site plans and costs for nine sites located in northwest Ohio where restoration projects could be implemented. This document took a year to develop with funding support from USEPA–GLNPO.

The Ravine Park wetland – This wetland is one of the sites identified in the restoration plan. With cooperation and support from the Toledo Lutheran Home and a grant from the National Fish and Wildlife Foundation, approximately two acres of lawn are being replaced with native

plants. The plants and garden design are supplied by Naturally Native Nursery, a local supplier of native plants, and much of the work is being done by the Toledo Zoo ZOOTeens and other volunteers from the local community. Once the plants are established, fertilizers and herbicides will no longer be applied to the area and runoff will be reduced because of the deep root systems of the native plants. This will result in a healthier wetland and an increase in wildlife habitat.

Lakewide Management Plan (LaMP) Habitat Strategy - With leadership from the USEPA and Environment Canada and the participation of numerous stakeholders, LaMPs for lakes Erie, Michigan, Ontario, and Superior have been developed. Each LaMP includes a habitat strategy that provides a framework to guide and coordinate habitat protection efforts in the lake watershed. The focus of the habitat strategy is on habitat preservation, restoration and improving the ecological function of habitats. The LaMP recognizes that implementation of the habitat strategy will be done primarily through linkages with other existing programs and that the habitat strategy was developed so LaMP partners can incorporate these ideas into their own agency programs to better direct or redirect their programs to influence habitat quality around the watershed and to be more in line with the goals of the LaMP. A few specific activities are highlighted below.

Lake Erie: An integrated, binational mapping system for the Lake Erie watershed has been developed that identifies land use, habitat types, elements of species biodiversity, and key hydrological and physiological features. This mapping system is designed to harmonize existing spatial data in the Lake Erie watershed and contribute to setting restoration priorities for the watershed. More information on the map, created through GLNPO funding in partnership with the Great Lakes Commission and other LaMP partners, can be found at *http://www.glc.org/eriehabitat*. More information on the Lake Erie LaMP habitat strategy and habitat restoration activities can be found in the 2008 Lake Erie LaMP (Sections 6 and 9), located at *http://www.epa.gov/glnpo/lamp/le_2008/index.html*.

Lake Superior: An "Important Habitat in the Lake Superior Watershed" map has been developed by the Lake Superior Work Group and Binational Program. The Lake Superior program emphasizes protective measures for fish, plant, and other wildlife habitat over costly restoration once damage has occurred. In 1991, the governments of Michigan, Minnesota, Wisconsin, and Ontario agreed to identify critical habitats and continue habitat reclamation projects already under way to restore fisheries, wildlife, and wetlands in the watershed. As a result, the Lake Superior Work Group Habitat Committee produced a map showing important habitat in the Lake Superior watershed and the ecological features of each site. The map was recently revised and updated to include additional information about the sites already listed, and to identify other important habitat areas within the Lake Superior watershed. More information on the Lake Superior LaMP can be found at *http://www.epa.gov/glnpo/lamp/ls_2008*.

Lake Michigan: A Lake Michigan LaMP sub-goal established in 1998 was to achieve habitats that are "healthy, naturally diverse, and sufficient to sustain viable biological communities." Both aquatic and terrestrial invasive species as well as habitat loss have received a great deal of attention in the LaMP documents and as topics for sessions at the Bi-annual State of Lake Michigan Conference and the Lake Michigan Watershed Academy Conference. The Lake Michigan LaMP has provided opportunities at these conferences for Chicago Wilderness to

present its model for collaborative work on biodiversity. In 2006 the Lake Michigan LaMP set a target of 125,000 acres of restored and/or protected wetlands for the watershed as called for in the Great Lakes Regional Collaboration. In collaboration with The Nature Conservancy, biodiversity hot spots and special species were added to the information in each of the watershed fact sheets found in LaMP chapter 12. More information on the Lake Michigan LaMP can be found at *http://www.epa.gov/glnpo/lamp/lm_2008*.

Lake Ontario: The Lake Ontario LaMP, in collaboration with 25 agencies, universities, and nonprofit organizations in the United States and Canada, is developing a binational roadmap, the Binational Biodiversity Conservation Strategy for Lake Ontario, to protect and restore Lake Ontario's biological diversity. This process will integrate the natural resource information and habitat priorities of Ontario and New York into a binational action agenda for Lake Ontario as a single ecosystem. The end result will be a scientifically grounded, common vision of priority strategies that partner organizations can pursue.

Thus far, progress has been made in many important areas. Eight conservation targets were selected for analysis and discussion:

- Open water ecosystems—the pelagic zone of the lake;
- The ecosystem of the lake's bottom in permanently cold waters;
- The nearshore waters that support submerged aquatic plants, and the fish, amphibians, and dabbling ducks that depend on these aquatic habitats;
- Coastal wetland ecosystems of the lake;
- Native migratory fish, including lake trout, Atlantic salmon, lake sturgeon, American eel, and northern pike;
- Coastal terrestrial habitats, such as beaches, dunes, and eroding bluffs;
- Islands that serve as nesting habitat for birds such as the common tern; and
- major inlet and outlet rivers of the lake.

Top-ranked threats endangering the conservation targets include dams and barriers on tributaries; current aquatic invasive animals; future aquatic invasive animals; and incompatible residential and commercial development.

The next steps will include a more detailed mapping analysis of the threats so that watersheds for conservation action can be prioritized, and the identification of a suite of indicators to measure the success of conservation strategies and the status of threats. More information on the Lake Ontario LaMP can be found at *http://www.epa.gov/glnpo/lamp/lo_2008*.

7.2.5 – The Nature Conservancy

The Nature Conservancy (TNC) is an international, nonprofit, science-based organization dedicated to the conservation of biological diversity. Since its founding in 1951, TNC has protected more than 117 million acres of land and 5,000 miles of rivers worldwide. TNC works in all 50 states and more than 30 countries, collaborating with many key stakeholders, businesses, governments, partner organizations, communities and indigenous people to achieve long-term, effective conservation.

In 2007, TNC launched the largest global conservation campaign in history, The Campaign for a Sustainable Planet. The campaign is a worldwide call-to-action to protect the Earth's natural resources for future generations. Our goal is to protect at least 10 percent of each of the world's major habitat types- forests, oceans, rivers and lakes, grasslands, and deserts and dry lands- by the year 2015. Such an achievement would nearly double the global lands and waters conserved during the past 70 years. The Great Lakes is a priority in the Campaign. TNC's Great Lakes Project focuses on major threats to the ecosystem, such as: altered water flows, invasive species, extraction of natural resources, climate change, and incompatible development, agricultural and forestry practices.

Visions & Goals

In 2007, TNC's Great Lakes State Directors Board outlined a 10-year vision and related goals to assure a sustaining, healthy, and resilient Great Lakes ecosystem, where the connection between natural systems and the quality of human life is valued, and where the places that sustain all life endure for future generations.

To achieve this vision, The Nature Conservancy has launched an unprecedented initiative in which it will work with partners to ensure the Great Lakes is among the best managed ecosystems in the world.

Goals selected to help achieve this vision include:

- Achieve a net gain of 1 million acres in protected areas, working lands, and improved ecosystem conditions in the Great Lakes basin;
- Advance the protection of 20 priority watersheds across the Great Lakes basin;
- Maintain the health and function of 15 coastal reaches across the basin;
- Recover open-water food webs and habitats of the Great Lakes.
- Support protection of priority large lake ecosystems of the world.

Key Strategies for Success

The following strategies serve to guide TNC as it works to implement the 10 year vision and goals.

Strategy 1 – Achieve tangible results at scale by:

- Creating a network of protected areas in forest, prairie, coastline and inland waters.
- Assuring protected lands and waters that continue to work for people in agriculture, forestry, fisheries, and urban settings;
- Achieving natural flow and hydrologic function and health through protection of priority watersheds in the Great lakes basin;
- Expanding conservation impact to the coastal and open water systems including benthic (bottom) and pelagic (open water column) zones.

Strategy 2: Leverage our impact by:

- Developing basin-wide capital investment strategies that seek to leverage public dollars to protect the Great Lakes including: the Farm Bill; a new $250 million Great Lakes Coastal Heritage Act; bond initiatives for Great Lakes protection in key states; state tax incentive legislation; and the Great Lakes Restoration Act.
- Encouraging intergovernmental treaties, agreements and agencies to adopt a true ecosystem management approach and common platform for cooperation among large lake basins including: the Great Lakes Water Quality Agreement; the Great Lakes Compact; aquatic invasive species policies to achieve basin-wide prevention, early detection and rapid-response protocols; climate change policies; and prescribed fire policies.
- Revolutionizing private philanthropic giving and investment strategies in the Great Lakes by creating a Great Lakes Challenge Fund and developing market-based tools for investing in conservation.
- Realizing global impact by transferring resources and learning from large lake basin management experiences in the Great Lakes region to other priority large lake systems of the world.

Strategy 3 – Build strong, science-based knowledge and public awareness by:

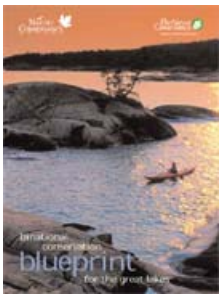
- Developing a broad-based conservation research agenda in partnership with top scientists and academic institutions that leverages improvements to the Great Lakes ecosystems.
- Establishing demonstration projects to facilitate learning and leverage our existing successes and knowledge through systematic replication in new areas.
- Understanding and responding to the impact of climate change and aquatic invasive species.
- Creating new tools and pilot projects for freshwater management solutions including assessment of water withdrawal impacts and water management certification programs.

The Binational Blueprint for the Great Lakes

This Blueprint was developed in partnership with the Nature Conservancy of Canada and with the input of more than 200 organizations. The Blueprint is a comprehensive survey of the region and a plan for protecting the Great Lakes most important natural areas- identifying more than

500 areas critical to the preservation of biodiversity within the Great Lakes. Contributors to the study included more than 220 scientists and experts from federal, state, provincial and local agencies, academia, industry and conservation organizations. The Binational Conservation Blueprint includes:

- information on species, natural communities and ecological systems in the Great Lakes;
- maps of where conservation is underway;
- summaries of current conservation projects and strategies within the Great Lakes ecoregion;
- information on threats to biodiversity; and
- detailed descriptions of planning methods.



The Binational Conservation Blueprint is a framework for coordinated action and is a helpful tool to use in conjunction with the Great Lakes Habitat Initiative. By using the Blueprint and GLHI together, agencies and organizations can be assured that their actions and resources are applied in the most effective way for their conservation efforts. To view the Binational Blueprint for the Great Lakes and read about TNC's habitat conservation projects, please visit www.nature.org/greatlakes. Printed copies of the Blueprint and map are also available upon request at greatlakes@tnc.org.

TNC puts science into practice on the ground and encourages similar projects by others at a scale that ensures lasting results. The GLHI facilitates TNC's ability to identify potential partnerships, conservation strategies and see where efforts are focused. Everyone's work is put into a larger context, which will help us identify where we are working to advance long-term priorities identified in the Blueprint and help us locate any gaps. TNC also finds the GLHI beneficial for project visibility and opportunities for projects to secure needed funding.

8 – CONCLUSIONS & THE FUTURE

This chapter will summarize the experiences of the planning and development of the Great Lakes Habitat Initiative (GLHI), the lessons learned, and the directions for future improvements and use of the GLHI products. This summary will focus on the following major themes:

- Setting the stage
- Adapting for success
- Defining the path forward

8.1 - Setting the Stage

The *Great Lakes Regional Collaboration Strategy to Restore and Protect the Great Lakes* (*GLRC Strategy*) is as good a starting place for planning the protection and restoration of the Great Lakes as one can find. The *GLRC Strategy* represents the consensus-based vision of 1,500 participants from federal, state, city, and tribal governments, private industry, nongovernmental organizations, and private citizens and presents a systematic analysis of eight priority issues facing the Great Lakes watershed.

The *Strategy* provides an excellent articulation of the goals for each of the eight priority issues. In particular, the Habitat/species chapter presents a series of long-term goals for four habitat areas: open/nearshore waters; wetlands; riverine/riparian; and upland/coastal. The goals include conservation and restoration of sustainable habitat with consideration of other issues, such as invasive species and non-point source pollution.

The *GLRC Strategy* provides a shared vision for the Great Lakes and paints a collective picture of the desired end state. In addition, each chapter of the *Strategy* makes a series of recommendations, many of which call for additional resources through existing programs. The *GLRC Strategy* is a good starting place, but it is not a place-based plan that can be followed to accomplish a series of site-specific actions.

Given the magnitude of the Great Lakes watershed and the diversity of its resources, issues, and stakeholders, it is not reasonable to expect that any strategic document assembled in less than one year could provide instructions that were so detailed that it could run on auto-pilot. As with other strategies for large, complex systems, the *GLRC Strategy* is just a starting point and must be accompanied by additional actions to reach its strategic goals, whether in the form of additional planning or hands-on direction. The GLHI was created to fill this need, specifically for the goals outlined in the habitat/species chapter of the *GLRC Strategy*.

8.2 - Adapting for Success

The objective of the GLHI was to support the implementation of the goals in the habitat/species chapter of the *GLRC Strategy* by advancing to the next greater level of resolution, that of site-specific actions or projects. The original GLHI proposal to Corps Headquarters outlined the development of a set of tools that could be utilized to identify, plan, and prioritize site-specific projects for restoration of wetlands and aquatic habitat in the Great Lakes region. As the GLHI

proceeded, a number of lessons were learned through extensive coordination with the GLHI partner agencies and organizations and feedback received from the users of the GLHI tools. Adjustments were made to the tools, the utilization plans, and the direction for future improvements and uses.

The GLHI experience highlighted the diversity of management strategies applied by federal agency, state, and nongovernmental organization (NGO) partners in addressing habitat conservation and restoration. Some organizations are more aligned with particular species or habitat type and others with certain physiographic regions. This diversity is also evident in the funding and resource programs managed by agencies and organizations. Some resource programs are project-oriented and can identify and list potential projects under consideration for entry onto the database. Others employ competitive grants and cannot identify potential projects prior to their selection for funding. The lesson learned was that the flexibility and adaptability of tools is critical to their shared use by diverse agencies and organizations.

The funding levels and priorities of programs that provide resources to habitat conservation and restoration are highly dynamic and can show significant changes annually in some cases. The ability of the GLHI tools to maintain up-to-date information on these funding and resource programs requires some effort, but this information is of especially high value to the numerous stakeholders that have limited capability to track these diverse resource programs.

As the database of potential projects was being assembled, we received several messages from states and other users being asked to enter habitat project information. While the ability of the GLHI tools to increase the likelihood for project funding was a strong incentive to encourage these stakeholders to take the time to enter their projects, they wanted assurance that the tools developed by the GLHI would be maintained and refreshed periodically rather than becoming just another data call with results placed on a shelf to gather dust. With the consensus of the Steering Committee, the Corps investigated options for resources to sustain and update the GLHI tools.

Feedback from those using the project database demonstrated that this inventory of numerous discrete projects provides stakeholders and elected officials a more meaningful visualization of the habitat restoration needs of the Great Lakes than any numeric goals or targets articulated in the GLRC strategic plan. Even while the tools were being built, they were utilized by private industry and businesses interested in participating in ecological restoration to identify potential projects to consider for corporate sponsorship.

As mentioned above, one of the original uses proposed for the GLHI tools was to prioritize habitat projects based on a common system of performance criteria. It was realized through the first few meetings of the Steering Committee that this was not a realistic goal for this Initiative. Most funding and resource programs have unique requirements and priorities that would limit the utility of any single ranking system. In addition, several partners were reluctant to prioritize projects across political boundaries. Rather than seeking a single prioritization scheme for all habitat projects in this large watershed, the GLHI partners agreed that the best product would be a tool to help stakeholders better understand how to characterize the ecological value of a particular habitat project in terms that might improve its priority to a particular funding or

resource program. The lexicon of habitat project attributes developed by GLHI and example implementation plans provided in this report are important first steps in building this knowledge in Great Lakes stakeholders.

With respect to the implementation plan prepared by the Corps, several authorities and projects standout and are worth mentioning in this closing chapter. The majority of projects that can be implemented with Corps authorities fall under the Section 206, 506, and 1135 programs. The Section 206 and 1135 authorities are national in scope and unfortunately have large project backlogs. The Section 506 authority likely has the greatest potential to help achieve the GRLC Strategy goals related to habitat but, is not currently budgetable. Tables 15 and 17 enumerate critical projects that could be implemented using the previously mentioned authorities and several other authorities to a lesser extent. Of those projects Indian Ridge Marsh, IL; Ballville Dam Fish Passage, OH; Frankenmuth Dam Fish Passage, MI; Red Mill Pond, IN; Manistique River Lamprey Barrier, MI; and Burnham Prairie, IL could be implemented relatively quickly are representative of the restoration goals that can be achieved.

One of the last major topics discussed by the GLHI Steering Committee was the desire for an effective structure for coordinating and integrating habitat conservation and restoration after the initial funding for the GLHI was exhausted. Several factors came into consideration. First, there are already several existing interagency committees and working groups that operate at a watershed or sub-regional scale in the Great Lakes. These include the Lake Committees under the Great Lakes Fishery Commission, and the Joint Ventures under the North American Waterfowl Management Plan. The second factor was that except for the U.S. Environmental Protection Agency (USEPA), most federal agencies have very limited staff assigned for coordinating all their activities in the Great Lakes watershed at a regional level, and some agencies, notably the Department of Agriculture, have state-based offices and no regional coordinating presence in the Great Lakes. Finally, there was a desire to avoid establishing a new committee structure on top of existing ones if at all possible.

There was a consensus among the partner agencies and organizations to continue the Steering Committee created under the GLHI in the future as a subcommittee under the Great Lakes Regional Collaboration. There was also agreement to use state-based workshops as an effective and affordable means for informing diverse governmental and nongovernmental stakeholders about the GLHI tools, receiving feedback on potential improvements, and facilitating a dialogue on specific habitat projects and partnering opportunities at a sub-regional level. The Interagency Task Force supplemented the funding from the GLHI to conduct the second round of state-based workshops in the summer of 2008. Clearly, one of the lessons learned is that there is a compelling need for federal funding to lead complex inter-state efforts such as the GLHI.

8.3 - The Path Forward

In order to sustain the momentum created during the development of the Great Lakes Habitat Initiative, it is recommended that the Steering Committee created for its implementation be retained and renamed as the Habitat Subcommittee under the general direction and guidance of the Executive Committee of the Great Lakes Regional Collaboration. It is further recommended that the Habitat Subcommittee develop and execute a work plan to advance the implementation

of the habitat goals from the *GLRC Strategy*. Actions that should be considered in the work plan of the Habitat Subcommittee include:

- Provide oversight of the use, updating, and improvement of the GLHI tools.
- Conduct periodic workshops on a state or other sub-regional level to enhance utilization of the GLHI tools and facilitate a dialogue on specific habitat projects and partnering opportunities.
- Facilitate coordination between non-federal partners of the GLRC and the Federal Interagency Task Force on issues including the tracking of progress in the restoration of wetlands and other habitat in the region.
- Facilitate coordination of habitat conservation and restoration activities with existing regional and sub-regional interests, including those established under the North American Waterfowl Management Plan and Joint Strategic Plan for Management of Great Lakes Fisheries.

The Administration's budget request for FY 2009 for the Corps includes $100,000 to continue the momentum from the Habitat Initiative. These funds, if appropriated, would be used to support the Habitat Subcommittee of the GLRC and to maintain and update the tools created through the GLHI. Additional funding would be sought from federal and non-federal sources to support Habitat Subcommittee activities.

8.4 - Closing Thoughts

The Great Lakes Habitat Initiative was a short-term investment that created both "hard" and "soft" products. The "hard" products of the GLHI are a set of tools that can be used by diverse stakeholders for a variety of purposes related to the protection and restoration of habitat in the region. The benefits from these tools can be sustained indefinitely and increased if they are kept up-to-date and through continued coordination with users. The upkeep and coordination must work in tandem for the benefits to be realized.

The "soft" products of the GLHI include the working relationship that was developed among the diverse agencies and organizations that participated in the implementation of this Initiative. This experience helped expand our understanding of the similarities and differences between the partners and their management strategies, programs, and limitations. It is this diversity of partners and programs that provides our strength as a region and will lead us to realize the habitat goals set by the *GLRC Strategy to Restore and Protect the Great Lakes*.

APPENDIX A – Executive Order 13340

Federal Register
Vol. 69, No. 98
Thursday, May 20, 2004

Presidential Documents

Title 3—

The President

Executive Order 13340 of May 18, 2004

Establishment of Great Lakes Interagency Task Force and Promotion of a Regional Collaboration of National Significance for the Great Lakes

By the authority vested in me as President by the Constitution and the laws of the United States of America, and to help establish a regional collaboration of national significance for the Great Lakes, it is hereby ordered as follows:

Section 1. *Policy.* The Great Lakes are a national treasure constituting the largest freshwater system in the world. The United States and Canada have made great progress addressing past and current environmental impacts to the Great Lakes ecology. The Federal Government is committed to making progress on the many significant challenges that remain. Along with numerous State, tribal, and local programs, over 140 Federal programs help fund and implement environmental restoration and management activities throughout the Great Lakes system. A number of intergovernmental bodies are providing leadership in the region to address environmental and resource management issues in the Great Lakes system. These activities would benefit substantially from more systematic collaboration and better integration of effort. It is the policy of the Federal Government to support local and regional efforts to address environmental challenges and to encourage local citizen and community stewardship. To this end, the Federal Government will partner with the Great Lakes States, tribal and local governments, communities, and other interests to establish a regional collaboration to address nationally significant environmental and natural resource issues involving the Great Lakes. It is the further policy of the Federal Government that its executive departments and agencies will ensure that their programs are funding effective, coordinated, and environmentally sound activities in the Great Lakes system.

Sec. 2. *Definitions.* For purposes of this order:

(a) ''Great Lakes'' means Lake Ontario, Lake Erie, Lake Huron (including Lake Saint Clair), Lake Michigan, and Lake Superior, and the connecting channels (Saint Marys River, Saint Clair River, Detroit River, Niagara River, and Saint Lawrence River to the Canadian Border).

(b) ''Great Lakes system'' means all the streams, rivers, lakes, and other bodies of water within the drainage basin of the Great Lakes.

Sec. 3. *Great Lakes Interagency Task Force.*

(a) Task Force Purpose. To further the policy described in section 1 of this order, there is established, within the Environmental Protection Agency for administrative purposes, the ''Great Lakes Interagency Task Force'' (Task Force) to:

(i) Help convene and establish a process for collaboration among the members of the Task Force and the members of the Working Group that is established in paragraph b(ii) of this section, with the Great Lakes States, local communities, tribes, regional bodies, and other interests in the Great Lakes region regarding policies, strategies, plans, programs, projects, activities, and priorities for the Great Lakes system.

(ii) Collaborate with Canada and its provinces and with bi-national bodies involved in the Great Lakes region regarding policies, strategies, projects, and priorities for the Great Lakes system.

(iii) Coordinate the development of consistent Federal policies, strategies, projects, and priorities for addressing the restoration and protection of the Great Lakes system and assisting in the appropriate management of the Great Lakes system.

(iv) Develop outcome-based goals for the Great Lakes system relying upon, among other things, existing data and science-based indicators of water quality and related environmental factors. These goals shall focus on outcomes such as cleaner water, sustainable fisheries, and biodiversity of the Great Lakes system and ensure that Federal policies, strategies, projects, and priorities support measurable results.

(v) Exchange information regarding policies, strategies, projects, and activities of the agencies represented on the Task Force related to the Great Lakes system.

(vi) Work to coordinate government action associated with the Great Lakes system.

(vii) Ensure coordinated Federal scientific and other research associated with the Great Lakes system.

(viii) Ensure coordinated government development and implementation of the Great Lakes portion of the Global Earth Observation System of Systems.

(ix) Provide assistance and support to agencies represented on the Task Force in their activities related to the Great Lakes system.

(x) Submit a report to the President by May 31, 2005, and thereafter as appropriate, that summarizes the activities of the Task Force and provides any recommendations that would, in the judgment of the Task Force, advance the policy set forth in section 1 of this order.

(b) Membership and Operation.

(i) The Task Force shall consist exclusively of the following officers of the United States: the Administrator of the Environmental Protection Agency (who shall chair the Task Force), the Secretary of State, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Housing and Urban Development, the Secretary of Transportation, the Secretary of Homeland Security, the Secretary of the Army, and the Chairman of the Council on Environmental Quality. A member of the Task Force may designate, to perform the Task Force functions of the member, any person who is part of the member's department, agency, or office and who is either an officer of the United States appointed by the President or a full-time employee serving in a position with pay equal to or greater than the minimum rate payable for GS–15 of the General Schedule. The Task Force shall report to the President through the Chairman of the Council on Environmental Quality.

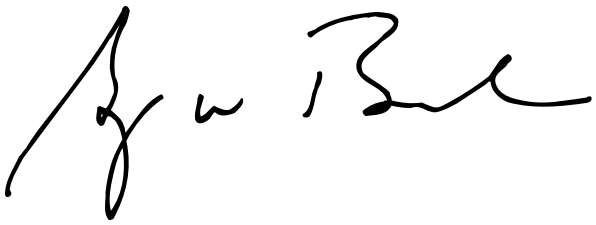
(ii) The Task Force shall establish a ''Great Lakes Regional Working Group'' (Working Group) composed of the appropriate regional administrator or director with programmatic responsibility for the Great Lakes system for each agency represented on the Task Force including: the Great Lakes National Program Office of the Environmental Protection Agency; the United States Fish and Wildlife Service, National Park Service, and United States Geological Survey within the Department of the Interior; the Natural Resources Conservation Service and the Forest Service of the Department of Agriculture; the National Oceanic and Atmospheric Administration of the Department of Commerce; the Department of Housing and Urban Development; the Department of Transportation; the Coast Guard within the Department of Homeland Security; and the Army Corps of Engineers within the Department of the Army. The Working Group will coordinate and make recommendations on how to implement the policies, strategies, projects, and priorities of the Task Force.

(c) Management Principles for Regional Collaboration of National Significance. To further the policy described in section 1, the Task Force shall recognize and apply key principles and foster conditions to ensure successful collaboration. To that end, the Environmental Protection Agency will coordinate the development of a set of principles of successful collaboration.

Sec. 4. *Great Lakes National Program Office.* The Great Lakes National Program Office of the Environmental Protection Agency shall assist the Task Force and the Working Group in the performance of their functions. The Great Lakes National Program Manager shall serve as chair of the Working Group.

Sec. 5. *Preservation of Authority.* Nothing in this order shall be construed to impair or otherwise affect the functions of the Director of the Office of Management and Budget relating to budget, administrative, regulatory, and legislative proposals. Nothing in this order shall be construed to affect the statutory authority or obligations of any Federal agency or any bi-national agreement with Canada.

Sec. 6. *Judicial Review.* This order is intended only to improve the internal management of the Federal Government and is not intended to, and does not, create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or in equity by a party against the United States, its departments, agencies, instrumentalities or entities, its officers or employees, or any other person.



THE WHITE HOUSE,
May 18, 2004.

[FR Doc. 04–11592
Filed 5–19–04; 8:45 am]
Billing code 3195–01–P

APPENDIX B – Program Database

Great Lakes Habitat Initiative Task A:

Summary of Funding Programs to Conduct Habitat Restoration

October 2007

Prepared for
U.S. Army Corps of Engineers
Buffalo District

Submitted by
Public Sector Consultants Inc.
Lansing, Michigan
www.pscinc.com

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Forward

In March 2006, the Assistant Secretary of the Army for Civil Works announced the selection of the Great Lakes Habitat Initiative (GLHI) as the largest of six projects across the United States to be funded for analyses of complex water resources issues within large, multijurisdictional watersheds. The GLHI is a two-year project to develop an implementation plan for the protection and restoration of wetlands and aquatic habitat that builds upon the recommendations of the *Strategy of the Great Lakes Regional Collaboration (GLRC)*, released in December 2005. The GLRC is a wide-ranging, cooperative effort to implement a strategy for the restoration, protection, and sustainable use of the Great Lakes. The GLHI seeks to bridge the gap between the regional needs identified in the Strategy and the programs that provide funding for "on-the-ground" actions.

The initial proposal for the GLHI was coordinated with other federal agencies and organizations, and letters of support for the project were provided by the Great Lakes Fishery Commission, Great Lakes Commission, Great Lakes-St. Lawrence Cities Initiative, The Nature Conservancy, Ducks Unlimited, and the co-chairs of the Habitat/Species Team of the GLRC.

The GLHI consists of four primary tasks:

Task A: Collect information on existing funding sources and programs for habitat restoration and conservation that could be used within the Great Lakes basin; prepare a programs database; and prepare a brief summary report presenting the results of this task.

Task B: Collect information on potential and ongoing habitat restoration and conservation projects that could be implemented within the Great Lakes basin; prepare a projects database; and prepare a brief summary report presenting the results of this task.

Task C: Develop a lexicon of the attributes that are most appropriate to Great Lakes habitat projects with analysis of those attributes that are used and valued more heavily by habitat funding programs. This lexicon and analysis will help the proponents of Great lakes habitat projects develop proposals that better address the GLRC Strategy. The analysis will also help facilitate the integration of projects and funding programs, which is critical for the GLHI final report.

Task D: Development of an implementation plan for future habitat restoration and conservation projects in the Great Lakes basin.

A steering committee was formed with interested agencies and organizations to guide the development of the GLHI and to help assure that its products become a catalyst for advancing Great Lakes habitat restoration and protection efforts. A Product Delivery Team (PDT) was also formed to assist with project tasks.

This summary report focuses on Task A—collection of information related to funding programs that support Great Lakes restoration and conservation.

Executive Summary

The U.S. Army Corps of Engineers' Great Lakes and Ohio River Division acquired data on existing ecological restoration funding programs and potential projects in the U.S. portion of the Great Lakes basin. Pursuant to Task A of the work scope, between January 1, 2007 and June 30, 2007 Public Sector Consultants Inc. (PSC) identified and inventoried 130 funding programs related to habitat restoration and protection in the Great Lakes Region and nationally, and created a Microsoft Access database to store the information.

Existing reports and source lists were identified and reviewed for inclusion in the database. The primary sources that were reviewed included the Federal Funding Guide Database and the Catalog of Federal Domestic Assistance. In addition, a report issued by the General Accountability Office in April 2003[1] that focuses on Great Lakes funding was reviewed. PSC then worked with the GLHI Steering Committee and the Product Delivery Team (PDT) to identify and confirm the types of data fields that would be contained within the database.

PSC populated the database with relevant information about funding programs, which also included a review of private and community foundations that provide funding support for Great Lakes activities. The database is intended to serve as a repository for funding information related to Great Lakes restoration and protection activities and—in the future—to help match potential projects with relevant funding sources. In addition, it is designed to help foster additional funding support for Great Lakes restoration activities.

An analysis of the funding programs indicates that most programs have specific rules and criteria for funding projects, and involve the localized application of national or state environmental initiatives and laws that do not specifically focus on basinwide concerns. Most grant programs utilize a competitive selection process, which may be based on a request for proposals (RFP). Other programs set forth funding priorities based on enabling legislation (e.g., Great Lakes Legacy Act). Some agencies (e.g., the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service) may not formally solicit projects, but support projects that are submitted to them consistent with enabling legislation and availability of funds. Private and community foundations utilize a variety of funding methods based on program criteria. These foundations are a potential significant source of matching dollars for state and federal programs.

The funding programs for which information is available expended approximately $6 billion annually (averaged between 2003 and 2006) for habitat restoration and protection activities across the United States, including the Great Lakes region. Approximately 1 percent of this figure, or $60 million was focused exclusively on the Great Lakes region. Additional funds, beyond the $60 million figure, were also spent in the Great Lakes region. However, as stated in the 2003 GAO report, most national programs do not track

[1] *An Overall Strategy and Indicators for Measuring Progress are Needed to Better Achieve Restoration Goals*, GAO-03-515 (Washington, D.C.: United States General Accounting Office, April 2003).

or itemize their overall funding by region. This makes it difficult to determine their exact contribution to total Great Lakes spending.

While the analysis of funding programs demonstrates an adequate number of existing programs and statutory authorities, the funding needed to pursue habitat restoration on a regional scale greatly exceeds the historical dollar amount appropriated and expended for both agency and project funding activities. Funding authorizations should not be viewed as an accurate indicator of the actual investment made by federal and state governments in the Great Lakes region and nationally. It is clear that current funding levels fall far short to adequately meet legislative mandates, demonstrated needs, and cost estimates developed by the Great Lakes Regional Collaboration.

STATE FUNDING

Several Great Lakes States (e.g., Ohio, New York, Michigan) have, in recent years, created statewide environmental bond funds that can be used for Great Lakes restoration and protection activities. Current financial constraints on state governments due to economic downturns limit the ability to expand debt-based financing of restoration and protection efforts by bonding against general revenue or dedicated revenue streams and enterprise funds. In particular:

- "Matching funds" present challenges for state and local governments. Some state and local governments oppose additional matching fund programs since they cannot provide match under current budget limitations.
- Revolving and low-interest loans have the potential to provide support for projects, but also present challenges. These programs can provide long-term support of restoration and protection projects, but most do not address nonpoint pollution and habitat problems. Furthermore, adequate funding for these programs is predicated on Congressional appropriations.[2]

The analysis reveals the need to expand public and private efforts through the Great Lakes Regional Collaboration to fund restoration priorities. The Great Lakes Habitat Initiative has demonstrated this need and presents a first step toward achieving significant implementation opportunities.

[2] Policy Solutions Ltd., *Great Lakes restoration and Protection Priorities: An Overview of Programs, Funding Streams and Critical Gaps Prepared for the Council of Great Lakes Governors* (Chicago: Policy Solutions Ltd., December 10, 2004) 4.

Background

Presidential Executive Order (EO) 13340 was signed on May 19, 2004; it designated the natural resources of the Great Lakes as nationally significant and defined a federal policy to support local and regional efforts to restore and protect the Great Lakes ecosystem through regional collaboration. The Great Lakes Regional Collaboration (GLRC), a wide-ranging, cooperative effort to design and implement a strategy for the restoration, protection, and sustainable use of the Great Lakes, was convened with the objective of federal agencies working in partnership with state, tribal, and local governments to meet the intent of the Executive Order. The Corps of Engineers' Great Lakes and Ohio River Division and its three Great Lakes Districts: Buffalo, Chicago, and Detroit, have participated in these activities.

The GLRC strategy was developed by teams that focused on eight priority issues identified by the Great Lakes governors and mayors. One of the eight priority issues is to maximize the richness and abundance of fish and wildlife by restoring and protecting coastal wetlands and other important Great Lakes habitats. The habitat and species section of the GLRC strategy summarizes key threats and issues that have degraded these habitats and include: habitat destruction, fragmentation, altered hydrology and hydraulics, invasive species, unnatural sedimentation, and toxic contamination. The priority systems identified by the Strategy for protection and restoration are (1) fish and wildlife populations in lacustrine systems (pelagic and littoral zones), (2) lacustrine, palustrine, and riverine wetlands, (3) riverine systems, and (4) coastal and upland habitats.

The GLHI, funded by the Corps, was established to advance the efforts of the GLRC strategy. The final product of the GLHI will provide the following information and analyses:

- Summary of information about existing governmental and non-governmental funding programs that apply to Great Lakes habitat protection and restoration
- Identification of ecological parameters to help prioritize actions on a regional scale
- Greater definition of potential actions for habitat protection, management, and restoration, including estimation of costs and characterization of ecological benefits
- Cross-linkages of proposed actions with existing governmental and non-governmental programs based on program capabilities and requirements
- Development of an implementation plan that highlights database projects based on the goals and objectives in the *Strategy of the Great Lakes Regional Collaboration*.

Overview of Data Collection Efforts

The U.S. Army Corps of Engineers contracted with Public Sector Consultants Inc. (PSC) to create and populate a database of habitat restoration funding programs applicable to the Great Lakes region. A Microsoft Access database was created to store and analyze the information.

Existing reports and source lists were reviewed to develop the information contained in the database. The primary sources reviewed include the Federal Funding Guide Database and the Catalog of Federal Domestic Assistance. The GLHI Steering Committee and the Product Delivery Team (PDT) were engaged to confirm the types of information that would be contained within the database.

POPULATING THE DATABASE

The field parameters that were used to construct the database tables were selected from existing programs and databases with a goal of being able to sort and match a potential funding source with a habitat project submitted to the geospatial database, developed as part of Task B of the GLHI.

Four primary sources of information that emphasize habitat restoration and protection in the Great Lakes were used to populate the database:

- The Catalog of Federal Domestic Assistance, available online at *http://12.46.245.173/cfda/cfda.html*,
- An Overall Strategy and Indicators for Measuring Progress Are Needed to Better Achieve Restoration Goals, available online at *www.gao.gov/new.items/d03515.pdf*,
- The *Restoration Marketplace* (Federal Funding Guide Database 1996–2006), available online at *http://www.restorationmarketplace.com/?id=70*, and
- Achieving Great Lakes Restoration and Protection: A Preliminary Project Inventory for the Healing Our Waters Coalition, December 2006.

While these sources provided the majority of information for the database, additional resources were also tapped. For example, program information from the Great Lakes Funders, a loose affiliation of organizations with a focus on the Great Lakes through the Environmental Grant Makers Association, was used to supplement the database and expand the search to private and community foundations.

Exhibits 1 and 2 summarize the organization and project information, including “field name,” and “data type,” along with a description of each field name.

EXHIBIT 1
Organization Information

Field name	Data type	Description
ID	AutoNumber	Automatically generated key identification number
Org_Name	Text	Name of administering organization
Sub unit 1	Text	e.g., department, division, office, service, administration, laboratory
Sub unit 2	Text	e.g., department, division, office, service, administration, laboratory
Contact_fname	Text	Prime contact's first name
Contact_lname	Text	Prime contact's last name
Contact_title	Text	Prime contact's title
Address 1	Text	Street address line 1
Address 2	Text	Street address line 2
City	Text	
State	Text	
Zip	Text	
Org_Phone	Text	Primary phone for organization
Other_Phone	Text	Other phone for prime contact
Fax	Text	
email	Text	E-mail for prime contact
website	Text	Organization website

SOURCE: Public Sector Consultants Inc., 2007.

EXHIBIT 2
Program Information

Field name	Data type	Description
id	Auto-number	
Agency information	Number	Dropdown list of agency/orgs administering programs (includes contact names)
Statutory authority	Memo	Federal statute that authorizes the agency/org to conduct specific program activities
Program name	Text	Name of program
Program description	Memo	Brief description of program
Geographic focus area	Text	Great Lakes Region or National
Habitat protection	Yes/No	Program category
Habitat restoration/improvement	Yes/No	Program category
Research/Monitoring	Yes/No	Program category
Public information	Yes/No	Program category
Other	Yes/No	Program category
Habitat conservation and species management	Yes/No	Program category
Toxic pollutants	Yes/No	Program category

EXHIBIT 2 (cont.)
Program Information

Field name	Data type	Description
Nonpoint source pollution	Yes/No	Program category
Areas of concern	Yes/No	Program category
Sedimentation	Yes/No	Program category
Indicators and information	Yes/No	Program category
Sustainable development	Yes/No	Program category
Great Lakes coastal health	Yes/No	Program category
Aquatic invasive species	Yes/No	Program category
Terrestrial invasive species	Yes/No	Program category
Assistance type	Number	Grant vs. project—drop down list
Eligibility	Memo	Applicant eligibility
Annual authorization	Currency	The annually authorized dollar amount
Award cap	Currency	Maximum dollar award for each grant or project
Match required	Yes/No	Are matching funds required?
Match (%)	Text	Required matching amount— percentage of total project cost
In-kind dollars allowed? (yes/no)	Yes/No	Is real property allowed for in-kind contribution?
In-kind services toward match	Yes/No	Are services allowed toward match?
Proposal deadlines	Text	Application due date
2003–2006 Average Annual Expenditures	Currency	Program expenditures averaged over 3 years
2003–2006 Average Annual Expenditures	Numeric	Number of funded projects averaged over 3 years
Application process	Memo	Application process
Selection process	Text	Type of process used to disburse funding
Payment process	Text	Payments and conditions
Assistance duration	Text	Length of grant or project award
Program notes	Memo	Any additional notes in relation to the program

SOURCE: Public Sector Consultants Inc., 2007.

QUALITY CONTROL/ASSURANCE

Most of the database information was gleaned from organizations' websites and telephone interviews. Once the database was initially populated, the GLHI Steering Committee and PDT reviewed the data for accuracy and provided updated information. This was an especially important step because funding information located on websites is not always current.

Both steering committee and PDT members provided valuable comment and feedback on programs and contact information in the database. PSC then made the changes within the database. This process was repeated one additional time before the final data set was complete.

Analysis of Funding Programs

Between January 1, 2007, and June 30, 2007, PSC identified and inventoried 130 funding programs related to habitat restoration and protection in the Great Lakes region and nationally. Analysis of these programs reveals a total of 96 that are federally funded. Ninety-one of the 130 programs are national in scope while 39 focus specifically on the Great Lakes region. The entities that administer these programs range from federal and state agencies to private foundations and compact and treaty organizations (Exhibit 3). Descriptions of each program contained within the database are highlighted in the Appendix.

EXHIBIT 3
Funding Entities

Organization Type and Name
Canadian Government
Canadian Wildlife Service
Environment Canada
U.S. Federal Government
Department of Agriculture
Farm Service Agency
Forest Service
Natural Resources Conservation Service
Department of the Interior
Bureau of Land Management
Fish and Wildlife Service
Geological Survey
National Park Service
Department of Commerce
National Oceanic and Atmospheric Administration
Department of Defense
Army Corps of Engineers
Department of Health and Human Services
Environmental Protection Agency
State Government
Commonwealth of Pennsylvania
Michigan Department of Environmental Quality
New York Department of State
Ohio Public Works Commission
Private and Community Foundations
Americana Foundation
Andrew W. Mellon Foundation
Beldon Fund
Charles Stewart Mott Foundation
Chicago Community Trust
Cleveland Foundation

EXHIBIT 3 (cont.)
Funding Entities

Organization Type and Name
Private and Community Foundations (cont.)
Community Foundation for Muskegon County
Community Foundation of Northeast Michigan
Community Foundation of Southeast Michigan
Doris Duke Foundation
Duluth Community Foundation
Duluth Superior Area Community Foundation
Frey Foundation
Gaylord and Dorothy Donnelley Foundation
George Gund Foundation
Grand Victoria Foundation
Great Lakes Fishery Trust
Great Lakes Aquatic Habitat Network and Fund
Great Lakes Protection Fund
Heinz Foundation
Ivey Foundation
Johnson Foundation
Joyce Foundation
Kresge Foundation
Laidlaw Foundation
Marquette Community Foundation
McKnight Foundation
Milwaukee Foundation
National Fish and Wildlife Foundation
Racine Community Foundation
Rochester Area Community Foundation
Rotary Charities of Traverse City
Surdna Foundation
Tides Foundation
Toronto Community Foundation
Trillium Foundation
Weeden Foundation
Wege Foundation
W.K. Kellogg Foundation
Treaty and Compact Organizations
Great Lakes Commission
Great Lakes Fishery Commission

SOURCE: Information compiled by Public Sector Consultants Inc., 2007.

The federal programs included in the database were created statutorily and are generally updated through a reauthorization process. Exhibit 4 highlights the variety of statutes and agreements that allow these agencies to conduct work within and outside the Great Lakes region. The 96 funding programs are a result of 65 statutes and other legal mandates. The range of legislation dates back to 1935 and most recently to 2006. Many of these statutes have been updated and amended since they were originally approved in Congress. The original year of passage is provided in the exhibit.

EXHIBIT 4
Federal Statutes and Agreements

1996 court settlement for fish losses at the Ludington pumped storage hydroelectric facility
Alaska National Interest Lands Conservation Act, 1980
Anadromous Fish Conservation Act of 1965
Beaches Environmental Assessment and Coastal Health Act, 2000
Clean Air Act, 1970
Clean Water Act, 1972
Atlantic Coastal Fisheries Cooperative Management Act, 1993
Coastal Wetlands Planning, Protection, and Restoration Act, 1990
Coastal Zone Management Act of 1972
Coastal Zone Management Act, 1972
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 1980
Convention on Great Lake Fisheries, 1954
Cooperative Forestry Research Act, 1962
Department of Commerce, Justice, and State Appropriations Act of 2002
Department of the Interior and Related Agencies Appropriations Act, 2004, Title I
Education Amendments of 1972, Section 506
Education Amendments of 1980, Section 1361
Endangered Species Act of 1973
Environmental General Assistance Program Act, 1992
Estuaries Act, 2000
Federal Agricultural Improvement and Reform Act, 1996
Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act), 1950
Federal Aid in Wildlife Restoration Act, (Pittman-Robertson Act), 1937
Federal Grant Cooperative Agreement Act, 1977
Federal Water Pollution Control Act, Sec. 319, 1987
Fiscal Year 2006 Interior, Environment and Related Agencies Appropriations Bill
Fish and Wildlife Act, 1956
Fish and Wildlife Coordination Act, 1958
Flood Control Act, , Section 14, 1946
Flood Control Act, , Section 205, 1948
Flood Control Act, Section 208, 1954
Flood Control Act, Section 206, 1960
Government Management Reform Act, 1990
Great Lakes Fish and Wildlife Restoration Act, 1990
Great Lakes Legacy Act, 2002
Indian Environmental Regulatory Enhancement Act, 1990
Interior and Related Agencies Appropriations Act, 1991 (and subsequent years)
Interjurisdictional Fisheries Act of 1986
Land and Water Conservation Fund Act, 1965
Magnuson-Stevens Act, 1976
Marine Mammal Protection Act, 1972
National Fish and Wildlife Foundation Establishment Act, 1984
National Marine Sanctuary Act, 1972

EXHIBIT 4 (cont.)
Federal Statutes and Agreements

Native American Programs Amendments Act, 1974
Neotropical Migratory Bird Conservation Act, 2000
North American Wetlands Conservation Act (NAWCA), 1989
Oil Pollution Act, 1990
Partners for Fish and Wildlife Act, 2006
Pollution Prevention Act, 1990
Reorganization Plan No. 4, 1970
River and Harbors Act, 1945
River and Harbors Act, 1958
River and Harbors Act of 1962, Section 103
Safe Drinking Water Act, 1974
Sikes Act, 1974
Soil Conservation Domestic Act, 1935
The Farm Security and Rural Investment Act, 2002 (2002 Farm Bill) which amended the Food Security Act of 1985
Water Resources Development Act (WRDA) 1974
WRDA, Section 1135, 1986
WRDA, Section 312, 401, 516d, 1990
WRDA, Section 204, 1992
WRDA, Section 206, 1996
WRDA, , Section 506, 2000
Watershed Protection and Flood Prevention Act, 1954
Wildlife and Sport Fish Restoration Act, 1937

SOURCE: Information compiled by Public Sector Consultants Inc., 2007.

The numerous programs authorized under these federal statutes and agreements are as diverse as the organizations designated to carry out the work. Exhibit 5 summarizes the types of projects that are authorized by the federal statutes and agreements. Since a single federal statute (and/or agreement) may fund several types of different project activities, the numbers in Exhibit 5 are considerably higher than the actual number of federal statutes listed in Exhibit 4.

EXHIBIT 5
Funding Activities

Project type	Number
Habitat protection	90
Habitat conservation and species management	79
Habitat restoration/improvement	73
Great Lakes coastal health	49
Aquatic invasive species	37
Areas of Concern/Sedimentation	36
Nonpoint source pollution	29
Research and monitoring	29
Public information	22
Terrestrial invasive species	19
Toxic pollutants	15
Indicators	13
Sustainable development	8
Other	52

SOURCE: Information compiled by Public Sector Consultants Inc., 2007.

Of the 69 programs for which detailed funding information is available, 39 are grant programs; 16 are "project" oriented; 12 utilize cooperative agreements; and two use partnership grants and volunteer partnerships as mechanisms to disburse funds. It is important to note that, while funding levels are authorized within federal statutes, they are a poor indicator of the actual funding for most programs in any year. In general, the actual funding is much less than the authorized level within the statute.

Most programs place a cap on the dollar amount allowed for each project. Among those for which data is available, award caps range widely from $1,000 to $7.7 million.

Eligibility for nearly all funding programs is limited to governments (federal, state, and local), tribes, and nonprofit entities. Exceptions include some of the largest programs that are administered by the U.S. Department of Agriculture (e.g., Wetland Reserve Program), which target private land conservation cooperatively with landowners, ranchers, and farmers. While some might view these programs outside the purview of Great Lakes restoration, in fact several of these programs directly affect Great Lakes habitats (e.g., Conservation Reserve Enhancement Program) and coastal health.

One funding criteria utilized by many organizations to leverage additional dollars for a specific project is to impose matching dollars by the applicant. Fifty-nine of the 130 funding programs (45 percent) require applicants to secure matching dollars, either from in-kind services or from other funding sources, usually in the range of 25–50 percent. Of those, 29 programs allow real property to be applied as an in-kind contribution, 32 allow services to act as in-kind match, and 23 allow both kinds of contributions.

Key Funding Programs for Great Lakes Restoration Activities

Information collected as part of the project reveals many key Great Lakes funding sources that individually, or in combination with other federal and nonfederal sources, are key to advancing restoration activities in the Great Lakes basin. Exhibit 6 highlights these key funding programs.

EXHIBIT 6
Key Great Lakes Restoration Funding Programs

Agency/ organization	Program	Description
U.S. Department of Agriculture, Farm Service Agency	Conservation Reserve/Wetland Restoration Programs	The federal government's largest land retirement for private lands. Signup periods during which landowners can bid land into the programs to receive compensation for recording easements to restore and protect upland and wetland areas.
The Great Lakes Commission—under a cooperative agreement with the U.S. EPA-Region V, and the U.S. Department of Agriculture-Natural Resources Conservation Service (NRCS)	Great Lakes Basin Program for Erosion and Sediment Control $750k annually	The Basin Program's purpose is to coordinate the efforts of the various levels of government with the specific goal of protecting and improving Great Lakes water quality by controlling soil erosion and sedimentation.
	1996 court settlement for fish losses at the Ludington Pumped Storage Project hydroelectric facility No match required $3.5 million annually	The GLFT provides grant funds to nonprofit organizations and government entities for research projects that benefit Great Lakes fishery resources; rehabilitation of lake trout, lake sturgeon and other Great Lakes fish species; protection and enhancement of Great Lakes fisheries habitat; public education about the Great Lakes fishery; property acquisition for the above purposes or to provide access to the Great Lakes. Since 1996, over $30 million has been expended by the program.
National Oceanic and Atmospheric Administration (NOAA)	National Sea Grant College Program	The National Sea Grant College Program engages the nation's top universities in conducting scientific research, education, training, and extension projects designed to foster science-based decisions about the use and conservation of our coastal, marine, and Great Lakes resources.
	Coastal Zone Management Program Coastal Zone Management Act 50% nonfederal match	Federal/state partnership dedicated to comprehensive management of the nation's coastal resources, ensuring their protection for future generations while balancing competing national economic, cultural, and environmental interests. National program supports states through financial assistance, mediation, technical services and information, and participation in priority state, regional, and local forums.

Agency/ organization	Program	Description
Private Foundations Joyce Foundation Frey Foundation Doris Duke Foundation The George Gund Foundation C.S. Mott Foundation Rockefeller Family Fund Andrew W. Mellon Foundation Surdna Foundation Pew Charitable Trusts Weeden Foundation Wege Foundation	Varies by program	Great Lakes habitat and ecological restoration. Priorities vary by program.
State Sea Grant Programs Michigan, Illinois/Indiana, Wisconsin, Minnesota, Pennsylvania, Ohio, New York	National Sea Grant College Program Act	The National Sea Grant College Program sponsors a variety of marine research, outreach, and education projects, primarily through the 30 state Sea Grant Programs. Each program announces the availability of funding on an annual or biannual basis.
U.S. Army Corps of Engineers	Aquatic and Wetlands Habitats Associated with Dredging for Authorized Navigation Projects/ Section 204 of WRDA 1992 Cost Share 65/35	The Corps is authorized to protect, restore, and create aquatic and/or wetland habitats associated with dredged material from authorized federal navigation projects. Project costs require non-federal sponsors to provide all lands, relocations necessary for construction and cash contribution if less than 35%, along with the project's operation and maintenance.
	Aquatic Ecosystem Restoration/ Section 206 WRDA 1996 Cost Share 65/35	The Corps evaluates and supports projects that benefit the environment through restoring, improving, or protecting aquatic habitat for plants, fish, and wildlife. A project is accepted for construction after a detailed investigation shows it is technically feasible, environmentally acceptable, and provides cost-effective environmental benefits. Each project must be complete within itself, not a part of a larger project.
U.S. Army Corps of Engineers	Environmental Dredging/Section 312 of WRDA 1990 Cost Share 65/35	The Corps evaluates and supports the removal of contaminated sediments outside the boundaries of federal navigation channels. All environmental dredging actions are to be taken in consultation with the USEPA. This authority was amended in 1996, and several areas were identified for priority consideration, including several on the Great Lakes.
U.S. Army Corps of Engineers	Habitat Restoration-Project Modifications for Improvement of the Environment/Section 1135 of WRDA 1986 Cost Share 75/25	The Corps is authorized to plan, design, and construct fish and wildlife habitat restoration measures with an emphasis on fish passage. To be eligible, restoration projects must involve modification of structures or operations of a project constructed by the Corps, or modification of an off-project site when it is found that the USACE project has contributed to the degradation.

Agency/ organization	Program	Description
U.S. Army Corps of Engineers	Great Lakes Remedial Action Plans (RAPs)/ Section 401 WRDA 1990 Cost Share 50/50	The Corps supports RAP activities, including: physical and environmental monitoring; remedial planning and design; construction management; development of geographic information systems (GIS); computer modeling and analysis; cost estimating; real estate and public outreach support.
U.S. Army Corps of Engineers	Section 404 of the Clean Water Act	The Corps issues permits to landowners prior to an applicant beginning any non-exempt activity involving the placement of dredged or fill material in waters of the United States, including wetlands.
U.S. Army Corps of Engineers	Planning Assistance to States/Section 72 of WRDA 1974	The Corps provides assistance to states in the planning for the development, utilization, and conservation of water and related land resources. Recent amendments have expanded this assistance to ecosystem planning. This support can be provided to states and tribal governments. Some municipalities have received support under this authority through agreements with their respective states.
	Sediment Management Program	The Corps develops sediment transport models for Great Lakes tributaries. These computer models simulate the erosion, transport, and deposition of sediments within a watershed and can be used to evaluate the effectiveness of soil conservation and other source control measures on the loadings of sediments and sediment contaminants to Great Lakes harbors and navigation channels.
U.S. Army Corps of Engineers	Shore Protection/Section 103 River and Harbor Act of 1962	The Corps assists in the construction of works to restore and protect shores against erosion by waves and currents. This authority enables the Corps to assist state and local governments in developing structural and nonstructural measures for storm damage reduction. This federal program is intended for protection of public lands and facilities.
	Streambank and Shoreline Protection, Section 14, Flood Control Act of 1946 Cost Share 65/35	The Corps is authorized to construct emergency streambank and shoreline protection works to protect highways, bridges, other public works, and nonprofit public services such as churches, hospitals, and schools.
U.S. Environmental Protection Agency	Great Lakes Legacy Act of 2002 35% cost share Authorizes up to $50 million/year through 2008 $15–$30 million expended annually	Grants to states, Indian tribes, regional agencies, and local governments for projects in Areas of Concern (AOCs) to monitor or evaluate contaminated sediment, remediate contaminated sediment, or prevent further or renewed contamination of sediment. Priority is given to projects that constitute remedial action, are identified in a remedial action plan that is ready to be implemented, or that will use an innovative approach for remediation.

Agency/ organization	Program	Description
	Clean Water Act 5% nonfederal match $4.8 million annually	Consolidates the annual USEPA GLNPO competitive solicitation (the General Request) with funds previously managed by USEPA Water programs in Regions 2 and 5 for projects for development and implementation of Lakewide Management Plans and Remedial Action Plans. Also included in this funding program are new solicitations for conferences and publications and for a Grants Servicing Intermediary.
U.S. Environmental Protection Agency	National Estuary Program Public Law 101-646 While the program not currently focused in the Great Lakes region, it is a viable funding source for Great Lakes restoration	Established by Congress in 1987 to improve the quality of estuaries of national importance. This includes protection of public water supplies and the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife, and allows recreational activities, in and on water, requires that control of point and nonpoint sources of pollution to supplement existing controls of pollution. Estuary Habitat Restoration Council, which is composed of senior managers from five federal agencies (Corps, EPA, Agriculture, FWS, and NOAA) oversee program implementation.
	Great Lakes Fish and Wildlife Restoration Act Public Law 105-265 25% nonfederal match $500k annually	Project priorities identified by the GLFC Lake Committees to be consistent with Great Lakes interjurisdictional fisheries and aquatic ecosystem programs. Emphasis placed on cooperative conservation, restoration, and management of the fishery resources of the Great Lakes Basin.
U.S. Fish and Wildlife Service	Fish and Wildlife Coordination Act, Public Law 85-624	Provides the basic authority for the Fish and Wildlife Service's involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It also requires Federal agencies that construct, license or permit water resource development projects to first consult with the Service (and the National Marine Fisheries Service in some instances) and state fish and wildlife agency regarding the impacts on fish and wildlife resources and measures to mitigate these impacts.
U.S. Fish and Wildlife Service	National Coastal Wetlands Conservation Grants Program Coastal Wetlands Planning, Protection and Restoration Act This program is not currently focused in the Great Lakes region Up to $15 million annually	Funds are made available by allocating 18% of the Sport Fish Restoration Account or 100% of the excise tax on small engine fuels - whichever is greater. Of the 18% allocated, 15% (not to exceed $15 million) is provided for the National Coastal Wetlands Conservation Grants Program. Project review and selection are conducted by the Federal Aid Office and other Divisions in each Region and by a cross-program review in the Washington Office, led by the Division of Fish and Wildlife Management Assistance and Habitat Restoration.

Agency/ organization	Program	Description
U.S. Fish & Wildlife Service	National Fish & Wildlife Foundation Public Law 100-653, National Fish and Wildlife Foundation Act	A nonprofit established by Congress in 1984, the National Fish and Wildlife Foundation sustains, restores and enhances the Nation's fish, wildlife, plants, and habitats. Since its establishment, NFWF has awarded nearly 9,500 grants to over 3,000 organizations in the United States and abroad and leveraged—with its partners—more than $400 million in federal funds into over $1.3 billion for conservation.
U.S. Fish & Wildlife Service	North American Wetlands Conservation (NAWCA) American Wetlands Conservation Act Public Law 101-233 100 percent nonfederal match	The NAWCA was enacted in 1989 and provides federal cost-share funding to support the North American Waterfowl Management Plan. NAWCA is a non-regulatory, incentive-based, voluntary wildlife conservation program and provides challenge grants for wetlands conservation projects in the U.S., Canada and Mexico. Every $1 of federal money allotted to NAWCA must be matched by $1 or more from nonfederal sources like Ducks Unlimited, or state fish and wildlife agencies. Because this program is so effective, funds are often tripled or quadrupled at the local level.
U.S. Fish & Wildlife Service	Partners in Fish and Wildlife Program Public Law 109-294	The program seeks to achieve voluntary habitat restoration on private lands, through financial and technical assistance, for the benefit of Federal Trust species. The Program assists with projects in all habitat types which conserve or restore native vegetation, hydrology, and soils associated with imperiled ecosystems such as longleaf pine, bottomland hardwoods, tropical forests, native prairies, marshes, rivers and streams, or otherwise provide an important habitat requisite for a rare, declining or protected species.

SOURCE: Information compiled by Public Sector Consultants Inc., 2007.

While the analysis of funding programs demonstrates an adequate number of existing programs and statutory authorities, the actual funding needed to pursue habitat restoration on a regional scale greatly exceeds the historical dollar amount appropriated and expended for both agency and project funding activities. At the same time, private foundations could be important sources of funding for Great Lakes restoration activities, including leveraging and/or matching federal dollars.

ARMY CORPS OF ENGINEERS

Through its history of managing national water resources, the Corps has been charged primarily to construct channels, levees, and reservoirs to serve navigation, flood control, and other purposes. The overarching goal of these projects was to control the hydrologic variability and geomorphic processes in the nation’s rivers and coastal areas. Over time, however, the Corps project construction program has receded in national importance, and

national water priorities beyond flood control and navigation have emerged.[3] A key program to advance these restoration activities is the Great Lakes Fishery and Ecosystem Support Plan, highlighted below.

Section 506 of Water Resources Development Act 2000 authorized $100 million for the Corps to plan, design, and construct projects to restore the fishery, ecosystem, and beneficial uses of the Great Lakes with 35 percent matching funds from nonfederal project sponsors. It authorized $300,000 for a Great Lakes fishery and ecosystem restoration support plan for the Corps to be prepared in cooperation with the signatories to *A Joint Strategic Plan for Management of the Great Lakes Fisheries* and other affected interests. The Congress appropriated $200,000 in fiscal year 2002 to initiate the development of the support plan, and the Great Lakes Fishery Commission provided the nonfederal matching funds.

The recommended support plan outlines the opportunities and priorities for Great Lakes fishery and ecosystem restoration projects identified through a steering committee survey of state, provincial, international, and regional organizations and federal agencies in the United States and Canada that have responsibilities or programs related to the management, protection, and/or research of the Great Lakes fishery and ecosystem. The plan recommends a process for the review and evaluation of construction projects proposed under this program, including criteria for establishing priorities and methods for evaluation. The recommended plan also includes steps to encourage collaborative efforts between various Great Lakes interests and related programs funded by public agencies and private organizations. Finally, the plan describes administrative considerations that are relatively unique to this program that need to be addressed to assure the program is embraced by potential nonfederal project sponsors, particularly state resource management agencies that have been identified as the primary source of the nonfederal share of project dollars. The program currently has identified 10 projects that have been approved by the Great Lakes Fishery and Ecosystem Restoration (GLFER) Review Committee. These projects focus on habitat restoration including fish passage, wetland restoration and streambank stabilization. Going forward, the GLFER program could be a key vehicle for advancing Great Lakes restoration efforts on a basinwide scale.

This initiative confirms the Corps' environmental responsibility beyond its traditional water resources development projects and continues to help the agency focus its ecosystem restoration objectives.

[3] U.S. Army Corps of Engineers Water Resources Planning: A New Opportunity for Service. 2004. Committee to Assess the U.S. Army Corps of Engineers Methods of Analysis and Peer Review for Water Resources Project Planning, National Research Council, ISBN: 0-309-09222-1.

Summary and Conclusion

Numerous programs, policies, agencies, and related funding are targeted to restoration and protection activities in the Great Lakes region. While a review of state, federal, and private funding sources provides a baseline of information about funding resources and capacity, many local and additional private funding sources add to the overall effort. A review of actual program expenditures between 2003—2006 indicates relatively static and insufficient funding to carry out restoration goals, both locally and basinwide, when compared to cost estimates developed under the Great Lakes Regional Collaboration. And while federal programs targeting Great Lakes restoration, as well as state and local efforts, have long been criticized as underfunded and poorly coordinated, often overlooked by Congress is the complex nested jurisdictional system involving numerous federal agencies, eight states, and literally thousands of local governments upon which successful restoration efforts are built.

Because state and federal agencies track information for programs that often operate beyond the geographic scope of the Great Lakes, gathering consistent information on Great Lakes spending for restoration and protection is difficult. In addition, the size of the funding commitments and the relationship of the multiple programs add to the complexity. The sheer number of programs appears to be an impediment to the efficient implementation of restoration and protection goals for the Great Lakes. These problems are caused in part by a lack of shared tracking and accounting systems for such programs among the multiple state and federal agencies dedicated to restoration activities.

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

With respect to the Corps funding authorities, adding to the competition for ecosystem restoration dollars is the backlog of authorized (but unfunded) projects related to infrastructure and traditional project types. And given the recent spate of natural disasters in the United States and the war in Iraq, both the Corps' staffing and funding resources are stretched thin. Thus, while the near-term goal appears to be one of increasing the importance of and emphasis on maintaining, rehabilitating, and better operating existing infrastructure, expanding ecosystem rest oration activities is nevertheless warranted.

Recent efforts through the Great Lakes Regional Collaboration, the Great Lakes Cities Initiative, and the GLHI, suggest that sharing and coordination of responsibility for management and protection of Great Lakes has gained significant momentum. Increasing scientific and public interest in the restoration of aquatic ecosystems through these initiatives helps support a case for additional federal funding to carry out restoration activities. The GLHI offers a significant opportunity for the Corps to enhance coordination among its federal partners and move toward implementation of restoration projects, something that has not occurred since the Great Lakes Regional Collaboration developed its strategy.

Appendix: Report of Funding Programs

Great Lakes Restoration and Protection Funding Programs

Program Name	Program Description			Average Annual Expenditures, 2003-06 (when available)
Canadian Wildlife Service				
Atlantic Region		Paul Chamberland	Paul.Chamberland@ec.gc.ca	
Habitat Stewardship Program (HSP)	Protecting habitat and contributing to the recovery of species at risk are the HSP's main goals. The program focuses on results in three main areas: (1) Securing or protecting important habitat to protect species at risk and support their recovery; (2) Mitigating threats to species at risk caused by human activities; and (3) Supporting the implementation of other priority activities in recovery strategies or action plans, where these are in place or under development.			$700,000.00
Charles Stewart Mott Foundation				
		Sam Passmore	(810) 238-5651	spassmore@mott.org
Strengthening the Environment Community	Organizational capacity building for two categories of "key organizations" active in freshwater ecosystem conservation in the Great Lakes and Southeast: (1) NGOs that play a significant role in the development and implementation of state-level policies important to freshwater ecosystems, and (2) regional organizations that link grassroots and/or state-level groups active in freshwater issues. Provision of technical assistance, training, and/or regranting funds to strengthen NGOs' ability to engage successfully in freshwater conservation work. Emphasis is placed on projects that help NGOs address organizational development needs such as board development, strategic planning, fundraising, and technology assistance			
Public Policy Work	Implementation of state, provincial, and federal water quality policies, with an emphasis on the U.S. Clean Water Act and related policies. Design and implementation of water management policies that protect the health of aquatic systems and species while meeting human needs. Reform of dam operations, with emphasis on intervention in the relicensing of federally regulated hydropower facilities			

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)

Commonwealth of Pennsylvania

Department of Environmental Protection (DEP)

Russs Wagner (717) 772-5807 ruwagner@state.pa.us

Grants Center

Pennsylvania Grow Greener II Bond Issue	This bond issue in 2005 funds $625 million for six years through a $4/ton municipal waste disposal fee. Activites eligible for funding include river and stream, abandoned mine, and brownfield cleanup ($230 million); preservation of natural areas and open space, improve state parks, enhance local recreational needs ($217.5); protect working farms ($80 million); revialtize communities through investments in housing and mixed-use redevelopment ($50 million); repair fish hatcheries and aging dams ($27.5 million); and habitat-related facility upgrades and repairs ($20 million).	

Doris Duke Foundation

(212) 974-7000

Idenfity Critical Lands	Support state efforts to develop and implement high-quality wildlife action plans through grants and re-grants for technical assistance, data collection and sharing, and public outreach and education.	
Implement Land Protection	Support the implementation of state wildlife action plans in four key ways: (1) award land protection grants for high-priority projects in states that have mapped their prority habitats; (2) support the development of new conservation funding, especially at the state and local levels; (3) encourage integration of state widlife action plans into other conservation efforts and land use planning activities; and (4) focus local, state, and federal incentives on the protection of priority areas identified in the state wildlife action plans.	

Duluth Superior Area Community Foundation

726-0232 info@dsacommunityfoundation

Lone Wolf Fund	To promote environmental education, particularly through programs that increase access for children with physical and/or mental disabilities.	(218)
Unrestricted Endowment Fund	For initiatives the meet the changing needs of our community in the area of arts, community and economic development, education, environment and human services.	
Global Awareness Fund	To support projects that increase information and understanding about such global concerns as peace and security for nations; justice and human rights; economic well-being; environmental safety; sustainablity and preservation; and citizen understanding of world cultures, as well as political and social systems.	
Fund for the Environment	To promote livable communities throughout the Lake Superior watershed and the Northwoods through public education projects, the development of land use planning models, and community collaboration.	

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)

Environment Canada

Inquiry Centre (819) 997-2800 environinfo@ec.gc.ca

Great Lakes Sustainability Fund (formerly the Great Lakes Cleanup Fund)	Habitat restoration and contaminant removal in Areas of Concern: fish and wildlife habitat rehabilitation and stewardship; containminated sediment assessment and remediation; and innovative approaches to improve municipal wastewater effluent quality.	

Frey Foundation

Kristine Huizen (616) 451-0303 huizen@freyfdn.org

Protecting the Environment	Encourage environmental preservation and seek to maintain a balance between open land and well-planned development in target communities of western Michigan. Grantmaking priorities include: * Preserving and restoring high-quality lakes and streams * Expanding recreation trails and greenways * Protecting and preserving critical lands - including farmland, parkland and natural areas of rich biodiversity. * Beautifying scenic transportation corridors, including gateways and the control of billboards	

Gaylord and Dorothy Donnelley Foundation

Judith Stockdale (312) 977-2700 jstockdale@gddf.org

Land Conservation	Foster the conservation and stewardship of land in a natural condition, providing current and future generations a link with their heritage. Land conservation is a critical priority because natural lands are vulnerable and finite.	

Grand Victoria Foundation

Nancy Fishman nancyf@grandvictoriafdn.org

Core Program: Environment	Educate the public about the importance of preserving the land, water, and air. They support organizations that • Prevent pollution • Preserve and restore natural lands and waterways • Implement best land use practices • Expand and connect preserved natural lands • Develop and implement use of clean, renewable energy and other natural resources • Educate the public to increase participation in the above issues	(312) 609-0200

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)

Great Lakes Aquatic Habitat Network and Fund, Inc.

Jill Ryan (231) 348-8200 jill@glhabitat.org

Great Lakes Aquatic Habitat Network and Fund (GLAHNF)	The mission of the Great Lakes Aquatic Habitat Network and Fund (GLAHNF) is to foster and support a vital, effective grassroots sector working locally to protect aquatic habitats throughout the Great Lakes Basin. GLAHNF provides financial resources, shares information, and fosters communication between citizens and organizations working to protect aquatic habitats. The GLAHNF grants program is designed to increase the ability of grassroots groups and individuals to succeed in advocacy projects to protect rivers, lakes, and wetlands in their areas. Advocacy work, as defined here, involves local community members actively promoting aquatic habitat protection by influencing community and/or individual behavior or opinion, corporate conduct, and/or public policy.	

Great Lakes Commission

Gary Overmier (734) 971-9135 garyo@glc.org

Great Lakes Basin Program for Erosion and Sediment Control	The program's purpose is to coordinate the efforts of the various levels of government with the specific goal of protecting and improving Great Lakes water quality by controlling soil erosion and sedimentation.	$1,900,000.00

Great Lakes Fishery Commission

Charles Krueger (734) 662-3209 ckrueger@glfc.org

Sea Lamprey Research Program	Biological, ecological, and management-related research on sea lampreys and their effects on Great Lakes fish communities and fisheries.	
Fishery Research Program	Projects should address one or more of the following: the priorities identified by the commission's strategic vision, lake committees, the Great Lakes Fish Health Committee, and the Council of Lake Committees; and the Fishery Research Programs. Projects should have a high priority for funding if they relate to a species of conservation or rehabilitation concern, or they are critical to the achievement of healthy Great Lakes ecosystems.	$400,000.00

Great Lakes Fishery Trust

Jack Bails (517) 371-7468 glft@glft.org

Ecosystem Health and Sustainable Fish Populations	The GLFT provides grant funds to nonprofit organizations and government entities for research projects that benefit Great Lakes fishery resources; rehabilitation of lake trout, lake sturgeon, and other Great Lakes fish species; protection and enhancement of Great Lakes fisheries habitat; public education about the Great Lakes fishery; and property acquisition for the above purposes or to provide access to the Great Lakes.	$1,500,000.00

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)

Great Lakes Protection Fund

J. David Rankin (847) 425-8150 drankin@glpf.org

Restoring Natural Flow Regimes	Identify, demonstrate, and refine the most promising restoration strategies, with a focus on dam operation, run-off regimes, wetland restoration, and shoreline processes. Build a suite of tools to identify candidate restoration projects, measure impacts and assess alternatives. Support a framework for water resource use decisions that allows improvements to the Great Lakes ecosystem to be considered as a part of project design.	
Preventing Biological Pollution	The Fund welcomes projects that identify a specific improvement to the health of the Great Lakes ecosystem and have a pragmatic plan to produce those improvements. The Fund supports projects that produce results for the entire basin ecosystem, are carried out by collaborative teams, and tackle issues that have not generally been addressed at basin scale.	

Heinz Foundation

Caren Glotfelty (412) 281-5777 glotfelty@heinz.org

Heinz Endowments: Environment	The Environment program promotes environmental quality and sustainable development by supporting efforts to eliminate waste, harness the power of the market, and create a restorative economy. The program's goals relative to Great Lakes restoration are to protect watersheds and ecosystems. The program works to protect the integrity of critical ecosystems and watersheds as complex, integrated systems.	

Ivey Foundation

(416) 867-9229 info@ivey.org

Conserving Canada's Forests	The primary goals of the program are twofold: Increasing the amount of protected forest ecosystem in Canada; and expanding the adoption of sustainable forest practices in Canada.	

Joyce Foundation

Margaret O'Dell (312) 782-2464 modell@joycefdn.org

Joyce Foundation - Environment	The Foundation supports the development, testing, and implementation of policy-based, prevention-oriented, scientifically sound solutions to the environmental challenges facing the region.	

McKnight Foundation

Gretchen Bonfert (612) 333-4220 gbonfert@mcknight.org

McKnight Foundation - Envirnoment	Maintain and restore the Mississippi River by directly increasing land and water protection and restoration, expanding the capacity of other organizations to do this work, and transforming systems that impede progress.	

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
National Fish and Wildlife Foundation		
Central Partnership Office	Donn Waage (612) 713-5173 waage@nfwf.org	
Great Lakes Watershed Restoration Program	Projects must directly address at least one of the priority areas identified by the Great Lakes Regional Collaboration's Habitat/Species Strategy Team: Restore, enhance, and protect nearshore and offshore native fish communities and other living resources and their habitats, to provide for a balanced ecosystem. Restore, enhance and protect the wetlands that are vital to the survival and diversity of the living resources of the Great Lakes. Restore, enhance, and protect the tributaries and their watersheds that support the living resources of the Great Lakes ecosystem. Restore, enhance, and protect the Great Lakes shoreline and upland habitats. Address terrestrial and aquatic invasive species throughout the Great Lakes watershed.	
Five Star Restoration Program	Provide assistance to support community-based wetland, riparian, and coastal habitat restoration projects that build diverse partnerships and foster local natural resource stewardship through education, outreach, and training activities.	$532,250.00
National Fish and Wildlife Foundation	The National Fish and Wildlife Foundation operates a conservation grants program that awards matching grants, on a competitive basis, to eligible grant recipients, including federal, tribal, state, and local governments; educational institutions; and nonprofit conservation organizations. Project proposals are received on a year-round, revolving basis with two decision cycles per year. Grants typically range from $25,000 to $250,000, based upon need.	$7,664,000.00
New York State		
Department of State	Don Zelazny (716) 851-7220	
New York Bond Issues: Clean Air - Clean Water (CA-CW) and Environmental Protection Fund (EPF)	The CA-CW bond of $1.75 billion authorized in 1996 was used for brownfields, clean water, drinking water, solid waste, and air quality. The EPF bond authorized in 1992 funds land acquisition for open space and land conservation.	
Ohio Public Works Commission		
	Lou Mascari (614) 466-0880	
Clean Ohio Bond Issue	This $400 million bond issue was designed to last four years. It was authorized in November 2000 by voters and implemented by House Bill 3. Allowable uses include $50 million annualy for brownfields, $37.5 million annually for open sapce and watershed conservation, $6.25 million annually for farmland preservation, and $6.25 annually for recreational trails	
Racine Community Foundation, Inc.		
	Margaret Kozina (262) 632-8474 racinecf@execpc.com	
Racine Community Foundation - Environment		

Program Name	Program Description				Average Annual Expenditures, 2003-06 (when available)
State of Michigan					
Department of Environmental Quality		Susan Erickson		ericksos@michigan.gov	
Clean Michigan Initiative Bond Issue	This $675 million bond issue was authorized in 1997 to provide funding for brownfield redevelopment and environmental cleanup ($335 million)); protect and enhance Michigan's lakes, rivers, and streams ($165 million with $25 million for contaminated sediments); reclaim and reviatlize local waterfronts ($50 million); make critical state park improvements ($50 million); enhance local parks and recreational opportuntities ($50 million); pollution prevention ($20 million); protect public from lead hazards ($5 million).				
Surdna Foundation					
			(212) 557-0010	questions@surdna.org	
Surdna Foundation - Environment	Promote effective resource management strategies including market-based approaches that ensure species preservation; translating scientific concerns and findings into public policy; promoting public policies that ensure species preservation; and creating programs that raise broad public awareness of these issues.				
The George Gund Foundation					
		Jon Jensen	(216) 241-3114	jjensen@gundfdn.org	
George Gund Foundation - Environment	Work to address environmental issues in Northeast Ohio. In addition, we have an interest in the environment of the state as a whole and in the Lake Erie and Ohio River ecosystems.				
U.S. Department of Agriculture					
Cooperataive State Research, Education, and Extension Service		Mark Poth	(202) 401-5022	mpoth@csrees.usda.gov	
National Research Initiative (NRI) Competitive Grants Program	NRI Competitive Grants Program for fiscal year (FY) 2007 supports (1) high-priority fundamental and mission-linked research of importance in the biological, environmental, physical, and social sciences relevant to agriculture, food, and the environment and (2) competitively awarded research, extension, and education grants addressing key issues of national and regional importance to agriculture, forestry, and related topics.				
Cooperative State Research, Education, and Extension Service		Charles Cleveland	(202) 401-4002	ccleland@csrees.usda.gov	
Small Business Innovation Research (SBIR) Program	The USDA will support high-quality research or research and development (R/R&D) proposals containing advanced concepts related to important scientific problems and opportunities that could lead to significant public benefit if the research is successful. Objectives of the SBIR program include stimulating technological innovation in the private sector, strengthening the role of small businesses in meeting federal research and development needs, increasing private sector commercialization of innovations derived from USDA-supported research and development efforts, and fostering and encouraging participation by women-owned and socially and economically disadvantaged small business firms in technological innovation.				

Program Name	Program Description				Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Agriculture					
Cooperative State Research, Education, and Extension Service *Natural Resources and Environment*				(202) 720-4318	
Emergency Conservation Program (ECP)	The ECP provides emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures in periods of severe drought. Funding for ECP is appropriated by Congress.				
Farm Service Agency *Public Affairs Branch & Field Services Section*				(202) 720-7809	
McIntire-Stennis Cooperative Forestry Research Program	To encourage and assist the states in carrying on a program of state forestry research at state forestry schools, and to develop a trained pool of forest scientists capable of conducting needed forestry research.				
Forest Service *Watershed, Fish, Wildlife, Air & Rare Plants (WFW)*		Shelly Witt	(435) 881-4203	switt@cc.usu.edu	
Wildlife and Fisheries Habitat Management	Encompasses numerous programs implemented by the USDA Forest Service including The National Fisheries Program, and Sensitive Species Program, to restore and protect habitat.				
Natural Resources Conservation Service *Conservation Planning and Technical Assistance Division*		Stuart Simpson	(202) 720-8851	stuart.simpson@wdc.usda.gov	
Watershed Protection and Flood Prevention	NRCS cooperates with states and local agencies to carry out works of improvement for soil conservation and for other purposes including flood prevention; conservation, development, utilization, and disposal of water; and conservation and proper utilization of land.				
Emergency Watershed Protection (EWP)	The Emergency Watershed Protection (EWP) program undertakes emergency measures, including the purchase of flood plain easements, for runoff retardation and soil erosion prevention to safeguard lives and property from floods, drought, and the products of erosion on any watershed whenever fire, flood or any other natural occurrence is causing or has caused a sudden impairment of the watershed.				
Natural Resources Conservation Service *Conservation Planning and Technical Assistance Division*		Jan Surface	(202) 690-3501	jan.surface@wdc.usda.gov	
Conservation Technical Assistance	Through CTA, NRCS provides technical assistance for planning and implementing natural resource solutions to address opportunities, concerns, and problems related to the use of natural resources.				$708,333,333.00

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Agriculture		
Natural Resources Conservation Service *Easement Programs Division*	Tony Puga (202) 720-1067 tony.puga@wdc.usda.gov	
Wetlands Reserve Program (WRP)	The WRP is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA provides technical and financial support to help landowners with their wetland restoration efforts.	$247,666,667.00
Natural Resources Conservation Service *Easement Programs Division*	Astor Boozer (202) 720-1854 astor.boozer@wdc.usda.gov	
Conservation Reserve/Enhancement Program (CRP/CREP)	The CRP and CREP is a voluntary program that provides funding to reduce soil erosion and sedimentation, improve water quality, maintain fish and wildlife habitat by restoring upland and grassland habitats.	$1,907,666,667.00
Natural Resources Conservation Service *Financial Assistance Programs Division*	Albert Cerna (202) 720-1845 albert.cerna@wdc.usda.gov	
Wildlife Habitat Incentives Program (WHIP)	Through WHIP contracts, the Natural Resources Conservation Service (NRCS) provides technical advice and financial assistance to landowners and others to develop upland, wetland, riparian, and aquatic habitat areas on their property.	$42,333,333.00
Natural Resources Conservation Service *Financial Assistance Programs Division*	Kari Cohen (202) 720-1845 kari.cohen@wdc.usda.gov	
Cooperative Conservation Partnership Initiative (CCPI)	The CCPI is a voluntary program established to foster conservation partnerships that focus technical and financial resources on conservation priorities in watersheds and airsheds of special significance. Under CCPI, funds are awarded to State and local governments and agencies; Indian tribes; and non-governmental organizations that have a history of working with agricultural producers. The CCPI is a component of the Conservation Technical Assistance (CTA) program, established under authorities provided by the Soil Conservation and Domestic Allotment Act of 1935, 16 U.S.C. 590a et seq.	
Natural Resources Conservation Service *Financial Assistance Programs Division*	John Dondero (202) 720-1845 john.dondero@wdc.usda.gov	
Environmental Quality Incentive Program (EQIP)	Through EQIP, the NRCS offers financial and technical assistance to help eligible participants install or implement structural and management practices on eligible agricultural land.	$948,000,000.00
Natural Resources Conservation Service *Financial Assistance Programs Division*	Dwayne Howard (202) 720-1845 dwayne.howard@wdc.usda.gov	
Conservation Security Program (CSP)	CSP is a voluntary NRCS program that provides financial and technical assistance to promote the conservation and improvement of soil, water, air, energy, plant and animal life, and other conservation purposes on Tribal and private working lands.	$41,000,000.00

Program Name	Program Description				Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Agriculture					
Natural Resources Conservation Service *Resource Conservation & Development Rural Lands*		David Arthur	(202) 720-2847	david.arthur@wdc.usda.gov	
Vegetation and Watershed Management	Manage, enhance and protect watersheds and vegetation of our national forests.				$188,000,000.00
Resource Conservation and Development (RC&D) Program	The purpose of the RC&D program is to encourage and improve the capability of volunteer local elected and civic leaders in designated RC&D areas to plan and carry out projects for resource conservation and community development. NRCS provides assistance, as authorized by the Secretary of Agriculture, to designated RC&D areas through their organized RC&D councils (comprised of local leaders).				$51,000,000.00
Natural Resources Conservation Service *Resource Conservation & Development Rural Lands*		Edith Morigeau	(202) 720-2847	edith.morigeau@wdc.usda.gov	
Tribal Government Assistance Program	NRCS provides conservation programs and technical services to American Indians, Alaska Natives, and Tribal governments. Working with the Intertribal Agricultural Council (IAC) and Indian Nations Conservation Alliance (INCA), NRCS has assisted with the establishment of 26 Tribal Conservation Districts.				
U.S. Department of Commerce					
National Oceanic and Atmospheric Administration *Coastal Services Center*		Jeff Adkins	(843) 740-1244	Jeffery.Adkins@noaa.gov	
Landscape Characterization and Restoration Program	The purpose of this program is to explore the interrelationships of a region's ecology, land use, socioeconomics, and management, and to publish this information in electronic format for use by the coastal management community.				$360,000.00
National Oceanic and Atmospheric Administration *Damage Assessment Remediation & Restoration Progra*		Joan Moumbleaux		Joan.Moumbleaux@noaa.gov	
Damage Assessment Remediation and Restoration Program	Conducts natural resource damage assessments and restoration of coastal and marine resources injured as a result of oil spills, releases of hazardous materials, and ship groundings.				$1,414,667.00
National Oceanic and Atmospheric Administration *Great Lakes Environmental Research Laboratory*		Stephen Brandt	(734) 741-2235	Stephen.B.Brandt@noaa.gov	
Great Lakes Environmental Research Laboratory (GLERL)	Supports Great Lakes research and monitoring for successful restoration.				

Program Name	Program Description			Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Commerce				
National Oceanic and Atmospheric Administration *National Marine Fisheries Service*		Robin Bruckner	robin.bruckner@noaa.gov	
Fisheries Habitat Restoration/Community-based Restoration Program	Provides funds for small-scale, locally driven habitat restoration projects that foster natural resource stewardship within communities and build partnerships aimed at restoring anadromous fish, marine and estuarine habitat, and promote community involvement and an overall conservation/stewardship ethic.			$13,976,667.00
National Oceanic and Atmospheric Administration *National Sea Grant Office*		Leon Cammen	(301) 734-1077	
American Rivers River Restoration Grants	Funds dam removal and fish passage projects that restore and improve migratory fish habitat.			
National Fish & Wildlife Foundation (NFWF) General Matching Grants Program	Funding for projects that address priority actions promoting conservation of fish and wildlife and the habitats on which they depend.			
Sea Grant National Strategic Investments (NSIs)	The National Sea Grant College Program also has established a series of National Strategic Investments that complement the strategic objectives of the state Sea Grant Programs. These NSIs have a national focus and are intended to enhance Sea Grant's network-wide capabilities (research and development, outreach) to respond to high-priority issues and opportunities. Projects are generally selected through annual national competitions.			
National Sea Grant College Program	The National Sea Grant College Program engages the nation's top universities in conducting scientific research, education, training, and extension projects designed to foster science-based decisions about the use and conservation of our coastal, marine, and Great Lakes resources.			
NOAA Open Rivers Initiative	Funds the removal of obsolete dams and other stream barriers to improve fisheries, enhance public safety, and boost local economies through benefits resulting from removal.			
The Nature Conservancy (TNC) Community-based Restoration	Funds marine and coastal habitat restoration projects that benefit fish and shellfish around the coastal U.S. The applicant should be a TNC local chapter, or working in close coordination with a local chapter.			
NFWF Living Shorelines Initiative	Funds projects that propose to create and promote natural shoreline restoration, commonly known as "living shorelines," around the Chesapeake Bay, in conjunction with other initiative partners.			
NOAA Community-based Restoration Program	Up to 3 years of funds for national and regional habitat restoration partnerships that provide sub awards for individual grass-roots restoration projects.			

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Commerce		
National Oceanic and Atmospheric Administration *National Sea Grant Office*	Leon Cammen (301) 734-1077	
American Sportfishing Association's FishAmerica	Funds marine and anadromous fish habitat restoration projects that benefit recreationally fished species.	
Trout Unlimited (TU) Embrace-A-Stream	Funds coastal projects that benefit anadromous fish. The applicant must be a TU local chapter.	
NFWF/NACo Coastal Counties Restoration Initiative	Funds innovative, high-quality county-led or-supported projects that support wetland, riparian, and coastal habitat restoration projects.	
Great Lakes Watershed Restoration	This program, with multiple partners, funds on-the-ground projects that improve the ecological health of the Great Lakes Basin. NOAA funding will focus on habitat restoration within the broader initiative.	$900,000.00
National Oceanic and Atmospheric Administration *Office of Ocean and Coastal Resource Management* Coastal Programs Division	Allison Castellan (301) 713-3155 allison.castellan@noaa.gov	
Coastal Zone Management Program	Federal/state partnership dedicated to comprehensive management of the nation's coastal resources, ensuring their protection for future generations while balancing competing national economic, cultural, and environmental interests. National program supports states through financial assistance, mediation, technical services and information, and participation in priority state, regional, and local forums.	$66,349,667.00
National Oceanic and Atmospheric Administration *Office of Ocean and Coastal Resource Management* Coastal Programs Division	Elisabeth Morgan (301) 713-3155 elisabeth.morgan@noaa.gov	
Coastal and Estuarine Land Conservation Program (CELCP)	The CELCP provides grants to eligible state agencies and local governments to acquire property or conservation easements from willing sellers within a state's coastal zone or coastal watershed boundary.	$27,000,000.00
National Oceanic and Atmospheric Administration *Office of Sustainable Fisheries* State and Federal Services Team	Michael Kelly (301) 713-2379 michael.kelly@noaa.gov	
Interjurisdictional Fisheries Act	To gather information and conduct activities that support management of United States multi-jurisdictional fisheries.	$2,494,333.00

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Commerce		
National Oceanic and Atmospheric Administration *Office of Sustainable Fisheries* State and Federal Services Team	Michael Kelly (301) 713-2379 michael.kelly@noaa.gov	
Anadromous Fish Grants	To conserve and enhance anadromous fish stocks and the fish in the Great Lakes and Lake Champlain that ascend streams to spawn.	$1,946,667.00
U.S. Department of Defense		
Army Corps of Engineers *ERDC* CEERD-EV-E	Robert Gunkel (601) 634-3722 robert.c.gunkel@usace.army.mil	
Aquatic Plant Control Program	This portion of the Aquatic Plant Control program is directed towards Corps research on the development of innovative and environmentally compatible technologies for aquatic plant management.	$2,833,333.00
Army Corps of Engineers *Great Lakes & Ohio River Division* Chicago District	Gene Fleming (312) 846-5330 eugene.j.fleming@usace.army.mil	
Habitat Restoration-Project Modifications for Improvement of the Environment	The USACE is authorized to plan, design, and construct fish and wildlife habitat restoration measures. To be eligible, restoration projects must involve modification of structures or operations of a project constructed by the USACE, or modification of an off-project site when it is found that the USACE project has contributed to the degradation of the site.	$19,166,667.00
Aquatic Ecosystem Restoration	The USACE evaluates and supports projects that benefit the environment through restoring, improving, or protecting aquatic habitat for plants, fish, and wildlife. A project is accepted for construction after a detailed investigation shows it is technically feasible, environmentally acceptable, and provides cost-effective environmental benefits. Each project must be complete within itself, not a part of a larger project.	$16,666,667.00
Army Corps of Engineers *Great Lakes & Ohio River Division* Chicago District	Jan Miller (312) 846-5330 jan.a.miller@usace.army.mil	
Aquatic & Wetlands Habitats Associated with Dredging for Authorized Navigation Projects (Beneficial Use of Dredged Material)	The USACE is authorized to protect, restore, and create aquatic and wetland habitats associated with dredged material from authorized federal navigation projects. Project costs require non-federal sponsors to provide all necesssary land, relocations of infrastructure necessary for construction, and a cash contribution, along with providing long term operation and maintenance.	$2,666,667.00

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Defense		
Army Corps of Engineers *Great Lakes & Ohio River Division* Chicago District	Jan Miller (312) 846-5330 jan.a.miller@usace.army.mil	
Sediment Management Program (Great Lakes Tributary Model)	Develop watershed models for tributaries of the Great Lakes that discharge to federal navigation channels or Areas of Concern in order to support state and local agenciers with the planning, prioritization, and design of measures to reduce soil erosion and nonpoint source pollution.	
Planning Assistance to States	The USACE provides assistance to states in planning for the development, utilization, and conservation of water and related land resources. Recent amendments have expanded this assistance to ecosystem planning. This support can be provided to states and tribal governments. Some municipalities have received support under this authority through agreements with their respective states.	$5,100,000.00
Tribal Partnership Program	In cooperation with Indian tribes and the heads of other federal agencies the USACE may study and determine the feasibility of projects for flood damage reduction, environmental restoration and protection, and preservation of cultural and natural resources.	
Environmental Dredging	National program for the removal and remediation of contaminated sediments outside the boundaries of federal navigation channels. All environmental dredging actions are to be taken in consultation with the USEPA.	
Great Lakes Remedial Action Plans (RAPs)	The USACE provides technical assistance to states and local groups in the development and implementation of Remedial Action Plans at Great Lakes Areas of Concern. Support may include planning and design, monitoring, modeling, construction management, cost estimating, and other services.	
Army Corps of Engineers *Great Lakes & Ohio River Division* Detroit District	David Wright (313) 226-3573 David.L.Wright@lre02.usace.army.mil	
Great Lakes Fishery and Ecosystem Restoration (GLFER)	Authorizes $100 million for the U.S. Army Corps of Engineers to plan, design, and construct projects to restore the fishery, ecosystem, and beneficial uses of the Great Lakes.	$600,000.00
Army Corps of Engineers *Great Lakes & Ohio River Division* Detroit District	David Gerczak (313) 226-3387 David.M.Gerczak@usace.army.mil	
Small Flood Control Projects	The purpose of the program is to develop and construct small flood damage reduction projects. A project is adopted for construction only after detailed investigations clearly show the engineering feasibility and economic justification of the improvement. Each project is limited to a Federal cost share of not more than $7 million. This federal limitation includes all project-related costs for feasibility studies, planning, engineering, construction, supervision, and administration	

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Defense		
Army Corps of Engineers *Great Lakes & Ohio River Division* Detroit District	David Gerczak (313) 226-3387 David.M.Gerczak@usace.army.mil	
Flood Plain Management Services	The program provides assistance and guidance in the form of "Special Studies" on all aspects of flood plain management planning including the possible impacts of off-flood plain land use changes on the physical, socioeconomic, and environmental conditions of the flood plain.	
Army Corps of Engineers *Great Lakes & Ohio River Division* New York District	Philip Berkeley (716) 879-4145 Philip.E.Berkeley@usace.army.mil	
Shore Protection	The USACE assists in the construction of works to restore and protect shores against erosion by waves and currents. This authority enables the USACE to assist state and local governments in developing structural and nonstructural measures for storm damage reduction for protection of public lands and facilities.	
Streambank and Shoreline Protection	The U.S. Army Corps of Engineers is authorized to construct emergency streambank and shoreline protection works to protect highways, bridges, other public works, and nonprofit public services such as churches, hospitals, and schools.	
Army Corps of Engineers *Headquarters*	Timothy Topisek (202) 761-4259 timothy.r.topisek@usace.army.mil	
Aquatic Plant Control Program	Research and develop alternative methods to control obnoxious aquatic plants in rivers, harbors, and allied waters. The program is designed to deal primarily with weed infestations of major economic significance.	$2,833,333.00
Army Corps of Engineers *Headquarters* CECW-PB	Ellen Cummings (202) 761-4750 estuary.restoration@hq02.usace.army.mil	
Estuary Habitat Restoration Program	The USACE may provide technical assistance or carry out estuary habitat restoration projects identified in an estuary habitat restoration plan and section 106 of the Estuaries Act. Estuary is defined to include the Great Lakes.	
Army Corps of Engineers *Planning Branch*	John Kennelley (978) 318-8347	
Channel Clearing and Snagging for Flood Control	Section 208 of the 1954 Flood Control Act provides authority for the USACE for channel clearing and excavation, with limited embankment construction by the use of materials from the clearing operation to reduce nuisance flood damages caused by debris and minor shoaling of rivers. The maximum federal cost for the project development and construction is $500,000 and each project must be economically justified, environmentally sound, and feasible.	$433,333.00

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of Health and Human Services		
Administration for Children and Families *Administration for Native Americans*	(877) 922-9262 ana@acf.hhs.gov	
Environmental Regulatory Enhancement	To assist tribes in the planning, development, and implementation of community-based, locally designed projects that are designed to improve their capacity to regulate environmental activities.	$2,500,000.00
U.S. Department of the Interior		
Bureau of Land Management	Richard Whitley (541) 618-2305 richard_whitley@blm.gov	
Cooperative Conservation Initiative Conservation Challenge Cost Share	To strengthen citizen participation in conservation through partnership projects that restore the health of public lands, promote collaborative management, improve services to public land users, and restore upland, riparian, and wetland resources.	$6,135,667.00
Bureau of Land Management	Jill Silvey (208) 373-4045 jill_silvey@blm.gov	
Challenge Cost Share Grant Program	To leverage federal dollars with private and state funding for conservation efforts, benefiting resources on BLM-administered public lands. The program solicits partnerships and partnership funding through a variety of resource management programs, including fisheries, wildlife, threatened and endangered species, cultural resources and recreation.	$8,674,000.00
Fish and Wildlife Service East Lansing Field Office	Craig Czarnecki (517) 351-2555 Craig_Czarnecki@fws.gov	
Coastal Program	To partner with coastal communities to improve the health of their coastal watersheds for fish and wildlife, and to restore coastal habitat.	$11,623,667.00
Fish and Wildlife Service *Division of Bird Habitat Conservation*	Barbara Pardo (612) 713-5433 barbara_pardo@fws.gov	
North American Wetlands Conservation Fund	The purpose of the 1989 North American Wetlands Conservation Act (NAWCA), as amended, is to promote the long-term conservation of North American wetland ecosystems, and the waterfowl and other migratory birds, fish, and wildlife that depend upon such habitat. Principal conservation actions supported by NAWCA are acquisition, establishment, enhancement and restoration of wetlands and wetland-associated uplands. The U.S. Standard Grants Program is a competitive, matching grants program that supports public-private partnerships carrying out projects in the United States that further the goals of the NAWCA.	$46,166,667.00
Upper Mississippi River & Great Lakes Region Joint Venture (UMR/GLR)	This program was formed in 1993 primarily to assist with accomplishing the waterfowl population goals identified in the North American Waterfowl Management Plan (Plan). The success of the UMR/GLR JV, like any other Joint Venture, is based on partners being able to work together, set goals and priorities, and make a commitment to build a strong biological foundation that will attain those goals in the most efficient and effective way possible. Joint Ventures are typically partnerships between individuals, businesses, nongovernmental organizations, and local, state, and federal government representatives.	$20,900,000.00

Program Name	Program Description				Average Annual Expenditures, 2003-06 (when available)
U.S. Department of the Interior					
Fish and Wildlife Service *Division of Bird Habitat Conservation*		Doug Ryan	(703) 358-1784	neotropical@fws.gov	
Neotropical Migratory Bird Conservation Fund	Enacted by Congress in 2000, the Act establishes a matching grants program to fund projects that promote the conservation of migratory birds in the United States, Latin America, and the Caribbean. Projects may include activities to benefit bird populations and their habitats, research and monitoring, law enforcement, and outreach and education.				
Fish and Wildlife Service *Division of Federal Assistance*			(703) 358-2156	FederalAid@fws.gov	
Private Stewardship Grant Program	Provides grants and other assistance on a competitive basis to private individuals and/or groups engaged in private, voluntary conservation efforts that benefit endangered, threatened, candidate, and other at-risk species on private lands.				$7,196,000.00
Fish and Wildlife Service *Division of Habitat Conservation*		Brian Huberty	(612) 713-2555	Dave_Stout@fws.gov	
National Wetlands Inventory	The NWI program produces and provides information on the characteristics, extent, and status of the Nation's wetlands and other wildlife habitats to facilitate their protection, management, and restoration.				
Fish and Wildlife Service *Division of Migratory Birds*		Steve Lewis	(612) 713-5473	steve_j_lewis@fws.gov	
Migratory Bird Management	Responsible for supporting the habitat conservation work of partnerships formed under four major bird plans: North American Waterfowl Management Plan, the U.S. Shorebird Conservation Plan, Partners in Flight, and the North American Waterbird Conservation Plan.				$35,424,333.00
Fish and Wildlife Service *Natural Resource Damage Assessment and Restoration Program*		Frank Horvath	(612) 713-5336	Frank_Horvath@fws.gov	
Natural Resource Damage Assessment and Restoration Program	Natural Resource Damage Assessment and Restoration is a process used to restore natural resources injured by hazardous substances. Compensation is recovered from the people or companies responsible for the contamination. Recovery comes in the form of money or in-kind services and is used to restore natural resources and their services, including their ecological and recreational value.				

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of the Interior		
Fish and Wildlife Service *Region 3 Midwest* Division of Federal Assistance	Robert Bryant (612) 713-5130 Robert_Bryant@fws.gov	
State Wildlife Grants (SWG)	SWG funds are used to address the species and their habitats identified in State Comprehensive Wildlife Conservation Plans/Strategies (also known as Wildlife Action Plans). Priority for use of these funds should be placed on those species of greatest conservation need, taking into consideration the relative level of state funding available for the conservation of those species. The federal share is not more than 50 percent, to be matched by at least 50 percent of nonfederal match provided by the state. Funding comes from the Land and Water Conservation Fund, as an annual appropriation from revenues from outer continental shelf oil and gas royalties. Eligible projects include development and implementation of programs benefitting wildlife and their habitats, including species not hunted or fished, priority placed on species of greatest conservation concern.	$68,552,333.00
Federal Aid in Wildlife Restoration	The Federal Aid in Wildlife Restoration Act, popularly know as the Pittman-Robertson Act, was approved by Congress on September 2, 1937. The purpose of this Act is to provide funding to state fish and wildlife agencies for the selection, restoration, rehabilitation and improvement of wildlife habitat, wildlife management research, and the distribution of information produced by the projects. The Act was amended October 23, 1970, to include funding for hunter training programs and the development, operation and maintenance of public target ranges. Funds are derived from an 11 percent Federal excise tax on sporting arms, ammunition, and archery equipment, and a 10 percent tax on handguns. The program is a cost reimbursement program, where the state covers the full amount of an approved project, then applies for reimbursement through federal assistance for up to 75 percent of the project expenses. The state must provide at least 25 percent of the project costs from a nonfederal source. Each state's apportionment is determined by a formula which considers the total area of the state and the number of licensed hunters in the state.	$246,469,000.00
Landowner Incentive Program (LIP)	The LIP (nontribal portion) is designed to assist State fish and wildlife agencies by providing grants to establish or supplement landowner incentive programs that protect and restore habitats on private lands, to benefit Federally listed, proposed or candidate species or other species determined to be at-risk, and provide technical and financial assistance to private landowners for habitat protection and restoration. The Federal portion of the match is 75 percent and the state provides 25 percent nonfederal match. Tier 1 grants consist of $180,000 to each state to fund staff to manage and assist in project implementation. Tier 2 grants are nationally competitive based on criteria, and are used for technical and financial assistance to private land owners to protect and restore habitats that benefit federally listed, proposed, or candidate species or other at-risk species on private land.	$24,330,333.00
Landowner Incentive Program - Tribal Portion	The tribal portion of the Landowner Incentive Program provides competitively awarded funding to federally recognized Tribes for action and activities that protect and restore habitats that benefit fedrally listed, proposed, or candidate species or other at-risk species on tribal lands. Funding comes from the Land and Water Conservation Fund, as an annual appropriation from revenues from outer continental shelf oil and gas royalties. This is a cost reimbursement grant of up to 75 percent from federal funds and 25 percent non-federal funds.	

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of the Interior		
Fish and Wildlife Service *Region 3 Midwest* Division of Federal Assistance	Robert Bryant (612) 713-5130 Robert_Bryant@fws.gov	
Federal Aid in Sport Fish Restoration	The Federal Aid in Sport Fish Restoration Act, commonly referred to as the Dingell-Johnson Act, passed on August 9, 1950, was modelled after the Pittman-Robertson Act for management, conservation, and restoration of fishery resources. The Sport Fish Restoration program is funded by revenues collected from the manufacturers of fishing rods, reels, creels, lures, flies, and arificial baits, who pay an excise tax on these items to the U.S. Treasury. An amendment in 1984 (Wallop-Breaux Amendment) added new provisions to the Act by extending the excise tax to previously untaxed items of sport fishing equipment and motorboat fuel. Only state fish and wildlife agencies are eligible to receive grant funds. Annual apportionment is based on each state's number of licensed anglers and the acreage of land and water. The program is a cost-reimbursement program, where the state covers the full amount of an approved project, then applies for reimbursement through federal assistance for up to 75 percent of the project expense. The state must provide at least 25 percent of the project cost from a nonfederal source.	$305,499,000.00
Tribal Wildlife Grants	Tribal Wildlife Grant funds are used to address the species and their habitats identified in State Comprehensive Wildlife Conservation Plans/Strategies (also known as Wildlife Action Plans). Priority for use of these funds should be placed on those species of greatest conservation need, taking into consideration the relative level of state funding available for the conservation of those species. The federal share is not more than 50 percent, to be matched by at least 50 percent of non-federal match provided by the state. Funding comes from the Land and Water Conservation Fund, as an annual appropriation from revenues from outer continental shelf oil and gas royalties. Eligible projects include development and implementaion of programs benefitting wildlife and their habitats including species not hunted or fished, priority placed on species of greatest conservation concern.	$68,552,333.00
Clean Vessel Act	The Clean Vessel Act provides grants to states for pump-out stations and waste reception facilities to dispose of recreational boat sewage. All states are eligible for funding for the following projects: Education programs for recreational boaters about environmental pollution resulting from sewage discharges from vessels; location of pump-out and dump stations, construction , renovation and operation, and maintenance of pump-out and dump stations including floating restrooms used by boaters; activities involved in holding, transporting, and getting sewage treatmentment facilties to accept sewage. Coastal states, including Great Lakes coasts, are eligible for additional projects: Identifying operational pump-out and dump stations, surveys of recreational vessels in coastal waters with holding tanks/portable toilets and dump station and plans for construction/removation of pump-out and dump staions in the coastal zone. Funding is nationally competitive based on ranking criteria, requiring a 25 percent nonfederal match.	
National Coastal Wetlands Conservation Grant Program	This competitive program is authorized by the Director of the USFWS to competitively award grant funds to coastal states to carry out coastal wetlands conservation projects.Under the program, the USFWS provides matching grants to states for acquisition, restoration, management, or enhancement of coastal wetlands. Funding for the program comes from excise taxes on fishing equipment and motorboat and small engine fuels. States provide 50 percent of the total costs of a project. If, however, the state has established and maintains a special fund for acquiring coastal wetlands, other natural areas, or opens spaces, the federal share can be increased to 75 percent.	$12,867,000.00

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of the Interior		
Fish and Wildlife Service *Region 3 Midwest* Endangered Species Program	Peter Fasbender (612) 713-5168 Peter_Fasbender@fws.gov	
Cooperative Endangered Species Conservation Fund	Because more than half of all species currently listed as endangered or threatened spend at least part of their life cycle on privately owned lands, the U.S. Fish and Wildlife Service recognizes that success in conserving species will ultimately depend on working cooperatively with landowners, communities, and tribes to foster voluntary stewardship efforts on private lands. States play a key role in catalyzing these efforts. A variety of tools are available under the Endangered Species Act (ESA) to help States and landowners plan and implement projects to conserve species. The Cooperative Endangered Species Conservation Fund has been available for several years to provide grants to States and Territories to participate in a wide array of voluntary conservation projects for candidate, proposed, and listed species.	$80,746,333.00
Fish and Wildlife Service *Region 3 Midwest* Fisheries	Tim Patronski (612) 713-5168 Tim_Patronski@fws.gov	
National Fish Passage Program	The goal of this program is to restore native fish and other aquatic species to self sustaining levels by reconnecting habitats that have been fragmented by artificial barriers, where such reconnection will result in a positive ecological effect. Fish passage projects restore unimpeded flows and fish movement by removing barriers or providing ways for aquatic species to bypass them. The program works on a voluntary basis with federal, state, local, and tribal agencies, as well as private partners and stakeholders.	$500,000.00
Fish and Wildlife Service *Region 3 Midwest* Fisheries	Michael Hoff (612) 713-5114 Michael_Hoff@fws.gov	
National Aquatic Invasive Species Program	Prevent species introductions, contain and control established popoulations, and mitigate effects of established populations of aquatic invasive species.	
Fish and Wildlife Service *Region 3 Midwest* Fisheries	Mike Oetker (612) 713-5209 Mike_Oetker@fws.gov	
Great Lakes Fish and Wildlife Restoration	Provides federal grants on a competitive basis to states, tribes and other interested entities to encourage cooperative conservation, restoration and management of fish and wildlife resources and their habitat in the Great Lakes basin.	$500,000.00

Program Name	Program Description			Average Annual Expenditures, 2003-06 (when available)
U.S. Department of the Interior				
Fish and Wildlife Service *Region 3 Midwest* Fisheries		Mike Oetker	(612) 713-5209	Mike_Oetker@fws.gov
National Fish Habitat Action Plan (NFHAP)	The mission of the NFHAP is to protect, restore, and enhance the nation's fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people. The goals of the NFHAP are to: (1) Protect and maintain intact and healthy aquatic systems; (2) Prevent further degradation of fish habitats that have been adversely affected; (3) Reverse declines in the quality and quantity of aquatic habitats to improve the overall health of fish and other aquatic organisms; and (4) Increase the quality and quantity of fish habitats that support a broad natural diversity of fish and other aquatic species.			
Fish and Wildlife Management Assistance	Provide technical information and assistance to restore, manage, and conserve the health of nationally significant fish, marine mammals, wildlife, other aquatic animals, and their habitats.			$51,689,333.00
Fish and Wildlife Service *Region 3 Midwest* National Wildlife Refuge System		Greg Brown	(612) 713-5475	greg_brown@fws.gov
Challenge Cost Share Grants Program	To enhance the overall operation and maintenance of national refuge lands by completing additional projects through cost-sharing with conservation groups, private individuals, public agencies, and other nonfederal sources.			$4,149,436.00
Partners for Fish and Wildlife	To work with private landowners to restore, enhance, and create fish and wildlife habitat on private land.			$38,532,667.00
National Park Service *Midwest Region*			(402) 661-1540	
Land and Water Conservation Fund State Grants	The LWCF program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States.			$71,681,333.00
National Park Service *Philadelphia Support Office*		Bonnie Halda	(215) 597-5028	
Cooperative Conservation Initiative Conservation Challenge Cost Share - NPS	To strengthen citizen participation in conservation through partnership projects that restore the health of public lands, promote collaborative management, improve services to public land users and restore upland, riparian and wetland resources.			$6,419,000.00

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Department of the Interior		
U.S. Geological Survey **Great Lakes Science Center** *Great Lakes Science Center*		(734) 994-3331
Great Lakes Restoration and Protection Funding Programs	Wetland Restoration: Includes restoration of coastal wetlands (e.g., diked wetlands) and natural hydrologic connections to the lakes, relationships between lake levels and wetland habitats, management studies for wetland restoration and protection, coastal dune and wetland dynamics, and assessment of use wetland habitats by fish and Unionid mussels. Native Fish and Habitat Restoration: Includes research and assessment for restoration of fish spawning and nursery habitat for lake sturgeon, lake trout, lake whitefish, lake herring, Atlantic salmon, American eel, walleye, yellow perch and other native fish; identifying factors limiting production and recruitment of native fish; assessment of rehabilitation/restoration efforts; effects of invasive species on restoration of native species such as lake trout. 2007 Base Funding: $1,745,853	$400,000.00
U.S. Environmental Protection Agency		
Compliance and Enforcement through State Government		Michael Stahl
State and Tribal Assistance Grant Program (STAG)	The Multimedia STAG program provides grant funds to states, Tribes, intertribal consortia, territories and multijurisdictional organizations to help build capacity in implementing our nation's environmental laws and regulations. The Toxic Substances Control Act STAG program annually awards states, territories and tribes funds to conduct inspections for compliance with the PCB regulations, the asbestos-in-schools requirements, worker protection standards, and authorized state sections 402 and 406 lead-based paint requirements. EPA compliance and enforcement program also provides financial assistance to eligible affected local community-based organizations working on or planning to work on projects to address local environmental and/or public health concerns through Environmental Justice Grant program.	

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)

U.S. Environmental Protection Agency

Great Lakes National Program Office

Michael Russ (312) 886-4013

U.S. Environmental Protection Agency Great Lakes Program	The Great Lakes National Program Office (GLNPO), in concert with USEPA Regions 2, 3, and 5, leads a consortium of programs, agencies, and public and private institutions in attaining specific objectives and actions that will restore and maintain the chemical, physical, and biological integrity of the Great Lakes basin ecosystem. The program annually solicits Great Lakes proposals for grants. Grant funding priorities typically include: (1) Addressing contaminated sediments. (2) Pollution prevention, reduction, or elimination with an emphasis on substances that are persistent and toxic, especially those which bioaccumulate, in the Great Lakes basin. (3) Habitat (ecological) protection and restoration, including demonstration of practices and tools for protecting and restoring aquatic, terrestrial, and wetland ecosystems. (4) Invasive (nonindigenous) aquatic and terrestrial species in the Great Lakes Basin, with an emphasis on prevention. (5) Strategic or emerging issues of basinwide importance, (6) Lakewide Management Plan and Remedial Action Plan implementation and development. (7) Various aspects of Great Lakes monitoring including fish contaminants, atmospheric deposition, biology, and open-water toxics	$3,000,000.00

Nonpoint Source Control Branch

Region 5

Tom Davenport (312) 886-0209 davenport.tom@epa.gov

National Nonpoint Source Pollution Control	Congress amended the Clean Water Act (CWA) in 1987 to establish the section 319 Nonpoint Source Management Program because it recognized the need for greater federal leadership to help focus state and local nonpoint source efforts. Under section 319, state, territories, and Indian tribes receive grant money which support a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects.	$217,716,100.00

Office of Ground Water and Drinking Water

Kimberley Roy (202) 260-2794 roy.kimberley@epa.gov

Drinking Water State Revolving Fund	Awards capitalization grants to states, which in turn are authorized to provide low-cost loans and other types of assistance to public water systems to finance the costs of infrastructure projects needed to achieve or maintain compliance with Safe Drinking Water Act requirements. States are also authorized to use a portion of their capitalization grants to fund a range of set-aside activities including source water protection, capacity development, and operator certification. This program helps to ensure that the nation's drinking water supplies remain safe and affordable and that public water systems that receive funding are properly operated and maintained.	

Office of Wastewater Management

Lena Ferris (202) 564-8831 ferris.lena@epa.gov

Pollution Control (Section 106)	To establish and maintain adequate measures for the prevention and control of surface and ground water pollution from point and nonpoint sources.	$209,142,900.00

Program Name	Program Description	Average Annual Expenditures, 2003-06 (when available)
U.S. Environmental Protection Agency		
Office of Water *American Indian Environmental Office* Region 5	Luke Jones (312) 353-2087 jones.luke@epa.gov	
Tribal Environmental General Assistance Program	The General Assistance Program (GAP) provides grants to federally-recognized tribes and tribal consortia for planning, developing, and establishing environmental protection programs in Indian country, as well as for developing and implementing solid and hazardous waste programs on tribal lands. The goal of this program is to help tribes develop the capacity to manage their own environmental protection programs, and to develop and implement solid and hazardous waste programs in accordance with individual tribal needs and applicable federal laws and regulations.	$60,117,967.00
Office of Water *Region 5*	Andrew Lausted (312) 886-0189 lausted.andrew@epa.gov	
Clean Water State Revolving Fund	Provides funding to capitalize state revolving loan programs to update aging water infrastructure and address sewage discharges to the Great Lakes.	$1,125,248.00
Office of Wetlands, Oceans, and Watersheds	Erin Collard (202) 566-2655 collard.erin@epa.gov	
Targeted Watersheds - State and Tribal Assistance Grant	To encourage successful community-based approaches and management techniques to protect and restore the nation's waters.	$13,978,733.00
Region 5	Deborah Orr (312) 886-7576 orr.deborah@epa.gov	
Brownfields Environmental Projects - State and Tribal Assistance Grants	The Small Business Liability Relief and Brownfields Revitalization Act (“Brownfields Law” or “the Law”, P.L. 107-118) requires the USEPA to publish guidance to assist applicants in preparing proposals for grants to address brownfield sites. This law defines a brownfield site as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant,” as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 §101(39), as amended (CERCLA). The law further defines the term “brownfield site” to include a site that “is contaminated by a controlled substance...; is contaminated by petroleum or a petroleum product excluded from the definition of ‘hazardous substance’...; is mine-scarred land.”	$88,448,800.00
Region 5	Felicia Gaines (312) 886-0139 gaines.felicia@epa.gov	
Wetlands Program Development - State and Tribal Grants	To achieve no-net-loss and net-gain of wetlands in the United States by conserving and restoring wetland health through the development of effective and comprehensive wetland protection and management programs.	$15,918,467.00

Program Name	Program Description				Average Annual Expenditures, 2003-06 (when available)
U.S. Environmental Protection Agency					
Region 5 *Great Lakes National Program Office*		Marc Tuchman	(312) 353-2117	tuchman.marc@epa.gov	
Great Lakes Legacy	EPA's Great Lakes National Program Office enters into Project Agreements to address contaminated sediments in Areas of Concern pursuant to the Great Lakes Legacy Act. The Legacy Act Request for Projects is intended for larger projects in Areas of Concern, is not a grant process, and requires a 35 percent nonfederal match. Projects must be carried out in an area of concern located wholly or partially in the United States. An eligible project— (1) monitors or evaluates contaminated sediment; (2) implements a plan to remediate contaminated sediment; or (3) prevents further or renewed contamination of sediment.				$18,635,667.00
Region 5 *Great Lakes National Program Office*			Holly Wirick	wirick.holiday@epa.gov	
Beaches Environmental Assessment and Coastal Health (BEACH)	Provides funding for state monitoring of Great Lakes beaches.				$9,553,000.00

APPENDIX C – Project Characterization Criteria

INTRODUCTION AND DESCRIPTION OF USE

The U.S. Government Accountability Office (formerly the Government Accounting Office) has challenged organizations working on Great Lake environmental issues to integrate their work to more effectively and efficiently achieve the goals of the *Great Lake Regional Collaboration* Strategy *to Restore and Protect the Great Lakes* (*GLRC Strategy*). The objective of these project characterization criteria (PCC) is to facilitate the integration of projects and funding programs that would allow organizations to develop more comprehensive proposals that better address the *GLRC Strategy*. The PCC are attributes that are used by habitat funding programs—a variety of public and private organizations—to evaluate a project's eligibility and benefits and to ultimately make funding decisions.

The following list of attributes is designed to collect information on three different aspects of habitat restoration projects:

1. ecological benefits,
2. social benefits
3. economic benefits

Each attribute is described or defined, and often examples are given to further evaluate how a habitat restoration project addresses the attribute. The PCC include quantitative measures (i.e., acres affected), as well as qualitative characteristics (i.e., habitat connectivity). For the qualitative attributes, examples are given to indicate at what level the project attains the described attribute. In some cases, a project may adversely impact one or more of the qualitative characteristics. In order to assess these projects properly, these adverse impacts must be disclosed. The database includes several fields for a freeform narrative response so that project proponents can provide important information that may not fit in the predefined fields, this allows for more flexibility to describe a project.

To be clear, this is not a ranking of projects based on a specific methodology. Each organization investing into the ecological health of the Great Lakes has its own objectives based on the mission of the individual agencies. This list of attributes is an attempt to standardize habitat restoration terminology on the Great Lakes and provide a way to collect information in a standardized format. Individual agency views of the importance of each factor or criteria would guide the agency's own internal decision-making. However, synergies are available to the extent that agency's agree upon the important factors to consider during the prioritization and/or project development process. Ideally, each agency would use these criteria, along with their own mission priorities to select and fund projects in a way that facilitates collaboration through consistent terminology and common parameters measured This format will allow a simple comparison of projects within the Great Lakes and the information can then be sorted to profile projects based on one's organizational funding needs.

ECOLOGICAL

Area

The area that is proposed to be restored/enhanced/protected by the project quantified as acres or (for stream and river length) linear feet, recorded with whole numbers. To be recorded per habitat type as detailed in the GLRC Habitat/Species Issue Area Strategy Team Report: Open/Near Shore Waters, Wetlands, Riverine, Riparian, Coastal, and Upland Habitats..

Scarcity

This attribute is designed to identify habitats with exceptional regional or national scarcity. Scientists consider a habitat or ecosystem to be scarce if it occupies a narrow geographic range (i.e., few locations) or occurs in small groupings. The scarcity of the habitat to be restored is based on trend information and relative abundance of the habitat within its natural range in relation to pre-settlement conditions. For example, all special aquatic sites as defined in the 404(b)(1) guidelines (i.e., wetlands, mud flats, and vegetated shallows) are nationally important and relatively scarce. Restoration of a habitat that is at the limits of its range, and is relatively stable at near-historic abundance, would score low on this attribute.

- Nationally scarce habitat and becoming scarcer (declining trend) as demonstrated by a federal, regional, or state/tribal report, or general scientific agreement as documented by peer-reviewed professional publications/societies. The report must refer to the specific habitat type and preferably would also mention the region in which the project is located. For example, alvars and dune and swale complexes are recognized as nationally and globally rare. **(High)**
- Regionally scarce and becoming scarcer as demonstrated by a federal, regional, or state/tribal report, or general scientific agreement as documented by professional publications/societies. For example, significant losses of coastal wetlands have occurred. **(Medium)**
- Locally scarce habitat that may be more abundant in other regions. **(Low)**
- Project does not address restoration of a scarce habitat or resource. **(N/A)**
- Project adversely impacts a scarce natural habitat or resource. **(Adverse Impacts)**

Connectivity

This attribute addresses the extent to which a project facilitates the movement of native species by contributing to the connection of important habitat pockets within the ecosystem, region, watershed, or migration corridor.

- Project makes a critical connection between existing habitat areas within a corridor or larger landscape reducing population isolation, expanding home ranges, or providing access to areas supporting life requisites as recognized or demonstrated by professional/expert judgment. An example would be restoring the connection between two pockets of what was once a larger wetland, or two patches of bottomland hardwood forest separated by drained agricultural land, or removal of a dam to access additional habitat. Project creates a nodal connection between existing habitat areas within a corridor (as in a waterfowl flyway) or larger landscape facilitating animal migration or flow of genetic material for a species. The project would not be physically adjacent to other habitat areas in the corridor but would be spaced such that it provides a critical resting/feeding or other link between two other habitat areas. Examples would be restoring a marsh stopover point along a defined migration corridor for a specific species or group of species. **(High)**
- Project improves suitability of an existing connection or corridor; or expands functional area(s) within a splintered migratory corridor or home range; or provides an important scarce habitat type that complements adjacent existing habitat types by providing one or more missing lifecycle requisites for a species or group of species. For example, expanding or adding resting or foraging areas that improve the functionality or suitability of the system. **(Medium)**
- Projects with a low level of connectivity would include restoration of an isolated unit or adding a relatively small increment to a much larger habitat. For example, a project that proposes to restore a small area of wetland surrounded by highly disturbed habitat or adds five acres to a 500-acre wetland. **(Low)**
- Project does not address connectivity. **(N/A)**

- Project adversely impacts the connectivity of a natural habitat or resource. **(Adverse Impacts)**

Special Status Species

The project should provide a significant contribution to some key life requisite within the potential range of a species.

- Project provides habitat for life requisites that complete or add to existing life requisites within the project's area of influence or footprint for federally listed or candidate threatened or endangered species as documented in U.S. Fish and Wildlife Service correspondence and/or Biological Assessment/Opinion as appropriate. **(High)**
- Project provides habitat for life requisites that complete or add to existing life requisites within the project's area of influence or footprint for state/tribal listed or candidate endangered and threatened species or is part of a state/tribal recovery plan. **(Medium)**
- Project provides habitat for life requisites that complete or add to existing life requisites within the project's area of influence or footprint for species covered by regional, national, tribal, or international treaty/management plans, such as International Migratory Birds, national waterfowl management plans, Lake Committee fishery management plans, etc., that are of special concern, such as species indicated through tribal leaders or tribal integrated resource management plans, or that have special significance (typically would not include nationally common, commercially harvested, game, or abundant species). **(Low)**
- Project does not address/affect special status species. **(N/A)**
- Project adversely impacts a special status species by way of direct mortality, or destruction or degradation of a habitat known to be inhabited by a special status species or a resource of the species. **(Adverse Impacts)**

Hydrologic Character

This attribute recognizes the importance of appropriate hydrology in maintaining the ecological functions of aquatic, wetland, and riparian systems. The hydrologic character refers to the timing, magnitude, duration, frequency, and rates of change of the flows, water levels, and surface/subsurface exchange processes. Projects that restore and sustain the natural hydrologic "signature" of a system are more likely to provide sustainable environmental services.

- Project fully restores the natural, historical and topographically appropriate hydrology to the system or site, as demonstrated by appropriate analyses and/or data. Examples include reintegrating naturally pulsed flooding that triggers critical life history behavior or exchange of materials and sediments between channel and floodplain. **(High)**
- Project partially restores the natural hydrology to the system or site, and the restored hydrologic variables are demonstrated through appropriate analyses, but does not replicate fully normal magnitude, duration, frequency, etc. and full ecosystem benefits obtained thereof. Examples include human-induced pulsed flooding in an attempt to restore natural processes. **(Medium)**
- Some elements of the system or site hydrology are restored but most conditions necessary for a more natural hydrology are not attained. **(Low)**
- Project does not address hydrologic issues. **(N/A)**
- Project adversely impacts the hydrologic character of a natural habitat or resource. **(Adverse Impacts)**

Geomorphic Condition

This attribute relates to the establishment of suitable structure and physical processes for successful restoration. The scale, form, and landscape position of the system, along with key processes such as erosion and sediment transport and deposition play a critical role in defining ecosystem health and resilience and must be considered in project development.

- Project fully restores the natural or attainable geomorphic processes and form to the system or site, including the appropriate diversity and dynamics, as demonstrated by suitable analyses and/or data. For instance, the remeandering of a stream in a sustainable manner, plus in-stream habitats and an appropriate width of the upland buffer. **(High)**
- Project restores the key geomorphic processes to the system or site, and the system is expected to recover full ecological function within an appropriate time frame. Examples include sediment amendments or large woody debris insertion below dams. **(Medium)**
- The form of the project location or system is restored, but some key system processes remain degraded or nonfunctional; an example might be restoration of an oxbow on a stream that is not allowed to meander naturally. **(Low)**
- Project does address geomorphic issues. **(N/A)**
- Project adversely impacts the geomorphic condition of a natural habitat or resource. **(Adverse Impacts)**

Reduction of Invasive Species

This attribute captures the extent to which a project addresses the management or prevention of invasive plant and animal species.

- Project reduces the threat of invasive species by completely eliminating current populations and/or preventing new introductions. **(High)**
- Project reduces the threat of invasive species by managing existing invasive populations within the proposed project area. Significant reductions and control of the population(s) are likely to have a positive regional effect (e.g., effects are within the project area and areas immediately adjacent to the project). **(Medium)**
- Project reduces the threat of invasive species by managing existing invasive populations within the project area. Small reductions of the population(s) are likely to have a local effect (e.g., effects are limited to within the project area). **(Low)**
- Project does not address invasive species issues. **(N/A)**
- Project adversely impacts the ability of a natural habitat or resource by encouraging the colonization or further establishment of invasive species. **(Adverse Impacts)**

Measure of Ecological Outcomes

The use of a method to quantify the changes to the habitat or area of action will enable managers to track the success of restoration actions and management measures, which allows for adaptive management.
An example of calculating the outputs of a project is the use of Habitat Units (HU). HUs are defined as the amount of area within the restoration project limits relative to its suitability or level of ecological functioning. A HU is calculated by multiplying the acres under consideration (generally per habitat type) by its level of quality. Examples of quantifying the quality of an area or habitat include the use of numeric indices, such as Index of Biological Integrity or the Floristic Quality Assessment Index. HUs can be used to compare the level of ecological integrity restored by proposed restoration measures. A measure that proposes to significantly improve the quality of a certain habitat versus another measure that does not do as much to improve the habitat will result in higher HUs for the more robust restoration measure.

(Note: To be recorded if information is known and an explanation of how the outputs were calculated is provided. Development of this concept is ongoing and contributions would be appreciated.)

SOCIAL

National/Regional Recognition (Support towards Other Plans)

This attribute recognizes ecosystem restoration projects that contribute to watershed or watershed plans at an international, national, or regional level.

- A study or project that contributes to a multiagency comprehensive watershed or watershed plan developed in support of federal priorities as demonstrated in laws or specifically authorized programs such as the GLRC.
- A study or project that contributes to a multiagency regional watershed or watershed plan. Examples of this would include plans developed by groups such as the International Joint Commission (IJC) Areas of Concern (AOCs), or plans pertaining to Joint Venture Areas under the National Waterfowl Management Plan.
- A study or project that contributes to a state/tribal watershed or watershed plan.
- A study or project that contributes to a local (e.g., city, county, or municipal agency) or NGO watershed or watershed plan.

(Note: One field should be answered as “Yes” or “No” (drop down); a second field is provided to type in name(s) of affiliated plan(s) or study(s).)

Recreation

This attribute recognizes ecosystem restoration projects that in addition to providing services for plant and animal life provide or enhance activities that restore qualities that are valuable to humans. The primary focus of this attribute is on project components that provide opportunities for natural resource–based activities and eco-tourism.
The value of a project can be based on greater capacity provided (increase in the supply) and/or higher quality provided by a project. There can be direct and indirect impacts. A direct impact is based on the increased quantity and/or quality of recreation user-days at the site where the project is being implemented. Indirect impacts include the increased quantity and/or quality of recreation user-days at other sites that result from actions within the project site. An example of indirect impacts is when fishing or hunting opportunities are enhanced in certain areas because the habitat for certain species was improved at another site prior to their migration. Also, activities that are enhanced by increases in the quality or quantity of the natural environment are valued higher than recreational activities that are insensitive to changes in the natural environment.

- Increased human use of area through direct actions as part of the restoration measures that do not detract from the ecological outputs. For example, recreation is enhanced with education kiosks, nature boardwalks/trails, and features that provide increased use of the area while continuing the intended level of ecological integrity. **(High)**
- Indirect increases in natural resource–enhanced activities (e.g., boating, fishing, hunting, camping, picnicking, hiking, walking, birding, wildlife viewing, diving, sightseeing, canoeing, kayaking, mountain biking, hiking, cycling, and beach use) by the increase in area or quality of a natural area, either within a public use area or adjacent to one. **(Medium)**
- Increased level of access to a recreational area resulting from proposed restoration measures. **(Low)**

- Project does not address recreational issues. **(N/A)**
- Project adversely impacts the ability of an area to provide recreational opportunities. **(Adverse Impacts)**

Environmental Justice

Environmental equity is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Achievement of this goal will be attained when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work. An example of unequal treatment include the placement of disposal sites for contaminated materials in or adjacent to population centers that are poor and have historically suffered from discrimination. This attribute seeks to identify projects that plan to improve the quality of life for groups of people that are marginalized and/or experiencing a high percentage of poverty. This category is a "yes" or "no" answer.

- Project would provide an increase in habitat or the ecological functioning of a natural resource used by a group of people that have not been fairly protected from environmental degradation in the past.
- Project would decrease the amount of environmentally degrading substances affecting an area with historically low environmental funding and enforcement, which would improve the quality of life of people living there.
- Project would provide an increase in habitat or ecological functioning of an area adjacent to a segment of the population that has historically been discriminated against.

Subsistence-Harvest Patterns

This attribute addresses the issue of whether or not the proposed project will maximize or restore the subsistence resources utilized by indigenous peoples and enable them to perpetuate their traditional lifestyle. Generally, subsistence harvest is considered hunting, fishing, and gathering for the primary purpose of acquiring traditional foods or medicines. It is the customary and traditional use by Native Americans of wild, renewable resources for direct personal, family, or community consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of byproducts of fish and wildlife resources taken for personal, family, or community consumption; for barter or sharing for personal, family, or community consumption; and for customary trade. Examples of subsistence resources potentially affected by ecosystem restoration projects are mammals, plants, fish, and waterfowl. Harvest patterns are typically seasonal with use throughout the year.

- Project reestablishes the presence of subsistence resources, previously extirpated, determined to be important to tribal practices, beliefs, and traditions as demonstrated by a federal, regional, or state/tribal report, or indicated by tribal leaders. For example, a population of important species is reestablished in numbers high enough to harvest. **(High)**
- Project strengthens the presence of subsistence resources where resources are regionally scarce and becoming scarcer as demonstrated by a federal, regional, or state/tribal report, or general scientific agreement as documented by professional publications/societies. For example, significant losses of important game or fish species have occurred and the project seeks to increase those populations. **(Medium)**
- Project does not directly address restoration of a dwindling or no longer present subsistence resource, but the results from the project may positively influence the suitability of habitat(s) necessary for the resource. **(Low)**

- Project does not address subsistence harvest issues**. (N/A)**
- Project adversely impacts the ability of a natural habitat or resource to provide a resource used by indigenous peoples. **(Adverse Impacts)**

Sacred Sites

Native Americans are attached to the land in ways that are intuitive to all peoples; however, different cultures have different belief systems. In many cases, Indian people are taught that they were created at a specific geographic location. These are considered "sacred lands" and may refer to a mountain, lake, or other topographical feature. Native Americans consider these places to be powerful or religiously significant, sacred, and worthy of protection and reverence. These places are sometimes secret and known only to specific tribal members and are usually identified through project coordination and are not readily indicated on maps. This attribute seeks to identify projects that plan to improve a sacred site by removing adverse impacts or increasing access to and protection for the site.

- Project remediates adverse impacts to a sacred site. The goal would be to return it to a pristine, pre-European contact condition. **(High)**
- Project would increase the level of protection from future adverse impacts and increase access to a sacred site for appropriate individuals. **(Medium)**
- Project has no positive effect, on a sacred site within or adjacent to the project area. **(Low)**
- Project does not contain nor will affect a sacred site. **(N/A)**
- Project adversely impacts a scared site. **(Adverse Impacts)**

Cultural Resources

Cultural resources are defined as any prehistoric or historic district, site, building, structure, or object. The term includes shipwrecks, artifacts, records, and remains that are related toa district, site, building, structure, or object. Significant cultural resources generally include properties that are 50 or more years old that: (1) are associated with events that have made a significant contribution to the broad patterns of our history; (2) are associated with the lives of persons significant in the past; (3) embody the distinctive characteristics of a type, period, or method of construction; (4) represent the work of a master; (5) possess high artistic values; (6) present a significant and distinguishable entity whose components may lack individual distinction; or (7) have yielded, or may be likely to yield, information important in history.
These resources represent the remains of the material culture of past generations of the region's prehistoric and historic inhabitants. They are basic to our understanding of the knowledge, beliefs, art, customs, property systems, and other aspects of the nonmaterial culture. This attribute addresses the extent to which a project facilitates the preservation, protection, or interpretation of a cultural resource.

- Project protects and reverses adverse impacts on a cultural resource and attempts to stabilize it or return it to its original condition. **(High)**
- Project protects or remediates adverse impacts on a cultural resource. The goal would be to stabilize it, thus preventing further damage or deterioration. **(Medium)**
- Project has no direct effect on a cultural resource located on project site, such as increasing access, which could result in theft or damage, or otherwise impacting the resource. **(Low)**
- Project does not contain nor will it affect a cultural resource. **(N/A)**
- Project adversely impacts a cultural resource. **(Adverse Impacts)**

ECONOMIC

Cost

The total ecosystem restoration cost including planning, design, real estate, and construction.
An ecosystem restoration project consists of structural or nonstructural measures that require the use of various resources. From an economic perspective, the real measure of cost is opportunity cost, i.e., the value of that which is foregone when the choice of a particular plan or measure is made. Opportunity costs of proposed plans can be classified as implementation costs and other direct costs. Implementation costs are explicit costs of implementing a project. They include the planning and design costs, construction costs, construction contingency costs, and operations, maintenance, repair, rehabilitation, and replacement costs. Other direct costs are the costs of resources directly required for a project or a plan but for which no implementation outlays are made. Examples of these costs are interest during construction and the value of donated land.

Self-sustaining

The ideal goal of ecological restoration is a self-sustaining ecosystem consisting of natural processes. A fully functioning ecosystem should need very little human input to sustain natural processes.

- Low maintenance—Following a short period of adaptive management, natural processes have been restored to sustaining levels that maintain the ecological function of the restoration. For example, no manipulation of hydrology, littoral drift, cut and fill alleviation and free of highly invasive species that require constant culling. **(High)**
- Average maintenance—Natural processes have been somewhat restored in order to maintain suitable physical and chemical habitat for native species. However, the project would require a longer period of adaptive management (10–15 years) in order to maintain the processes necessary to allow the habitat to function as designed, for example, removal of sediments or maintenance of control devices. **(Medium)**
- High maintenance—Natural processes are unable to be restored and in order to maintain suitable physical and chemical habitat for native species, yearly manipulation of the site is required, for example, regular manipulations of hydrology or the constant culling of large areas of highly invasive species. **(Low)**
- Project adversely impacts the ability of a natural habitat or resource to fully function without human intervention. **(Adverse Impacts)**

Cost Per Unit

This value is a cost breakdown of the amount of investment per ecological output. One method is to divide the total cost of the project by the number of resulting Habitat Units. Although all projects may not generate this information, an effort should be made to calculate this cost. Additionally, caution should be taken in comparing the cost per unit between projects because ecological output measures are not standardized and thus cost per unit is not standardized between projects.

Population in Proximity to Project Site

This attribute is the number of people living in the region of the project site. This field is automatically filled from the location of the project site. The value is based on the current United States Census and will be calculated in two ways: the number of people living a short and far distance from location of project site. Note: The exact distances will be determined later.
Although the benefits to the ecological health of the site and cumulatively to the Great Lakes are important in of themselves, direct benefits to the local population may be more related to the ease of access to the site. Participation in natural resource–based activities and potential attraction to a project site

varies by the amount of travel distance. For example, outdoor environmental education trips for school groups are typically time limited and require short travel times. However, a portion of the population will be willing to travel longer distances for involvement in specific activities, such as fishing or hunting for certain species. The number of people within a certain region may also indicate the level of urbanization the area has experienced.