

GLRC Habitat/Species Issue Area Strategy Team Report

Problem Statement

The stability and biodiversity of Great Lakes wildlife, fish, and plant species and their habitats is dependent on the health of the entire ecosystem. Human health as well is dependent on the vitality of these systems. Natural habitats and native fish and wildlife communities play a critical role in maintaining ecosystem health and function and contribute to the social and economic vitality of the region as well as the nation. Nearshore and open waters provide drinking water for municipalities and habitats for numerous species of fish, aquatic life, and birds. The 10,000 miles of coastline consists of over 530,000 acres of coastal wetlands, sand and cobble beaches, and the largest system of freshwater dunes in the world buffer upland areas from storms. More than 30,000 islands scattered throughout the Lakes are refuges for rare and sensitive species. Thousands of tributaries and streams transport sediments, nutrients, and organic material throughout the watershed. Inland, thousands of lakes and wetlands support a diversity of fish and wildlife and are important reservoirs for water. Forest lands cover 51% of the basin and along with rare savanna and prairie remnant ecosystems, contribute to clean air, filtered water, and stabilized soil. The full array of these habitat types are vital for sustaining the many important Great Lakes species, particularly species targeted for restoration programs like trumpeter swans and lake trout in the lower four lakes. These resources also have substantial economic value. Current estimates indicate that boating, fishing, hunting and wildlife watching generate over 50 billion dollars of economic activity annually and generate hundreds of thousands of jobs (additional economic statistics in Appendix 1). Healthy and diverse Great Lakes ecosystems are also of great value to the Tribal Nations who rely on these resources to meet their subsistence, economic, cultural, spiritual, and medicinal needs.

The landscape and aquatic ecosystems in the Great Lakes basin have been altered due to human settlement and activities, resulting in the loss or degradation of many habitats and threatening the species they support. Invasive species, non-point source runoff, aquatic food web disruption, loss of fish spawning substrate and nursery areas, disruption of sediment transport, contaminants, altered lake levels, loss of floodplains and riparian buffers, hydrological changes, and landscape fragmentation and alterations are key threats to the health and sustainability of Great Lakes habitats and species they support. More than half of the region's original wetlands have been lost. Approximately 40% of the forest lands remain while only small remnants remain of other habitat types such as savannah or prairies. These changes have resulted in numerous plant and animal extirpations throughout the Great Lakes basin, including those listed below (EPA 1993):

- Minnesota - 9 animal species; unknown plants
- Wisconsin - 18 animal; 6 plants
- Michigan - 13 animal; 34 plants
- Illinois - 56 animal; 60 plants
- Indiana - 45 animal; 72 plants
- Ohio - 36 animal; 98 plants

Habitat and species restoration and protection efforts are vital to the maintenance and recovery of these valuable Great Lakes resources. The following systems are identified as the initial priorities for which protection and restoration efforts should be focused: 1) Fish and wildlife populations in the Open and Nearshore Waters, 2) Wetlands 3) Coastal Shore and Upland Habitats, and 4) Riverine Habitats.

The causes and impacts of habitat degradation and species loss are many and transcend state boundaries. Likewise, the benefits of Great Lakes protection and restoration efforts extend far beyond the Great Lakes states. Successful campaigns for the protection and restoration of the Great Lakes ecosystem require substantial financial resources (Appendix 2), the talents of a broad range of stakeholders, and coordination among local, state, tribal, federal, and international agencies. There are currently numerous policies, regulations, and ongoing management efforts to address these issues (e.g. RAPs, LaMPs, North American

Waterfowl Plan, and Appendix 3 list). Many of these ongoing activities have demonstrated that smaller successes can be achieved, increasing the feasibility of system-wide success.

Goals and Milestones

Protection and restoration plans already in place share a common vision for a desired future state. This vision directs the management and actions necessary to attain environmental conditions that promote diverse and abundant self-sustaining populations of native species that are supported by healthy habitats and ecosystems. The desired states or long-term goals of the ecosystems on which initial efforts will be focused are described below. Short-term goals are listed in the Recommendations section. A compilation of all of the following information can be found in Appendix 4 and 5.

Open/Nearshore Waters

The open and nearshore waters of the Great Lakes include the shallow waters near the coast to the deepest waters of the lakes. The open waters provide habitat for fish and are a source of food for waterfowl, raptors, and colonial waterbirds. The Great Lakes fishery and other wildlife are dependant on nearshore aquatic habitats for spawning and life cycle needs.

Desired state:

- Open and nearshore waters possess a full array of safe and healthy natural habitats required to meet the growth and reproductive needs of fish and wildlife.
- Open and nearshore waters harbor self-sustaining fish and wildlife communities that include reproducing native fish species, especially lake herring, deepwater ciscos, lake trout, yellow perch, walleye, lake whitefish, coaster brook trout, and lake sturgeon as a significant component.
- Self-sustaining populations of non-native game fish contribute to stabilize fish communities.
- Competition for habitat, predation, and disruptions to the food webs from invasive species are eliminated or neutralized by preventing new introductions and controlling existing populations.
- The food webs are free of toxic contaminants and provide wholesome food.
- Healthy fish communities support sustainable commercial, subsistence, and recreational fisheries.

Wetlands

Coastal wetlands are dominated by large lake processes, including major water level fluctuations, severe wave action, and wind tides. They store and cycle nutrients and organic material from the land into the aquatic food web. Inland wetlands also function as centers of nutrient retention, storage, and exchange and are important for water quality, ground water recharge, and flooding reduction. Wetlands are often highly productive from a biological standpoint and are important to the life cycles of many species, including threatened and endangered species and many upland species which breed or feed in wetlands.

Desired state:

- Wetland conditions should be sufficient 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.
- Fish, wildlife, and plant communities and their habitats are protected and conserved.
- Wetlands in hydrologically modified environments are maintained and improved
- Non-native plant and animal species are controlled.
- With current wetland area loss estimates exceeding 10 million acres, a long term goal is the restoration of 1 million acres of high quality wetlands in the basin.

Coastal and Upland habitats

Great Lakes coastal shore and upland habitats include cliffs, alvars, sand and cobble beaches, the largest number of freshwater dunes in the world, more than 30,000 islands, marshes, savannas, and prairies. These habitats provide corridors for waterfowl, many species of birds, monarch butterflies, and bats. They shelter unusually high numbers of globally rare plant and animal species such as pitchers thistle, piping plover and Kirtland's warbler.

Desired State:

- Coastal shore habitats and natural processes that sustain them—such as sediment transport, lake-level fluctuation, and wetland migration—are protected, restored and/or managed.
- Coastal and upland habitats sustain long-term diverse and abundant populations of native resident and migratory fish and wildlife species, especially those that are threatened and endangered.
- Sufficiently large and connected inland habitats are protected and restored, contributing to ecosystem health and biodiversity, and providing migration corridors for species.
- Highly altered environments are managed to emulate natural ecosystems.
- New invasions of non-native species are prevented and existing non-native populations are eliminated or controlled.
- Erosion is controlled and groundwater is recharged.
- The vitality of these habitats provides a broad range of social, cultural, and economic benefits.

Riverine Habitats and Related Riparian Areas

Rivers are the primary conduits for drainage of waters from the watershed into the Great Lakes. They transport sediments, nutrients, and organic material, provide important spawning habitat for fish, and serve as migration corridors for birds and other wildlife. Riparian buffers along streams reduce sedimentation, erosion, and nutrient inflow.

Desired State:

- Lakes, streams, rivers, wetlands, and connecting channels are conserved or restored to ensure their connectivity to floodplains.
- Intact stream corridors sustain native and migratory fishes, other aquatic biota, and wildlife.
- Barrier-free access to cold and warm water tributary spawning and nursery habitats is sufficient to sustain migratory fishes.
- Rivers and streams are adequately buffered to reduce sedimentation and nutrient inflow.
- Natural flow regimes (including groundwater infiltration) are restored or emulated.
- Nutrients and sediment inputs do not degrade the quality of the fish and wildlife habitat.

Overall Recommendation

Habitat Conservation and Species Management Funding Should Be Increased by \$150 million/year

While there are currently a variety of targeted authorization levels, appropriations have failed to match the authorized funding levels. As appropriations shrink, there is a growing expectations gap between those who supported legislative actions to achieve results and those entities implementing protection and restoration programs. As funding is diminished, program effectiveness is diminished. As an example, under the Farm Bill Wetland Reserve Program, a program to restore wetlands, there is not enough funding to meet the demand and it is oversubscribed for private landowner enrollment. This causes individuals to become frustrated and ecological goals to remain unmet as landowners, tired of waiting, opt for alternate land uses. Similar appropriation shortfalls are evident in budgets related to Water Resource Development Act, the Great Lakes Fish and Wildlife Restoration Act, USDA Farm Bill, NOAA, Forest Service, Park Service and other federal legislation designed to protect and restore the critical habitats and promote important species management needs of the United States. Therefore, the recommended actions are premised on a tiered approach to reflect different options for the implementation approaches:

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

These recommended actions are a significant step towards meeting habitat/species goals, but reaching full restoration and protection objectives for the entire basin will require more resources and more time.

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

The Overall Recommendation for habitat conservation and species management funded at \$150 million annually should be allocated as listed below:

1. Native Fish Communities in Open water/Nearshore Habitats - \$20 million annually

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

Specific outcomes to include:

- Develop and evaluate lake trout restoration efforts through strategies such as a 40% increase in the number of lake trout stocked.
- Develop an initiative to re-establish native lake sturgeon and corgonines in five areas of the Great Lakes from which they have been extirpated.
- Develop predictive models to improve fish stock assessment and management protocols for important Great Lakes fishes such as yellow perch, lake whitefish, lake trout, and walleye stocks.
- Develop an understanding of factors involved in recruitment of lake trout and other important native species, and remove or mitigate major impediments to recruitment.

2. Wetlands - \$50 million annually

To achieve the goals of the Great Lakes regions specified in the North American Waterfowl Plan and related Joint Venture, target 50 million new dollars annually for acquisition, restoration, and other protection tools for wetlands. Wetland restoration costs are estimated between \$1,000 and \$1700 per restored acre, based upon average costs of wetland restorations undertaken by Ducks Unlimited and USDA's Wetland Reserve Program. An estimated sixty-six percent of historic Great Lakes wetlands have already been lost. Therefore, primary emphasis would be on wetland protection and restoration directed at achieving a net increase of wetlands in the basin, and would include a monitoring component. Currently, authorizations exist in NAWCA, the Farm Bill, Fish and Wildlife Service Private Lands Programs (e.g. partners for Fish and Wildlife), NOAA coastal programs and others. Improved coordination and joint targeting efforts could lead to project designs and locations that provide both non-point source pollutant controls (for water quality benefits) as well as increased amounts of critical wetland habitat. See Appendix 6 for additional information related to the wetlands recommendation.

Specific outcomes to include:

- Restore or acquire 550,000 acres of wetlands and 1,100,000 acres of associated uplands as nesting habitats to implement portions of the North American Waterfowl Plan.
- 1.54 million breeding pairs of waterfowl (annual breeding population under average environmental conditions - UMR/Great Lakes Joint Venture Plan).
- Self-sustaining non-endangered population levels for all currently listed wetland wildlife species, as determined by the state Departments of Natural Resources.
- Population and habitat objectives developed under the State Comprehensive Wildlife Conservation Plans (available 10/1/05) and tribal Integrated Resource Management Plans.

3. Riparian Habitats – Great Lakes River Restoration Act - \$40 million annually

There is no national program to support restoration of the physical integrity of our nation's rivers. While the Clean Water Act was designed to promote improved water quality, it fails to address the physical habitat issues which often preclude attainment of the Clean Water Act's stated national goals. Because tributaries are so critically important to the establishment of self-sustaining Great Lakes fish communities and estuarine fish and wildlife populations, **Congress should enact the Great Lakes River Restoration Act**. This act should provide \$40 million annually to implement watershed projects that restore the hydrology, protect and restore the riparian habitats, restore in-stream habitats needed for fish spawning or nursery sites, and promote access for anadromous fish migrations while restricting exotic species expansions. This program could work jointly with USDA programs like the CREP riparian buffer programs to achieve systemic results through improved inter-governmental coordination and watershed targeting. Funding should be allocated to states and tribes on a formula basis based on watershed size, tributary miles, populations in the basin, and miles of Great Lake shoreline.

Specific outcomes to include:

- Restore 10 tributaries in each Great Lake state or 10% of all Great Lakes tributaries (whichever is smaller).
- Restore coaster brook trout and lake sturgeon in Great Lakes tributaries.

4. Coastal Shore and Upland Habitats - \$40 million annually

We recommend creating a coastal shore and upland habitat conservation program to coordinate funding to ensure Great Lakes native species and communities of greatest conservation need are protected, restored, and appropriately managed. We further recommend an increase in funding for existing landowner incentive programs to encourage private and corporate landowners to conserve habitat and help to protect important native species. With recommended funding levels of \$40 million per year for five years, we expect the results to be the prevention of habitat and species loss and the conservation of coastal shore and upland habitats supporting healthy populations of numerous species. This funding should be directed to existing state, tribal, and federal natural resource management programs. Funding would also provide grants for cost share projects, acquisitions, easements or other incentives for private and corporate landowners and municipal governments to provide long term habitat and species protection and restoration efforts. Projects designed to provide nesting habitat under the North American Waterfowl Plan, to implement endangered species recovery plans, plans for Species of Greatest Conservation Need, the migratory bird accord, state species restoration projects, LaMP or RAP recommendations would also be eligible for funding.

Specific outcomes to include:

- Protect or restore 10,000 acres of coastal and upland habitats per year across the basin.
- Inventory and assess Great Lakes coastal habitats and prioritize them for protection and restoration.
- Conduct detailed monitoring of Areas of Concern in coastal shore areas.

There are common priority themes which would drive protection and restoration of coastal and upland areas across the basin:

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

While they are categorized as common priorities, monitoring, indicators, and measurable objectives, would differ across the basin in recognition of the natural variations. For example, a priority habitat might be identified for nesting sites. For common terns it would be a shoreland area while for Kirtland's warbler, it would be stands of young jack pine. In both cases, the amount of restored nesting areas would be an initial measure of progress, but ultimately long-term measures could include nesting success or recruitment for both Kirtland's warbler and for common terns. So it may be necessary to suggest a temporal approach to monitoring which evolves as the projects develop and the biological systems subsequently begin to respond.