



Great Lakes Science Center, Restoring the Greatness

The Great Lakes Science Center (GLSC) meets the Nation's need for scientific information for restoring, enhancing, managing, and protecting the living resources and their habitats in the Great Lakes basin ecosystem. Since 1927 the Center's research has provided critical information for the sound management of Great



Lake Erie shoreline.

Lakes fish populations and other important natural resources (e.g., coastal wetlands and aquatic biota) in the basin.

The GLSC uses an interdisciplinary approach, teams, and collaboration to provide the information needed to solve the complex biological issues (e.g., exotic species impacts) and natural resource management problems (e.g., fisheries allocations) facing the Great Lakes. Working in partnership with resource management agencies, GLSC provides unbiased scientific information on Great Lakes biological and habitat resources, and determines the effectiveness of resource management and ecological restoration efforts.

A Vision of Greatness

In 2001 the Great Lakes Commission, working with regional science and resource management communities, identified seven major themes of restoration in the Great Lakes that needed action. These themes helped form a blueprint for securing a clean environment, a strong economy and a high quality of life for Great Lakes residents and businesses. Three of the themes fit into the Great Lakes Science Center's mission of restoring, enhancing and protecting the living resources and habitats of the Great Lakes.

Preventing further exotic species invasions

- Presently there are over 160 invasive species in the Great Lakes, some impacting our natural systems catastrophically. Partnerships through the state, regional and local levels are essential developing programs to prevent further invasions.



A round goby, a Great Lakes exotic species.

Ensuring the sustainable use of aquatic resources

- Development and implementation of programs at the state and



The Center operates research vessels, such as the R/V *Grayling*, for fisheries and habitat research.

provincial level to ensure safe and sustainable use of our aquatic resources.

Restoring and conserving wetlands and critical coastal habitats



Seining along Lake Michigan's coastline.

- Restoration and conservation of the Great Lakes few remaining wetlands and coastal marshes is essential to protect the enormous value they have to fish, wildlife and recreation.



Wetland monitoring.

Great Lakes Science Center's Role in Restoration

The Great Lakes Science Center continues to provide crucial research and information towards the restoration of valuable Great Lakes resources, such as lake trout and lake sturgeon, as well as important Great Lakes wetland areas within National Wildlife Refuges and parklands.



A lake trout, a valuable Great Lakes sport, commercial and tribal fish.

Native Fish Restoration

The lake trout has been impacted by invasive species and overexploitation, and the lake sturgeon by habitat degradation and overexploitation. At the GLSC, efforts to restore both species are under way through research into spawning habits, diet and the exotic species that affect them. Recent research located spawning sites for lake sturgeon in the Detroit and St. Clair Rivers and identified preferred spawning substrate, which could lead to the restoration of other spawning sites throughout the Great Lakes.



A lake sturgeon, a primitive fish native to the Great Lakes.

Invasive Species

One of the most profound problems facing the Great Lakes today is the introduction of non-native species, and preventing further introduction



A native clam colonized by zebra mussels.

is a goal of the Great Lakes Commission, Great Lakes Science Center and other Great Lakes agencies. At the GLSC, research focuses on sea lamprey, zebra mussels, round gobies, and ruffe, which are economically damaging through the effect they have on sport fish and the tourism industry. Recently, research conducted at the GLSC station at Hammond Bay, along with partners at the Great Lakes Fishery Commission and the Fish and Wildlife Service, led to a special time-release lampricide treatment for sea lamprey control. This application will benefit the St. Mary's River system and northern Lake Huron, which has been resistant to conventional lampricide treatments.

Aquatic Habitat Restoration

A cooperative effort, the Lake Erie Ecological Investigations project, initiated by the USGS, includes: the National Water Quality Assessment (NAWQA) program; the Biomonitoring of Environmental Status and Trends (BEST) program; the Leetown (WV) and Great Lakes (MI) Science centers; the U.S. Fish and Wildlife Service; the EPA Great Lakes National Program Office; and the states of Ohio and Pennsylvania. This project will

provide information to managers to support strategies for dredging and other remediation options for contaminated sediments, and will establish a database for future evaluation by Remedial Action Plan committees and site managers. The suite of tools developed in this investigation can be applied to Areas of Concern throughout the Great Lakes and other aquatic areas.

Wetlands Restoration

Research conducted by the Great Lakes Science Center research at Metzger Marsh, a diked wetland on Lake Erie, led to the restoration of the area, which had a long history of human disturbance from farming, draining and channelization. Information collected during the study provided managers with important information that lead to improved wetland management that benefited both fish and wildlife. The research is designed to allow the results of the restoration effort to be applied at other diked wetland sites throughout the Great Lakes region.



Metzger Marsh before restoration.



Metzger Marsh after restoration.