

Fisheries Extension Enhancement

RESTORATION AND ENHANCEMENT

Theme Scope: This theme includes protection, restoration and enhancement of native Great Lakes fish species and fish habitat. Habitat is broadly defined to include both water quality and the food webs supporting the fishery, as well as coastal and upland habitats influencing these factors, in addition to the physical habitat of the fish themselves.

Regional Issues Addressed by this Theme

The indigenous fish of the Great Lakes have suffered well-documented losses that vary among the lakes. Many native fish species have been extirpated from some or all of the Great Lakes; these losses result in a loss of biological diversity. Other species are maintained by hatchery stocking to support a put-grow-take fishery.

Rebuilding the native fish populations to a level at which they can be sustained by natural reproduction is one of the principle goals of Great Lakes fishery management under the Joint

Strategic Plan. Losses of habitats, extinction of populations and species, and naturalization of nonnative species clearly preclude a full recovery to pristine conditions; however, naturally reproducing native fish populations offer the best prospect for maintaining food chain efficiency for sustainable production.

Nowhere is an understanding of the linkages between terrestrial and aquatic environments more critical to resource quality, sustainability and management than in the Great Lakes region. With nearly 9,500 miles of shoreline, the Great Lakes are aquatic systems dominated by their coastal watersheds. Habitat issues are critical for sustainability of Great Lakes' resources. Human activities and natural events, such as fluctuating lake levels and shoreline alteration, affect the quality and quantity of coastal habitat that, in turn, affects fishery health. To be successful, restoration of the Great Lakes fishery and fishery habitat must take into account long-term efforts to protect, restore, and enhance habitats including the full range from in-lake habitats such as reefs and spawning sites to wetland nursery habitats, to tributaries, and upland sites.

Current Great Lakes Sea Grant Network Activities

Coaster Brook Trout Rehabilitation

Coaster brook trout, one of only two native Lake Superior salmonines, has been at dangerously low populations for over 100 years. Efforts to understand the science and management behind coaster brook trout rehabilitation became more focused as a result of a Lake Superior basin-wide



workshop held in Minnesota in 2003. Five topic areas were identified and teams were formed around those topic areas to provide a synthesis of available information. The synthesis papers were presented at the Annual Meeting of the American Fisheries Society in Madison, Wisconsin in August 2004. Following the synthesis presentations, an outreach partnership that was formed among Trout Unlimited, Trout Unlimited Canada, University of Wisconsin Extension and Minnesota Sea Grant, developed workshops around the basin to present the results of the synthesis work. To support the Coaster Brook Trout workshops and rehabilitation effort, Minnesota Sea Grant developed a logo and tag line for the partnership, which have been widely recognized for their distinctiveness and relevance.

Water Quality and Habitat Restoration at Areas of Concern (AOCs)

Great Lakes Sea Grant extension agents have been involved with cleanup of Great Lakes AOCs to varying degrees and have provided long term support to citizen groups, Remedial Action Plan Councils, and agencies working to clean up Great Lakes AOCs. More than 20 Sea Grant extension agents/specialists currently work with their local AOCs. For example, Ohio Sea Grant has been involved with the Ashtabula River AOC since 1988, helping to determine the extent of the pollution as a member of the Ashtabula Remedial Action Plan Council. Ohio Sea Grant has also worked on developing the clean-up as a founding member of the Ashtabula River Partnership which began in 1994.



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Lake Sturgeon Restoration

Michigan Sea Grant is leading a consortium of federal, state, university, local and nongovernmental agencies and organizations in the development of a regionally significant project, The Belle Isle/Detroit River Sturgeon Habitat Restoration, Monitoring and Education Project. This project consists of three related components: construction of three demonstration lake sturgeon spawning reefs; public information/education; and a robust monitoring program. The project is supported by the Great Lakes Fishery Trust, the Great Lakes Coastal Restoration Program (Michigan Department of Environmental Quality/NOAA) with additional support from Detroit Edison, a DTE-Energy Company. The project's goal is to enhance a healthy, and self-sustaining population of lake sturgeon (*Acipenser fulvescens*) in the Detroit River.

Clean Marinas, Clean Boaters

The Clean Marina program is a voluntary stewardship program open to public and private marinas. The program was developed to protect water resources and fish and wildlife habitat by promoting environmentally sound marina and boating practices. Clean Marina program members enhance their business' public image by promoting environmentally sound practices and save money by adopting best management practices.

Integration with National Goals

This theme supports national Sea Grant goals in the areas of:

- Fisheries and Ecosystems & Habitats.

Fisheries extension enhancements within this theme will support national efforts to:

- Develop an ecosystem perspective in renewable resource management
- Restore habitat and ecological conditions required by native species

- Develop a quantitative understanding of the structure and function of critical near-shore habitats and coastal ecosystems.

- Understand ecological variability

- Minimize negative impacts of human-induced changes to coastal ecosystems, and

- Develop and implement methods of restoring damaged coastal habitats.

Priorities for Regional Action

Protect, restore or enhance coastal fisheries habitat by:

- quantifying the economic value of coastal habitats and the impact of habitat loss to the Great Lakes fishery,
- examining the effect of human activities on habitat quality and/or habitat fragmentation,
- educating community groups, professionals and agencies about the benefits of and techniques for improving habitat quality, and
- creating partnerships to improve and enhance fish habitat structures.

Support restoration and rehabilitation of native fish populations.

Foster better understanding of how coastal ecosystems and habitats function to support the health of the fisheries including:

- the role of critical and/or sensitive coastal habitats,
- the importance of the near-shore environments, and
- the significance of invertebrate species to food web transfer of energy and contaminants.



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