

# Great Lakes Basin Ecosystem Team

## Why is the Great Lakes Ecosystem important?

The Great Lakes Basin Ecosystem is the largest body of freshwater in the world. It holds 18 percent of the world's supply of fresh water; covers 95,000 square miles with 9,000 miles of shoreline; includes 5,000 tributaries; and has a drainage area of 288,000 square miles. More than 35 million people live in the Basin and depend upon its natural resources.

The extensive natural resources of the Basin provide numerous opportunities for varied fish and wildlife related activities, drinking water, recreation, production of hydroelectricity, industrial water supply, waste disposal, and commercial navigation. Water-related outdoor recreational activities are valued at \$15 billion annually, of which sport fishing activities contribute \$4 billion.

The Great Lakes Basin supports a variety of fish and wildlife species of concern. Fish species of special interest include lake trout, lake sturgeon, lake whitefish, walleye, landlocked Atlantic salmon, and associated forage fish species. Native mussels are being seriously impacted by the exotic zebra mussel and are in danger of extirpation. The Basin provides critical breeding, feeding, and resting areas, as well as migration corridors, for waterfowl, colonial nesting birds, neotropical migrants, and many other species



Picture of streambank restoration site  
Photo Credit: USFWS Lower Great Lakes Fishery Resources Office



Map of the Great Lakes Basin Ecosystem and USFWS field stations within the basin  
Courtesy of the Great Lakes Basin Ecosystem Team website

of migratory birds. Specifically, 31 species of migratory non-game birds of management concern to the U.S. Fish and Wildlife Service (Service) occur in this ecosystem.

## What is the Great Lakes Basin Ecosystem Team?

The Great Lakes Basin Ecosystem Team is composed of 43 U. S. Fish and Wildlife Service field stations in the Great Lakes ecosystem that represent a range of Service programs including Fisheries, National Wildlife Refuges, and Law Enforcement. Through the Team and its partners in the ecosystem, the Service addresses landscape-scale resource objectives using an ecosystem approach.

The Great Lakes Basin Ecosystem Team is focusing much of its efforts on the basin-wide issues of lake sturgeon restoration and island conservation. Although there are a myriad of critical issues in the Great Lakes basin, the Team decided on these issues in order to make strides in the areas of lake sturgeon and islands over and above the work that the Service was already doing in the basin.

## Restoration of Lake Sturgeon

### Objectives

Restore the lake sturgeon throughout the Great Lakes through population assessment, assessment of the genetic make-up of various

stocks, development and implementation of recovery plans, and development of fish passage technology. Identify, coordinate, and undertake activities with appropriate internal and external partners.

### Successes

Through the Ecosystem Team, the Lake Sturgeon Committee has taken a leadership role in trying to coordinate and standardize lake sturgeon genetics activities in the Great Lakes Basin. The genetics workshop provided a forum for biologists, managers,



Lake sturgeon tagging efforts in the Great Lakes basin  
Photo Credit: USFWS Lower Great Lakes Fishery Resources Office

and geneticists to discuss the current state-of-the-art knowledge, identify information needs, and standardize further collection and analysis of genetic samples.

In September 2000, 25,000 copies of the brochure *Lake Sturgeon: Giant of the Great Lakes* were distributed to Service field stations across the Great Lakes basin. The brochure will serve as an effective tool to educate the public about the biology, fishing history, status, and conservation of lake sturgeon in the Great Lakes.

The Great Lakes Lake Sturgeon web page ([midwest.fws.gov/sturgeon](http://midwest.fws.gov/sturgeon)) consolidates information from numerous Service field stations, resource agencies, and universities conducting lake sturgeon projects in the Great Lakes Basin. The web page also serves to educate the public and scientific community about the Service roles, responsibilities, and activities regarding depleted native species such as lake sturgeon.

### Goals

- Develop an inventory of Great Lakes tributaries that currently and historically provided lake sturgeon populations and habitat. Explore opportunities to provide the inventory in a GIS format. This effort will help to identify and prioritize restoration and fish passage opportunities and needs.
- Develop an inter-agency database for lake sturgeon tagging information collected by the Service and its partners to assist in planning and conducting restoration efforts.

## Conservation of Great Lakes Islands

### Objectives

Recognize the importance of island to wildlife - particularly migratory birds, fish, and endangered species - and the need to complete an overall assessment of the islands for protection and restoration efforts.



Aerial picture of Strawberry Island, Niagara River, Buffalo, NY  
Photo Credit: USFWS Lower Great Lakes Fishery Resources Office

### Successes

The Great Lakes Islands Committee has collaborated with a group of team members with expertise in Geographic Information Systems (GIS) and Decision Support Systems (DSS) to create an inventory of Great Lakes Islands. A computerized pilot DSS has been developed for islands in Lake Michigan, incorporating GIS databases and a variety of non-spatial information. The DSS will be made accessible from the desktop of all Service field stations that manage resources within the Basin. The DSS will facilitate decision-making for land

acquisition, environmental review, and management planning, and provide a valuable tool for communication and outreach.

### Goals

- Collaborate with the GIS/DSS committee to gather pre-existing information on the Great Lakes islands.
- Begin to use the Decision Support System to develop strategies for conservation of Great Lakes islands.
- Develop a brochure for outreach and public education efforts.
- Construct kiosks that will be strategically located at high public use areas to provide information on the importance of islands and the Service's efforts in conserving them.

## Geographic Information Systems and Decision Support Systems

### Objectives

Geo-spatial data can assist management efforts in the Great Lakes basin at many scales ranging from small, site-specific projects to basin-wide examinations. Geographic Information Systems (GIS) and Decision Support Systems (DSS) are mechanisms that can be used to provide managers with geo-spatial information needed to make sound resource management decisions.

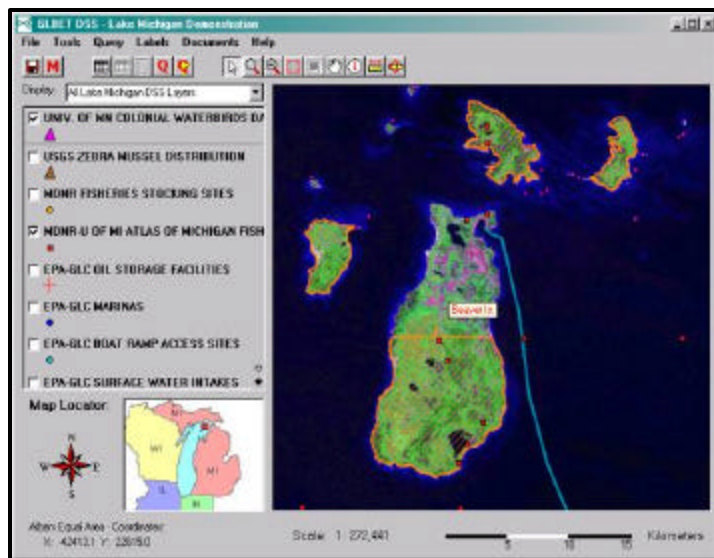
### Successes

The Great Lakes GIS/DSS committee determined existing GIS capabilities of the programs and field stations within Region 3 and 5 of the USFWS. This analysis has led to the development of the *Draft Great Lakes Basin Ecosystem GIS/DSS Implementation Strategic Plan*.

With the collaboration from the USGS Upper Midwest Environmental Sciences Center and the USGS Great Lakes Science Center, the GIS/DSS committee completed the *GLBET Pilot GIS/DSS for Lake Michigan Islands*. This system provides the Island committee, refuge personnel, and other interested parties the ability to answer questions related to islands within the Great Lakes basin using spatial and non-spatial data.

### Goals

- The GLBET GIS/DSS will be expanded in the future to include the remaining Great Lakes basins. Each individual lake basin will



Screen shot of the Great Lakes Basin Ecosystem Team GIS Decision Support System for Lake Michigan Islands Pilot

have its own application, which the user can install on his/her computer.

- Migration of the current GIS/DSS to more advanced software and applications can increase the functionality and ability of the system for better resource management and decision making.

### Contacts

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Great Lakes Basin Ecosystem Team Website

<http://greatlakes.fws.gov>

Information on this fact sheet was gathered from the USFWS – Region 3 Great Lakes FY2000 Accomplishments Report, Great Lakes Basin Ecosystem Team Website, and the GIS/DSS Lake Michigan Pilot Project factsheet.

