

## **Great Lakes and Inland Geographic Information System (GIS) Support and Development**

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### *Background*

The goal of this project is to provide data, tools, and predictive models to support Michigan's Wildlife Action Plan. Each state submits a revised Wildlife Action Plan every 10 years to be eligible for funds from the U.S. Fish and Wildlife Service's State Wildlife Grant Program. State Wildlife Grant funds come from offshore oil drilling royalties and are allocated to the States to support conservation activities. Michigan's first Wildlife Action Plan was written in 2005 and a revision was completed in 2015. Developing and implementing Michigan's Wildlife Action Plan requires information about the types of habitats that support rare and threatened species (Species of Greatest Conservation Need), their locations, and their conditions. This project summarizes map-based data that describes important habitat conditions for streams, inland lakes, and the Great Lakes. Such information is critical for making science-based management decisions that protect at risk species. This project also supports the maintenance of these data and the development of web-based tools to put these data in the hands of natural resource decision makers.

### *Objectives.*

1. To develop an ecological database containing information on the aquatic habitats of the Great Lakes.
2. To classify nearshore and offshore Great Lakes habitats in Lakes Huron, Superior and Ontario to facilitate conservation efforts.
3. To develop a spatial database of lake habitats using landscape and local variables that can be used to characterize lake types and the patterns of fish assemblages in inland lakes.
4. To esupport river assessments through the development of spatial data and decision support tools to facilitate determining priority actions and conservation needs.
5. To determine habitat quality for sensitive life stages of important non-game species.
6. To develop decision support tool to evaluate potential land development effects to aquatic habitat.
7. To develop and deliver educational programs for all members of the public s on the use of map based data for science inquiry and decision support.
8. To develop and implement long-term, Internet-based strategies for information maintenance and distribution.

### *Key results*

Databases have been developed for over 30,000 miles of streams, over 11,000 inland lakes, and for portions of Michigan's Great Lakes. These databases have been used to classify habitat, identify critical habitats and assess their condition, identify key environmental threats, and assess vulnerability to climate change. To better use of these large-scale datasets in management decision making, web-based decision support tools have been developed that allow managers to quickly visualize locations containing critical habitats and vulnerable species. Such information

is used in the environmental permit review process to protect sensitive areas from development, and to develop management actions for individual waters.

*Additional Information*

Detailed project information is available at [http://www.michigan.gov/dnr/0,4570,7-153-10364\\_52259\\_19056-333302--,00.html](http://www.michigan.gov/dnr/0,4570,7-153-10364_52259_19056-333302--,00.html).