

# Muskellunge Spawning Habitat Project

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The muskellunge is Wisconsin's state fish, and is certainly its most famous. Anglers are drawn from all corners of the country to catch this fish in Wisconsin, the "Musky Capital of the World." Suitable spawning habitat is vital to sustaining Wisconsin's muskellunge fisheries. Loss of this critical habitat will result in declining natural reproduction and population decline or loss of an irreplaceable resource. As the saying goes, an ounce of prevention is worth a pound of cure.

Muskellunge prefer to spawn in shallow, mucky bays near stream inlets or other water flow. Spawning typically occurs at night, between mid-April and late May. After about two weeks, the eggs hatch and fry (young fish) seek out cover from predators. Vegetation and woody debris (sticks and logs in the shallows) have been shown to improve spawning success. Working with the DNR, University of Michigan researchers have already determined that shoreline development and the density of woody debris can be the difference between poor and successful natural reproduction.

## *Spawning Habitat Project: Goals*

The goal of this project is to predict where muskellunge spawn in each lake. This will be accomplished by incorporating field data into digital mapping software (Geographic Information System, aka GIS). GIS has the ability to superimpose many maps on top of one another. The computer can analyze the set of environmental conditions at any point to determine suitability for successful spawning. Multiple maps will be used together to locate spawning sites, including maps of: groundwater flow, stream

location, geology, wetlands, topography, aquatic vegetation, and known spawning sites. These known sites will be collected by researchers throughout the spawning season using GPS units (Global Positioning Satellite).

## *Methods*

Field research will be a collaborative effort between the University of Michigan, Wisconsin DNR, Musky Clubs Alliance of Wisconsin, and local volunteers. Fifteen lakes with good natural reproduction have been designated for the 2007 spawning survey. As the water temperature hits 50-60°F, muskellunge will begin spawning. Research teams in boats will methodically search shallow water areas for mating muskies using handheld spotlights. Every time a musky is seen, researchers will record its position using advanced GPS units, which are accurate to within 10 feet. They will cover the entire shoreline of each lake at the height of the spawning activity, marking the location of each fish seen.



*This project seeks to protect natural reproduction by identifying critical spawning areas.*



*Muskellunge prefer to spawn in shallow, naturally vegetated water. The project will locate potential spawning habitat for conservation.*

Since even muskellunge pairs which appear to be involved in courtship behavior may not release eggs and milt (sperm), it is necessary to verify that an actual spawning event occurred. Researchers will return to each location stored in the GPS units, which may also be marked with flagging or buoys, to search for eggs on the bottom. They will search for up to one hour before moving on to the next location.

#### *Significance*

Wisconsin has over seven hundred musky lakes. This enormous blessing is also a curse, in that it is simply not possible to locate musky spawning habitat on each lake, given a short window of time in the spring. However, these critical habitats must be identified for conservation efforts. Protecting musky spawning habitat is a very important tool in creating a sustainable population. It is the ounce of prevention we need to provide thriving musky populations in Wisconsin for generations to come.

Advances in GIS systems, GPS units, and available data will enable the DNR and non-profit groups to efficiently identify

critical habitat on each lake. This knowledge will help protect muskellunge spawning habitats by providing good information with which to make sound permitting decisions associated with shoreline development and aquatic plant management. This project will also provide information that can be used for other habitat protection efforts, such as land acquisition and boating and zoning ordinances.

To learn more about the project or to get involved, please contact any of the following.

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