

## **The Fish Community and Fishery of South Manistique Lake, Mackinac County, Michigan in 2003–04 with Emphasis on Walleyes, Northern Pike, and Smallmouth Bass**

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### **Introduction**

Michigan Department of Natural Resources (MDNR), Fisheries Division surveyed fish populations and angler catch and effort at South Manistique Lake, Mackinac County, Michigan from April 2003 through March 2004. This work was part of a statewide program designed to improve assessment and monitoring of fish communities and fisheries in Michigan's largest inland lakes. Known as the Large Lakes Program, it is currently scheduled to survey about four lakes per year over the next ten years (Clark et al. 2004).

The Large Lakes Program has three primary objectives. First, we want to produce consistent indices of abundance and estimates of annual harvest and fishing effort for important fishes. Initially, important fishes are defined as species susceptible to trap or fyke nets and/or those readily harvested by anglers. Our hope is to produce statistics for important fishes to help detect major changes in their populations over time. Second, we want to produce sufficient growth and mortality statistics to evaluate effects of fishing on special-interest species which support valuable fisheries. This usually involves targeting special-interest species with nets or other gears to collect, sample, and mark sufficient numbers. We selected walleyes *Sander vitreus*, northern pike *Esox lucius*, and smallmouth bass *Micropterus dolomieu* as special-interest species in this survey of South Manistique Lake. Finally, we want to evaluate the suitability of various statistical estimators for use in large lakes. For example, we applied and compared three types of abundance and three types of exploitation rate estimators in this survey of South Manistique Lake.

The Large Lakes Program will maintain consistent sampling methods over lakes and time. This will allow us to build a body of fish population and harvest statistics to directly evaluate differences between lakes or changes within a lake over time. South Manistique Lake is the eighth lake to be sampled under the protocols of the program, thus, we were sometimes limited in our ability to make valid comparisons. Of course, as our program progresses we will eventually have a large body of netting data collected under the same conditions in the future.