

## Status of the Lake Gogebic Walleye Fishery, 1986 - 96

Barry R. Miller

Michigan Department of Natural Resources  
427 US 41 North  
Baraga, Michigan 49946-0440

*Abstract.*—This report summarizes management efforts, data collections, and analyses for walleye *Stizostedion vitreum* from Lake Gogebic between 1986 and 1996. In an effort to improve the growth of walleye by increasing forage, the Baraga District Fisheries unit attempted to establish spottail shiner *Notropis hudsonius* and emerald shiner *Notropis atherinoides* in Lake Gogebic. One thousand pounds of shiners were introduced in 1988, but it was concluded that much larger plants would be necessary to have any effect. Riparian owners are attempting to establish fathead minnow *Pimephales promelas* as forage fish. They stocked 1.2 million fathead minnow in both 1995 and 1996 and plan to continue the program. Length at age and mortality of walleye were calculated from netting survey data, and population size was estimated from a tagging program. Length at age has been consistent over all sampling years, and is below state average. The 1996 total annual mortality of Lake Gogebic walleye was estimated to be about 37%. This estimate is likely biased because two strong year classes of walleye occurred in 1991 and 1988. In 1993, 1,025 walleye were tagged and a population estimate was made in 1994 based on tag returns. The estimate of 62,497 walleye was nearly identical to an estimate made in 1984. These estimates were mainly for males on the east shore of the lake during spawning but are useful indices of the population size. A population model was used to determine if different regulations could provide better walleye fishing. No size limit, a 15-in minimum size limit and a 10- to 15-in slot limit were compared to the current 13-in size limit. The 15-in size limit appeared to produce the best fishery, so the minimum size for walleye in Lake Gogebic was changed to 15 inches in 1996. Spring assessment sampling for walleye is recommended to continue at 3-5 year intervals. Summer assessments of the fathead minnow plants are recommended for the same years as walleye assessments.

### Introduction

Norcross (1986) summarized data collected on the walleye *Stizostedion vitreum* population of Lake Gogebic between 1928 and 1986. He described the population in the mid-1980s as being abundant though slow growing. The fishery had been dominated by small walleye for many years. Although the statewide size limit for walleye changed in 1976 to 15 in, the size limit in Lake Gogebic remained at 13 in.

Norcross recommended that the Lake Gogebic size limit be further reduced to 12 in because population modeling indicated that the pounds of walleye harvested would remain the same while the numbers of legal fish caught would increase and numbers of sublegal fish caught and released would decrease. Modeling also indicated that reproductive potential of the population would drop by some 20% under a 12-in minimum size limit, but that decrease was not expected to harm the population because