

## STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-81-R-5

Study No.: 230661

Title: Evaluation of lake sturgeon *Acipenser fulvescens* populations in northern Michigan

Period Covered: October 1, 2003 to September 30, 2004

**Study Objective:** (1) To verify presence of larval lake sturgeon in selected rivers in Upper Peninsula watersheds that are suspected of supporting spawning runs to determine if lake sturgeon are successfully reproducing in those rivers; (2) to determine early (larval and juvenile) life history of lake sturgeon from Sturgeon River/Portage Lake (Houghton and Baraga Co.), Indian Lake (Schoolcraft Co.), and Green Bay/bays de Noc stocks, and identify habitat requirements of young lake sturgeon; (3) to tag adult lake sturgeon spawning in Sturgeon River and tributaries of Green Bay to monitor lake sturgeon movement, composition of the spawning stock, and degree of spawning stream fidelity.

**Summary:** Lake sturgeon sampling was carried out in several rivers and lakes during spring and summer, 2004. We captured 100 spawning adult lake sturgeons in Black River (Cheboygan Co.), 120 spawning adult lake sturgeons in Sturgeon River (Baraga Co.), 8 adult lake sturgeons in St. Mary's River (Chippewa Co.), 3 adult lake sturgeons in Menominee River (Menominee Co.), 8 adult lake sturgeons in Green Bay/Bay de Noc, and 6 adult lake sturgeons in Indian Lake. Larval sampling captured 437 lake sturgeons from Black River in May and June.

**Findings:** Jobs 1, 2, 3, 4, 5, and 6 were scheduled for 2004-05, and progress is reported below.

**Job 1. Title: Sample larval lake sturgeon in selected rivers to verify reproduction.**—We sampled stream drift for larval lake sturgeon in Black River from 19 May to 20 June 2004. However, because of heavy rains and high stream discharge sampling was not possible during 21-31 May. Drift nets were fished between 21:00 and 00:00 hours and captured 437 larvae. We did not sample other locations in 2004 either because spawning adults were not encountered or because personnel were not available to carry out sampling.

**Job 2. Title: Determine habitat availability in Sturgeon River/Portage Lake, Indian Lake, and bays de Noc.**—Because previous sampling indicated there has not been recent spawning in any bays de Noc tributaries or in Indian River/Indian Lake, work on this job was not pursued for these locations. If either spawning fish or larval lake sturgeon are captured in bays de Noc tributaries or in Indian River in future sampling efforts, this work will be completed at that time. A manuscript was published in 2004 summarizing the juvenile habitat work that was completed in Portage Lake during 1997-2000 (Holtgren and Auer 2004). A canoe was used to visually survey potential spawning habitat in the lowermost 12 miles of the Cedar River. Abundant hard substrates are present in the lower river and several sites appear to be suitable for lake sturgeon spawning.

**Job 3. Title: Sample juvenile lake sturgeon in Sturgeon River/Portage Lake, Indian Lake, and bays de Noc.**—Because there was no evidence of successful reproduction in any bays de Noc tributaries or in Indian River/Indian Lake, work on this job was also not completed for these

locations. If either spawning fish or larval lake sturgeon are captured in bays de Noc tributaries or in Indian River in future sampling efforts, this work will be completed at that time.

**Job 4. Title: Compare habitat availability to juvenile habitat use.**—A master’s thesis has been completed analyzing habitat use of stocked fish in the Ontonagon River during 2002-03 (Fillmore 2003). The thesis, “Habitat selection and movements of stocked juvenile lake sturgeon *Acipenser fulvescens* and benthic invertebrate distribution in the lower Ontonagon River, Michigan” was completed in fall, 2003 at Michigan Technological University. No further work on juvenile habitat use was completed in 2004.

**Job 5. Title: Tag adult spawning lake sturgeon in Sturgeon River and Green Bay tributaries.**—We used large dip nets to sample selected rivers for spawning lake sturgeon during spring, 2004. Rivers sampled included the Sturgeon River and Black River (Cheboygan Co.). We captured and tagged 120 lake sturgeons from Sturgeon River and 100 from Black River. Three lake sturgeons were captured incidental to walleye tagging operations in Menominee River and all fish were tagged. In addition, lake sturgeon that were incidentally caught in gill and trap nets in Lake Superior were tagged and released by Vanlandschoots Commercial Fisheries, although data have not been summarized. Personnel from Lake Superior State University continued sampling the St. Mary’s River with set lines during summer, 2004 and captured and tagged eight adult lake sturgeons. Lake sturgeons were also captured in Green Bay, Lake Michigan, near the mouth of the Cedar River by a contracted commercial fisher. Trap nets were fished near the Cedar River mouth from 7 May to 18 June. Eight lake sturgeons were captured in the trap nets. There was no indication that any of the fish captured were pre- or post-spawn fish. We sampled Indian Lake, Schoolcraft County, using large-mesh gillnets during June, 2004 in an attempt to calculate a population estimate. Six lake sturgeons were captured during five days of effort. Because there were no recaptures it was impossible to calculate a population estimate.

**Job 6. Title: Analyze data and write reports.**—Data analysis is ongoing. This progress report was prepared on schedule.

#### **Literature Cited**

Fillmore, K. L. 2003. Habitat selection and movements of stocked juvenile lake sturgeon *Acipenser fulvescens* and benthic invertebrate distribution in the lower Ontonagon River, Michigan. Master’s thesis, Michigan Technological University, Houghton, Michigan.

Holtgren, J. M. and N. A. Auer. 2004. Movement and habitat of juvenile lake sturgeon (*Acipenser fulvescens*) in the Sturgeon River/Portage Lake system, Michigan. *Journal of Freshwater Ecology* 19:419-432.

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**Date:** September 30, 2004