

STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-81-R-6

Study No.: 230737

Title: Status and trends of fish populations and community structure in Michigan streams

Period Covered: October 1, 2004 to September 30, 2005

Study Objectives: The objectives of this study are to:

1. Characterize fish community structure and the abundance, presence, and distribution of fish populations in a variety of stream types across the state.
2. Quantify the baseline level of variation in fish population abundance and community structure in a variety of stream types for use in interpreting individual field samples.
3. Describe long-term trends in fish community structure and fish population abundance in valuable trout and smallmouth bass streams and representative small coldwater streams across the state.
4. Track changes in survival and growth of salmonids and smallmouth bass over time.
5. Examine the relation between temporal changes in fish population size and structure and instream habitat.
6. Identify appropriate spatial scales for describing regional trends (if any exist) in fish community structure and fish population abundance.
7. Compare temporal patterns in resident salmonid abundance, growth, and recruitment among and between land-locked and potamodromous coldwater streams.
8. Oversee continued implementation, coordination, and maintenance of the Stream Status and Trends Program.

Summary: The Fisheries Division of the Michigan Department of Natural Resources (MDNR) initiated the Statewide Status and Trends Program (SSTP) during the spring of 2002. The division-wide SSTP uses standardized sampling methods in an effort to collect and evaluate data from a statewide perspective. These data include fisheries information from electrofishing, habitat measurements, and water quality sampling that will be used to monitor statewide status and trends of streams as well as to evaluate stocking and other management activities in streams. In 2005, we continued to coordinate and maintain the SSTP by developing and refining protocols, publishing a procedural document describing these protocols, and coordinating fish and habitat surveys. We continued to work with other Division personnel to refine the central database used to store all SSTP data, and we explored opportunities for collaboration with other agencies. These efforts will ensure that the SSTP progresses steadily into the future.

Findings: Jobs 1, 2, 3, 4, and 9 were scheduled for 2004-05, and progress is reported below.

Job 1. Title: Develop and refine sampling protocols, update survey manual.—In 2005, we continued to develop and refine the SSTP sampling protocols originally implemented in the 2002 field season based upon feedback from field personnel. We incorporated these refinements into an updated draft chapter for the Fisheries Division survey manual. The chapter describing SSTP

protocols was submitted for publication, edited, and approved for finishing (formatting) as Chapter 26 in the Fisheries Division survey manual (Schneider 2000). We expect the final document to be published in with a few months.

Job 2. Title: Coordinate fish and habitat surveys.—We continued to work with field personnel to identify suitable fixed, long-term monitoring sites for the SSTP and to provide guidance on the completion of fixed and random fish and habitat surveys scheduled for the 2005 field season. A total of 54 random sites and 33 fixed sites were scheduled for surveys. We do not know how many of these surveys were completed since fieldwork was still being conducted when this report was written. In 2004, surveys at all fixed sites scheduled for sampling (33) plus two additional fixed sites added to the rotation were completed. A total of 31 of 54 random sites scheduled for sampling were completed. Time and budgetary constraints reduced the number of random sites sampled in 2004.

Job 3. Title: Work to upgrade the capabilities of the FCS.—We worked with administrators of Fisheries Division’s central fish database, the Fish Collection System (FCS), to upgrade its data storage and retrieval capabilities. The FCS has received further upgrades to store and summarize temperature data from electronic temperature loggers. We identified and trained field personnel who would be responsible for entering temperature data into the FCS.

Additional querying capabilities have also been added to the FCS. For example, it is now possible to distinguish fixed and random Status and Trends surveys from each other. We also developed a Microsoft Access database to automatically query fish community and habitat data from the FCS. These improvements will assist in retrieval and summarization of data for future analyses.

Job 4. Title: Explore opportunities for collaboration with other agencies.—We have continued to explore opportunities for collaboration with other agencies. In particular, we are working with the United States Fish and Wildlife Service (USFWS) to establish two to three fixed sites and up to four random sites on Isle Royale. These sites will be monitored on a continuing basis by the USFWS.

Job 9. Title: Write annual performance report.—This progress report was prepared.

Literature Cited:

Schneider, J. C. (ed.) 2000. Manual of fisheries survey methods II: with periodic updates. Michigan Department of Natural Resources, Fisheries Special Report 25, Ann Arbor.

Prepared by: Todd C. Wills

Date: September 30, 2005