

## STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-81-R-5

Study No.: 230737

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

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

**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 state-wide 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 2004, we continued to implement, coordinate, and maintain the SSTP by developing and refining protocols and coordinating fish and habitat surveys. We also worked 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 through 4 and Job 9 were active this year; progress is reported below.

**Job 1. Title: Develop and refine sampling protocols, update survey manual.**—In 2004, we continued to develop and refine the SSTP sampling protocols originally implemented in the 2002 field season. We distributed standardized data sheets to all of the Fisheries Management Units

across the state to help ensure consistent and accurate data collection. In addition, we have addressed data collection issues brought to our attention by field personnel. These issues have been primarily concerned with “special cases” encountered in the field when collecting fish and habitat data (for example, what to do if catches at fixed, long-term monitoring sites are too low to allow reliable population estimates). Many of the original protocols have been implemented successfully and are proceeding smoothly.

We also drafted a 34-page chapter for the Fisheries Division survey manual to provide easily-accessible documentation of the current sampling protocols, including new developments and refinements, as well as a detailed explanation of the purpose and the design behind the SSTOP. This chapter will be published and added to the survey manual in the next fiscal year.

**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 SSTOP and to provide guidance on the completion of fish and habitat surveys at fixed and random sites that were scheduled for the 2004 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.

**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 been upgraded to store and summarize stream habitat data, as well as temperature data from electronic temperature loggers. Additional querying capabilities have also been added to the FCS. It is now possible to query the survey purpose field to distinguish Status and Trends surveys from other types of surveys. In addition, we can now readily identify complete and incomplete surveys. 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 explored opportunities for collaboration with other agencies, both within and outside the State of Michigan. In particular, we have spoken with representatives from the United States Forest Services’ National Resource Inventory System (NRIS) to explore collaboration on databases and data exchange. Dialogue between Fisheries Division personnel and NRIS representatives resulted in a meeting with the Division’s information management committee to discuss and work towards collaborative database efforts in the future.

We are also working with the Michigan Department of Information Technology’s Center for Geographic Information (CGI) to develop real-time, web-based data summaries for data collected as part of the SSTOP. This will help to ensure that the data collected under this program are readily available to both fisheries managers and the public. The Michigan Department of Environmental Quality has also expressed interest in the structure of the SSTOP and collaborative data collection as they develop their own long-term monitoring program.

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

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**Date:** September 30, 2004