

STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-80-R-15

Study No.: 230557

Title: Comprehensive analysis and improvement of Michigan statewide angler survey data

Period Covered: October 1, 2013 to September 30, 2014

Study Objectives: 1) Examine and define the objectives of angler surveys at a state-wide scale; 2) evaluate and improve efficiency of angler survey design and estimation techniques; 3) develop methods that will improve the spatial and temporal efficiency of estimates and data use; 4) develop conceptual and quantitative models that describe fishery dynamics and aid in management decision-making.

Summary: During this year of the study, we evaluated and researched statistical distributions and models that best fit and predict recreational inland and Great Lakes fisheries data, especially catch rate data. For the purposes of fulfilling the requirements of the new license structure, we reviewed and evaluated Lake Huron recreational fisheries dynamics, and ranked the importance of Lake Huron creel sites.

Findings: Jobs 6, 7, and 8 were scheduled for 2013-14, and progress is reported below.

Job 6. Title: Develop quantitative models that describe fishery dynamics and aid in management decision-making.—Evaluated and researched statistical distributions and models that can best fit and predict recreational inland and Great Lakes fisheries data, especially catch rate data. These data pose major challenges for analysis using traditional statistical methods, such as ordinary least squares. The challenges posed by recreational catch rate data include restricted range (non-negative), a “spike” of zero values (most anglers caught nothing; only few ones are lucky enough to catch a few fish), and skewed (some caught quite few fish). The literature on similar data exists most in econometric, health econometric, and insurance fields. I have evaluated related methods and applied these methods to improve Michigan recreational data analysis.

Job 7. Title: Prepare progress report and publish findings.—This performance report was completed as scheduled.

Job 8. Title: Document, synthesize, and assess the status and trend of the Lake Huron recreational fisheries.— For the purposes of fulfilling the requirements associated with new license structure, we reviewed and evaluated Lake Huron recreational fisheries dynamics and ranked the importance of Lake Huron creel sites. The ranking was based on the average angling effort and catch of each creel site. Average number of interviews collected and raw boat counts observed at each site were also calculated. Based on these considerations, we will adjust creel sites to be surveyed in Lake Huron in the coming years.

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Date: September 30, 2014