

## STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-80-R-8

Study No.: 230724

Title: The importance of trophic interactions for salmonine fisheries of the Great Lakes

Period Covered: October 1, 2006 to September 30, 2007

**Study Objective:** The overarching objective of this study is to gain an improved understanding of trophic interactions that influence the salmonine communities of the Great Lakes and how these interactions influence sport fisheries. Research will specifically address understanding uncertainty and variation in response of the salmonine-prey community to management actions, developing an improved understanding (in the form of a feeding model) of sea lamprey-host interactions, and developing new information on the energy dynamics of Chinook salmon.

**Summary:** This study began in 2002-03. Study objectives were achieved, and culminated in the preparation of a final set of publications and reports this year. Efforts over the past year included revision of one journal article that has been resubmitted to the journal, minor changes to one journal article at the page proof stage, submission of a book chapter, and preparation of two technical reports based on draft manuscripts. Over the entire life of this study, results have been reported in two Ph.D. dissertations (to be submitted with final report in 2008), eight journal articles (four submitted in 2003 (Bence 2003) and four to be submitted with final report in 2008), one manuscript submitted as a book chapter this year, and four technical reports (to be submitted with final report in 2008).

**Findings:** Job 7 was scheduled for 2006-07, and progress is reported below.

**Job 7. Title: Prepare final report.**—The findings of this study are being reported in a series of dissertations, journal papers, and technical reports. Much of this was prepared during previous years, with a final set of manuscripts prepared and revised during the past year. During the past year a book chapter authored by M. L. Jones and J. R. Bence entitled “Uncertainty and fishery management in the North American Great Lakes: lessons from applications of decision analysis” was written and submitted (in April 2007) for inclusion in a symposium book (Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative Symposium). An article authored by A. K. Peters et al., entitled “Factors affecting energy dynamics in Lake Michigan, Chinook salmon (*Oncorhynchus tshawytscha*)” was revised based on previous reviews and resubmitted (in June 2007) to the *Transactions of the American Fisheries Society*. Minor revisions to an article authored by A. K. Peters et al., entitled “Monitoring energetic status of Lake Michigan Chinook salmon using water content as a predictor of whole-fish lipid content” were made at the page proof stage for publication in the *Journal of Great Lakes Research*. Based on reviews and consideration of their content two articles which were previously submitted as journal articles were revised for publication as technical reports of the Quantitative Fisheries Center: Bence, J. R. et al., “Top-down effects of open-water salmonine predators in the Great Lakes”, and Szalai, E. B. et al., “Quantifying the effects of salmonine predation on alewife (*Alosa pseudoharengus*) and bloater (*Coregonus hoyi*) population dynamics in Lake Michigan.”

**References**

Bence, J. R. 2003. The importance of trophic interactions for salmonine fisheries of the Great Lakes. Michigan Department of Natural Resources, Federal Aid in Sport Fish Restoration, Project F-80-R-4, Study 724, Annual Performance Report, Ann Arbor.