

Assessments of Lake Trout Stocks in Lake Huron

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Background

Lake Trout is an ecologically and recreationally important species in Lake Huron. Since the changes in Lake Huron ecosystem lead to the collapse of Alewives and dramatic decline in Chinook Salmon, the importance of Lake Trout in the food web and the angler's creel has increased over the past decade. The purpose of this project is to examine the effectiveness of Lake Trout management strategies leading to informed management decisions. Survey-based work for this project since 1970 directly addresses many important management questions. How abundant are Lake Trout? Is the Sea Lamprey wounding rate of Lake Trout changing due to Sea Lamprey abundance control? What is the appropriate level of harvest? Is Lake Trout stocking effective? Are there enough wild Lake Trout to sustain the fishery? By answering these questions, the data from this study are used annually to represent Lake Trout status and trends in the main basin of Lake Huron across the international boundary, which is also required for Fisheries Division to meet the obligations agreed to in the 2000 Consent Decree for the 1836 Treaty-Ceded waters of Lake Huron.

The survey effort for this project consists of four components using Great Lakes survey vessels (Photo 1). The first component, and the backbone of the entire study, is an annual spring gill-net survey that includes 14 sampling stations and has consistently monitored Lake Trout in the main basin of Lake Huron from Drummond Island in the north to Harbor Beach in the south (Photo 2). The second component, the annual summer gill-net survey, includes four stations along the boundary between north-central and southern Lake Huron and studies the status of juvenile Lake Trout. The third survey component is an experimental summer bottom trawl survey in Thunder Bay and at a site near the Black River, which assesses young-of-year Lake Trout abundance and monitors Lake Whitefish recruitment and numbers of prey fish. The final component, a fall gill-net survey, measures the age and size composition of spawning Lake Trout.



Photo 1. Research Vessel (R/V) Chinook used for Lake Trout surveys in Lake Huron.



Photo 2. Lake Trout collected during the spring Lake Huron gill-net survey.

What are some of the key results?

Findings from 2015 field season further confirmed the observation that Lake Trout in the main basin of Lake Huron are moving from a dependence on hatchery stocking to naturally self-sustaining. The lake trout population size structure is well balanced lake-wide and a contribution of wild Lake Trout to the population is now over 50% for first time in 40 years. The redevelopment of self-sustaining lake trout populations in Lake Huron will have profound implications to fishery management. Timely analyses of the data from this study have led the Lake Huron Technical Committee to reach a recommendation of ceasing lake trout stocking in Lake Huron.

Where can I find the detailed results?

Results for this study are found in numerous publications available on the MDNR Alpena Fisheries Research Station's web page http://www.michigan.gov/dnr/0,4570,7-153-10364_52259_19056-333302--,00.html. In addition, project updates are presented at many different venues each year, including the annual Michigan Sea Grant Lake Huron fishery workshops and the Great Lakes Fisheries Commission's annual Lake Committee meetings.

What does this project do for fisheries managers and anglers?

The data from this study are crucial for evaluating the progress of Lake Trout restoration and the management of recreational and commercial Lake Trout fisheries in Lake Huron, particularly with the recent increases in wild recruitment and the need to manage a successful transition from a hatchery supported stock to one dominated by wild fish. Data from this study are shared with other fisheries agencies and are used by other research projects inside and outside of Fisheries Division. Fish stock assessments, for example, rely on these data to provide a set of tools that are used to better understand Lake Trout population dynamics and trends, and to advance managers' and anglers' understanding of the greater Lake Huron ecosystem. Accordingly, fisheries managers use the information from this project annually to determine stocking numbers and to set fishing regulations. The regulations of Lake Trout recreational fisheries in Michigan waters of Lake Huron, along with the regulations for other fish species, can be found by clicking "Rules & Regs" on the Fisheries Division website (<http://www.michigan.gov/fishing>).