

STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-81-R-4

Study No.: 465

Title: Assessment of lake whitefish populations in Michigan waters of Lake Superior.

Period Covered: October 1, 2002 to September 30, 2003

Study Objectives: (1) To specify what areal, and size or age, segments of the lake whitefish stocks are harvested by trap-net, gill-net, and hook-and-line fisheries. (2) To gather trap-net data needed to determine total allowable catches.

Summary: Most samples were collected as scheduled during 2003, though we are still trying to get an October sample from WFS-01. Data from these samples will be processed, analyzed, and then summarized in the final report. Scale samples collected in 2002 were aged and data were entered into the computer. Commercial and sport yield, and effort for 2002 are being analyzed for the final report. Catch-at-age models are being updated and used to calculate Total Allowable Catches.

Findings: Jobs 1 through 5 were scheduled for 2002-03, and progress is reported below.

Job 1. Title: Summarize creel survey data.—Lake whitefish creel survey data were collected in 2003 under F-81-R Study 427. Estimated lake whitefish sport harvest in 2002 and 2003 will be presented in the final report.

Job 2. Title: Summarize tribal data.—Commercial gill-net fisheries data are reported by the Chippewa Ottawa Resource Authority (CORA) for the Munising area (1836 Treaty Ceded waters) and by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) for Lake Superior waters near Marquette, Big Bay, Keweenaw Bay, Upper Entry, and Ontonagon (1842 Treaty Ceded waters). These data are incorporated into catch-at-age models and used to calculate Total Allowable Catches (TACs) in management zones where whitefish yield is shared between state-licensed and tribal commercial fishers. Data, calculations, and analyses will be presented in the final report.

Job 3. Title: Collect trap-net lake whitefish data.—State-licensed commercial fishers harvest lake whitefish with trap nets and submit yield and effort data to Michigan Department of Natural Resources in Lansing, Michigan. Marquette Fisheries Research Station personnel collected lake whitefish data dock-side at Upper Entry (WFS-01), Bete Grise (WFS-02), Big Bay (WFS-04), Marquette (WFS-04), and Munising (WFS-05). Summary statistics are generated from fishery and biological samples. All sampled lake whitefish are measured (total length to the nearest mm) and weighed (round weight to the nearest g). Scales are taken from each fish for age determination.

Job 4. Title: Analyze lake whitefish data.—Sport-fishery biological data gathered during 2003 will be examined during the upcoming winter. Biological data from 2002 sport fisheries were processed on schedule during 2003.

Catch, effort, and CPE statistics for state-licensed trap-net fisheries will be analyzed and presented in the final report.

Lake whitefish total annual mortality rates are derived from estimates of survival using coded age frequencies (Robson and Chapman 1961) pooled from 3-yr data sets. Instantaneous fishing and natural mortality rates are calculated for lake whitefish in shared zones through catch-at-age modeling.

Weight-length relationships and von Bertalanffy growth coefficients are calculated using 3-yr pooled data. Mean lengths and mean weights of lake whitefish in commercial trap-net catches are compared among management zones.

Age-structured stock-assessment models were employed to calculate allowable yields of lake whitefish in shared management zones MFS-4 and MFS-5 for the 2001, 2002, and 2003 fishing seasons, as mandated by the 2000 Consent Decree that governs sport and commercial fishing in 1836 treaty waters. Data from 2002 fisheries and assessments will be appended to models to generate harvest quotas for 2004.

Job 5. Title: Prepare reports.—This 2002-03 Study Performance Report was prepared during this study segment.

Reference:

Robson, D. S., and D. G. Chapman. 1961. Catch curves and mortality rates. Transactions of the American Fisheries Society 90:181-189.

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