

STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-80-R-4

Study No.: 692

Title: Influence of total length and condition at stocking on chinook salmon survival and time at large.

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

Study Objectives: There are six main objectives identified for this project. 1) To evaluate the influence of the total length of stocked chinook salmon on post-stocking survival. 2) To evaluate the influence of total length of chinook salmon at stocking on the age and size of fish returning to spawn. 3) To evaluate the cost per return of small versus large stocked chinook salmon. 4) To evaluate the influence of condition on survival of chinook salmon stocked at the same size. 5) To evaluate the influences of high and low condition on the return size and age of chinook salmon stocked at similar sizes. 6) To determine the cost per return of chinook salmon at two condition levels.

Summary: Fish for this study were to be stocked for three years beginning in 2001. The three years of stocking have been completed. The portion of the study evaluating the condition of chinook salmon at stocking has not yet been initiated due to delays in hatchery renovations at the Thompson hatchery and the need to work out appropriate rearing techniques to complete this objective. The returns of tags are increasing, as two year-classes have fully entered the fishery. At the time of completion of this report, 463 fish have been returned and analyzed from all years and sites.

Findings: Jobs 1 and 2 were scheduled for 2002-03, and progress is reported below.

Job 1. Title: Stock Fish.—Study fish have been stocked into Lake Michigan and Lake Huron tributaries for three years (2001, 2002, and 2003) as shown in Tables 1 and 2 for the years 2001, 2002, and 2003. Fish quality assessments have been conducted on each treatment prior to stocking and data are being compiled for future evaluations. In the fall/winter of 2003 we will evaluate the need to continue stocking for the study.

Job 2. Title: Recover tags.—In 2002, a total of 180 fish were returned and analyzed, and in 2003 the number had increased to 283. Of the 463 chinook that were returned, 304 were large fish from the Wolf Lake State Fish Hatchery and 159 were small fish from Platte River State Fish Hatchery. The majority of fish returned were stocked at Medusa Creek (N=238). The greatest number of salmon heads were returned from the Grand Haven fishery in Lake Michigan (N=101).

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Date: September 30, 2003

Table 1.—Definition of rearing locations and stocking sites for chinook salmon size-at-stocking evaluations. Fish were stocked for 3 years beginning in 2001.

Fish size	Rearing locations and stocking sites			
	Swan River	Medusa Creek	Little Manistee River	St. Joseph River
Large (>90 mm)	100,000 (3yrs) Wolf Lake Hatchery	100,000 (3yrs) Wolf Lake Hatchery	100,000 (3yrs) Wolf Lake Hatchery	100,000 (3yrs) Wolf Lake Hatchery
Small (<75 mm)	100,000 (3yrs) Platte Hatchery	100,000 (3yrs) Platte Hatchery	100,000 (3yrs) Platte Hatchery	100,000 (3yrs) Platte Hatchery

Table 2.—Number of chinook salmon stocked (recoverable tags) per treatment and location, 2001-2003.

Stocking location	2001		2002		2003	
	Large (>90 mm)	Small (<75 mm)	Large (>90 mm)	Small (<75 mm)	Large (>90 mm)	Small (<75 mm)
Swan River	102,749	84,703	84,027	95,473	100,698	94,038
Medusa Creek	94,462	75,348	96,524	100,424	98,471	98,768
Little Manistee River	98,978	79,719	96,424	91,137	98,057	94,284
St. Joseph River	71,029	85,751	73,562	68,496	70,943	71,201