

STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-81-R-2

Study No.: 513

Title: Evaluation of returns of salmonids to weirs in Michigan's waters of the Great Lakes.

Period Covered: October 1, 2000 to September 30, 2001

Study Objectives: (1) To annually monitor and record returns of chinook salmon, coho salmon, and steelhead trout to Michigan weir operation facilities. (2) To mark chinook salmon, coho salmon, and steelhead trout at index sites and provide annual estimates of size at age. (3) To collect data and report on contracted salmon harvest operations. (4) To provide annual data summaries of weir returns to be used in Management Unit reports, GLFC reports, MDNR web site updates, and for distribution to interested researchers and the public.

Summary: Data were collected during 2000 on chinook and coho salmon returning to six MDNR harvest weir facilities. Returns of coho salmon in 2000 were among the highest ever recorded for this species in Michigan. Marking and stocking of chinook salmon at three weir index sites was completed in spring of 2001, as scheduled. The audit report for 2000 operations was completed as scheduled, and is available electronically.

Job 1. Monitor and record data on returns of chinook salmon, coho salmon, and steelhead trout to Michigan weir operation facilities.

Findings: In coordination with management unit personnel, data were collected during fall 2000 on chinook and coho salmon returning to six MDNR harvest weir facilities. Returns of chinook salmon to Lake Michigan harvest facilities (24,452) were near the long-term average (Table 1). Returns of coho salmon were the highest recorded since 1984 (Table 2). Data collection for 2001 weir returns is ongoing; this information will be presented in future reports, along with information collected on steelhead and other (non-harvested) trout at facilities throughout the state. Biological data are collected on steelhead running in the Boardman and Platte rivers in the fall and in the Little Manistee River in both the spring and fall. Additionally, information regarding the number of fish observed and passed through weir facilities is available and efforts are currently underway to compile information regarding run size for inclusion in annual weir reports. Databases have been created to archive biological data collected from steelhead. Charlevoix staff are in the process of updating databases with current information and checking the accuracy of past information. Steelhead scales from Lake Michigan and Huron weir collections are being archived at the Charlevoix Great Lakes Station.

Job 2. Mark chinook salmon, coho salmon, and steelhead trout at index sites, and provide annual estimates of size at age and percent return.

Findings: Marking of chinook salmon stocked in the Little Manistee River, Medusa Creek, and the Swan River was completed in spring of 2001 (Table 3). Actual coded wire tag marking was conducted as part of Study 464, *Coded wire tag marking of salmonines in the Great Lakes*. These fish will begin to return to weir facilities in 2002, and will be used to provide us with a standard index of size-at-age for Lake Michigan and Lake Huron chinook salmon. Data on age-1 salmon growth and return rates will be presented in the 2001-02 Federal Aid Performance Report.

There is not an established long-term plan for marking steelhead at index sites since, unlike chinook salmon, steelhead returning to weirs can be readily aged with scale samples. In the future, other sites and / or species may be included in the weir index marking program, as a need is identified.

Job 3. Report on contracted salmon harvest operations.

Findings: The annual audit report for 2000 weir operations (Clevenger 2001) – detailing harvest by species, weir facility, and date of collection – was completed as scheduled, and is available electronically. Collection of data on 2001 contract weir harvest operations is not yet complete. At the end of the weir harvest season (approximately December 1) those data will be compiled for the 2001-02 audit report. This report will be used to reconcile financial arrangements between the MDNR and the harvest contractor.

Job 4. Produce annual data summaries of weir returns for use in Management Unit reports, GLFC reports, MDNR web site updates, and for distribution to interested researchers and the public.

Findings: Charlevoix staff are in the process of developing a summary report template, to be used by management unit personnel in completing annual weir operation and egg take technical reports. The Platte River harvest facility 10-year summary and subsequent annual reports will be completed during winter 2001-2002. In addition, we are developing data summary formats appropriate for web distribution. For example, weekly updates of 2001 harvest operations are currently available on the Division's Intranet page.

Literature Cited:

Clevenger, J. A., Jr. 2001. Summary of the chinook and coho salmon harvest from Michigan weirs on tributaries of Lakes Michigan and Huron, 2000. Michigan Department of Natural Resources Internal Report, Charlevoix.

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Dated: September 30, 2001

Table 1.—Estimated total number of chinook salmon harvested from weirs on tributaries to Lakes Michigan and Huron each fall, 1986–2000.

Sample year	Weir										Total (Lake Huron)
	Boardman	Manistee	Medusa	Platte	Thompson ₁ (Lake Michigan)	Swan	Van Eftan ₂	Total (Lake Michigan)	Swan	Van Eftan ₂	
1986	0	22,131	0	2,678	24,809	38,781	12,733	24,809	38,781	12,733	51,514
1987	4,902	31,841	11,230	7,787	55,760	51,447	12,472	55,760	51,447	12,472	63,919
1988	6,129	12,519	2,353	4,649	25,650	30,830	9,081	25,650	30,830	9,081	39,911
1989	5,809	18,338	3,040	1,899	29,086	30,119	3,891	29,086	30,119	3,891	34,010
1990	6,236	19,499	6,533	1,761	34,029	19,521		34,029	19,521		19,521
1991	5,556	21,062	2,127	4,398	33,143	23,048	8,319	33,143	23,048	8,319	31,367
1992	3,139	15,747	4,038	4,171	27,095	37,862	7,913	27,095	37,862	7,913	45,775
1993	2,299	12,911	3,021	3,109	21,340	34,994	2,300	21,340	34,994	2,300	37,294
1994	3,025	11,888	3,030	1,162	19,105	19,771	1,218	19,105	19,771	1,218	20,989
1995	4,547	13,079	4,714	3,943	26,283	30,320	---	26,283	30,320	---	30,320
1996	5,705	17,120	6,548	4,145	33,518	25,615	---	33,518	25,615	---	25,615
1997	3,040	15,443	4,036	1,659	24,178	17,219	---	24,178	17,219	---	17,219
1998	2,665	7,326	1,277	2,380	13,648	11,654	---	13,648	11,654	---	11,654
1999	6,004	18,773	3,551	3,242	31,570	24,884	---	31,570	24,884	---	24,884
2000	4,549	13,030	3,904	2,345	24,452	11,552	624	24,452	11,552	---	11,552
Average	3,975	15,669	3,713	3,083	26,479	25,476		26,479	25,476		29,097

1—Data compilation on harvest from Thompson Creek (Lake Michigan) is not yet complete; harvest at this facility in most years does not exceed 1,000 fish.

2—The harvest weir at Van Eftan Creek has not been operated since 1994.

Table 2.—Estimated total number of coho salmon harvested from weirs on tributaries to Lake Michigan each fall, 1983-2000.

Sample year	Weir						Total (Lake Michigan)
	Boardman	Little Manistee	Medusa ¹	Platte	Thompson ¹		
1983	---	24,264		154,179		178,443	
1984	---	33,764		131,692		165,456	
1985	---	15,177		74,532		89,709	
1986	---	16,724		45,266		61,990	
1987	306	15,101		50,300		65,707	
1988	477	4,467		28,310		33,254	
1989	288	14,023		44,612		58,923	
1990	141	10,030		22,516		32,687	
1991	64	12,300		25,730		38,094	
1992	25	13,400		33,072		46,497	
1993	182	18,096		38,911		57,189	
1994	1,530	562		29,491		31,583	
1995	147	355		51,997		52,499	
1996	209	2,584		49,816		52,609	
1997	3,804	781		85,556		90,141	
1998	1,127	1,471		83,059		85,657	
1999	101	526		43,017		43,644	
2000	5,934	590	10	102,682	735	109,951	
Average	956	9,696		57,618		68,107	

¹—Data compilation on harvest from Thompson Creek and Medusa Creek is not yet complete; harvest at these facilities in most years does not exceed 1,000 fish.

Table 3.—Number of spring fingerling chinook salmon marked with coded-wire tags and stocked in 2001 at weir index stocking sites in lakes Michigan and Huron. Number tagged is not corrected for tag retention or fin clip rates.

Study number	Stocking site	Number tagged	Tag retention (%)	Stocking date	Net pen (Y/N)
513/692	Medusa Creek, Charlevoix	203,506	88.8	06-05-01	Yes
482/513/692	Swan River, Rogers City	203,839	94.5	05-15-01	No
513/692	Little Manistee River	203,946	92.7	05-14-01	No