

STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-81-R-5

Study No.: 230462

Title: Charter boat fishing effort, harvest and harvest rate in the Michigan waters of the Great Lakes

Period Covered: October 1, 2003 to September 30, 2004

Study Objectives: To obtain a continuous annual record of charter boat fishing effort, harvest, and harvest rate directed towards the major sport-fish in the Michigan waters of the Great Lakes. To determine the ratio of resident to non-resident charter anglers. To provide a measure of sea lamprey occurrence on lake trout and chinook salmon to the USFWS.

Summary: This report presents results from the 2003 charter angling season. Similar data are being collected for the 2004 season; these will be summarized in next year's report.

In March of 2003, MDNR Charlevoix Fisheries Research Station personnel mailed harvest forms, instructions on how to fill-out and mail the forms, and grid maps of the Great Lakes, to all charter fishing operators who possessed a license to fish the Michigan waters of the Great Lakes and their major tributaries. State of Michigan Public Act 451 (Act 22) requires all charter operators to record their daily fishing effort and harvest on these forms and return them to the department on a monthly basis. During the 2003 data collection season, Charlevoix staff sent post card or certified mail notification to delinquent charter operators and found that 98% of all charter operators complied with State-mandated reporting requirements by the end of the season (a higher rate than 2002). In 2003, Charlevoix staff entered these data into a database and summarized the data by January of 2004. They used three major methods to share study results. First, they produced a written report of harvest, summarized by Great Lake, and mailed this to all charter operators in April 2003, as mandated by Michigan State Public Act 451. Second, they provided more detailed harvest results (e.g. port) in the form of presentations to charter organizations and Citizen Advisory Groups. Third, they began posting these data on the MDNR website.

A majority of the charter anglers in Michigan fished between April and October 2003; therefore, all of the values presented in this report do not include charter angling that occurred outside that time frame. All values in this report include charter effort and harvest that occurred in both the Great Lakes systems *and* their major tributaries. Tributary charter fishing occurs on the Manistee, Muskegon and St. Joseph Rivers of Lake Michigan and the Au Sable River of Lake Huron.

In April through October of 2003, charter anglers (summed across all sites) spent 5,673 fewer hours fishing than they did in 2002. Overall, twenty-seven percent of all charter anglers were non-residents, which does not differ significantly from 2002. Overall, charter anglers harvested 15,429 fewer fish (total = 214,571) than they did in 2002. Summing the harvest across all Great Lakes, charter anglers harvested more chinook salmon, walleye and lake trout in 2003, and fewer yellow perch, coho salmon, rainbow trout and brown trout. Similar to previous years, charter anglers most often observe sea lampreys on chinook salmon and lake trout from Lakes Huron, Michigan and Superior. In 2003, sea lamprey incidence on chinook salmon and lake trout harvested by charter anglers from Lake Michigan reached its highest level since 1990. Sea lamprey incidence on

chinook salmon and lake trout harvested by charter anglers in Lake Huron and Lake Superior remains within a range observed over the last 10 years.

Findings: Jobs 1 through 4 were scheduled for 2003-04, and progress is reported below.

Job 1. Distribute data forms.—In March 2003, Charlevoix personnel mailed charter report forms, instructions on how to fill-out and mail the forms, and grid maps of the Great Lakes to approximately 500 charter operators. With these mailings, personnel reminded operators that they were required by law to complete the form every time they fished and that the report must be mailed to Charlevoix MDNR by the tenth day of the following month.

Job 2. Data entry and compliance.—As charter report forms arrived at the Charlevoix Station in 2003, personnel checked the forms for completeness. If incomplete, they returned the forms to charter operators with an explanation and request for completion. In some cases, Charlevoix personnel did not receive report forms by the due date; therefore, they sent post-card notices to delinquent charter boat operators requesting that the form be sent. The first notice was sent after an operator was delinquent for 10 days; the second after 30 days. During 2003, an average of 38% of charter operators was delinquent for 10 days and 22% for at least 30 days. If the first two notices did not elicit a response, Charlevoix personnel sent a final notice through certified mail, which stated that it would be the last notice. By the end of December 2003, 98% of all charter operators had complied with the law. Compliance in 2003 was better than 2002 (93%).

Beginning in 2003, Charlevoix staff increased their level of coordination with Law Enforcement to identify the reasons for noncompliance. This enabled Charlevoix staff to identify those operators who failed to submit forms for acceptable reasons (e.g. stopped fishing during the middle of the season); therefore reducing the percentage of noncompliant operators. Furthermore, the coordination effort enabled Charlevoix staff to identify and add operators who were absent from the database, improving the accuracy of effort and harvest totals for the following year. MDNR's Law Enforcement Division handled all remaining delinquent cases, where loss of inspection certificates was more probable.

Charlevoix and Lansing personnel transferred the data from the charter report forms to a charter database. The charter database currently contains 14 consecutive years of complete data.

Job 3. Quality control and education.—Between October 1, 2003 and September 30, 2004, the charter program biologist made presentations at Sea Grant charter boat workshops and MDNR Citizen's Advisory Meetings, both of which were well-attended by charter operators. These workshops and meetings provided an opportunity for the biologist to (1) share local and lake-wide fishing data; (2) educate charter operators about the importance of accurate and timely data reporting, (3) explain how to interpret results and how the data are used to address fisheries management concerns; (3) address questions and get feedback about the program; and (4) promote positive and trusting relationships between the public and the MDNR. Furthermore, Charlevoix personnel emphasized the importance of accurate reporting throughout the entire season via telephone conversations with charter operators.

Job 4. Compile data and write annual reports.—A total of 17,531 Great Lake charter excursions took place during 2003. Data from these excursions are summarized by lake in Tables 1 through 5. They are also presented in a summary report entitled *Charter Boat Catch and Effort from the Michigan Waters of the Great Lakes, 2003*. Copies of this report, as mandated by law, were mailed to all charter operators during April 2003. It is also available on the MDNR website <http://www.michigandnr.com/PUBLICATIONS/PDFS/fishing/research/GreatLakesCharter/2003CharterReport.pdf>. Summary tables for individual ports are also available at this website. Two MDNR

Fisheries Technical Reports, *Charter boat catch and effort from the Michigan waters of the Great Lakes 2000* (Rakoczy and Wesander-Russell 2003) and *Charter boat catch and effort from the Michigan waters of the Great Lakes 2001* (Rakoczy and Wesander-Russell 2003) are nearing completion.

In April-October of 2003, charter anglers spent 442,451 hours fishing the Michigan waters and major tributaries of the Great Lakes, 5,673 fewer hours than they did in 2002. From these total hours, 70% occurred on Lake Michigan, 13% on Lake Huron, 10% on Lake Erie, 4% on Lake Superior, and 3% on the St. Clair System (St. Clair River, Lake St. Clair, and the Detroit River). In April-October of 2003, charter anglers conducted a total of 17,531 excursions, which differs very little from the number of excursions that took place in 2002 (17,344). The number of charter excursions has been fairly constant since 1998 (Table 6). During April-October of 2003, 27% of the 75,150 charter anglers were non-residents, which is very similar to the percentage in 2002.

In April-October of 2003, charter anglers (summed across all the Great Lakes) harvested a total of 65,715 chinook salmon, 50,148 yellow perch, 44,666 walleye, 25,146 lake trout, 10,903 coho salmon, 10,126 rainbow trout, and 1,588 brown trout. Compared to 2002, they harvested more chinook salmon, walleye and lake trout, and fewer yellow perch, coho salmon, rainbow trout and brown trout.

On the individual Great Lakes, charter anglers in Lake Michigan had higher harvest rates of chinook salmon in 2003 than they did in 2002. Chinook harvest rates in Lakes Huron and Superior were lower in 2003 compared to 2002 (Table 7). Coho harvest rates were lower in all three of the above lakes (Table 7). Compared to 2002, rainbow trout harvest rates in 2003 were lower in Lakes Michigan and Huron, but higher in Lake Superior (Table 7). Brown trout and lake trout harvest rates between 2002 and 2003 varied, depending on lake (Table 7), with the greatest change occurring in Lake Huron, where lake trout harvest rate increased from 12.7 per 100 angler hours in 2002 to 20.6 per 100 angler hours in 2003. Personal communications with charter anglers suggests Lake Huron charter operators often changed their targeted species in 2003 from chinook salmon to lake trout because they were discouraged with the status of the chinook fishery. Port-specific salmonine catch rates for lakes Michigan, Huron, and Superior are presented in Table 8.

In 2003, Lake St. Clair and Lake Erie yellow perch harvest rates were lower and walleye harvest rates were higher than they were in 2002 (Table 9). In Lake Huron, yellow perch harvest rates in 2003 were similar to those in 2002 and walleye harvest rates in 2003 were somewhat higher than they were in 2002 (Table 9). (Note: Percid rates should be interpreted with some caution since they are currently not based on “targeted” effort.)

In 2003, sea lamprey incidence on both chinook salmon and lake trout harvested by charter anglers from Lake Michigan reached its highest level since 1990 (Table 10). In Lake Huron, sea lamprey incidence on chinook salmon was greater in 2003 compared to 2002, and sea lamprey incidence on lake trout was lower in 2003 compared to 2002. In Lake Superior, there were no reports of sea lamprey incidence on chinook salmon and sea lamprey incidence on lake trout was slightly lower in 2003 compared to 2002 (Table 10). Sea lamprey incidence on chinook salmon from Lake Michigan is lower than Lake Huron; however, sea lamprey incidence on lake trout from Lake Michigan is now higher than Lake Huron. Sea lamprey incidence on both species in Lake Huron is still well below the level of incidence observed in the early 1990s, but the increase in Lake Michigan raises some concerns about the effectiveness of treatment in that lake. In Lake Superior, sea lamprey occurrence on chinook salmon and lake trout remains within a range of observed values from the last 10 years (Table 10).

Literature cited:

Rakoczy G. P and D. Wesander-Russell. In press. Charter boat catch and effort from the Michigan waters of the Great Lakes, 2000. Michigan Department of Natural Resources Fisheries Technical Report, Ann Arbor.

Rakoczy G. P and D. Wesander-Russell. In press. Charter boat catch and effort from the Michigan waters of the Great Lakes, 2001. Michigan Department of Natural Resources Fisheries Technical Report, Ann Arbor.

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Dated: September 30, 2004

Table 1.—Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) from charter boats on the Michigan waters of Lake Michigan (and its tributaries), April through October 2003.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.034	0.870	499	1,780	1,669	727	4,012	1,786	52	10,525
Chinook salmon	0.185	4.724	76	6,065	4,788	7,790	30,072	7,940	405	57,136
Rainbow trout	0.031	0.794	175	2,057	1,740	1,866	2,437	538	785	9,598
Brown trout	0.004	0.098	230	434	107	149	214	51	5	1,190
Lake trout	0.026	0.671	4	1,260	1,689	2,603	2,372	190	2	8,120
Yellow perch	0.053	1.345	0	2,152	2,101	4,115	6,479	1,420	4	16,271
Walleye	0.006	0.159	0	163	485	325	558	181	207	1,919
Other	0.001	0.026	8	4	146	74	30	35	12	309
Lamprey on:										
Chinook salmon			2	12	18	119	430	104	2	687
Lake trout			0	16	35	59	82	3	0	195
Angler hours			4,482	31,472	41,446	62,623	125,587	35,549	6,913	308,072
Angler trips			679	5,246	6,673	10,680	21,296	6,332	991	51,897
Anglers										
Resident			385	3,171	4,277	7,276	15,225	4,663	489	35,486
Nonresident			301	2,075	2,415	3,412	6,081	1,669	505	16,458
Charter excursions			171	1,126	1,517	2,495	4,905	1,557	323	12,094

Table 2.—Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) from charter boats on the Michigan waters of Lake Huron (and its tributaries), April through October 2003.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.005	0.100	4	35	35	88	54	50	10	276
Chinook salmon	0.146	3.080	56	1,019	1,305	1,584	3,451	1,065	56	8,536
Rainbow trout	0.007	0.155	2	48	103	144	114	17	2	430
Brown trout	0.007	0.141	1	23	46	147	143	32	0	392
Lake trout	0.206	4.345	2	1,055	2,911	3,306	3,848	898	21	12,041
Yellow perch	0.008	0.179	0	0	11	48	129	307	0	495
Walleye	0.033	0.686	3	27	412	1,007	423	27	1	1,900
Other	0.004	0.089	0	3	54	140	40	10	0	247
Lamprey on:										
Chinook salmon			0	63	58	147	196	48	2	514
Lake trout			0	20	31	33	51	18	0	153
Angler hours			286	4,589	10,476	17,976	20,238	4,579	201	58,343
Angler trips			44	821	1,831	3,128	3,604	851	39	10,318
Anglers										
Resident			43	770	1,677	2,652	3,102	767	33	9,044
Nonresident			1	51	154	476	502	84	6	1,274
Charter excursions			14	221	490	825	962	247	12	2,771

Table 3.—Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) from charter boats on the Michigan waters of Lake Erie (Grids 500, 701, 702, 703, 801 and 802), April through October 2003.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.000	0	0	0	0	0	0	0	0
Chinook salmon	0.000	0.000	0	0	0	0	0	0	0	0
Rainbow trout	0.000	0.004	0	1	4	2	0	0	0	7
Brown trout	0.000	0.000	0	0	0	0	0	0	0	0
Lake trout	0.000	0.000	0	0	0	0	0	0	0	0
Yellow perch	0.611	16.127	0	103	1,360	1,506	10,768	11,521	2,078	27,336
Walleye	0.844	22.287	168	1,875	23,513	10,458	708	1,054	0	37,776
Other	0.024	0.635	5	130	485	140	48	37	232	1,077
Lamprey on:										
Chinook salmon			0	0	2	0	0	0	0	2
Lake trout			0	0	0	0	0	0	0	0
Angler hours			595	2,436	23,404	11,798	3,600	2,311	595	44,738
Angler trips			67	446	4,547	2,229	680	475	104	8,548
Anglers										
Resident			59	360	4,054	1,922	587	407	81	7,470
Nonresident			8	86	493	307	93	68	23	1,078
Charter excursions			26	97	886	433	135	92	26	1,695

Table 4.—Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) from charter boats on the Michigan waters of Lake Superior, April through October 2003.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.006	0.202	0	6	48	33	10	5	0	102
Chinook salmon	0.002	0.083	0	1	10	14	15	2	0	42
Rainbow trout	0.005	0.170	0	2	53	23	6	2	0	86
Brown trout	0.000	0.010	0	0	4	0	1	0	0	5
Lake trout	0.272	9.871	0	58	1,031	2,038	1,545	292	21	4,985
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.003	0.117	0	1	7	48	3	0	0	59
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	12	15	4	2	0	118
Angler hours			0	225	3,989	7,356	5,604	1,063	78	18,315
Angler trips			0	33	523	958	768	150	14	2,446
Anglers										
Resident			0	16	274	560	467	80	8	1,405
Nonresident			0	17	249	398	301	70	6	1,041
Charter excursions			0	8	109	193	156	34	5	505

Table 5.—Total harvest per hour, harvest per excursion, number harvested, and fishing effort (angler hours, trips, and charter excursions) from charter boats on the Michigan waters of the St. Clair system (Lake St. Clair, St. Clair River and Detroit River), April through October 2003.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.000	0	0	0	0	0	0	0	0
Chinook salmon	0.000	0.002	1	0	0	0	0	0	0	1
Rainbow trout	0.000	0.011	0	0	0	0	5	0	0	5
Brown trout	0.000	0.002	0	0	1	0	0	0	0	1
Lake trout	0.000	0.000	0	0	0	0	0	0	0	0
Yellow perch	0.466	12.974	3	39	536	796	878	1,765	2,029	6,046
Walleye	0.237	6.590	840	1,124	330	521	205	51	0	3,071
Other	0.353	9.843	0	1	1,527	1,500	1,104	425	30	4,587
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	0	0	0	0	0	0
Angler hours			1,949	2,645	2,025	2,708	1,783	1,068	805	12,983
Angler trips			246	347	324	408	262	172	135	1,894
Anglers										
Resident			182	306	266	349	202	157	130	1,592
Nonresident			64	41	58	59	60	15	5	302
Charter excursions			58	73	88	110	67	40	30	466

Table 6.—Number of charter excursions on the Michigan waters of the Great Lakes (including tributaries), April through October 1990-2003.

Lake	Year													
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Michigan	13,467	13,604	10,995	10,298	10,116	9,996	10,344	10,627	12,333	11,382	11,714	11,224	11,924	12,094
Huron	4,010	3,442	2,521	2,307	2,182	2,599	2,592	2,684	3,210	3,123	2,760	2,867	2,874	2,771
Erie	1,684	1,445	1,679	1,881	1,661	1,781	1,775	1,727	1,679	2,380	1,836	1,947	1,870 ¹	1,695
Superior	755	791	743	618	455	515	524	497	517	607	482	477	430	505
St. Clair	779	643	509	414	299	336	407	394	432	389	348	433	246 ¹	466
Total	20,695	19,925	16,447	15,518	14,713	15,227	15,642	15,929	18,171	17,881	17,140	16,948	17,344 ¹	17,531

¹Corrected values. All years prior to 2002 will be reviewed and updated in the next report.

Table 7.—Harvest rates (fish per 100 angler hours) by charter anglers for salmonines on lakes Michigan, Huron, and Superior during 1990-2003.

Lake/species	Year													
	90	91	92	93	94	95	96	97	98	99	00	01	02	03
Michigan														
Coho salmon	3.9	2.8	3.4	4.5	2.6	2.2	2.9	3.8	4.8	3.4	5.7	3.5	5.0	3.4
Chinook salmon	7.4	7.0	4.9	4.0	4.0	5.0	9.0	9.6	8.1	8.9	12.4	11.6	16.1	18.5
Rainbow trout	4.0	7.2	6.5	5.0	5.2	3.0	6.3	4.8	4.0	3.4	3.0	4.4	3.4	3.1
Brown trout	0.6	0.8	0.4	0.7	1.1	0.7	1.1	1.5	0.6	0.7	1.3	0.6	0.7	0.4
Lake trout	8.4	8.7	7.6	9.7	10.4	10.2	7.5	7.2	9.4	6.2	6.0	4.9	3.4	2.6
Huron														
Coho salmon	0.2	0.2	0.2	0.3	0.3	0.1	0.4	0.2	0.4	0.9	0.6	0.5	2.1	1.0
Chinook salmon	6.0	6.4	6.4	7.2	8.3	11.7	11.8	18.5	16.1	15.7	12.1	12.3	18.2	14.6
Rainbow trout	0.3	0.6	0.7	1.4	1.3	2.6	2.6	2.0	1.3	1.3	1.3	1.7	1.6	0.7
Brown trout	0.1	0.2	0.7	1.7	2.1	1.9	0.8	0.4	0.6	0.2	0.2	0.2	0.4	0.7
Lake trout	9.8	7.9	6.6	4.3	6.3	6.6	9.4	9.8	12.6	11.7	12.8	11.1	12.7	20.6
Superior														
Coho salmon	1.2	3.2	1.3	1.0	1.6	1.7	1.9	1.1	0.7	2.3	0.8	1.7	2.2	0.6
Chinook salmon	0.3	0.4	0.3	0.3	0.1	0.2	0.3	0.1	0.7	0.6	0.5	0.6	0.4	0.2
Rainbow trout	0.3	0.3	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.1	0.3	0.3	0.5
Brown trout	0.1	0.2	0.1	0.0	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Lake trout	28.5	27.9	25.5	28.2	25.3	26.2	28.5	26.9	25.2	26.3	27.2	30.1	27.6	27.2

Table 8.—Total catch per excursion (number of fish, all salmonines combined) by charter anglers at various ports on lakes Michigan, Huron, and Superior, April through October 1990-2003.

Great Lake/Port	Year													
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Lake Michigan														
St. Joseph/Benton Harbor	7.3	8.7	7.3	8.1	7.7	7.7	10.0	9.8	9.3	7.0	10.3	7.4	8.9	8.4
Grand Haven	5.0	5.5	4.7	5.3	5.0	5.2	6.1	6.7	6.7	5.3	7.8	6.6	6.5	7.1
Ludington	9.3	11.1	8.4	8.8	7.4	7.2	10.8	8.4	8.1	8.8	9.1	9.0	9.3	9.4
Manistee	6.2	8.0	5.7	6.2	5.8	6.9	10.3	8.8	8.2	7.5	9.6	6.8	9.2	8.2
Frankfort/Elberta	7.1	7.5	5.8	6.6	6.2	6.7	8.8	7.6	8.2	8.1	7.6	7.3	7.7	7.6
Leland	7.2	9.5	9.0	6.9	9.1	8.6	9.4	9.1	8.1	7.1	6.9	6.2	7.1	6.4
Lake Huron														
Rogers City	3.2	3.3	2.5	3.9	5.2	6.6	5.9	8.2	5.4	6.3	4.1	3.9	4.1	6.2
Alpena	3.4	3.5	4.7	4.9	4.7	5.1	5.2	6.4	6.6	7.2	6.8	6.2	8.1	7.3
Oscoda	4.0	4.0	3.6	3.0	3.2	5.2	6.2	7.1	7.1	7.0	5.8	4.6	6.5	6.7
Grindstone City	5.6	6.1	5.9	4.7	5.5	7.0	8.0	9.3	10.7	10.1	10.6	9.4	12.3	12.7
Harbor Beach	3.6	2.9	3.2	2.8	3.5	4.9	6.6	6.5	6.7	7.1	5.9	6.5	7.2	7.8
Lake Superior														
Marquette	10.9	10.9	11.4	10.9	8.3	11.2	13.0	11.9	7.0	10.4	11.5	8.9	11.3	9.9
Ontonagon	12.5	11.5	14.1	14.0	10.1	11.1	15.9	11.9	13.7	14.8	13.2	14.5	13.7	14.1
Black River Harbor	12.0	12.9	10.6	13.5	14.1	12.6	14.0	13.1	10.7	13.6	12.3	15.9	14.8	12.7

Table 9.—Catch rates (fish per 100 angler hours) by charter anglers for yellow perch and walleye on lakes Huron, St. Clair, and Erie during 1990-2003.

Lake/Species	Year													
	90	91	92	93	94	95	96	97	98	99	00	01	02	03
Huron														
Yellow perch	9.2	7.4	6.3	4.0	4.9	3.7	2.8	1.6	2.5	8.4	3.9	2.8	0.9	0.8
Walleye	5.1	7.1	6.7	7.4	6.7	3.5	3.4	3.0	3.7	3.4	4.2	3.0	2.3	3.3
St. Clair														
Yellow perch	13.8	16.8	15.1	40.4	85.5	66.9	100.3	103.3	42.9	41.3	48.3	55.1	107.9 ¹	46.6
Walleye	32.4	20.4	12.5	18.4	12.3	15.5	12.3	13.1	16.1	16.3	7.2	22.2	13.3 ¹	23.7
Erie														
Yellow perch	29.4	34.1	43.3	43.9	28.7	51.7	78.4	74.6	70.4	67.2	53.5	57.7	97.4 ¹	61.1
Walleye	74.5	62.8	78.5	81.4	69.6	82.4	82.2	83.9	106.7	80.0	82.9	85.9	74.0	84.4

¹Corrected values. All years prior to 2002 will be reviewed and updated in the next report.

Table 10.—Sea lamprey incidence (lamprey per 100 fish) for chinook salmon and lake trout harvested by the charter fishery in the Michigan waters of the Great Lakes, April through October 1990-2003.

Species/Year	Great Lake		
	Michigan	Huron	Superior
Chinook salmon			
1990	0.5	18.6	0.0
1991	0.3	13.9	8.0
1992	0.2	13.6	0.0
1993	0.1	7.6	0.0
1994	0.3	7.1	0.0
1995	0.3	6.2	3.0
1996	0.1	3.9	0.0
1997	0.2	4.7	0.0
1998	0.4	5.2	0.0
1999	0.2	4.6	0.0
2000	0.4	7.3	1.1
2001	0.5	4.6	0.0
2002	0.8	4.2	0.0
2003	1.2	6.0	0.0
Lake trout			
1990	1.8	6.6	1.8
1991	1.2	5.7	1.6
1992	0.8	4.6	0.8
1993	0.6	2.1	0.5
1994	0.6	3.3	1.1
1995	1.0	2.7	0.7
1996	0.7	1.9	1.0
1997	1.1	3.0	0.6
1998	1.1	2.1	0.5
1999	1.2	1.8	0.5
2000	1.3	2.2	0.4
2001	1.3	2.0	0.7
2002	2.2	1.5	0.4
2003	2.4	1.3	0.3