

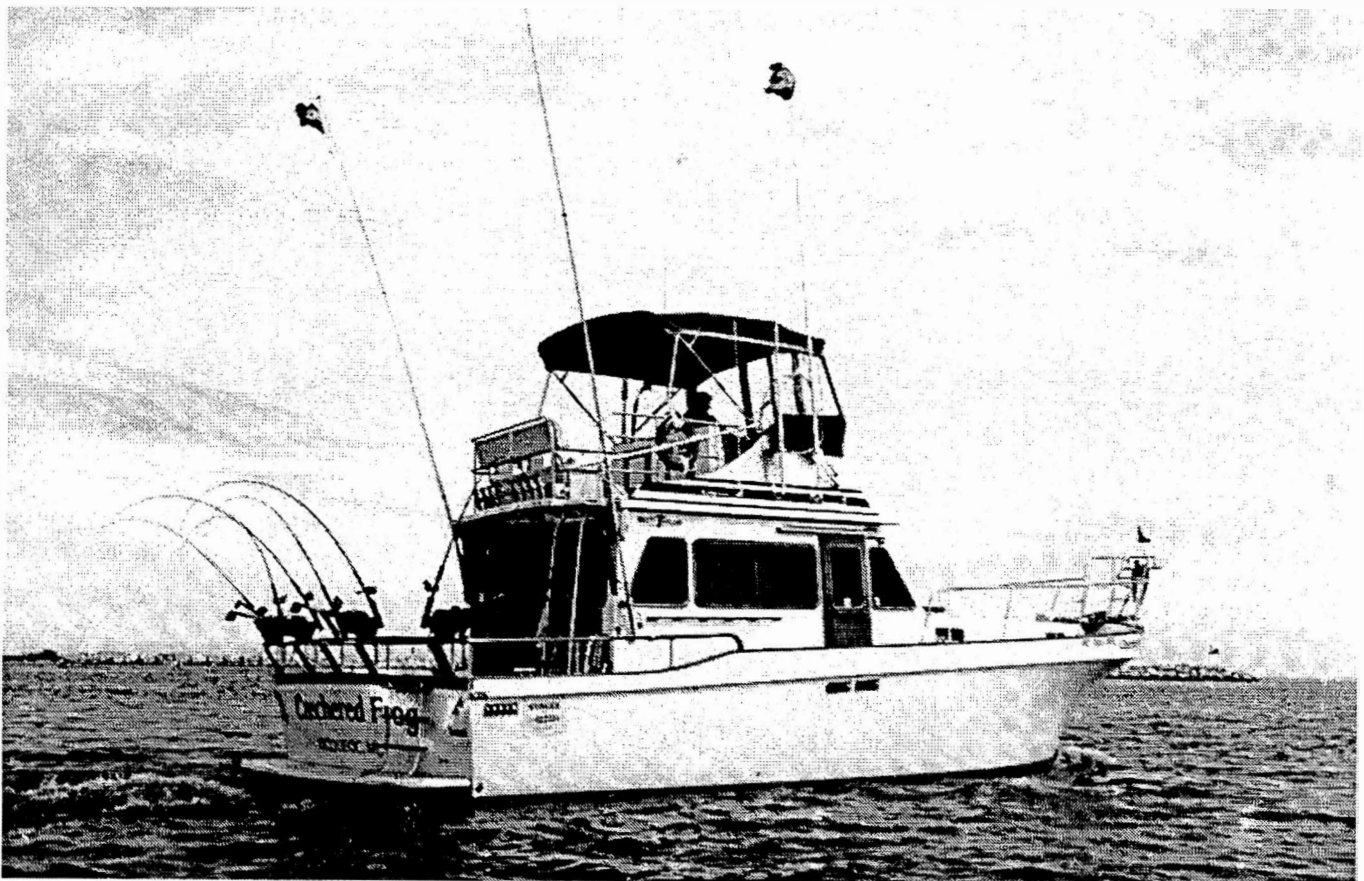
FISHERIES DIVISION TECHNICAL REPORT

Number 94-7

August 15, 1994

Charter Boat Catch and Effort from the Michigan Waters of the Great Lakes, 1993

Gerald P. Rakoczy and Ronald F. Svoboda



STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

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Charter Boat Catch and Effort from the Michigan Waters of the Great Lakes, 1993

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Abstract.—Legislation enacted in 1992 by the State of Michigan requires all charter boat operators to report sportfishing catch and effort to the Michigan Department of Natural Resources. The objective of the catch and activity reporting system is to obtain a continuous annual record of the number, type, and location of fish harvested by charter boat clients in Michigan.

Ninety-eight percent of the 569 charter fishing operators complied with the law by returning their completed catch reporting forms in 1993. These operators reported making 15,518 charter fishing excursions during April through October. The total number of charter excursions decreased by 929 (-6%) in 1993 compared to 1992. Over 411,000 angler hours were spent fishing by some 68,000 charter clients. The distribution of charter fishing excursions was: 66% Lake Michigan, 15% Lake Huron, 12% Lake Erie, 4% Lake Superior, and 3% Lake St. Clair. Over 226,000 fish were reported harvested. The harvest was composed of about 95,000 yellow perch, 46,000 walleye, 35,000 lake trout, 15,000 rainbow trout, 15,000 chinook salmon, 13,000 coho salmon, and 2,800 brown trout. The numbers of fish harvested in all species categories increased in 1993 compared to 1992, except for chinook salmon and rainbow trout.

Michigan's charter boat industry has grown from 250 operations in 1979 to nearly 900 in 1993. Approximately 600 of these charter boats are used for sport fishing excursions on Michigan's Great Lakes waters. The charter fishing industry provides the State of Michigan each year with significant economic benefits. For example, 239,000 clients spent an estimated \$21 million in addition to charter fees in 1985, and the total statewide investment by charter boat firms in the same year was estimated to exceed \$30 million (Mahoney et al. 1986).

The Michigan Legislature in 1992 passed Act 115, Public Acts of 1992. This legislation re-authorized and strengthened the law, first enacted during 1989 (Act 22, Public Acts of 1989), which required the reporting of sport catch and effort by the charter fishing industry. The legislation was supported by both Michigan Charter Boat Association (MCBA), an industry representative, and Michigan Department of Natural Resources (MDNR). Among other provisions, the law provides more stringent penalties for charter fishing operators who are

delinquent by more than 60 days with their catch reports. Also, the law requires that all operators maintain on board an up to date daily log of their catch and fishing activity.

The objective of the catch reporting system is to obtain a continuous annual record of fishing effort and the number, type, and location of fish harvested by charter boat anglers in Michigan. These data will aid MDNR's Great Lakes fishery management efforts by providing valuable trend information about charter harvest and catch rates, which reflect the status of fish stocks important to the industry. The data will also allow MCBA to monitor the health and welfare of its industry.

Methods

The Michigan Charter Boat Daily Catch Report form was developed in 1989 by a committee made up of two members each from MDNR and MCBA (Figure 1). Forms and grid maps of the Great Lakes were mailed to 569 known charter operators during March 1993. Charter operators were identified from previous years' lists of reporting operators. Charter operators who used their vessels for fishing were informed that they were required by law to complete the form each time they fished. A form was to be mailed by the tenth of each month to MDNR's Charlevoix Fisheries Station.

The data form requires the following information: an assigned identification number for each charter boat, lake, date fished, port, grid, hours fished, number of resident and nonresident anglers, catch (number) of major species, and number of sea lamprey seen attached to chinook salmon or lake trout. Space was also provided on the form for comments or observations.

Completed data forms returned to Charlevoix Fisheries Station were logged, coded by port fished, and entered on computer. Incomplete forms were logged then returned to the charter operator with a letter stating why the report was returned.

Each month (June through October), post-card notices were sent to charter operators who had not filed a report for the previous month.

Two notices were sent each month, the first after an operator was delinquent for 10 days, and the second after 30 days.

In December 1993, operators who had not filed reports for one or more months during the period May through September were sent letters via certified mail. These letters informed the operator that this would be the last notice he or she would receive. If the recipient did not respond in writing within 14 days of receipt of this notice, his or her name was submitted to MDNR's Law Enforcement Division recommending non-issuance of an inspection certificate for the 1994 season.

Three measures of fishing effort were summarized: angler hours, angler trips, and charter excursions. Angler hours were based upon total hours fished (dock to dock) by each angler. An angler trip was one completed fishing outing by one individual. A charter excursion was one completed boat trip. For example, if a charter operator took four anglers fishing for 6 hours, total fishing effort would be 24 angler hours, 4 angler trips, and 1 charter excursion. Tables summarizing catch and effort for selected ports around the Great Lakes are contained in the appendices.

Data regarding number of sea lamprey observed by charter operators were collected at request of the U.S. Fish and Wildlife Service's (USFWS) Sea Lamprey Control Station at Marquette, Michigan. These data will be used by USFWS as an index of sea lamprey abundance.

Results

Compliance

During the 1993 fishing season, an average of 60% of all charter boat operators complied with the law by submitting their catch reports by the due date, while 83% submitted reports within 30 days of the due date. Monthly rate of compliance in 1993 was virtually unchanged compared to 1992. By the end of the 1993 season, 98% of all charter operators had complied with the law. Final compliance rate

for 1993 was similar to the 97% reported for 1992 (Rakoczy and Svoboda 1993).

Catch and effort

Charter operators submitted reports on 15,518 charter excursions during April through October, 1993 on lakes Michigan, Huron, Erie, Superior and St. Clair (Tables 1 through 5). The total number of charter excursions in 1993 decreased by 929 (-6%) compared to 1992 (Rakoczy and Svoboda 1993). Decreases in the number of charter excursions in 1993 as compared to 1992 occurred on Lakes Michigan (-6%), Huron (-8%), Superior (17%) and St. Clair (-19%). Lake Erie was the only lake in 1993 for which the number of charter excursions increased (+12%) compared to 1992. The distribution of charter fishing effort (excursions) by lake was: 66% Lake Michigan, 15% Lake Huron, 12% Lake Erie, 4% Lake Superior, and 3% Lake St. Clair. The distribution of charter fishing effort by lake in 1993 was very similar to previous years.

A total of 411,829 hours were spent fishing by 68,311 charter anglers in Michigan's waters and tributaries of the Great Lakes. The total number of charter anglers in 1993 decreased by 2,987 (-4%) compared to 1992. Lake Erie was the only lake which had more charter anglers in 1993 than the previous year (+15%). Thirty percent of all charter clients were not residents of Michigan. Lake Superior charter operators had the greatest percentage of nonresident clients (54%; Table 4), while Lake St. Clair charter captains had the lowest percentage (2%; Table 5).

A total of 226,000 fish were reported harvested in all lakes. Lake Michigan accounted for 60% of all fish harvested, while Lakes Erie and Huron accounted for 28% and 5%, respectively, of the total harvest. The most numerous species in the harvest was yellow perch (94,700) which accounted for 42% of the total harvest. Numbers of other species harvested were: 46,500 walleye (21%), 35,200 lake trout (16%), 14,800 rainbow trout (7%), 14,700 chinook salmon (7%), 13,000 coho salmon (6%), and 2,800 brown trout (1%). The "other" species category was 1% of the total

reported catch. Since other species are not identified on the catch reporting form, the actual composition of this category is unknown.

Numbers of fish harvested in all species categories increased in 1993 compared to 1992, except for rainbow trout and chinook salmon. Total walleye harvest increased by 6,700 fish (+17%) during 1993 compared to 1992. This was due to an increased catch of walleye on Lake Erie (+18%). The greatest changes in the charter catch by species in 1993 compared to 1992 occurred for brown trout (+87%), yellow perch (+39%), rainbow trout (-26%) and chinook salmon (-23%). Most of the increased harvest of yellow perch resulted from a Lake Michigan party boat operator who did not submit reports the previous year. Decreasing harvest by Lake Michigan charter anglers accounted for most of the change with respect to rainbow trout and chinook salmon, as they harvested 5,800 fewer rainbow and 3,700 fewer chinook salmon than 1992.

Catch rates (fish per 100 angler hours) by Lake Michigan charter anglers in 1993 compared to 1992 increased for coho salmon (+32%), brown trout (+75%) and lake trout (+28%) (Table 6). Catch rates decreased for chinook salmon (-18%) and rainbow trout (-23%) in 1993 compared to the previous year. On Lake Huron, catch rates increased for brown (+143%) and rainbow trout (+100%) compared to 1992. The rate of catch for these two species has been in an upward trend since 1990. Catch rates decreased in Lake Huron for lake trout (-35%) and yellow perch (-37%) in 1993 compared to 1992, while the rates for chinook salmon (+13%) and walleye (+10%) were little changed. The catch rate for lake trout on Lake Huron has declined each year since 1990. Lake trout are the most important salmonine in the charter catch from Lake Superior. Catch rates for lake trout on Lake Superior have been virtually unchanged during the past four seasons.

Walleyes play an important role in charter fisheries on lakes Erie, Huron, and St. Clair. Catch rates for walleyes by charter clients increased slightly in 1993 on lakes Erie and Huron (Table 6). Catch rates for walleye on Lake St. Clair increased (+47%) compared to

1992. The walleye catch rate on Lake St. Clair increased in 1993 for the first time over the past four seasons.

The greatest catch per charter excursion on Michigan's waters of the Great Lakes for coho salmon and rainbow trout occurred at Lake Michigan ports (Table 7). Charter anglers at New Buffalo and Ludington had the greatest catch per excursion for coho salmon (3.1) and rainbow trout (3.4), respectively. Lake Huron charter anglers fishing out of Rogers City and Alpena had the best catch rates for chinook salmon (3.5) and brown trout (2.5), respectively. This was the first year that the best catch rate for chinook salmon has not been at the Lake Michigan port of Leland. The greatest catch rate for lake trout (13.1 per excursion) occurred at Ontonagon, Lake Superior. Lake Michigan charter clients at South Haven had the greatest catch rate for yellow perch (90.3 per excursion). The best catch rate for walleye (21.4) was noted for charter anglers at Monroe, Lake Erie.

As has been the case in previous years (1990-92), numbers of sea lamprey attached to chinook salmon and lake trout, were much higher on Lake Huron than the other Great Lakes (Table 8). Numbers of sea lamprey attached per 100 lake trout harvested from Lake Huron in 1993 was 2.1 as compared to 0.6 for Lake Michigan and 0.5 for Lake Superior. Charter captains also reported 7.6 lamprey per 100 chinook salmon harvested on Lake Huron during 1993 as compared to 0.1 for Lake Michigan and none for Lake Superior.

Acknowledgments

The authors wish to thank the Michigan Charter Boat Association for their support throughout the season. Evelyn Davis entered the data on computer.



MICHIGAN DEPARTMENT OF NATURAL RESOURCES MICHIGAN CHARTER BOAT DAILY CATCH REPORT

By authority of Act 244, P.A. 1986, as amended and Act 22, P.A. 1969. Submission required.
Failure to comply with the provisions of these acts will prohibit issuance of an Inspection Certificate for the following season.

IDENTIFICATION NO.	LAKE	MONTH	YEAR
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(INSTRUCTIONS ON REVERSE SIDE)

Date	Port Fished	Grnd Fished	Hours Fished (Dock to Dock)	No. Anglers		Daily Catch								No. Lamprey seen on		
				Res.	Non Res.	COH	CHS	RBT	BNT	LAT	YEP	WAE	OTH	CHS	LAT	
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COMMENTS _____

SIGNATURE _____ DATE _____

PR 6206 (Rev. 4/89)

Figure 1.—Michigan charter boat catch report form.

Table 1.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for Lake Michigan charter boats, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0447	1.2346	1,465	3,699	1,022	742	4,183	1,418	185	12,714
Chinook salmon	0.0399	1.1030	36	1,422	1,466	2,209	4,957	1,202	67	11,359
Rainbow trout	0.0497	1.3725	176	1,223	2,359	5,016	3,861	1,110	389	14,134
Brown trout	0.0071	0.1975	452	445	189	425	437	68	18	2,034
Lake trout	0.0968	2.6767	11	3,057	5,470	9,307	9,101	618	1	27,565
Yellow perch	0.2327	6.4319	10,484	7,177	8,383	20,447	17,162	2,582	1	66,236
Walleye	0.0020	0.0556	0	16	81	208	182	51	35	573
Other	0.0013	0.0372	4	130	50	30	116	37	16	383
Lamprey on chinook salmon			0	1	1	5	4	1	0	12
Lamprey on lake trout			3	28	38	58	34	1	0	162
Angler hours			7,476	29,571	43,391	75,085	101,220	24,618	3,274	284,633
Angler trips			1,293	4,798	6,940	12,028	16,271	4,128	495	45,953
Anglers										
Resident			856	2,796	4,345	7,745	10,546	2,846	240	29,374
Nonresident			437	2,002	2,595	4,283	5,725	1,282	255	16,579
Charter excursions			254	1,032	1,518	2,688	3,681	990	135	10,298

Table 2.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for Lake Huron charter boats, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0025	0.0481	2	34	15	23	23	14	0	111
Chinook salmon	0.0717	1.4053	66	416	218	732	1,435	369	6	3,242
Rainbow trout	0.0135	0.2644	48	104	48	180	170	42	18	610
Brown trout	0.0173	0.3394	32	72	63	229	287	81	19	783
Lake trout	0.0426	0.8349	0	87	552	529	684	74	0	1,926
Yellow perch	0.0402	0.7889	0	1	2	343	469	800	205	1,820
Walleye	0.0743	1.4577	26	57	59	1,361	1,815	44	1	3,363
Other	0.0111	0.2176	1	18	11	97	338	37	0	502
Lamprey on chinook salmon			3	6	12	47	154	23	0	245
Lamprey on lake trout			1	2	8	11	16	2	0	40
Angler hours			778	3,834	5,168	12,485	17,837	4,850	291	45,242
Angler trips			126	645	959	2,251	3,135	885	51	8,052
Anglers										
Resident			108	556	825	1,873	2,696	748	40	6,846
Nonresident			18	89	134	378	439	137	11	1,206
Charter excursions			44	174	284	647	888	251	19	2,307

Table 3.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for Lake Erie charter boats, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0000	0.0000	0	0	0	0	0	0	0	0
Chinook salmon	0.0000	0.0000	0	0	0	0	0	0	0	0
Rainbow trout	0.0006	0.0159	0	2	24	3	0	1	0	30
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Yellow perch	0.4391	11.5651	0	236	504	319	9,205	6,880	4,610	21,754
Walleye	0.8135	21.4258	423	6,858	21,067	10,765	1,162	26	1	40,302
Other	0.0164	0.4327	1	242	381	132	13	45	0	814
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			780	9,024	21,534	12,282	3,313	1,750	864	49,545
Angler trips			148	1,706	4,321	2,335	591	333	155	9,589
Anglers										
Resident			133	1,543	3,760	2,069	547	311	145	8,508
Nonresident			15	163	561	266	44	22	10	1,081
Charter excursions			38	364	808	454	120	67	30	1,881

Table 4.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for Lake Superior charter boats, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0096	0.3139	0	20	52	40	46	36	0	194
Chinook salmon	0.0027	0.0874	0	35	9	5	4	1	0	54
Rainbow trout	0.0015	0.0485	0	2	8	9	10	1	0	30
Brown trout	0.0002	0.0081	0	4	0	0	0	1	0	5
Lake trout	0.2818	9.2184	0	121	949	1,949	2,196	459	23	5,697
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0112	0.3673	0	0	4	124	85	14	0	227
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	1	3	19	7	0	0	30
Angler hours			0	516	3,772	6,661	7,442	1,737	90	20,217
Angler trips			0	78	514	935	1,068	248	15	2,858
Anglers										
Resident			0	59	247	459	457	97	4	1,323
Nonresident			0	19	267	476	611	151	11	1,535
Charter excursions			0	23	107	200	231	54	3	618

Table 5.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for Lake St. Clair and St. Clair River charter boats, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0000	0.0000	0		0	0	0	0	0	0
Chinook salmon	0.0000	0.0000	0		0	0	0	0	0	0
Rainbow trout	0.0002	0.0072	0		0	2	0	1	0	3
Brown trout	0.0000	0.0000	0		0	0	0	0	0	0
Lake trout	0.0000	0.0000	0		0	0	0	0	0	0
Yellow perch	0.4036	11.8865	0		223	1,019	1,181	1,797	699	4,921
Walleye	0.1841	5.4227	86	16	554	984	349	107	0	2,245
Other	0.2130	6.2729	0	1	851	742	590	378	18	2,597
Lamprey on chinook salmon			0		0	0	0	0	0	0
Lamprey on lake trout			0		0	0	0	0	0	0
Angler hours			111	50	3,179	3,611	2,467	2,014	308	12,192
Angler trips			24	10	492	532	364	296	44	1,859
Anglers										
Resident			24	10	481	524	360	286	44	1,826
Nonresident			0		11	8	4	10	0	33
Charter excursions			5	2	115	117	77	62	11	414

Table 6.—Catch rates (fish per 100 angler hours) by charter anglers for principal species on the Great Lakes during 1990-93.

Species	Michigan				Huron				Erie				St. Clair				Superior			
	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
Coho salmon	3.9	2.8	3.4	4.5	0.2	0.2	0.2	0.3									1.2	3.2	1.3	1.0
Chinook salmon	7.4	7.0	4.9	4.0	6.0	6.4	6.4	7.2									0.3	0.4	0.3	0.3
Rainbow trout	4.0	7.2	6.5	5.0	0.3	0.6	0.7	1.4									0.3	0.3	0.1	0.2
Brown trout	0.6	0.8	0.4	0.7	0.1	0.2	0.7	1.7									0.1	0.2	0.1	0.0
Lake trout	8.4	8.7	7.6	9.7	9.8	7.9	6.6	4.3									28.5	27.9	25.5	28.2
Yellow perch	14.1	16.8	14.4	23.3	9.2	7.4	6.3	4.0	29.4	34.1	43.3	43.9	13.8	16.8	15.1	40.4				
Walleye					5.1	7.1	6.7	7.4	74.5	62.8	78.5	81.4	32.4	20.4	12.5	18.4				

Table 7.—Maximum catch per excursion (number) of principal species by charter anglers on the Great Lakes, 1993.

Species	Catch per Excursion	Location
Coho salmon	3.1	New Buffalo, Lake Michigan
Chinook salmon	3.5	Rogers City, Lake Huron
Rainbow trout	3.4	Ludington, Lake Michigan
Brown trout	2.5	Alpena, Lake Huron
Lake trout	13.1	Ontonagon, Lake Superior
Yellow perch	90.3	South Haven, Lake Michigan
Walleye	21.4	Monroe, Lake Erie

Table 8.—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, 1990-93.

Location	Chinook salmon				Lake trout			
	1990	1991	1992	1993	1990	1991	1992	1993
Lake Michigan	0.5	0.3	0.2	0.1	1.8	1.2	0.8	0.6
Lake Huron	18.6	13.9	13.6	7.6	6.6	5.7	4.6	2.1
Lake Superior	0.0	8.0	0.0	0.0	1.8	1.6	0.8	0.5

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- Rakoczy, G. P., and R. F. Svoboda. 1993. Charter boat catch and effort from the Michigan waters of the Great Lakes, 1992. Michigan Department of Natural Resources, Fisheries Technical Report 93-2, Ann Arbor.

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Kathryn L. Champagne, DTP

Appendix 1.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Michigan City, Indiana, Lake Michigan (catch from Michigan waters only), 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.1317	4.3326	128	1,185	434	154	13	6	60	1,980
Chinook salmon	0.0060	0.1969	12	22	12	8	27	9	0	90
Rainbow trout	0.0395	1.2998	3	277	109	153	42	8	2	594
Brown trout	0.0021	0.0678	0	6	5	18	2	0	0	31
Lake trout	0.1722	5.6652	2	62	476	904	990	155	0	2,589
Yellow perch	0.0110	0.3611	0	0	0	12	153	0	0	165
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	7	12	5	1	0	25
Angler hours			251	2,504	2,970	4,277	4,106	850	78	15,036
Angler trips			44	370	447	619	635	120	13	2,248
Anglers										
Resident			2	75	38	36	42	1	0	194
Nonresident			42	295	409	583	593	119	13	2,054
Charter excursions			11	73	89	130	128	23	3	457

Appendix 2.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at New Buffalo, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0962	3.1138	95	235	27	14	0	0	12	383
Chinook salmon	0.0090	0.2927	0	11	0	14	11	0	0	36
Rainbow trout	0.0133	0.4309	1	40	2	7	3	0	0	53
Brown trout	0.0020	0.0650	3	3	0	0	2	0	0	8
Lake trout	0.1208	3.9106	0	24	42	207	200	8	0	481
Yellow perch	0.0791	2.5610	0	0	26	57	232	0	0	315
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			322	870	356	1,247	1,145	24	20	3,983
Angler trips			60	130	48	180	155	4	4	581
Anglers										
Resident			32	44	2	5	9	0	0	92
Nonresident			28	86	46	175	146	4	4	489
Charter excursions			15	28	10	37	31	1	1	123

Appendix 3.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at St. Joseph, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0973	3.1020	1,229	1,994	384	86	64	7	8	3,772
Chinook salmon	0.0228	0.7262	10	261	230	107	205	70	0	883
Rainbow trout	0.0395	1.2582	57	567	189	581	124	12	0	1,530
Brown trout	0.0063	0.2015	130	77	8	20	8	2	0	245
Lake trout	0.0883	2.8133	2	876	1,001	692	799	50	1	3,421
Yellow perch	0.4598	14.6563	0	8	3,883	6,818	5,283	1,830	0	17,822
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0004	0.0140	0	0	0	0	17	0	0	17
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			3	7	2	3	0	0	0	15
Angler hours			2,990	9,575	7,986	9,016	7,606	1,544	48	38,764
Angler trips			518	1,392	1,202	1,337	1,162	238	8	5,857
Anglers										
Resident			221	403	295	325	303	66	4	1,617
Nonresident			297	989	907	1,012	859	172	4	4,240
Charter excursions			123	278	244	279	235	54	3	1,216

Appendix 4.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on the St. Joseph River, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0027	0.0828	0	0	0	0	0	5	7	12
Chinook salmon	0.0201	0.6138	0	0	0	0	1	71	17	89
Rainbow trout	0.0641	1.9586	83	0	0	1	21	27	152	284
Brown trout	0.0043	0.1310	15	0	0	0	0	1	3	19
Lake trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0503	1.5379	0	2	4	168	44	1	4	223
Other	0.0133	0.4069	4	2	10	0	11	16	16	59
Lamprey on chinook salmon			0	0	0	0	0	1	0	1
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			495	96	231	476	416	1,192	1,524	4,430
Angler trips			62	12	28	62	51	161	186	562
Anglers										
Resident			21	1	4	21	14	47	55	163
Nonresident			41	11	24	41	37	114	131	399
Charter excursions			15	3	5	19	18	38	47	145

Appendix 5.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at South Haven, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0075	0.3750	0	96	44	9	16	3	0	168
Chinook salmon	0.0188	0.9442	0	205	114	30	62	12	0	423
Rainbow trout	0.0125	0.6272	0	95	86	61	35	4	0	281
Brown trout	0.0015	0.0759	0	19	3	5	7	0	0	34
Lake trout	0.0609	3.0603	0	316	361	377	294	23	0	1,371
Yellow perch	1.7967	90.2946	10,484	5,948	3,547	8,896	10,840	737	0	40,452
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	1	0	0	1
Lamprey on lake trout			0	9	2	5	3	0	0	19
Angler hours			1,740	3,741	3,958	6,038	5,894	1,145	0	22,515
Angler trips			348	662	715	1,087	1,157	235	0	4,204
Anglers										
Resident			348	564	586	916	1,024	219	0	3,657
Nonresident			0	98	129	171	133	16	0	547
Charter excursions			19	86	101	112	109	21	0	448

Appendix 6.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Saugatuck, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0321	0.8150	9	114	42	34	157	62	18	436
Chinook salmon	0.0638	1.6206	7	335	105	118	235	61	6	867
Rainbow trout	0.0360	0.9140	1	123	47	129	119	59	11	489
Brown trout	0.0054	0.1364	21	5	9	19	16	3	0	73
Lake trout	0.1831	4.6505	5	555	408	674	786	60	0	2,488
Yellow perch	0.3108	7.8953	0	0	606	3,270	340	8	0	4,224
Walleye	0.0003	0.0075	0	0	1	3	0	0	0	4
Other	0.0006	0.0150	0	0	0	6	0	2	0	8
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	1	3	5	5	0	0	14
Angler hours			231	2,036	2,178	3,588	4,452	993	114	13,590
Angler trips			42	328	338	569	693	157	17	2,144
Anglers										
Resident			29	216	206	309	362	66	9	1,197
Nonresident			13	112	132	260	331	91	8	947
Charter excursions			10	77	86	137	179	42	4	535

Appendix 7.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Holland, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0180	0.5057	0	31	15	16	64	8	0	134
Chinook salmon	0.0403	1.1321	0	45	51	58	124	22	0	300
Rainbow trout	0.0207	0.5811	0	14	19	45	66	10	0	154
Brown trout	0.0062	0.1736	0	5	6	18	16	1	0	46
Lake trout	0.1514	4.2566	0	135	216	307	449	21	0	1,128
Yellow perch	0.0236	0.6642	0	0	175	1	0	0	0	176
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0004	0.0113	0	0	0	0	3	0	0	3
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	3	6	1	5	0	0	15
Angler hours			0	846	1,211	1,834	3,127	431	0	7,449
Angler trips			0	131	209	272	453	77	0	1,142
Anglers										
Resident			0	83	107	141	209	41	0	581
Nonresident			0	48	102	131	244	36	0	561
Charter excursions			0	30	50	63	102	20	0	265

Appendix 8.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Grand Haven, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0191	0.4711	0	17	11	28	386	112	16	570
Chinook salmon	0.0658	1.6215	0	372	372	219	702	279	18	1,962
Rainbow trout	0.0205	0.5041	0	37	43	226	229	55	20	610
Brown trout	0.0032	0.0793	0	26	12	26	23	9	0	96
Lake trout	0.1069	2.6347	0	370	531	989	1,185	113	0	3,188
Yellow perch	0.0514	1.2661	0	0	129	1,088	313	2	0	1,532
Walleye	0.0001	0.0017	0	0	0	0	0	2	0	2
Other	0.0007	0.0182	0	0	8	0	6	8	0	22
Lamprey on chinook salmon			0	1	0	0	1	0	0	2
Lamprey on lake trout			0	3	4	3	5	0	0	15
Angler hours			0	3,600	4,749	6,681	10,996	3,648	154	29,828
Angler trips			0	618	813	1,188	1,902	635	27	5,183
Anglers										
Resident			0	491	630	841	1,423	493	23	3,901
Nonresident			0	127	183	347	479	142	4	1,282
Charter excursions			0	154	188	273	434	154	7	1,210

Appendix 9.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Muskegon, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0202	0.4437	1	15	11	10	81	11	5	134
Chinook salmon	0.0552	1.2152	0	28	42	37	203	49	8	367
Rainbow trout	0.0323	0.7119	0	5	10	46	106	37	11	215
Brown trout	0.0033	0.0728	3	7	1	2	3	6	0	22
Lake trout	0.0465	1.0232	0	40	46	82	135	6	0	309
Yellow perch	0.0002	0.0033	0	0	0	0	0	0	1	1
Walleye	0.0002	0.0033	0	0	0	0	0	1	0	1
Other	0.0011	0.0232	0	0	0	0	6	1	0	7
Lamprey on chinook salmon			0	0	0	1	0	0	0	1
Lamprey on lake trout			0	0	0	0	1	0	0	1
Angler hours			25	559	812	1,106	3,187	879	82	6,649
Angler trips			5	98	151	203	552	158	20	1,187
Anglers										
Resident			2	82	121	146	393	120	18	882
Nonresident			3	16	30	57	159	38	2	305
Charter excursions			1	26	41	53	133	41	7	302

Appendix 10.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Whitehall-Montague, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0246	0.6621	0	1	3	33	50	9	0	96
Chinook salmon	0.0310	0.8345	0	11	5	54	38	13	0	121
Rainbow trout	0.0620	1.6690	0	1	2	107	118	14	0	242
Brown trout	0.0003	0.0069	0	0	0	0	1	0	0	1
Lake trout	0.0577	1.5517	0	17	25	140	42	1	0	225
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	1	2	0	0	3
Angler hours			0	210	367	1,715	1,178	432	0	3,902
Angler trips			0	35	55	210	194	66	0	560
Anglers										
Resident			0	27	44	81	92	30	0	274
Nonresident			0	8	11	129	102	36	0	286
Charter excursions			0	10	15	54	49	17	0	145

Appendix 11.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Pentwater, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0265	0.7079	1	3	5	27	208	25	0	269
Chinook salmon	0.0652	1.7447	0	33	94	262	255	19	0	663
Rainbow trout	0.0870	2.3289	1	12	29	262	461	120	0	885
Brown trout	0.0085	0.2263	5	15	6	38	17	5	0	86
Lake trout	0.0850	2.2737	0	54	118	454	222	16	0	864
Yellow perch	0.0002	0.0053	0	0	0	2	0	0	0	2
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0120	0.3211	0	111	10	0	0	1	0	122
Lamprey on chinook salmon			0	0	1	0	0	0	0	1
Lamprey on lake trout			0	2	1	1	0	0	0	4
Angler hours			25	556	905	3,611	4,355	717	0	10,168
Angler trips			5	88	139	532	634	117	0	1,515
Anglers										
Resident			5	54	57	363	357	75	0	911
Nonresident			0	34	82	169	277	42	0	604
Charter excursions			3	25	36	129	157	30	0	380

Appendix 12.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Ludington, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0390	1.1551	0	6	16	262	1,093	125	10	1,512
Chinook salmon	0.0698	2.0665	2	76	157	533	1,710	222	5	2,705
Rainbow trout	0.1138	3.3705	0	27	383	1,301	2,190	486	25	4,412
Brown trout	0.0053	0.1566	11	46	12	40	89	4	3	205
Lake trout	0.0546	1.6188	0	106	289	782	898	44	0	2,119
Yellow perch	0.0002	0.0069	0	7	1	0	0	1	0	9
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0011	0.0313	0	10	1	4	20	6	0	41
Lamprey on chinook salmon			0	0	0	3	1	0	0	4
Lamprey on lake trout			0	1	1	11	2	0	0	15
Angler hours			132	1,183	2,929	9,961	20,852	3,605	116	38,777
Angler trips			19	170	395	1,394	2,957	504	20	5,459
Anglers										
Resident			19	137	314	1,177	2,137	371	12	4,167
Nonresident			0	33	81	217	820	133	8	1,292
Charter excursions			6	48	94	335	702	119	5	1,309

Appendix 13.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Manistee, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0435	1.1318	2	1	6	47	413	418	6	893
Chinook salmon	0.0554	1.4411	4	8	85	212	613	215	0	1,137
Rainbow trout	0.0764	1.9861	4	9	675	496	175	134	74	1,567
Brown trout	0.0214	0.5551	211	61	26	50	74	16	0	438
Lake trout	0.0425	1.1039	2	18	288	318	213	32	0	871
Yellow perch	0.0741	1.9252	0	1,214	0	300	1	4	0	1,519
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0002	0.0063	0	0	0	0	4	1	0	5
Lamprey on chinook salmon			0	0	0	1	1	0	0	2
Lamprey on lake trout			0	1	6	7	3	0	0	17
Angler hours			842	686	4,485	4,785	6,613	2,675	427	20,512
Angler trips			121	119	606	685	996	427	59	3,013
Anglers										
Resident			110	109	548	595	798	323	42	2,525
Nonresident			11	10	58	90	198	104	17	488
Charter excursions			31	32	146	173	269	119	19	789

Appendix 14.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Onekama, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0363	1.0000	0	0	4	11	161	26	0	202
Chinook salmon	0.0722	1.9901	0	5	60	138	185	14	0	402
Rainbow trout	0.0836	2.3069	0	3	233	183	24	23	0	466
Brown trout	0.0131	0.3614	3	24	7	23	16	0	0	73
Lake trout	0.0594	1.6386	0	10	101	142	77	1	0	331
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			20	206	1,382	1,695	1,959	310	0	5,572
Angler trips			4	36	163	242	283	55	0	783
Anglers										
Resident			4	26	121	184	231	54	0	620
Nonresident			0	10	42	58	52	1	0	163
Charter excursions			1	9	40	65	74	13	0	202

Appendix 15.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Frankfort, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0759	2.1225	0	0	15	8	1,458	574	42	2,097
Chinook salmon	0.0247	0.6913	1	6	132	154	348	36	6	683
Rainbow trout	0.0426	1.1903	5	10	348	583	85	86	59	1,176
Brown trout	0.0146	0.4079	50	103	78	73	84	3	12	403
Lake trout	0.0796	2.2247	0	172	512	990	515	9	0	2,198
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0010	0.0294	0	5	8	7	9	0	0	29
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	6	2	0	0	0	8
Angler hours			195	1,262	4,431	6,729	11,663	3,031	318	27,628
Angler trips			34	217	681	1,044	1,781	485	59	4,301
Anglers										
Resident			32	172	597	919	1,465	441	35	3,661
Nonresident			2	45	84	125	316	44	24	640
Charter excursions			11	57	146	241	399	118	16	988

Appendix 16.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Leland, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0005	0.0130	0	0	1	1	7	0	0	9
Chinook salmon	0.0190	0.4733	0	1	1	200	115	11	0	328
Rainbow trout	0.0574	1.4300	0	1	183	738	54	15	0	991
Brown trout	0.0085	0.2121	0	41	12	45	42	7	0	147
Lake trout	0.1934	4.8196	0	138	574	1,176	1,385	67	0	3,340
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0001	0.0014	0	0	0	0	1	0	0	1
Other	0.0025	0.0620	0	0	1	5	36	1	0	43
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	1	2	0	0	3
Angler hours			0	484	1,933	7,104	7,178	571	0	17,270
Angler trips			0	106	355	1,201	1,238	111	0	3,011
Anglers										
Resident			0	97	276	896	822	87	0	2,178
Nonresident			0	9	79	305	416	24	0	833
Charter excursions			0	25	76	277	286	29	0	693

Appendix 17.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Traverse City (West Grand Traverse Bay), Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0048	0.0764	0	0	0	1	1	19	1	22
Chinook salmon	0.0157	0.2500	0	0	1	4	18	43	6	72
Rainbow trout	0.0020	0.0313	0	0	1	4	4	0	0	9
Brown trout	0.0020	0.0313	0	0	1	5	1	2	0	9
Lake trout	0.1456	2.3229	0	32	110	309	212	6	0	669
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0007	0.0104	0	1	0	2	0	0	0	3
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	4	1	0	0	5
Angler hours			0	185	480	1,402	1,779	694	57	4,596
Angler trips			0	43	119	338	353	150	15	1,018
Anglers										
Resident			0	35	88	237	257	116	4	737
Nonresident			0	8	31	101	96	34	11	281
Charter excursions			0	10	34	98	98	43	5	288

Appendix 18.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Acme (East Grand Traverse Bay), Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0015	0.0236	0	1	3	0	0	1	0	5
Chinook salmon	0.0066	0.1038	0	3	2	0	7	10	0	22
Rainbow trout	0.0033	0.0519	0	1	0	5	0	5	0	11
Brown trout	0.0042	0.0660	0	6	0	4	3	1	0	14
Lake trout	0.0910	1.4292	0	111	75	82	34	1	0	303
Yellow perch	0.0009	0.0142	0	0	0	3	0	0	0	3
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0027	0.0425	0	1	1	5	1	1	0	9
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	1	0	0	0	0	0	1
Angler hours			0	753	599	694	583	702	0	3,331
Angler trips			0	194	156	178	154	178	0	860
Anglers										
Resident			0	141	109	124	108	123	0	605
Nonresident			0	53	47	54	46	55	0	255
Charter excursions			0	51	39	39	40	43	0	212

Appendix 19.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Charlevoix, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0000	0.0000	0	0	0	0	0	0	0	0
Chinook salmon	0.0172	0.3099	0	0	0	11	55	21	1	88
Rainbow trout	0.0010	0.0176	0	0	0	4	0	1	0	5
Brown trout	0.0039	0.0704	0	0	0	9	4	7	0	20
Lake trout	0.1803	3.2500	0	21	197	346	356	3	0	923
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0006	0.0106	0	0	3	0	0	0	0	3
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			0	150	841	1,174	2,287	608	60	5,119
Angler trips			0	33	196	278	529	137	15	1,188
Anglers										
Resident			0	27	126	177	269	88	6	693
Nonresident			0	6	70	101	260	49	9	495
Charter excursions			0	6	45	66	131	33	3	284

Appendix 20.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Petoskey-Harbor Springs, Lake Michigan, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0000	0.0000	0	0	0	0	0	0	0	0
Chinook salmon	0.0136	0.1951	0	0	0	7	1	0	0	8
Rainbow trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Brown trout	0.0068	0.0976	0	0	0	0	4	0	0	4
Lake trout	0.2492	3.5854	0	0	15	62	70	0	0	147
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	2	0	0	0	2
Angler hours			0	0	105	228	258	0	0	590
Angler trips			0	0	24	57	68	0	0	149
Anglers										
Resident			0	0	14	22	24	0	0	60
Nonresident			0	0	10	35	44	0	0	89
Charter excursions			0	0	8	15	18	0	0	41

Appendix 21.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Rogers City, Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0005	0.0079	0	0	0	1	0	0	0	1
Chinook salmon	0.2377	3.5079	0	0	12	121	217	92	0	442
Rainbow trout	0.0086	0.1270	0	0	0	7	9	0	0	16
Brown trout	0.0032	0.0476	0	0	0	0	4	2	0	6
Lake trout	0.0108	0.1587	0	0	12	5	3	0	0	20
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0242	0.3571	0	0	0	0	45	0	0	45
Other	0.0016	0.0238	0	0	0	0	3	0	0	3
Lamprey on chinook salmon			0	0	0	4	16	1	0	21
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			0	0	45	635	855	325	0	1,860
Angler trips			0	0	13	136	189	76	0	414
Anglers										
Resident			0	0	10	82	134	65	0	291
Nonresident			0	0	3	54	55	11	0	123
Charter excursions			0	0	6	38	57	25	0	126

Appendix 22.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Rockport, Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0118	0.1724	0	0	0	0	10	0	0	10
Chinook salmon	0.2203	3.2241	0	0	0	82	105	0	0	187
Rainbow trout	0.0188	0.2759	0	0	0	7	9	0	0	16
Brown trout	0.0024	0.0345	0	0	0	1	1	0	0	2
Lake trout	0.0330	0.4828	0	2	0	14	12	0	0	28
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0012	0.0172	0	0	0	0	1	0	0	1
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	8	11	0	0	19
Lamprey on lake trout			0	0	0	1	1	0	0	2
Angler hours			0	24	0	366	459	0	0	849
Angler trips			0	4	0	73	88	0	0	165
Anglers										
Resident			0	4	0	45	47	0	0	96
Nonresident			0	0	0	28	41	0	0	69
Charter excursions			0	1	0	28	29	0	0	58

Appendix 23.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Alpena, Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0008	0.0141	0	0	0	0	3	0	0	3
Chinook salmon	0.1045	1.9155	0	8	30	114	224	32	0	408
Rainbow trout	0.0131	0.2394	1	2	13	21	11	3	0	51
Brown trout	0.1388	2.5446	20	32	62	183	168	59	18	542
Lake trout	0.0126	0.2300	0	6	10	19	14	0	0	49
Yellow perch	0.0003	0.0047	0	0	1	0	0	0	0	1
Walleye	0.0289	0.5305	26	52	26	5	4	0	0	113
Other	0.0067	0.1221	0	0	1	10	15	0	0	26
Lamprey on chinook salmon			0	0	1	2	37	0	0	40
Lamprey on lake trout			0	0	0	0	1	0	0	1
Angler hours			55	312	506	1,461	1,275	278	18	3,904
Angler trips			11	65	104	253	223	57	6	719
Anglers										
Resident			5	41	64	209	198	33	6	556
Nonresident			6	24	40	44	25	24	0	163
Charter excursions			3	18	34	74	65	16	3	213

Appendix 24.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Harrisville, Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0000	0.0000	0	0	0	0	0	0	0	0
Chinook salmon	0.0700	1.3523	0	0	3	42	171	22	0	238
Rainbow trout	0.0085	0.1648	0	0	1	7	18	3	0	29
Brown trout	0.0062	0.1193	0	0	0	7	14	0	0	21
Lake trout	0.0465	0.8977	0	0	4	34	96	24	0	158
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0038	0.0739	0	0	0	0	13	0	0	13
Other	0.0065	0.1250	0	0	2	8	9	3	0	22
Lamprey on chinook salmon			0	0	0	1	12	0	0	13
Lamprey on lake trout			0	0	0	5	3	1	0	9
Angler hours			0	0	229	897	1,909	366	0	3,400
Angler trips			0	0	43	160	331	69	0	603
Anglers										
Resident			0	0	43	144	301	56	0	544
Nonresident			0	0	0	16	30	13	0	59
Charter excursions			0	0	14	50	94	18	0	176

Appendix 25.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Oscoda, Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0008	0.0164	0	0	0	0	3	4	0	7
Chinook salmon	0.0866	1.7230	0	3	68	193	347	121	2	734
Rainbow trout	0.0270	0.5376	42	9	8	76	62	14	18	229
Brown trout	0.0094	0.1878	0	2	0	18	52	8	0	80
Lake trout	0.0281	0.5587	0	0	50	79	99	10	0	238
Yellow perch	0.0002	0.0047	0	0	0	0	2	0	0	2
Walleye	0.0013	0.0258	0	0	0	3	6	2	0	11
Other	0.0019	0.0376	0	1	1	6	6	2	0	16
Lamprey on chinook salmon			0	0	7	17	45	16	0	85
Lamprey on lake trout			0	0	0	3	0	0	0	3
Angler hours			248	117	1,269	1,824	3,517	1,383	116	8,474
Angler trips			35	18	216	320	563	222	16	1,390
Anglers										
Resident			27	15	198	255	487	182	15	1,179
Nonresident			8	3	18	65	76	40	1	211
Charter excursions			21	8	60	97	169	63	8	426

Appendix 26.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Saginaw Bay (Port Austin to Tawas), Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0010	0.0218	0	4	4	0	1	0	0	9
Chinook salmon	0.0112	0.2518	0	17	13	37	25	12	0	104
Rainbow trout	0.0032	0.0726	0	3	1	15	8	3	0	30
Brown trout	0.0005	0.0121	0	2	1	0	1	1	0	5
Lake trout	0.0193	0.4310	0	4	98	40	36	0	0	178
Yellow perch	0.1574	3.5230	0	0	0	313	418	519	205	1,455
Walleye	0.2673	5.9831	0	5	17	1,221	1,208	20	0	2,471
Other	0.0176	0.3947	0	9	2	61	80	11	0	163
Lamprey on chinook salmon			0	0	0	1	3	0	0	4
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			0	254	889	4,149	3,394	506	55	9,246
Angler trips			0	46	161	721	583	92	11	1,614
Anglers										
Resident			0	43	159	662	535	87	5	1,491
Nonresident			0	3	2	59	48	5	6	123
Charter excursions			0	10	39	183	153	25	3	413

Appendix 27.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Harbor Beach, Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0024	0.0480	0	7	1	0	0	4	0	12
Chinook salmon	0.0594	1.1720	13	102	20	13	96	45	4	293
Rainbow trout	0.0118	0.2320	2	34	4	4	11	3	0	58
Brown trout	0.0136	0.2680	5	16	0	9	26	10	1	67
Lake trout	0.0541	1.0680	0	19	75	113	55	5	0	267
Yellow perch	0.0036	0.0720	0	0	0	11	7	0	0	18
Walleye	0.0213	0.4200	0	0	0	9	90	5	1	105
Other	0.0016	0.0320	0	0	0	0	8	0	0	8
Lamprey on chinook salmon			3	5	0	0	5	4	0	17
Lamprey on lake trout			1	1	1	0	7	1	0	11
Angler hours			108	964	516	534	1,612	1,124	78	4,935
Angler trips			16	168	99	99	287	196	14	879
Anglers										
Resident			13	126	65	84	266	191	14	759
Nonresident			3	42	34	15	21	5	0	120
Charter excursions			6	48	30	33	82	48	3	250

Appendix 28.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Port Sanilac, Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0115	0.2626	2	13	4	7	0	0	0	26
Chinook salmon	0.1116	2.5455	43	198	5	5	0	1	0	252
Rainbow trout	0.0195	0.4444	1	32	6	5	0	0	0	44
Brown trout	0.0075	0.1717	7	9	0	1	0	0	0	17
Lake trout	0.0027	0.0606	0	0	5	0	1	0	0	6
Yellow perch	0.0049	0.1111	0	0	0	4	7	0	0	11
Walleye	0.0004	0.0101	0	0	0	0	1	0	0	1
Other	0.0009	0.0202	1	0	1	0	0	0	0	2
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			331	1,200	290	192	124	122	0	2,258
Angler trips			58	192	58	37	24	28	0	397
Anglers										
Resident			57	181	45	27	24	22	0	356
Nonresident			1	11	13	10	0	6	0	41
Charter excursions			13	49	15	9	6	7	0	99

Appendix 29.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Lexington, Lake Huron, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0055	0.1429	0	0	3	0	0	0	0	3
Chinook salmon	0.1299	3.3810	10	58	3	0	0	0	0	71
Rainbow trout	0.0091	0.2381	2	1	2	0	0	0	0	5
Brown trout	0.0073	0.1905	0	2	0	0	2	0	0	4
Lake trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Yellow perch	0.0128	0.3333	0	1	0	6	0	0	0	7
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0073	0.1905	0	3	0	0	1	0	0	4
Lamprey on chinook salmon			0	1	0	0	0	0	0	1
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			36	352	103	6	50	0	0	547
Angler trips			6	51	20	3	14	0	0	94
Anglers										
Resident			6	45	16	3	14	0	0	84
Nonresident			0	6	4	0	0	0	0	10
Charter excursions			1	12	4	1	3	0	0	21

Appendix 30.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Black River Harbor, Lake Superior, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0234	1.1392	0	0	43	11	18	18	0	90
Chinook salmon	0.0026	0.1266	0	0	7	1	1	1	0	10
Rainbow trout	0.0026	0.1266	0	0	6	3	1	0	0	10
Brown trout	0.0003	0.0127	0	0	0	0	0	1	0	1
Lake trout	0.2487	12.0886	0	0	281	281	289	104	0	955
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	2	4	0	0	0	6
Angler hours			0	0	1,271	952	1,048	569	0	3,840
Angler trips			0	0	153	111	137	61	0	462
Anglers										
Resident			0	0	44	57	51	14	0	166
Nonresident			0	0	109	54	86	47	0	296
Charter excursions			0	0	25	19	25	10	0	79

Appendix 31.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Ontonagon, Lake Superior, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0165	0.4821	0	7	3	14	2	1	0	27
Chinook salmon	0.0067	0.1964	0	11	0	0	0	0	0	11
Rainbow trout	0.0037	0.1071	0	0	2	4	0	0	0	6
Brown trout	0.0024	0.0714	0	4	0	0	0	0	0	4
Lake trout	0.4493	13.1250	0	34	78	358	247	18	0	735
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	1	7	1	0	0	9
Angler hours			0	129	216	847	402	42	0	1,636
Angler trips			0	16	32	138	86	8	0	280
Anglers										
Resident			0	7	10	73	50	8	0	148
Nonresident			0	9	22	65	36	0	0	132
Charter excursions			0	5	7	26	16	2	0	56

Appendix 32.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Marquette, Lake Superior, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0064	0.2171	0	3	4	9	0	12	0	28
Chinook salmon	0.0039	0.1318	0	13	2	0	2	0	0	17
Rainbow trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.3085	10.5426	0	54	306	448	388	143	21	1,360
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	7	0	0	0	7
Angler hours			0	183	1,059	1,569	1,196	348	54	4,408
Angler trips			0	31	135	196	149	54	9	574
Anglers										
Resident			0	25	93	113	121	35	2	389
Nonresident			0	6	42	83	28	19	7	185
Charter excursions			0	10	29	42	31	15	2	129

Appendix 33.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats in the vicinity of Isle Royale National Park, Lake Superior, 1993.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0019	0.0549	0	0	1	0	5	3	0	9
Chinook salmon	0.0000	0.0000	0	0	0	0	0	0	0	0
Rainbow trout	0.0023	0.0671	0	0	0	1	9	1	0	11
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.2504	7.1585	0	0	77	329	715	53	0	1,174
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	0	5	0	0	5
Angler hours			0	0	356	1,293	2,764	276	0	4,689
Angler trips			0	0	65	202	419	49	0	735
Anglers										
Resident			0	0	21	27	63	4	0	115
Nonresident			0	0	44	175	356	45	0	620
Charter excursions			0	0	16	44	95	9	0	164