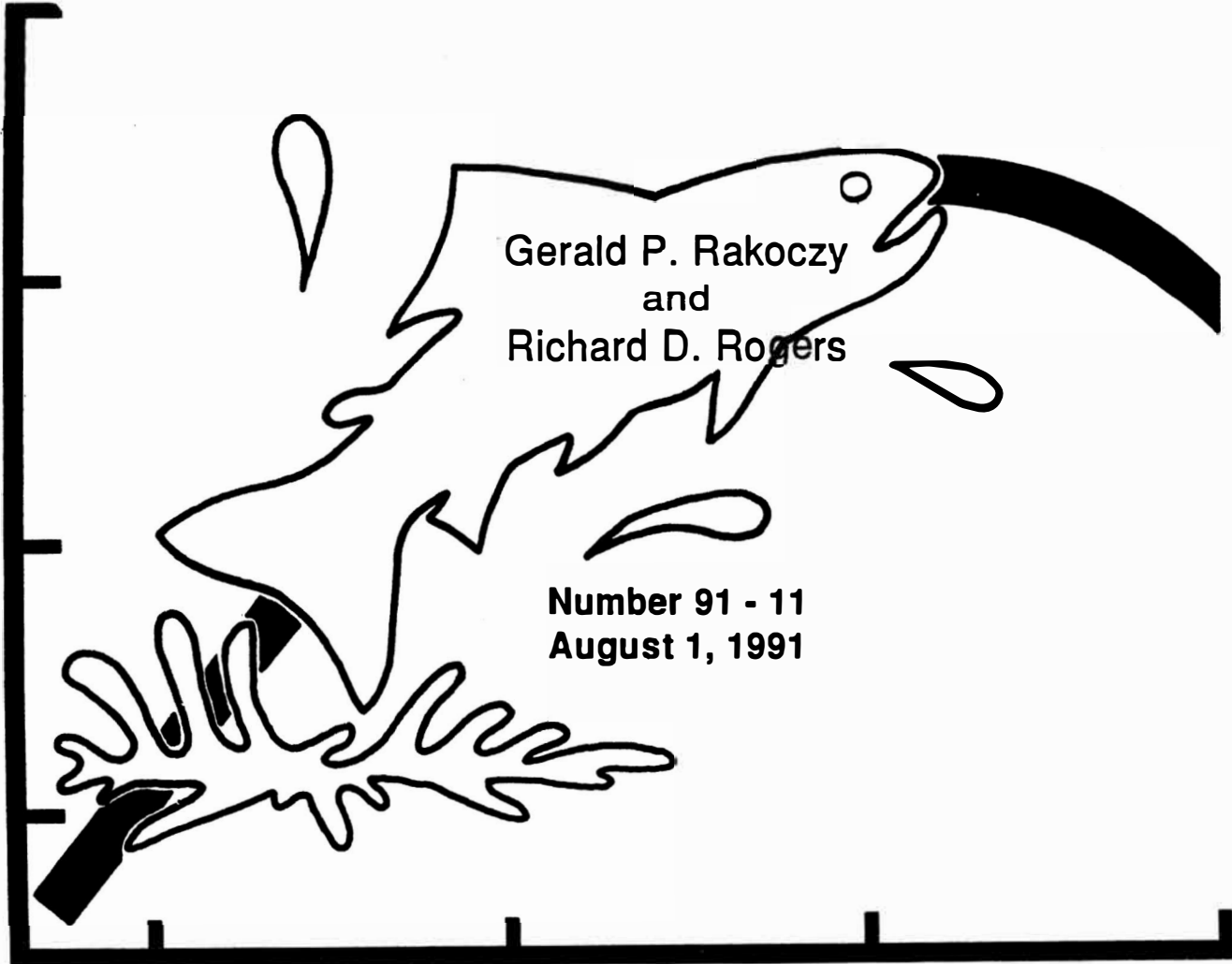


FISHERIES DIVISION

TECHNICAL REPORT

Charter Boat Catch and Effort From the Michigan Waters of the Great Lakes, 1989



Gerald P. Rakoczy
and
Richard D. Rogers

Number 91 - 11
August 1, 1991



Michigan Department of
Natural Resources

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES
FISHERIES DIVISION**

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OF THE GREAT LAKES, 1989¹**

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Charter Boat Catch and Effort from the Michigan Waters of the Great Lakes, 1989

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Abstract.—Legislation enacted during 1989 by the State of Michigan required 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 fishing effort and the number, type, and location of fish harvested by charter boat clients in Michigan. Ninety-six percent of the 883 charter fishing operators complied with the law by returning their completed catch reporting forms. These charter operators reported making 16,808 charter fishing excursions during April through October. The distribution of charter fishing effort by lake was: 70% Lake Michigan, 20% Lake Huron, 5% Lake Erie, 3% Lake Superior, and 2% Lake St. Clair. Over 429,000 angler hours were spent fishing by some 69,000 charter clients. A total of 159,000 fish were reported harvested. The harvest was composed of 41,000 yellow perch, 33,000 lake trout, 29,000 chinook salmon, 22,000 walleye, 12,000 coho salmon, 11,000 rainbow trout, and 1,000 brown trout.

Michigan's charter boat industry has grown from approximately 250 operations in 1979 to nearly 900 in 1989. The vast majority of these charter boats are used for sportfishing excursions on Michigan's Great Lakes waters. The charter fishing industry provides the State of Michigan each year with significant economic benefits. In 1985, 239,000 clients spent an estimated \$21 million in addition to charter fees 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 1989 passed Public Act 22 of 1989 which provided for the reporting of sportfishing catch and activity by the charter boat industry. This legislation was

supported by both the Michigan Charter Boat Association (MCBA), an industry representative, and the Michigan Department of Natural Resources (MDNR).

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

Methods

The Michigan Charter Boat Daily Catch Report form was developed jointly by a committee made of two members each from MDNR and the MCBA (Figure 1). Forms, along with grid maps of the Great Lakes (except Lake St. Clair) were mailed to all known charter operations (883) during August 1989. Charter operations, which used their vessels for fishing, were informed that they were required by law to complete the form each time they fished. The form was to be mailed by the tenth of the following month to MDNR's Charlevoix Fisheries Station at Charlevoix, Michigan. Charter operators were also requested to voluntarily provide information for months fished prior to August.

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

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

Each month, September through October, postcard notices were sent to charter operators who had not filed a report for the previous month. Generally, two notices were sent each month, the first after an operator was delinquent for 10 days, and the second after 30 days.

In early December 1989, a letter was transmitted via certified return receipt mail to charter operators who had not reported for either or both months of August or September. The letter 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 his or her name would be submitted to MDNR's Law Enforcement Division recommending non-

issuance of an inspection certificate for the 1990 season.

Catch-and-effort data received was compiled with a dBASE program written by the project biologist. Three measures of fishing effort were summarized: angler hours, angler trips, and charter excursions. 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.

Results

Compliance

Forty-six percent (402) of the 883 licensed-charter operations responded with completed catch reports for August by September 15, 1989. Delinquent notices (postcards) were sent to the remaining 481 operations. This first delinquent notice increased the August compliance rate to 75%. The second notice for August increased the compliance rate to 94%. The initial compliance rate for the September reporting period was 68%. The first and second notices increased compliance to 84%, and 94%, respectively. Thirty-four operators did not respond to the third notice which was sent by register mail to 92 individuals. Therefore, the final compliance rate for 1989 was 96%.

The compliance rate (96%) of Michigan's charter boat operators was very good, especially considering that the program was in its very first year. The State of Indiana, which began a catch reporting system in 1987, had a compliance rate of only 31% for its initial year of operation (Braun and Hudson 1988).

Catch and Effort

Charter fishing operators submitted reports on a total of 16,808 charter excursions

which took place during April through October, 1989 on lakes Michigan, Huron, Erie, Superior, and St. Clair (Tables 1 through 4). The distribution of charter fishing excursions by lake was: 70% Lake Michigan, 20% Lake Huron, 5% Lake Erie, 3% Lake Superior, and 2% Lake St. Clair. A total of 429,989 angler hours were spent fishing by 69,199 charter anglers. Thirty-two percent of all charter anglers did not reside in the State of Michigan. Lake Superior had the greatest percentage (46%) of nonresident charter anglers.

A total of 159,472 fish were reported caught, primarily during August through October, in all lakes combined. The most numerous species in the catch was yellow perch (41,371) which accounted for 26% of the harvest. In addition to yellow perch, 33,612 lake trout (21%), 29,126 chinook salmon (18%), 22,805 walleye (14%), 12,747 coho salmon (8%), 11,210 rainbow trout (7%), and 1,003 brown trout (1%) were also harvested. The "other" species category was 5% (7,598) of the total reported harvest. Lake Michigan accounted for 51% of all fish caught, while lakes Erie and Huron accounted for 27% and 14%, respectively.

The species composition of the charter boat harvest from each lake varied. Lake trout (31%) and chinook salmon (28%) were the most common species in the Lake Michigan catch (Table 6). On Lake Huron, chinook salmon (26%), lake trout (23%), and yellow perch (22%) were the most abundant species in the harvest. In general, yellow perch and walleye were the most important species the lakes Erie and St. Clair charter harvest. The "other" species category made up 30% of the Lake St. Clair harvest. Since other species are not identified on the catch reporting form, the actual composition of this category is unknown. However, comments on Lake St. Clair reporting forms indicate that smallmouth bass and muskellunge were recorded in this category. On Lake Superior, lake trout (87%) dominated the catch.

The greatest catch rates (fish per charter excursion) for most of the salmonids occurred at Lake Michigan ports (Table 7). Charter anglers at Frankfort, Leland, and Manistee

experienced the greatest catch per excursion on the Great Lakes for coho salmon (3.0), chinook salmon (4.4), and rainbow trout (1.2), respectively. Frankfort charter anglers also had the best catch per excursion (0.1) for brown trout. The greatest catch rate for lake trout (13.8 per excursion) occurred at Black River Harbor, Lake Superior. Lake Erie charter fishermen had the greatest catch rates for both yellow perch (31.5 per excursion) and walleye (18.2 per excursion).

Problems were discovered regarding the information about the numbers of sea lamprey seen attached to chinook salmon and lake trout. Some charter captains were confused about this item on the report form and recorded both lamprey observed and lamprey wounds. Lamprey data were disregarded on forms when charter operators indicated that they were reporting both wounds and the number of lamprey seen. We suspect however, that many other operators reported both wounds and lamprey, but did not indicate such on the form. Those data were considered valid and were tabulated. Therefore, the lamprey incidence data for each lake are probably biased upward. The importance of recording only the number of attached lamprey observed will be stressed in future communications with charter operators.

Lamprey incidence rates by lake indicate that lamprey abundance may be many times greater in Lake Huron than in lakes Michigan or Superior (Table 8). Although the lamprey data may be biased upward, it should be biased across all lakes in the same manner. Therefore, the great difference in the numbers of lamprey observed attached to chinook salmon and lake trout on Lake Huron compared to the other lakes should at least be a relative index.

Acknowledgments

The authors wish to thank Dennis Grinold, president of the MCBA, for his help and advice during 1989 season. Vicki Rogers entered the data on computer. Jim Peck edited the report.



MICHIGAN DEPARTMENT OF NATURAL RESOURCES MICHIGAN CHARTER BOAT DAILY CATCH REPORT

By authority of Act 244, P.A. 1966, as amended and Act 22, P.A. 1969. Submittal 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	Grid 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	
1																
2																
3																
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COMMENTS _____

SIGNATURE _____ DATE _____

PR 6808 (Rev. 4/69)

Figure 1.—Michigan charter boat daily 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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0388	1.0389	1,770	1,434	364	525	5,289	2,630	152	12,164
Chinook salmon	0.0739	1.9786	290	2,525	1,169	2,745	11,987	4,232	217	23,165
Rainbow trout	0.0343	0.9199	29	261	1,036	2,696	2,008	3,413	1,327	10,770
Brown trout	0.0030	0.0813	154	238	31	142	296	68	23	952
Lake trout	0.0806	2.1587	18	3,849	4,373	5,186	10,622	1,171	55	25,274
Yellow perch	0.0287	0.7700	0	0	185	3,238	1,890	3,622	80	9,015
Walleye	0.0011	0.0289	0	22	104	34	142	28	8	338
Other	0.0014	0.0362	1	5	23	74	198	89	34	424
Lamprey on chinook salmon			2	15	10	24	180	35	2	268
Lamprey on lake trout			0	55	56	86	448	37	6	688
Angler hours			6,115	30,286	31,155	49,794	130,598	56,670	9,032	313,649
Angler trips			1,022	4,914	5,048	7,731	20,097	9,135	1,365	49,312
Anglers										
Resident			550	2,639	3,287	4,995	12,447	5,915	776	30,609
Nonresident			472	2,275	1,761	2,736	7,650	3,220	589	18,703
Charter excursions			241	1,143	1,164	1,815	4,726	2,242	377	11,708

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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0038	0.0823	9	43	14	38	145	33	0	282
Chinook salmon	0.0798	1.7122	154	356	150	805	3,320	1,066	15	5,866
Rainbow trout	0.0055	0.1170	0	10	16	87	238	46	4	401
Brown trout	0.0007	0.0146	1	3	2	7	22	14	1	50
Lake trout	0.0698	1.4985	1	280	1,280	1,809	1,575	189	0	5,134
Yellow perch	0.0670	1.4390	0	0	300	793	2,713	924	200	4,930
Walleye	0.0504	1.0817	4	71	34	986	1,980	631	0	3,706
Other	0.0265	0.5677	1	71	157	186	1,365	165	0	1,945
Lamprey on chinook salmon			23	47	20	221	634	239	0	1,184
Lamprey on lake trout			0	70	133	281	244	41	0	769
Angler hours			1,407	4,296	6,309	13,698	36,114	11,481	224	73,528
Angler trips			232	750	1,173	2,461	5,876	1,953	42	12,487
Anglers										
Resident			231	710	1,043	2,119	4,838	1,629	39	10,609
Nonresident			1	40	130	342	1,038	324	3	1,878
Charter excursions			57	205	341	690	1,564	554	15	3,426

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, 1989.

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	0.0000	0.0000	0	0	4	0	0	0	0	4
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	1.3105	31.5024	15	104	270	171	3,105	9,451	12,653	25,769
Walleye	0.7561	18.1760	117	3,226	6,313	4,565	596	50	1	14,868
Other	0.1414	3.3998	0	853	1,218	330	127	219	34	2,781
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			97	2,739	7,127	4,598	1,487	1,731	1,886	19,664
Angler trips			20	526	1,417	915	271	349	328	3,826
Anglers										
Resident			20	485	1,280	828	236	312	278	3,439
Nonresident			0	41	137	87	35	37	50	387
Charter excursions			5	119	300	187	64	77	66	818

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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0232	0.6194	0	21	30	49	114	56	5	275
Chinook salmon	0.0047	0.1261	0	16	3	4	23	10	0	56
Rainbow trout	0.0027	0.0721	0	2	0	20	9	1	0	32
Brown trout	0.0001	0.0023	0	0	0	1	0	0	0	1
Lake trout	0.2703	7.2162	0	41	210	872	1,367	698	16	3,204
Yellow perch	0.0038	0.1014	0	0	14	2	29	0	0	45
Walleye	0.0001	0.0023	0	0	1	0	0	0	0	1
Other	0.0062	0.1644	0	0	13	23	37	0	0	73
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	6	11	18	12	0	47
Angler hours			0	120	844	3,297	5,419	2,130	42	11,852
Angler trips			0	24	132	468	782	390	7	1,803
Anglers										
Resident			0	22	49	286	392	221	7	977
Nonresident			0	2	83	182	390	169	0	826
Charter excursions			0	8	31	113	184	105	3	444

Table 5.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for Lake St. Clair charter boats, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0023	0.0631	24	0	0	0	0	2	0	26
Chinook salmon	0.0035	0.0947	31	6	0	0	1	1	0	39
Rainbow trout	0.0003	0.0073	1	1	0	0	0	0	1	3
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	0.1427	3.9126	0	0	91	70	309	855	287	1,612
Walleye	0.3446	9.4466	1	54	1,269	1,289	1,015	197	67	3,892
Other	0.2103	5.7646	0	0	316	449	1,101	468	41	2,375
Lamprey on chinook salmon			2	0	0	0	0	0	3	5
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			482	273	2,239	2,628	3,321	1,940	413	11,296
Angler trips			73	50	367	419	500	300	62	1,771
Anglers										
Resident			67	50	361	413	470	295	62	1,718
Nonresident			6	0	6	6	30	5	0	53
Charter excursions			20	12	80	99	112	71	18	412

Table 6.—Species composition (percent) of the charter boat harvest by lake, 1989.

Species	Lake				
	Michigan	Huron	Erie	Superior	St. Clair
Coho salmon	15	1	—	7	<1
Chinook salmon	28	26	—	2	<1
Rainbow trout	13	2	—	1	—
Brown trout	1	<1	—	—	—
Lake trout	31	23	—	87	—
Yellow perch	11	22	60	1	20
Walleye	<1	17	34	—	49
Other	<1	9	6	2	30

Table 7.—Maximum catch per excursion (number) of principal species by charter anglers on the Great Lakes, 1989.

Species	Number per excursion	Location
Coho salmon	3.0	Frankfort, Lake Michigan
Chinook salmon	4.4	Leland, Lake Michigan
Rainbow trout	1.2	Manistee, Lake Michigan
Brown trout	0.1	Frankfort, Lake Michigan
Lake trout	13.8	Black River Harbor, Lake Superior
Yellow perch	31.5	Monroe, Lake Erie
Walleye	18.2	Monroe, Lake Erie

Table 8.—Sea lamprey incidence (lamprey per 100 fish) for chinook salmon and lake trout harvested by Michigan's charter boat fishery, 1989.

Lake	Chinook salmon	Lake trout
Michigan	1.2	2.7
Huron	20.2	15.0
Superior	0.0	1.5

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- Mahoney, E. M., M. Brunke, and C. Pistis. 1986. 1985 Michigan charter fishing study. Michigan State University, Department of Parks and Recreation Resources, East Lansing.**

**Report approved by W. C. Latta
Richard D. Clark, Editor
James W. Peck, Editorial Board Reviewer
Alan D. Sutton, Graphics
Grace M. Zurek, Word Processor**

APPENDIX

Appendix 1.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0956	2.7131	392	407	85	47	6	4	14	955
Chinook salmon	0.0501	1.4233	76	265	28	44	67	18	3	501
Rainbow trout	0.0171	0.4858	6	26	20	84	18	3	14	171
Brown trout	0.0023	0.0653	9	8	4	0	2	0	0	23
Lake trout	0.1252	3.5540	0	429	199	249	344	27	3	1,251
Yellow perch	0.0780	2.2131	0	0	0	0	310	469	0	779
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			1	1	0	0	0	0	0	2
Lamprey on lake trout			0	2	0	1	3	0	0	6
Angler hours			1,015	3,750	1,455	1,716	1,480	471	106	9,993
Angler trips			146	594	243	264	227	67	14	1,555
Anglers										
Resident			30	88	23	37	12	4	3	197
Nonresident			116	506	220	227	215	63	11	1,358
Charter excursions			35	125	54	57	56	19	6	352

Appendix 2.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0515	1.4172	1,015	372	70	19	55	18	0	1,549
Chinook salmon	0.0644	1.7713	154	509	166	102	578	419	8	1,936
Rainbow trout	0.0226	0.6203	19	40	65	224	136	84	110	678
Brown trout	0.0037	0.1006	63	31	2	3	5	2	4	110
Lake trout	0.0776	2.1345	13	641	574	219	726	156	4	2,333
Yellow perch	0.0748	2.0576	0	0	75	794	192	1,110	78	2,249
Walleye	0.0011	0.0302	0	0	0	1	17	10	5	33
Other	0.0032	0.0869	0	0	0	28	32	12	23	95
Lamprey on chinook salmon			1	2	1	1	9	4	0	18
Lamprey on lake trout			0	7	5	4	24	10	1	51
Angler hours			3,287	5,340	4,484	3,603	6,659	5,726	964	30,062
Angler trips			550	810	666	567	993	864	129	4,579
Anglers										
Resident			281	310	220	215	303	278	34	1,641
Nonresident			269	500	446	352	690	586	95	2,938
Charter excursions			128	188	154	141	221	218	43	1,093

Appendix 3.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0138	0.3534	28	34	5	7	10	4	0	88
Chinook salmon	0.0373	0.9558	3	51	26	25	62	53	18	238
Rainbow trout	0.0116	0.2972	0	22	8	13	12	10	9	74
Brown trout	0.0005	0.0120	0	0	0	1	0	2	0	3
Lake trout	0.0841	2.1566	0	116	86	102	207	26	0	537
Yellow perch	0.1102	2.8273	0	0	0	1	308	395	0	704
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0036	0.0924	0	1	0	22	0	0	0	23
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	2	3	8	3	0	16
Angler hours			149	1,020	986	1,167	2,119	810	139	6,389
Angler trips			31	184	175	202	387	163	25	1,167
Anglers										
Resident			31	154	162	138	307	113	17	922
Nonresident			0	30	13	64	80	50	8	245
Charter excursions			6	39	34	46	83	35	6	249

Appendix 4.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0271	0.7074	202	104	7	5	62	76	1	457
Chinook salmon	0.0634	1.6533	43	381	106	89	269	175	5	1,068
Rainbow trout	0.0313	0.8173	4	46	8	39	85	335	11	528
Brown trout	0.0046	0.1207	45	9	3	3	11	6	1	78
Lake trout	0.1228	3.2028	5	418	165	257	1,015	206	3	2,069
Yellow perch	0.2016	5.2601	0	0	108	2,440	624	226	0	3,398
Walleye	0.0063	0.1641	0	0	104	1	0	1	0	106
Other	0.0008	0.0201	0	4	2	2	3	2	0	13
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	5	2	1	26	2	0	36
Angler hours			850	2,544	1,334	2,458	5,871	3,558	238	16,853
Angler trips			152	390	232	391	847	543	34	2,589
Anglers										
Resident			108	208	114	173	450	315	22	1,390
Nonresident			44	182	118	218	397	228	12	1,199
Charter excursions			34	93	64	103	206	137	9	646

Appendix 5.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0191	0.4487	13	77	3	14	44	46	0	197
Chinook salmon	0.0678	1.5968	3	288	88	91	202	29	0	701
Rainbow trout	0.0131	0.3075	0	31	4	23	22	55	0	135
Brown trout	0.0047	0.1116	8	33	0	3	5	0	0	49
Lake trout	0.1350	3.1777	0	343	323	246	453	30	0	1,395
Yellow perch	0.0002	0.0046	0	0	0	0	0	2	0	2
Walleye	0.0031	0.0729	0	0	0	32	0	0	0	32
Other	0.0009	0.0205	1	0	7	0	0	1	0	9
Lamprey on chinook salmon			0	7	1	1	4	0	0	13
Lamprey on lake trout			0	10	0	13	61	2	0	86
Angler hours			146	2,460	1,627	1,905	3,434	762	0	10,333
Angler trips			27	431	327	334	494	145	0	1,758
Anglers										
Resident			11	188	194	213	213	117	0	936
Nonresident			16	243	133	121	281	28	0	822
Charter excursions			7	113	78	79	124	38	0	439

Appendix 6.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0226	0.5875	30	134	15	18	116	462	68	843
Chinook salmon	0.0718	1.8669	2	561	247	233	875	696	65	2,679
Rainbow trout	0.0367	0.9533	0	17	6	50	119	1,079	97	1,368
Brown trout	0.0012	0.00321	1	12	1	12	14	6	0	46
Lake trout	0.0899	2.3373	0	479	672	771	1,265	158	9	3,354
Yellow perch	0.0003	0.0077	0	0	2	2	7	0	0	11
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0005	0.0139	0	0	0	3	10	7	0	20
Lamprey on chinook salmon			0	3	1	3	9	5	0	21
Lamprey on lake trout			0	15	9	12	42	3	0	81
Angler hours			139	4,849	5,143	4,984	12,617	8,841	740	37,312
Angler trips			22	805	861	858	2,085	1,444	133	6,208
Anglers										
Resident			19	626	654	656	1,453	1,039	96	4,543
Nonresident			3	179	207	202	632	405	37	1,665
Charter excursions			5	188	196	202	474	338	32	1,435

Appendix 7.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0144	0.3371	21	41	5	2	24	67	17	177
Chinook salmon	0.0584	1.3676	3	123	74	92	258	150	18	718
Rainbow trout	0.0380	0.8895	0	10	7	29	66	308	47	467
Brown trout	0.0020	0.0476	5	12	0	5	2	1	0	25
Lake trout	0.0583	1.3638	0	143	119	172	248	27	7	716
Yellow perch	0.0005	0.0114	0	0	0	0	4	2	0	6
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0024	0.0552	0	0	0	1	16	12	0	29
Lamprey on chinook salmon			0	0	0	1	6	0	0	7
Lamprey on lake trout			0	5	1	6	47	2	0	61
Angler hours			148	2,004	1,446	1,539	4,469	2,351	330	12,286
Angler trips			33	333	245	280	744	398	62	2,095
Anglers										
Resident			33	229	204	213	447	265	57	1,448
Nonresident			0	104	41	67	297	133	5	647
Charter excursions			11	75	60	69	186	105	19	525

Appendix 8.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0151	0.3913	0	9	5	9	46	39	0	108
Chinook salmon	0.0530	1.3732	0	32	49	47	163	84	4	379
Rainbow trout	0.0585	1.5145	0	2	2	11	154	238	11	418
Brown trout	0.0020	0.0507	0	3	1	5	5	0	0	14
Lake trout	0.0392	1.0145	0	60	63	43	97	17	0	280
Yellow perch	0.0001	0.0036	0	0	0	1	0	0	0	1
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0003	0.0072	0	0	0	0	1	1	0	2
Lamprey on chinook salmon			0	1	0	0	1	0	0	2
Lamprey on lake trout			0	1	0	1	3	0	0	5
Angler hours			0	436	746	1,324	2,827	1,696	117	7,145
Angler trips			0	76	121	183	399	290	18	1,087
Anglers										
Resident			0	40	74	97	202	168	15	596
Nonresident			0	36	47	86	197	122	3	491
Charter excursions			0	20	32	47	103	69	5	276

Appendix 9.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0134	0.3622	0	2	5	23	76	31	1	138
Chinook salmon	0.0803	2.1706	0	70	65	197	367	128	0	827
Rainbow trout	0.0712	1.9239	0	11	13	69	250	375	15	733
Brown trout	0.0032	0.0866	0	20	2	3	7	1	0	33
Lake trout	0.0876	2.3675	0	111	191	337	233	30	0	902
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	2	2	0	4
Lamprey on lake trout			0	1	4	0	9	1	0	15
Angler hours			0	674	888	2,703	3,884	2,093	59	10,300
Angler trips			0	110	145	426	567	316	9	1,573
Anglers										
Resident			0	82	89	355	299	155	4	984
Nonresident			0	28	56	71	268	161	5	589
Charter excursions			0	29	40	102	131	77	2	381

Appendix 10.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0205	0.6502	1	0	7	81	650	188	21	948
Chinook salmon	0.1062	3.3697	1	54	65	378	3,586	800	29	4,913
Rainbow trout	0.0323	1.0240	0	4	17	417	462	338	255	1,493
Brown trout	0.0026	0.0809	6	16	0	32	55	7	2	118
Lake trout	0.0619	1.9643	0	140	333	707	1,607	68	9	2,864
Yellow perch	0.0002	0.0069	0	0	0	0	9	1	0	10
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0005	0.0171	0	0	1	3	18	3	0	25
Lamprey on chinook salmon			0	0	0	0	38	1	0	39
Lamprey on lake trout			0	0	11	3	47	5	0	66
Angler hours			78	927	1,777	6,897	27,520	7,747	1,308	46,253
Angler trips			14	151	279	888	3,672	1,113	181	6,298
Anglers										
Resident			14	128	261	616	1,848	755	155	3,777
Nonresident			0	23	18	272	1,824	358	26	2,521
Charter excursions			4	38	60	199	839	270	48	1,458

Appendix 11.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0295	0.8495	0	0	36	81	446	216	17	796
Chinook salmon	0.0650	1.8698	0	57	133	236	1,092	208	26	1,752
Rainbow trout	0.0426	1.2263	0	38	357	356	170	136	92	1,149
Brown trout	0.0032	0.0907	0	26	9	11	26	9	4	85
Lake trout	0.0464	1.3340	0	145	223	225	567	82	8	1,250
Yellow perch	0.0019	0.0555	0	0	0	0	1	51	0	52
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0004	0.0128	0	0	0	3	9	0	0	12
Lamprey on chinook salmon			0	1	2	6	22	5	0	36
Lamprey on lake trout			0	1	4	7	43	5	2	62
Angler hours			0	1,058	2,902	4,946	13,701	3,773	587	26,967
Angler trips			0	148	387	650	1,919	553	89	3,746
Anglers										
Resident			0	128	340	501	1,440	472	67	2,948
Nonresident			0	20	47	149	479	81	22	798
Charter excursions			0	38	89	143	492	150	25	937

Appendix 12.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0320	1.1093	0	2	0	47	84	63	7	203
Chinook salmon	0.0759	2.6339	0	26	32	59	272	80	13	482
Rainbow trout	0.0693	2.4044	0	0	104	128	37	127	44	440
Brown trout	0.0077	0.2678	0	40	1	4	4	0	0	49
Lake trout	0.0373	1.2951	0	25	22	51	131	8	0	237
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	0.0002	0.0055	0	0	1	0	0	0	0	1
Lamprey on chinook salmon			0	0	0	1	0	0	0	1
Lamprey on lake trout			0	0	3	1	2	0	0	6
Angler hours			0	645	868	1,129	2,226	1,229	250	6,347
Angler trips			0	105	108	172	304	175	27	891
Anglers										
Resident			0	57	80	146	219	136	20	658
Nonresident			0	48	28	26	85	39	7	233
Charter excursions			0	17	20	33	67	39	7	183

Appendix 13.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.1137	3.0450	0	0	7	100	2,779	1,241	5	4,132
Chinook salmon	0.0345	0.9248	0	27	52	139	789	232	16	1,255
Rainbow trout	0.0445	1.1909	0	1	365	733	171	185	161	1,616
Brown trout	0.0038	0.1010	12	18	7	30	58	11	1	137
Lake trout	0.0837	2.2424	0	415	643	435	1,502	47	1	3,043
Yellow perch	0.0001	0.0029	0	0	0	0	4	0	0	4
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0015	0.0391	0	0	0	1	28	24	0	53
Lamprey on chinook salmon			0	0	5	6	26	1	0	38
Lamprey on lake trout			0	8	10	11	57	1	0	87
Angler hours			90	1,900	3,615	4,508	17,163	8,217	850	36,341
Angler trips			18	344	591	751	2,664	1,289	144	5,801
Anglers										
Resident			18	307	527	598	2,044	995	133	4,622
Nonresident			0	37	64	153	620	294	11	1,179
Charter excursions			4	86	138	178	617	303	31	1,357

Appendix 14.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0375	1.0609	0	0	0	19	623	72	0	714
Chinook salmon	0.1570	4.4428	0	1	2	685	1,899	403	0	2,990
Rainbow trout	0.0317	0.8975	0	0	51	399	134	20	0	604
Brown trout	0.0017	0.0490	0	0	0	10	20	3	0	33
Lake trout	0.0631	1.7845	0	79	284	333	491	14	0	1,201
Yellow perch	0.0717	2.0297	0	0	0	0	0	1,366	0	1,366
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0002	0.0059	0	0	0	1	3	0	0	4
Lamprey on chinook salmon			0	0	0	2	50	1	0	53
Lamprey on lake trout			0	0	2	1	22	0	0	25
Angler hours			0	201	1,195	5,167	10,410	2,071	0	19,044
Angler trips			0	49	248	823	1,639	337	0	3,096
Anglers										
Resident			0	37	208	612	1,153	244	0	2,254
Nonresident			0	12	40	211	486	93	0	842
Charter excursions			0	11	54	186	348	74	0	673

Appendix 15.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Traverse City, Lake Michigan, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0038	0.0746	0	0	0	0	5	12	0	17
Chinook salmon	0.0888	1.7456	0	0	0	0	161	236	1	398
Rainbow trout	0.0029	0.0570	0	0	0	4	9	0	0	13
Brown trout	0.0009	0.0175	0	0	0	4	0	0	0	4
Lake trout	0.0710	1.3947	0	15	35	62	200	6	0	318
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0002	0.0044	0	0	0	0	1	0	0	1
Other	0.0027	0.0526	0	0	0	7	5	0	0	12
Lamprey on chinook salmon			0	0	0	0	1	3	0	4
Lamprey on lake trout			0	0	0	0	10	0	0	10
Angler hours			0	52	108	364	2,359	1,583	16	4,481
Angler trips			0	11	21	66	507	372	4	981
Anglers										
Resident			0	7	18	53	395	278	2	753
Nonresident			0	4	3	13	112	94	2	228
Charter excursions			0	3	5	16	117	86	1	228

Appendix 16.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Acme, Lake Michigan, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0040	0.0650	0	0	0	0	10	3	0	13
Chinook salmon	0.0996	1.6050	0	0	0	0	158	162	1	321
Rainbow trout	0.0016	0.0250	0	0	0	0	5	0	0	5
Brown trout	0.0022	0.0350	0	0	0	0	5	2	0	7
Lake trout	0.0589	0.9500	0	0	0	0	184	6	0	190
Yellow perch	0.0006	0.0100	0	0	0	0	0	0	2	2
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0047	0.0750	0	0	0	0	14	1	0	15
Lamprey on chinook salmon			0	0	0	0	1	0	0	1
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			0	0	0	0	2,200	896	128	3,224
Angler trips			0	0	0	0	563	232	32	827
Anglers										
Resident			0	0	0	0	451	175	0	626
Nonresident			0	0	0	0	112	57	32	201
Charter excursions			0	0	0	0	133	59	8	200

Appendix 17.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0004	0.0088	0	0	0	0	2	0	0	2
Chinook salmon	0.0754	1.5796	0	0	0	0	261	96	0	357
Rainbow trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Brown trout	0.0011	0.0221	0	0	0	1	1	3	0	5
Lake trout	0.1244	2.6062	0	1	40	108	406	34	0	589
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	0.0008	0.0177	0	0	0	0	4	0	0	4
Lamprey on chinook salmon			0	0	0	0	6	4	0	10
Lamprey on lake trout			0	0	0	0	12	2	0	14
Angler hours			0	20	184	353	3,250	929	0	4,736
Angler trips			0	5	29	71	612	188	0	905
Anglers										
Resident			0	5	25	52	390	145	0	617
Nonresident			0	0	4	19	222	43	0	288
Charter excursions			0	1	8	17	147	53	0	226

Appendix 18.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0012	0.0302	0	0	0	3	2	2	0	7
Chinook salmon	0.1143	2.7888	0	0	0	116	352	179	0	647
Rainbow trout	0.0046	0.1121	0	0	0	6	16	4	0	26
Brown trout	0.0011	0.0259	0	0	0	2	4	0	0	6
Lake trout	0.0074	0.1810	0	0	16	22	3	1	0	42
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0002	0.0043	0	0	0	0	1	0	0	1
Other	0.0127	0.3103	0	0	2	21	39	10	0	72
Lamprey on chinook salmon			0	0	0	54	112	49	0	215
Lamprey on lake trout			0	0	1	5	1	5	0	12
Angler hours			0	0	99	807	3,179	1,578	0	5,663
Angler trips			0	0	27	170	475	251	0	923
Anglers										
Resident			0	0	25	138	350	176	0	689
Nonresident			0	0	2	32	125	75	0	234
Charter excursions			0	0	10	48	111	63	0	232

Appendix 19.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0041	0.1118	0	0	0	7	11	1	0	19
Chinook salmon	0.1196	3.2529	0	1	7	176	311	58	0	553
Rainbow trout	0.0084	0.2294	0	0	0	12	26	1	0	39
Brown trout	0.0035	0.0941	0	0	0	2	4	10	0	16
Lake trout	0.0145	0.3941	0	4	10	26	27	0	0	67
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0041	0.1118	0	0	0	0	14	5	0	19
Other	0.0406	1.1059	0	0	1	55	129	3	0	188
Lamprey on chinook salmon			0	2	0	61	36	5	0	104
Lamprey on lake trout			0	1	0	10	1	0	0	12
Angler hours			0	21	55	1,240	2,718	593	0	4,626
Angler trips			0	5	11	187	381	86	0	670
Anglers										
Resident			0	5	11	175	338	69	0	598
Nonresident			0	0	0	12	43	17	0	72
Charter excursions			0	3	6	51	88	22	0	170

Appendix 20.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0057	0.1017	0	0	2	9	7	17	0	35
Chinook salmon	0.0902	1.6047	1	9	36	132	232	142	0	552
Rainbow trout	0.0123	0.2180	0	0	3	33	25	14	0	75
Brown trout	0.0013	0.0233	0	3	0	2	0	3	0	8
Lake trout	0.1127	2.0058	1	9	178	353	134	15	0	690
Yellow perch	0.0011	0.0203	0	0	0	6	1	0	0	7
Walleye	0.0038	0.0669	0	0	0	1	10	12	0	23
Other	0.0314	0.5581	0	3	51	24	106	8	0	192
Lamprey on chinook salmon			0	0	1	18	53	43	0	115
Lamprey on lake trout			0	0	7	27	16	0	0	50
Angler hours			4	123	882	2,106	1,934	1,051	22	6,121
Angler trips			4	30	184	368	344	192	5	1,127
Anglers										
Resident			4	28	161	343	307	183	5	1,031
Nonresident			0	2	23	25	37	9	0	96
Charter excursions			2	11	57	114	101	57	2	344

Appendix 21.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0044	0.0919	0	1	2	5	68	5	0	81
Chinook salmon	0.0920	1.9308	0	17	47	67	1,200	369	1	1,701
Rainbow trout	0.0059	0.1249	0	1	4	17	74	14	0	110
Brown trout	0.0004	0.0079	0	0	0	0	7	0	0	7
Lake trout	0.0989	2.0760	0	34	616	688	471	20	0	1,829
Yellow perch	0.0005	0.0102	0	0	0	0	9	0	0	9
Walleye	0.0108	0.2270	0	0	0	1	159	40	0	200
Other	0.0090	0.1896	0	2	45	13	92	15	0	167
Lamprey on chinook salmon			0	1	6	12	191	77	0	287
Lamprey on lake trout			0	3	37	74	75	2	0	191
Angler hours			0	480	2,028	2,889	9,969	3,104	22	18,490
Angler trips			0	83	374	521	1,631	537	4	3,150
Anglers										
Resident			0	68	336	420	1,398	469	4	2,695
Nonresident			0	15	38	101	233	68	0	455
Charter excursions			0	24	103	146	444	163	1	881

Appendix 22.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Saginaw Bay (Tawas to Port Austin), Lake Huron, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0022	0.0488	0	12	0	2	14	2	0	30
Chinook salmon	0.0291	0.6358	9	97	41	77	133	34	0	391
Rainbow trout	0.0036	0.0780	0	6	4	5	25	8	0	48
Brown trout	0.0004	0.0081	0	0	0	0	5	0	0	5
Lake trout	0.0756	1.6504	0	121	232	300	330	32	0	1,015
Yellow perch	0.3164	6.9089	0	0	300	590	2,311	848	200	4,249
Walleye	0.2056	4.4894	2	48	17	876	1,284	534	0	2,761
Other	0.0141	0.3073	0	12	13	35	114	15	0	189
Lamprey on chinook salmon			3	13	6	15	24	5	0	66
Lamprey on lake trout			0	27	31	49	78	3	0	188
Angler hours			33	1,018	1,511	2,921	5,787	2,094	64	13,428
Angler trips			10	183	260	512	957	345	10	2,277
Anglers										
Resident			10	181	242	477	851	321	10	2,092
Nonresident			0	2	18	35	106	24	0	185
Charter excursions			4	56	74	131	254	94	2	615

Appendix 23.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0034	0.0737	1	3	5	1	6	0	0	16
Chinook salmon	0.0380	0.8249	11	67	9	2	56	34	0	179
Rainbow trout	0.0021	0.0461	0	0	0	4	6	0	0	10
Brown trout	0.0006	0.0138	1	0	0	1	0	1	0	3
Lake trout	0.0554	1.2028	0	4	63	123	61	10	0	261
Yellow perch	0.0860	1.8664	0	0	0	3	328	74	0	405
Walleye	0.0484	1.0507	0	22	0	10	192	4	0	228
Other	0.0130	0.2811	0	29	5	0	25	2	0	61
Lamprey on chinook salmon			0	0	0	2	24	10	0	36
Lamprey on lake trout			0	0	4	5	8	5	0	22
Angler hours			108	502	554	523	2,150	871	0	4,708
Angler trips			18	87	88	84	372	160	0	809
Anglers										
Resident			18	80	88	71	347	132	0	736
Nonresident			0	7	0	13	25	28	0	73
Charter excursions			5	24	21	21	102	44	0	217

Appendix 24.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0094	0.2419	7	19	3	0	1	0	0	30
Chinook salmon	0.0843	2.1613	129	131	2	2	2	2	0	268
Rainbow trout	0.0013	0.0323	0	2	0	2	0	0	0	4
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.0009	0.0242	0	2	0	0	1	0	0	3
Yellow perch	0.0006	0.0161	0	0	0	0	0	2	0	2
Walleye	0.0006	0.0161	2	0	0	0	0	0	0	2
Other	0.0076	0.1935	1	23	0	0	0	0	0	24
Lamprey on chinook salmon			20	26	2	0	0	0	0	48
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			1,174	1,581	53	28	203	139	0	3,178
Angler trips			184	260	11	7	35	33	0	530
Anglers										
Resident			183	250	8	6	35	31	0	513
Nonresident			1	10	3	1	0	2	0	17
Charter excursions			42	57	3	2	10	10	0	124

Appendix 25.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0208	0.4375	1	6	0	0	0	0	0	7
Chinook salmon	0.0625	1.3125	4	16	0	0	1	0	0	21
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	0.0000	0.0000	0	0	0	0	0	0	0	0
Yellow perch	0.0060	0.1250	0	0	0	0	2	0	0	2
Walleye	0.0030	0.0625	0	1	0	0	0	0	0	1
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	0	0	0	0	0	0	0
Angler hours			88	183	0	0	65	0	0	336
Angler trips			16	29	0	0	13	0	0	58
Anglers										
Resident			16	29	0	0	13	0	0	58
Nonresident			0	0	0	0	0	0	0	0
Charter excursions			4	9	0	0	3	0	0	16

Appendix 26.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0200	1.0353	0	0	28	7	19	34	0	88
Chinook salmon	0.0016	0.0824	0	0	2	0	2	3	0	7
Rainbow trout	0.0002	0.0118	0	0	0	0	0	1	0	1
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.2662	13.8000	0	0	183	125	579	286	0	1,173
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	6	6	12	4	0	28
Angler hours			0	0	638	446	2,296	1,027	0	4,407
Angler trips			0	0	83	59	271	139	0	552
Anglers										
Resident			0	0	21	16	85	37	0	159
Nonresident			0	0	62	43	186	102	0	393
Charter excursions			0	0	11	8	41	25	0	85

Appendix 27.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0047	0.1176	0	0	0	0	1	1	0	2
Chinook salmon	0.0047	0.1176	0	0	0	0	2	0	0	2
Rainbow trout	0.0023	0.0588	0	0	0	0	1	0	0	1
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.3953	10.0000	0	0	0	0	116	54	0	170
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	2	8	0	10
Angler hours			0	0	0	0	288	142	0	430
Angler trips			0	0	0	0	50	30	0	80
Anglers										
Resident			0	0	0	0	20	12	0	32
Nonresident			0	0	0	0	30	18	0	48
Charter excursions			0	0	0	0	11	6	0	17

Appendix 28.—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, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0241	0.7581	0	21	0	16	44	13	0	94
Chinook salmon	0.0100	0.3145	0	16	0	1	15	7	0	39
Rainbow trout	0.0013	0.0403	0	2	0	2	1	0	0	5
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.2837	8.9355	0	41	0	559	442	66	0	1,108
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	4	0	0	6
Angler hours			0	120	0	1,891	1,561	334	0	3,906
Angler trips			0	24	0	216	217	70	0	527
Anglers										
Resident			0	22	0	124	138	62	0	346
Nonresident			0	2	0	92	79	8	0	181
Charter excursions			0	8	0	41	50	25	0	124

Appendix 29.—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, a tributary of Lake Michigan, 1989.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0002	0.0054	0	0	0	0	0	0	1	1
Chinook salmon	0.0236	0.5652	0	0	0	0	2	94	8	104
Rainbow trout	0.1136	2.7174	0	0	0	0	20	81	399	500
Brown trout	0.0025	0.0598	0	0	0	0	0	0	11	11
Lake trout	0.0025	0.0598	0	0	0	0	0	0	11	11
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0023	0.0543	0	0	0	0	1	6	3	10
Other	0.0093	0.2228	0	0	0	0	4	26	11	41
Lamprey on chinook salmon			0	0	0	0	0	3	1	4
Lamprey on lake trout			0	0	0	0	0	0	3	3
Angler hours			0	0	0	0	155	1,448	2,797	4,400
Angler trips			0	0	0	0	19	206	410	635
Anglers										
Resident			0	0	0	0	0	43	103	146
Nonresident			0	0	0	0	19	163	307	489
Charter excursions			0	0	0	0	9	59	116	184