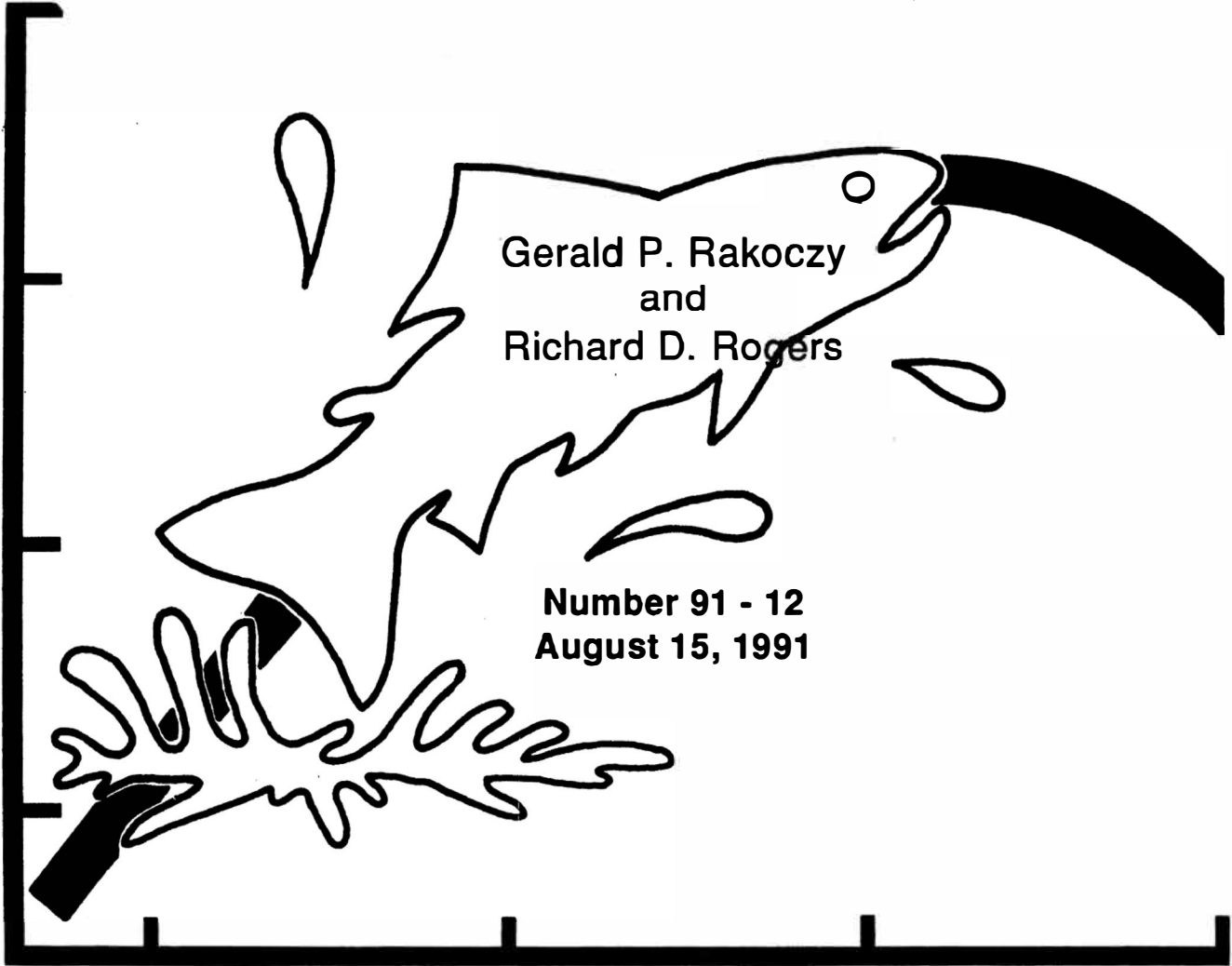


# FISHERIES DIVISION

## TECHNICAL REPORT

### Charter Boat Catch and Effort From the Michigan Waters of the Great Lakes, 1990



Gerald P. Rakoczy  
and  
Richard D. Rogers

Number 91 - 12  
August 15, 1991



Michigan Department of  
Natural Resources

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
FISHERIES DIVISION**

**Fisheries Technical Report No. 91-12  
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<sup>1</sup>A contribution from Dingell-Johnson Project F-53-R, Michigan.

## Charter Boat Catch and Effort from the Michigan Waters of the Great Lakes, 1990

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Richard D. Rogers

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*Abstract.*—Legislation enacted in 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-seven percent of the 867 charter fishing operators complied with the law by returning their completed catch reporting forms. These charter operators reported making 20,695 charter fishing excursions during April through October. The distribution of charter fishing effort by lake was: 65% Lake Michigan, 19% Lake Huron, 8% Lake Erie, and 4% each for Lake Superior and Lake St. Clair. Over 525,000 angler hours were spent fishing by some 85,000 charter clients. A total of 233,000 fish were reported harvested. The harvest was composed of 73,000 yellow perch, 45,000 walleye, 44,000 lake trout, 31,000 chinook salmon, 14,000 rainbow trout, 14,000 coho salmon, and 2,000 brown trout.

Michigan's charter boat industry has grown from approximately 250 operations in 1979 to nearly 900 in 1990. 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 in 1989 by a committee made up of two members each from MDNR and the MCBA (Figure 1). Forms, along with grid maps of the Great Lakes were mailed to all known charter operations (867) during March 1990. Charter operators were identified from a list of boat inspection certificates issued by MDNR's Law Enforcement Division for previous years. 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.

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 or 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, June through November, 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 1990, a letter was transmitted via certified mail to those charter operators who had not filed reports for one or more months during the period May through October. 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 his or her name would be submitted to MDNR's Law Enforcement Division recommending non-issuance of an inspection certificate for the 1991 season.

Catch-and-effort data received were 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.

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

### Results

#### *Compliance*

During the 1990 fishing season, an average of 29% of all charter boat operators had not filed their monthly report within 10 days after the due-date. An average of 16% of all operators were delinquent each month for at least 30 days. Compliance increased as the season progressed. The greatest non-compliance rates occurred during May and June. By the end of the season (October), 23% of all operators were delinquent for at least 10 days, and 10% were in arrears for at least 30 days.

By the end of 1990, 97% of all charter operators had complied with the law. The final compliance rate for 1990 was virtually the same as 1989 (96%).

### *Catch and effort*

Charter fishing operators submitted reports on a total of 20,695 charter excursions which took place during April through October 1990 on lakes Michigan, Huron, Erie, St. Clair and Superior (Tables 1 through 5). The distribution of charter fishing effort by lake was: 65% Lake Michigan, 19% Lake Huron, 8% Lake Erie, and 4% each on Lake Superior, and Lake St. Clair including the St. Clair River. This was very similar to the 1989 data which consisted of voluntary and mandatory data (Rakoczy and Rogers 1991). A total of 525,716 angler hours were spent fishing by 85,697 charter anglers. Thirty-one percent of all charter anglers were not residents of Michigan. Lake Superior charter operators had the greatest percentage (51%) of nonresident anglers (Table 4), while Lake St. Clair captains had the lowest percentage (3%) (Table 5).

A total of 233,673 fish were reported harvested in all lakes. The most numerous species in the catch was yellow perch (73,387) which accounted for 31% of the total harvest. In addition to yellow perch, 45,729 walleye (20%), 44,460 lake trout (19%), 31,200 chinook salmon (14%), 14,540 rainbow trout (6%), 14,240 coho salmon (6%), and 2,044 brown trout (1%) were also harvested. The "other" species category was 3% of the total reported catch. Lake Michigan accounted for 59% of the total harvest, while lakes Erie and Huron accounted for 21% and 11% of the total catch, respectively.

The species composition of the charter boat harvest from each lake varied. In terms of numbers of fish, yellow perch were the most abundant species in the lakes Michigan (36%) and Huron (30%) charter harvest (Table 6). Among the salmonids, lake trout and chinook salmon were most abundant in the lakes Michigan and Huron catch. In addition on Lake Huron, walleye were an important part (16%) of the total harvest. In general, walleye and yellow perch were the most abundant species in 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 (94%) 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 New Buffalo, Leland, and Onkama had the greatest catch per excursion on the Great Lakes for coho salmon (2.4), chinook salmon (4.2), and rainbow trout (3.4), respectively. Alpena, Lake Huron charter anglers had the best catch rate (0.3 fish per excursion) for brown trout. The greatest catch rate for lake trout (11.9 per excursion) occurred at Ontonagon on Lake Superior. Lake Michigan charter clients at Saugatuck had the greatest catch rate on the Great Lakes for yellow perch (38.2 per excursion). The best catch rate for walleye (19.8 per excursion) was noted for charter anglers at Monroe, Lake Erie.

Charter operators also reported the numbers of sea lamprey observed attached to chinook salmon and lake trout. During 1989, some charter captains were confused about this item on the reporting form and recorded both lamprey observed attached to fish and lamprey wounds (Rakoczy and Rogers 1991). The 1990 lamprey data are believed to be relatively free of this bias. Lamprey incidence (lamprey per 100 fish) was much higher on Lake Huron than any other Great Lakes (Table 8). Charter captains reported 18.6 lamprey per 100 chinook salmon harvested on Lake Huron during 1990. This incidence is 37 times higher than that reported for chinook on Lake Michigan. The incidence of lamprey attached to lake trout (6.6 per 100 fish) harvested from Lake Huron was also much higher than that reported for lakes Michigan (1.8) or Superior (1.8). In general, lamprey incidence for Lake Huron chinook were higher at northern ports, such as Rogers City (33.9) and Alpena (17.7), than at central or southern ports, such as Oscoda (14.4) and Port Sanilac (12.7).

## **Acknowledgments**

The authors wish to thank the Michigan Charter Boat Association for their support during 1990 season. Evelyn Davis and Jerry Meggison 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. 1986, as amended and Act 22, P.A. 1989. 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																	
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3																	
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COMMENTS \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

FR 6208 (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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0390	1.0226	314	2,395	803	1,535	6,790	1,834	100	13,771
Chinook salmon	0.0739	1.9363	53	2,738	2,359	5,124	11,837	3,713	252	26,076
Rainbow trout	0.0403	1.0558	5	499	1,309	3,733	5,410	2,071	1,191	14,218
Brown trout	0.0055	0.1440	37	418	226	494	653	91	20	1,939
Lake trout	0.0839	2.1973	3	3,303	5,916	10,218	9,137	1,001	13	29,591
Yellow perch	0.1406	3.6834	202	284	12,774	28,557	5,848	1,938	1	49,604
Walleye	0.0035	0.0928	0	19	527	530	128	41	5	1,250
Other	0.0011	0.0287	2	40	126	75	59	59	25	386
Lamprey on chinook salmon			0	18	22	15	69	12	0	136
Lamprey on lake trout			0	89	118	190	122	12	1	532
Angler hours			1,530	40,569	50,283	83,930	124,612	44,046	7,888	352,857
Angler trips			241	6,403	8,052	13,425	19,663	7,158	1,191	56,133
Anglers										
Resident			103	3,453	4,923	8,320	12,083	4,613	602	34,097
Nonresident			138	2,950	3,129	5,105	7,580	2,545	589	22,036
Charter excursions			60	1,499	1,938	3,180	4,696	1,769	325	13,467



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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0021	0.0446	2	52	20	17	60	28	0	179
Chinook salmon	0.0603	1.2541	37	612	223	1,066	2,658	433	0	5,029
Rainbow trout	0.0030	0.0618	6	34	16	48	136	8	0	248
Brown trout	0.0011	0.0222	2	4	2	17	35	29	0	89
Lake trout	0.0984	2.0459	2	570	2,413	3,558	1,593	68	0	8,204
Yellow perch	0.0922	1.9170	0	771	816	2,269	2,674	1,008	149	7,687
Walleye	0.0506	1.0521	0	57	121	1,924	2,033	84	0	4,219
Other	0.0044	0.0923	0	26	58	119	145	22	0	370
Lamprey on chinook salmon			1	84	23	232	529	68	0	937
Lamprey on lake trout			0	72	109	211	143	6	0	541
Angler hours			584	7,679	12,366	24,843	31,917	5,963	47	83,398
Angler trips			98	1,338	2,156	4,432	5,384	1,100	9	14,517
Anglers										
Resident			96	1,243	1,923	3,938	4,511	931	9	12,651
Nonresident			2	95	233	494	873	169	0	1,866
Charter excursions			24	364	596	1,238	1,463	321	4	4,010

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, 1990.

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	1	0	0	0	0	1
Chinook salmon	0.0000	0.0000	0	0	0	0	0	0	0	0
Rainbow trout	0.0002	0.0042	0	1	6	0	0	0	0	7
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	0.2941	7.8248	0	235	769	701	1,035	6,533	3,904	13,177
Walleye	0.7449	19.8213	0	5,173	20,401	7,059	739	6	1	33,379
Other	0.0664	1.7678	0	733	1,373	557	129	144	41	2,977
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			28	8,412	23,080	9,163	1,617	1,535	976	44,811
Angler trips			7	1,482	4,408	1,729	292	301	187	8,406
Anglers										
Resident			7	1,222	3,825	1,483	255	256	178	7,226
Nonresident			0	260	583	246	37	45	9	1,180
Charter excursions			2	306	864	350	64	61	37	1,684

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0121	0.3748	0	26	102	101	45	9	0	283
Chinook salmon	0.0029	0.0901	0	20	12	8	18	10	0	68
Rainbow trout	0.0028	0.0874	0	11	34	19	1	1	0	66
Brown trout	0.0006	0.0199	0	1	2	11	1	0	0	15
Lake trout	0.2845	8.8278	0	213	1,661	2,478	1,716	570	27	6,665
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	0.0053	0	0	2	1	0	1	0	4
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	7	19	70	17	5	0	118
Angler hours			0	1,393	5,551	8,683	5,752	2,007	39	23,424
Angler trips			0	188	740	1,186	909	305	9	3,337
Anglers										
Resident			0	60	252	692	489	128	5	1,626
Nonresident			0	128	488	494	420	177	4	1,711
Charter excursions			0	40	152	270	211	78	4	755

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0003	0.0077	6	0	0	0	0	0	0	6
Chinook salmon	0.0013	0.0347	24	0	0	1	0	2	0	27
Rainbow trout	0.0000	0.0013	0	0	0	0	0	1	0	1
Brown trout	0.0000	0.0013	1	0	0	0	0	0	0	1
Lake trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Yellow perch	0.1375	3.7471	0	7	144	288	543	1,082	855	2,919
Walleye	0.3242	8.8331	4	486	2,934	2,685	614	127	31	6,881
Other	0.2043	5.5661	1	473	1,357	1,107	818	535	45	4,336
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			241	1,267	6,135	6,222	3,934	2,665	764	21,226
Angler trips			40	226	989	915	603	407	124	3,304
Anglers										
Resident			40	205	964	891	597	393	124	3,214
Nonresident			0	21	25	24	6	14	0	90
Charter excursions			11	64	233	204	135	103	29	779

Table 6.—Species composition (percent) of the charter boat harvest by lake, 1990.

Species	Lake				
	Michigan	Huron	Erie	Superior	St. Clair
Coho salmon	10	1	—	4	—
Chinook salmon	19	19	—	1	—
Rainbow trout	10	1	—	1	—
Brown trout	1	<1	—	<1	—
Lake trout	22	32	—	94	—
Yellow perch	36	30	27	—	21
Walleye	1	16	67	—	49
Other	<1	1	6	—	30

Table 7.—Maximum catch per excursion (number) of principal species by charter anglers on the Great Lakes, 1990.

Species	Number per excursion	Location
Coho salmon	2.4	New Buffalo, Lake Michigan
Chinook salmon	4.2	Leland, Lake Michigan
Rainbow trout	3.4	Onekama, Lake Michigan
Brown trout	0.3	Alpena, Lake Huron
Lake trout	11.9	Ontonagon, Lake Superior
Yellow perch	38.2	Saugatuck, Lake Michigan
Walleye	19.8	Monroe, Lake Erie

**Table 8.—Sea lamprey incidence (lamprey per 100 fish) for chinook salmon and lake trout harvested by the charter boat fishery in the Michigan waters of the Great Lakes, 1990.**

<b>Lake</b>	<b>Chinook salmon</b>	<b>Lake trout</b>
<b>Michigan</b>	<b>0.5</b>	<b>1.8</b>
<b>Huron</b>	<b>18.6</b>	<b>6.6</b>
<b>Superior</b>	<b>0.0</b>	<b>1.8</b>

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**Report approved by W. C. Latta  
Richard D. Clark, Jr., 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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0965	2.4296	15	97	49	74	54	39	0	328
Chinook salmon	0.0512	1.2889	5	29	13	44	54	29	0	174
Rainbow trout	0.0203	0.5111	0	6	11	37	7	8	0	69
Brown trout	0.0041	0.1037	2	2	0	4	5	1	0	14
Lake trout	0.1006	2.5333	0	12	53	81	175	21	0	342
Yellow perch	0.1121	2.8222	0	0	0	141	60	180	0	381
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0029	0.0741	0	9	0	1	0	0	0	10
Lamprey on chinook salmon			0	0	0	0	1	0	0	1
Lamprey on lake trout			0	0	2	1	1	0	0	4
Angler hours			84	638	669	869	838	300	0	3,398
Angler trips			14	103	102	134	129	49	0	531
Anglers										
Resident			2	1	5	22	10	11	0	51
Nonresident			12	102	97	112	119	38	0	480
Charter excursions			4	27	25	36	30	13	0	135

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0563	1.7043	280	1,449	285	212	215	83	0	2,524
Chinook salmon	0.0722	2.1864	25	899	354	552	937	460	11	3,238
Rainbow trout	0.0209	0.6320	3	123	117	407	215	45	26	936
Brown trout	0.0046	0.1377	18	140	17	11	11	7	0	204
Lake trout	0.0858	2.5969	0	1,006	1,040	902	729	166	3	3,846
Yellow perch	0.3592	10.8704	0	94	2,424	10,539	2,291	751	0	16,099
Walleye	0.0008	0.0257	0	0	23	15	0	0	0	38
Other	0.0001	0.0027	0	0	0	4	0	0	0	4
Lamprey on chinook salmon			0	12	4	2	2	0	0	20
Lamprey on lake trout			0	23	20	14	4	0	0	61
Angler hours			984	13,295	8,353	10,396	7,798	3,479	519	44,823
Angler trips			139	1,890	1,251	1,617	1,174	528	79	6,678
Anglers										
Resident			28	679	394	504	378	188	26	2,197
Nonresident			111	1,211	857	1,113	796	340	53	4,481
Charter excursions			29	393	290	359	266	119	25	1,481

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0113	0.2896	6	30	10	20	27	4	0	97
Chinook salmon	0.0596	1.5313	8	109	38	70	249	39	0	513
Rainbow trout	0.0080	0.2060	0	21	9	20	16	3	0	69
Brown trout	0.0007	0.0179	0	0	2	2	1	1	0	6
Lake trout	0.0826	2.1224	0	106	124	213	248	20	0	711
Yellow perch	0.2449	6.2896	202	0	338	791	139	637	0	2,107
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0021	0.0537	0	0	18	0	0	0	0	18
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	4	4	1	0	0	0	9
Angler hours			172	1,451	1,562	2,010	2,659	751	0	8,603
Angler trips			36	247	261	365	460	123	0	1,492
Anglers										
Resident			36	190	207	240	351	100	0	1,124
Nonresident			0	57	54	125	109	23	0	368
Charter excursions			10	57	60	83	97	28	0	335

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0161	0.4231	0	68	39	46	120	38	0	311
Chinook salmon	0.0539	1.4122	0	242	184	77	315	216	4	1,038
Rainbow trout	0.0217	0.5687	0	106	77	52	58	113	12	418
Brown trout	0.0036	0.0939	0	35	16	4	10	1	3	69
Lake trout	0.1105	2.8966	0	403	478	477	705	63	3	2,129
Yellow perch	1.4578	38.2259	0	150	9,046	15,455	3,092	353	0	28,096
Walleye	0.0034	0.0884	0	0	23	38	4	0	0	65
Other	0.0004	0.0095	0	0	4	2	0	1	0	7
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	6	1	4	5	1	0	17
Angler hours			0	3,220	4,259	4,433	4,886	2,320	155	19,273
Angler trips			0	446	664	755	771	374	24	3,034
Anglers										
Resident			0	306	460	499	417	241	7	1,930
Nonresident			0	140	204	256	354	133	17	1,104
Charter excursions			0	104	159	184	190	92	6	735

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0224	0.5182	0	33	17	28	91	30	0	199
Chinook salmon	0.0682	1.5755	3	184	70	79	204	65	0	605
Rainbow trout	0.0179	0.4141	0	10	14	15	93	27	0	159
Brown trout	0.0009	0.0208	0	3	0	2	2	1	0	8
Lake trout	0.1005	2.3229	0	126	135	202	409	20	0	892
Yellow perch	0.0083	0.1927	0	0	52	17	3	2	0	74
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0008	0.0182	0	0	1	0	0	6	0	7
Lamprey on chinook salmon			0	0	0	0	4	0	0	4
Lamprey on lake trout			0	2	0	0	8	0	0	10
Angler hours			16	1,874	1,403	1,575	3,128	882	0	8,877
Angler trips			6	293	234	267	512	168	0	1,480
Anglers										
Resident			6	173	173	165	238	102	0	857
Nonresident			0	120	61	102	274	66	0	623
Charter excursions			2	75	62	75	127	43	0	384

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0185	0.4744	3	20	13	149	406	136	5	732
Chinook salmon	0.0870	2.2378	10	839	584	411	984	602	23	3,453
Rainbow trout	0.0145	0.3733	0	15	37	44	311	159	10	576
Brown trout	0.0022	0.0557	0	17	15	22	22	7	3	86
Lake trout	0.0735	1.8905	0	244	350	936	1,256	131	0	2,917
Yellow perch	0.0442	1.1374	0	0	290	1,200	263	2	0	1,755
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0003	0.0071	0	1	0	0	2	8	0	11
Lamprey on chinook salmon			0	3	1	1	5	1	0	11
Lamprey on lake trout			0	6	18	19	27	2	0	72
Angler hours			54	6,228	6,438	7,749	12,142	6,772	288	39,670
Angler trips			14	1,052	1,070	1,310	2,023	1,184	51	6,704
Anglers										
Resident			10	797	822	958	1,383	888	38	4,896
Nonresident			4	255	248	352	640	296	13	1,808
Charter excursions			5	253	241	293	468	272	11	1,543

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0208	0.5114	0	3	17	13	125	44	0	202
Chinook salmon	0.0610	1.4962	0	100	136	52	214	87	2	591
Rainbow trout	0.0304	0.7468	0	4	6	8	209	67	1	295
Brown trout	0.0034	0.0835	0	10	6	4	7	5	1	33
Lake trout	0.0263	0.6456	0	34	33	45	122	21	0	255
Yellow perch	0.0002	0.0051	0	0	0	0	0	2	0	2
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0013	0.0329	0	0	0	2	1	10	0	13
Lamprey on chinook salmon			0	0	0	0	3	0	0	3
Lamprey on lake trout			0	0	2	0	0	5	0	7
Angler hours			0	1,157	1,549	1,015	3,666	2,205	100	9,691
Angler trips			0	202	250	185	574	372	21	1,604
Anglers										
Resident			0	125	174	149	383	236	21	1,088
Nonresident			0	77	76	36	191	136	0	516
Charter excursions			0	47	61	48	141	93	5	395

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0352	0.8807	0	0	6	11	110	26	2	155
Chinook salmon	0.0556	1.3920	0	15	23	20	150	34	3	245
Rainbow trout	0.0561	1.4034	0	0	10	0	137	90	10	247
Brown trout	0.0023	0.0568	0	1	0	1	8	0	0	10
Lake trout	0.0404	1.0114	0	9	16	32	116	5	0	178
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	0.0005	0.0114	0	0	0	1	1	0	0	2
Lamprey on chinook salmon			0	0	0	1	3	2	0	6
Lamprey on lake trout			0	3	0	2	3	0	0	8
Angler hours			0	208	363	611	2,371	795	57	4,405
Angler trips			0	36	62	102	312	120	9	641
Anglers										
Resident			0	27	40	64	148	78	8	365
Nonresident			0	9	22	38	164	42	1	276
Charter excursions			0	11	16	28	82	36	3	176



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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0437	1.1480	0	0	3	68	340	39	0	450
Chinook salmon	0.0896	2.3546	0	58	93	288	426	58	0	923
Rainbow trout	0.0704	1.8520	0	7	10	35	436	238	0	726
Brown trout	0.0087	0.2296	0	22	7	32	25	4	0	90
Lake trout	0.0819	2.1531	0	100	93	366	279	6	0	844
Yellow perch	0.0112	0.2934	0	0	115	0	0	0	0	115
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	1	0	1	3	0	0	5
Lamprey on lake trout			0	5	0	15	3	2	0	25
Angler hours			0	916	680	3,044	4,523	1,144	0	10,306
Angler trips			0	150	112	477	684	180	0	1,603
Anglers										
Resident			0	98	76	286	347	96	0	903
Nonresident			0	52	36	191	337	84	0	700
Charter excursions			0	41	30	114	164	43	0	392

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0478	1.4359	0	9	21	287	2,032	276	30	2,655
Chinook salmon	0.1091	3.2753	1	99	449	1,325	3,332	767	83	6,056
Rainbow trout	0.0808	2.4251	1	46	59	286	3,009	880	203	4,484
Brown trout	0.0086	0.2574	6	128	26	123	180	8	5	476
Lake trout	0.0639	1.9194	0	148	488	1,633	1,205	75	0	3,549
Yellow perch	0.0018	0.0541	0	2	94	3	0	0	1	100
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0005	0.0135	2	13	1	4	2	3	0	25
Lamprey on chinook salmon			0	2	5	5	21	5	0	38
Lamprey on lake trout			0	14	8	19	15	0	1	57
Angler hours			104	2,374	4,198	11,952	28,167	7,790	943	55,526
Angler trips			14	371	642	1,696	4,024	1,104	138	7,989
Anglers										
Resident			14	267	506	1,201	2,534	826	97	5,445
Nonresident			0	104	136	495	1,490	278	41	2,544
Charter excursions			3	96	154	381	919	262	34	1,849

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0276	0.7680	0	2	11	71	494	103	14	695
Chinook salmon	0.0638	1.7779	0	14	188	419	848	115	25	1,609
Rainbow trout	0.0562	1.5657	0	8	317	545	263	121	163	1,417
Brown trout	0.0036	0.1006	0	2	17	27	42	3	0	91
Lake trout	0.0708	1.9735	0	44	360	915	423	43	1	1,786
Yellow perch	0.0034	0.0950	0	0	83	3	0	0	0	86
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0003	0.0077	0	2	1	3	1	0	0	7
Lamprey on chinook salmon			0	0	0	0	2	0	0	2
Lamprey on lake trout			0	1	10	22	2	1	0	36
Angler hours			0	522	4,258	7,934	9,408	1,923	1,180	25,224
Angler trips			0	74	543	1,018	1,367	288	154	3,444
Anglers										
Resident			0	56	439	819	976	235	133	2,658
Nonresident			0	18	104	199	391	53	21	786
Charter excursions			0	19	137	257	365	83	44	905

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0370	0.9939	0	6	5	56	205	33	20	325
Chinook salmon	0.0665	1.7890	0	8	48	94	329	74	32	585
Rainbow trout	0.1269	3.4128	0	19	231	529	158	58	121	1,116
Brown trout	0.0097	0.2599	0	25	10	10	35	5	0	85
Lake trout	0.0602	1.6177	0	38	163	198	92	38	0	529
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	0.0061	0	0	0	1	1	0	0	2
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	0	10	0	0	0	10
Angler hours			0	634	1,727	2,774	2,601	716	340	8,792
Angler trips			0	104	217	368	365	119	57	1,230
Anglers										
Resident			0	104	183	273	252	84	24	920
Nonresident			0	0	34	95	113	35	33	310
Charter excursions			0	26	58	91	100	34	18	327

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0877	2.3856	0	0	3	45	2,231	915	17	3,211
Chinook salmon	0.0305	0.8299	0	1	52	232	644	164	24	1,117
Rainbow trout	0.0405	1.1018	1	3	235	866	125	125	128	1,483
Brown trout	0.0067	0.1820	11	19	13	69	98	30	5	245
Lake trout	0.0965	2.6233	0	126	855	1,243	1,053	254	0	3,531
Yellow perch	0.0001	0.0037	0	2	0	0	0	3	0	5
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0009	0.0253	0	1	26	2	4	1	0	34
Lamprey on chinook salmon			0	0	8	0	5	1	0	14
Lamprey on lake trout			0	11	28	17	8	0	0	64
Angler hours			50	1,376	4,577	7,860	15,990	6,337	418	36,607
Angler trips			6	219	740	1,237	2,416	963	77	5,658
Anglers										
Resident			6	174	648	1,034	1,928	741	60	4,591
Nonresident			0	45	92	203	488	222	17	1,067
Charter excursions			2	54	174	286	577	233	20	1,346

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0085	0.2327	0	0	0	38	121	26	0	185
Chinook salmon	0.1532	4.1799	0	0	19	941	1,986	377	0	3,323
Rainbow trout	0.0331	0.9044	0	0	18	494	177	30	0	719
Brown trout	0.0061	0.1660	0	0	2	26	95	9	0	132
Lake trout	0.0638	1.7409	0	173	424	475	304	8	0	1,384
Yellow perch	0.0016	0.0440	0	35	0	0	0	0	0	35
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0003	0.0088	0	1	2	3	1	0	0	7
Lamprey on chinook salmon			0	0	4	3	3	0	0	10
Lamprey on lake trout			0	12	5	6	12	0	0	35
Angler hours			0	417	1,393	7,537	10,322	2,025	0	21,693
Angler trips			0	104	285	1,182	1,631	334	0	3,536
Anglers										
Resident			0	88	211	796	1,060	211	0	2,366
Nonresident			0	16	74	386	571	123	0	1,170
Charter excursions			0	24	70	264	363	74	0	795

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0016	0.0224	0	0	0	0	6	3	0	9
Chinook salmon	0.0556	0.7631	0	7	3	10	159	124	3	306
Rainbow trout	0.0078	0.1072	0	0	1	24	18	0	0	43
Brown trout	0.0031	0.0424	0	0	0	10	5	1	1	17
Lake trout	0.1902	2.6085	0	140	137	476	290	3	0	1,046
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	0.0058	0.0798	0	3	0	11	13	4	1	32
Lamprey on chinook salmon			0	0	0	1	2	0	0	3
Lamprey on lake trout			0	0	2	13	1	0	0	16
Angler hours			0	581	538	1,431	2,271	652	28	5,500
Angler trips			0	138	139	354	547	167	7	1,352
Anglers										
Resident			0	126	93	236	394	77	7	933
Nonresident			0	12	46	118	153	90	0	419
Charter excursions			0	39	40	109	156	55	2	401

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0027	0.0475	0	0	0	2	9	9	0	20
Chinook salmon	0.0375	0.6556	0	1	2	1	166	106	0	276
Rainbow trout	0.0026	0.0451	0	0	0	7	8	4	0	19
Brown trout	0.0033	0.0570	0	0	2	7	13	2	0	24
Lake trout	0.1158	2.0261	0	175	219	332	126	1	0	853
Yellow perch	0.0011	0.0190	0	0	0	0	0	8	0	8
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0035	0.0618	0	0	0	16	6	4	0	26
Lamprey on chinook salmon			0	0	0	0	1	0	0	1
Lamprey on lake trout			0	0	0	4	0	0	0	4
Angler hours			0	548	1,398	1,337	2,908	1,177	0	7,368
Angler trips			0	137	350	348	725	302	0	1,862
Anglers										
Resident			0	98	217	230	448	206	0	1,199
Nonresident			0	39	133	118	277	96	0	663
Charter excursions			0	32	84	77	155	73	0	421



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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0003	0.0054	0	0	0	2	0	0	0	2
Chinook salmon	0.0556	1.1536	0	0	1	24	247	148	8	428
Rainbow trout	0.0019	0.0404	0	0	0	10	4	1	0	15
Brown trout	0.0052	0.1078	0	2	14	12	8	3	1	40
Lake trout	0.1507	3.1267	0	38	256	547	311	5	3	1,160
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	0.0004	0.0081	0	0	2	1	0	0	0	3
Lamprey on chinook salmon			0	0	0	0	3	2	0	5
Lamprey on lake trout			0	0	1	19	0	0	0	20
Angler hours			0	347	1,014	2,109	2,921	1,240	67	7,697
Angler trips			0	61	191	433	571	239	16	1,511
Anglers										
Resident			0	27	114	267	316	121	11	856
Nonresident			0	34	77	166	255	118	5	655
Charter excursions			0	11	44	103	142	66	5	371

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0018	0.0395	0	0	0	0	7	2	0	9
Chinook salmon	0.1262	2.8202	0	0	1	150	399	93	0	643
Rainbow trout	0.0022	0.0482	0	0	0	5	6	0	0	11
Brown trout	0.0008	0.0175	0	0	0	0	4	0	0	4
Lake trout	0.0135	0.3026	0	0	5	43	21	0	0	69
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	0.0024	0.0526	0	0	0	1	10	1	0	12
Lamprey on chinook salmon			0	0	0	50	160	8	0	218
Lamprey on lake trout			0	0	1	13	2	0	0	16
Angler hours			0	0	93	1,514	2,760	729	0	5,095
Angler trips			0	0	14	275	445	141	0	875
Anglers										
Resident			0	0	14	220	298	91	0	623
Nonresident			0	0	0	55	147	50	0	252
Charter excursions			0	0	7	64	119	38	0	228

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0026	0.0549	0	0	1	7	2	0	0	10
Chinook salmon	0.1149	2.4176	0	0	22	273	121	24	0	440
Rainbow trout	0.0065	0.1374	0	0	0	9	15	1	0	25
Brown trout	0.0128	0.2692	0	0	0	13	8	28	0	49
Lake trout	0.0245	0.5165	0	0	24	46	14	10	0	94
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0073	0.1538	0	0	24	1	3	0	0	28
Other	0.0026	0.0549	0	0	0	1	9	0	0	10
Lamprey on chinook salmon			0	0	2	53	23	0	0	78
Lamprey on lake trout			0	0	0	9	3	0	0	12
Angler hours			0	0	430	2,168	1,039	192	0	3,829
Angler trips			0	0	78	324	165	40	0	607
Anglers										
Resident			0	0	56	265	136	32	0	489
Nonresident			0	0	22	59	29	8	0	118
Charter excursions			0	0	26	92	49	15	0	182

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0010	0.0189	0	0	0	1	5	1	0	7
Chinook salmon	0.0647	1.2237	1	4	56	122	235	36	0	454
Rainbow trout	0.0030	0.0566	1	1	3	7	8	1	0	21
Brown trout	0.0004	0.0081	0	1	1	1	0	0	0	3
Lake trout	0.1663	3.1456	2	2	230	645	269	19	0	1,167
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0040	0.0755	0	1	0	21	3	3	0	28
Other	0.0011	0.0216	0	0	2	2	4	0	0	8
Lamprey on chinook salmon			0	0	4	21	48	10	0	83
Lamprey on lake trout			0	0	15	26	18	0	0	59
Angler hours			32	55	1,229	2,687	2,515	498	0	7,016
Angler trips			7	13	217	488	442	101	0	1,268
Anglers										
Resident			7	13	202	449	384	86	0	1,141
Nonresident			0	0	15	39	58	15	0	127
Charter excursions			2	5	66	146	121	31	0	371

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0020	0.0432	0	0	6	1	25	13	0	45
Chinook salmon	0.0633	1.3689	0	33	43	151	1,017	181	0	1,425
Rainbow trout	0.0039	0.0836	0	5	5	14	58	5	0	87
Brown trout	0.0006	0.0134	0	0	0	0	14	0	0	14
Lake trout	0.1196	2.5841	0	101	963	981	633	12	0	2,690
Yellow perch	0.0001	0.0019	0	0	0	0	2	0	0	2
Walleye	0.0082	0.1777	0	4	6	9	157	9	0	185
Other	0.0033	0.0711	0	11	3	7	42	11	0	74
Lamprey on chinook salmon			0	2	3	25	140	33	0	203
Lamprey on lake trout			0	3	38	70	60	4	0	175
Angler hours			0	779	4,294	4,912	10,345	2,168	0	22,497
Angler trips			0	142	707	853	1,681	384	0	3,767
Anglers										
Resident			0	139	652	793	1,368	334	0	3,286
Nonresident			0	3	55	60	313	50	0	481
Charter excursions			0	49	181	246	459	106	0	1,041

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 (Port Austin to Tawas), Lake Huron, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0013	0.0285	0	9	0	3	5	4	0	21
Chinook salmon	0.0211	0.4580	0	153	44	47	89	5	0	338
Rainbow trout	0.0014	0.0298	0	0	3	8	10	1	0	22
Brown trout	0.0004	0.0081	0	2	1	2	1	0	0	6
Lake trout	0.0552	1.1965	0	153	324	256	148	2	0	883
Yellow perch	0.4538	9.8279	0	570	793	2,069	2,665	1,007	149	7,253
Walleye	0.2062	4.4648	0	52	87	1,826	1,276	54	0	3,295
Other	0.0108	0.2344	0	0	25	99	46	3	0	173
Lamprey on chinook salmon			0	21	5	6	6	1	0	39
Lamprey on lake trout			0	19	22	27	18	1	0	87
Angler hours			20	1,822	2,626	5,568	5,152	758	39	15,984
Angler trips			4	314	452	997	892	131	7	2,797
Anglers										
Resident			4	289	435	924	831	117	7	2,607
Nonresident			0	25	17	73	61	14	0	190
Charter excursions			1	81	122	267	229	35	3	738

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0008	0.0144	0	1	0	0	1	1	0	3
Chinook salmon	0.0550	0.9423	5	100	8	11	43	29	0	196
Rainbow trout	0.0025	0.0433	1	3	0	0	5	0	0	9
Brown trout	0.0011	0.0192	1	1	0	0	1	1	0	4
Lake trout	0.1502	2.5721	0	24	99	291	115	6	0	535
Yellow perch	0.0373	0.6394	0	0	0	129	4	0	0	133
Walleye	0.0098	0.1683	0	0	0	0	33	2	0	35
Other	0.0022	0.0385	0	1	0	0	3	4	0	8
Lamprey on chinook salmon			0	19	5	2	13	3	0	42
Lamprey on lake trout			0	7	5	17	5	0	0	34
Angler hours			80	883	354	894	1,007	344	0	3,562
Angler trips			20	157	65	174	188	66	0	670
Anglers										
Resident			20	134	52	165	162	58	0	591
Nonresident			0	23	13	9	26	8	0	79
Charter excursions			4	49	22	55	54	24	0	208

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0143	0.3237	1	31	9	3	1	0	0	45
Chinook salmon	0.0650	1.4676	17	168	8	3	2	6	0	204
Rainbow trout	0.0067	0.1511	0	21	0	0	0	0	0	21
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.0096	0.2158	0	28	1	0	1	0	0	30
Yellow perch	0.0045	0.1007	0	0	0	14	0	0	0	14
Walleye	0.0026	0.0576	0	0	0	6	2	0	0	8
Other	0.0032	0.0719	0	6	0	4	0	0	0	10
Lamprey on chinook salmon			0	25	1	0	0	0	0	26
Lamprey on lake trout			0	14	0	0	0	0	0	14
Angler hours			306	1,902	261	199	198	272	0	3,137
Angler trips			43	331	50	44	38	56	0	562
Anglers										
Resident			41	317	37	35	31	56	0	517
Nonresident			2	14	13	9	7	0	0	45
Charter excursions			10	79	13	12	11	14	0	139



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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0066	0.1463	1	5	0	0	0	0	0	6
Chinook salmon	0.0771	1.7073	14	56	0	0	0	0	0	70
Rainbow trout	0.0066	0.1463	4	2	0	0	0	0	0	6
Brown trout	0.0011	0.0244	1	0	0	0	0	0	0	1
Lake trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Yellow perch	0.0099	0.2195	0	0	0	9	0	0	0	9
Walleye	0.0385	0.8537	0	0	0	33	2	0	0	35
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			1	2	0	0	0	0	0	3
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			146	616	0	121	25	0	0	908
Angler trips			24	94	0	24	5	0	0	147
Anglers										
Resident			24	94	0	21	1	0	0	140
Nonresident			0	0	0	3	4	0	0	7
Charter excursions			7	25	0	8	1	0	0	41

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0192	0.8475	0	13	75	51	6	5	0	150
Chinook salmon	0.0023	0.1017	0	3	11	1	2	1	0	18
Rainbow trout	0.0079	0.3503	0	10	34	17	0	1	0	62
Brown trout	0.0004	0.0169	0	1	2	0	0	0	0	3
Lake trout	0.2407	10.6497	0	128	911	353	260	233	0	1,885
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	0.0003	0.0113	0	0	2	0	0	0	0	2
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	16	7	5	1	0	29
Angler hours			0	920	3,296	1,382	1,147	1,086	0	7,830
Angler trips			0	105	411	172	162	137	0	987
Anglers										
Resident			0	3	41	35	24	42	0	145
Nonresident			0	102	370	137	138	95	0	842
Charter excursions			0	17	72	34	29	25	0	177

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0047	0.1522	0	0	0	2	5	0	0	7
Chinook salmon	0.0047	0.1522	0	0	0	0	7	0	0	7
Rainbow trout	0.0007	0.0217	0	0	0	1	0	0	0	1
Brown trout	0.0081	0.2609	0	0	0	11	1	0	0	12
Lake trout	0.3690	11.8696	0	0	36	175	288	47	0	546
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	4	2	0	0	6
Angler hours			0	0	131	571	652	126	0	1,480
Angler trips			0	0	29	83	106	18	0	236
Anglers										
Resident			0	0	12	42	66	6	0	126
Nonresident			0	0	17	41	40	12	0	110
Charter excursions			0	0	6	16	21	3	0	46

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, 1990.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0138	0.4402	0	11	27	30	20	4	0	92
Chinook salmon	0.0051	0.1627	0	17	1	1	7	8	0	34
Rainbow trout	0.0001	0.0048	0	1	0	0	0	0	0	1
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.3215	10.2584	0	44	543	918	547	83	9	2,144
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	7	3	12	2	0	0	24
Angler hours			0	252	1,549	2,875	1,711	263	18	6,668
Angler trips			0	43	205	384	254	42	3	931
Anglers										
Resident			0	34	128	263	187	34	2	648
Nonresident			0	9	77	121	67	8	1	283
Charter excursions			0	14	44	81	54	15	1	209

Appendix 29.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at St. Joseph River, Lake Michigan, 1990.

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	0.0245	0.5831	0	0	0	0	5	147	34	186
Rainbow trout	0.1047	2.4922	0	13	77	59	63	72	511	795
Brown trout	0.0008	0.0188	0	3	0	1	0	1	1	6
Lake trout	0.0004	0.0094	0	0	0	0	0	0	3	3
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0414	0.9843	0	3	137	57	105	7	5	314
Other	0.0146	0.3480	0	10	5	23	27	22	24	111
Lamprey on chinook salmon			0	0	0	0	0	1	0	1
Lamprey on lake trout			0	0	9	0	0	0	0	9
Angler hours			0	132	672	429	566	2,032	3,759	7,590
Angler trips			0	20	111	63	80	284	550	1,108
Anglers										
Resident			0	7	35	18	39	60	166	325
Nonresident			0	13	76	45	41	224	384	783
Charter excursions			0	7	31	22	28	81	150	319