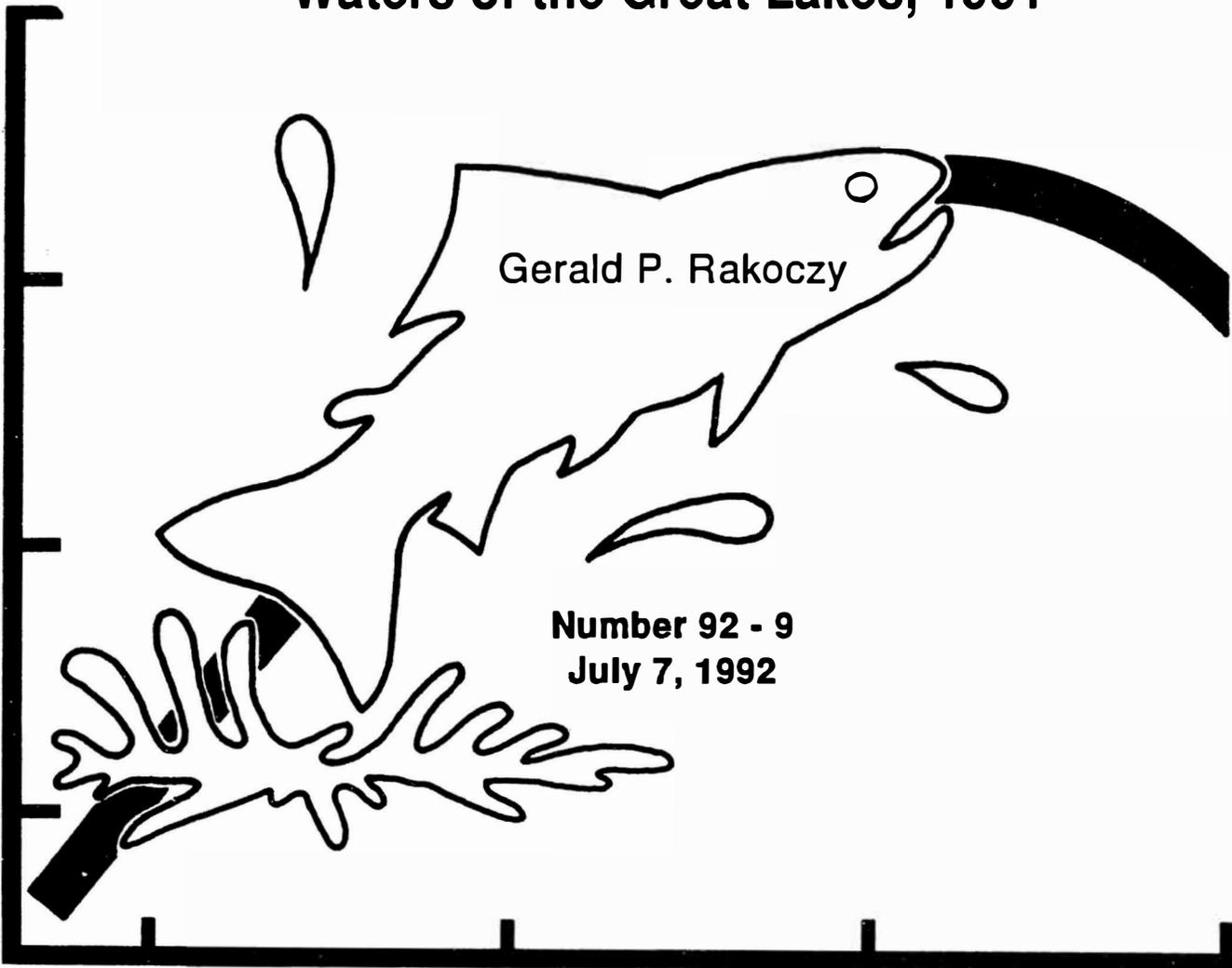


# FISHERIES DIVISION

## TECHNICAL REPORT

### Charter Boat Catch and Effort from the Michigan Waters of the Great Lakes, 1991



Gerald P. Rakoczy

Number 92 - 9  
July 7, 1992



Michigan Department of  
Natural Resources

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
FISHERIES DIVISION**

**Fisheries Technical Report No. 92-9  
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OF THE GREAT LAKES, 1991<sup>1</sup>**

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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, 1991**

**Gerald P. Rakoczy**

*Michigan Department of Natural Resources  
Charlevoix Fisheries Research Station  
97 Grant Street  
Charlevoix, Michigan 49720*

*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 the number, type, and location of fish harvested by charter boat clients in Michigan.

Ninety-seven percent of the 862 charter fishing operators complied with the law by returning their completed catch reporting forms. These charter operators reported making 19,939 charter fishing excursions during April through October. Over 540,000 angler hours were spent fishing by some 88,000 charter clients. The distribution of charter fishing effort by lake was: 68% Lake Michigan, 17% Lake Huron, 7% Lake Erie, 4% Lake Superior, and 3% Lake St. Clair. A total of 251,000 fish were reported harvested. The harvest was composed of 87,000 yellow perch, 46,000 lake trout, 34,000 walleye, 32,000 chinook salmon, 29,000 rainbow trout, 12,000 coho salmon, and 3,000 brown trout. Harvests of rainbow trout (+97%) and brown trout (+65%) increased in 1991 compared to 1990, while the harvest of walleye (-32%) decreased.

Michigan's charter boat industry has grown from 250 operations in 1979 to nearly 900 in 1991. 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 required the reporting of sportfishing catch and effort by

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

MCBA to follow the health and welfare of its industry.

This report is the third in a series of annual reports which summarizes the data collected under the mandatory catch reporting system.

## **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 the 862 known charter operations during March, 1991. Charter operators were identified from a list of boat inspection certificates issued by MDNR's Law Enforcement Division for the previous year. Charter operators, 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 (number) of 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 (May through November) postcard notices were sent to charter operators who had not filed a report for the previous month. Two notices were sent each month, the first after an operator was delinquent for 10 days, and the second after 30 days.

In December 1991, operators who had not filed reports for one or more months during the period April through October were sent letters via certified mail. These letters informed the operator that this would be the last notice he or she would receive. If the recipient did not respond in writing within 14 days his or her name would be submitted to MDNR's Law Enforcement Division recommending nonissuance of an inspection certificate for the 1992 season.

Catch-and-effort data 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. Angler hours were based upon the total hours fished (dock to dock) by each angler. An angler trip was one completed fishing outing by one individual. A charter excursion was one completed boat trip. For example, if a charter operator took four anglers fishing for 6 hours, total fishing effort would be: 24 angler hours, 4 angler trips, and 1 charter excursion. Tables summarizing catch and effort for selected ports around the Great Lakes are contained in the appendices. All comparisons with the previous year are from Rakoczy and Rogers (1991).

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 1991 fishing season, an average of 67% of all charter operators complied with the law by submitting their catch reports by the due date and an average 80% submitted reports within 30 days after the due date. The monthly rate of compliance in 1991 was 4% less than in 1991. By the end of the season (January 1992), 97% of all charter operators had complied with the law.

The final compliance rate for 1991 was the same as 1990.

### *Catch and Effort*

Charter operators submitted reports on 19,939 charter excursions during April through October 1991 on lakes Michigan, Huron, Erie, St. Clair, and Superior (Tables 1 through 5). The total number of charter excursions in 1991 decreased by 756 (-4%) compared to 1990. Decreases in the number of charter excursions in 1991 compared to 1990 occurred on lakes Huron (-14%), Erie (-14%), and St. Clair (-17%). The number of charter excursions reported for lakes Michigan and Superior were virtually unchanged compared to 1990. The distribution of charter fishing effort (excursions) by lake was: 68% Lake Michigan, 17% Lake Huron, 7% Lake Erie, 4% Lake Superior, and 3% Lake St. Clair. The distribution of fishing effort by lake in 1991 was very similar to 1990.

A total of 540,710 hours were spent fishing by 88,407 charter anglers in Michigan's waters and tributaries of the Great Lakes. The total number of charter anglers in 1991 increased by 2,710 (3%) compared to 1990. The number of charter anglers in 1991 increased on lakes Michigan (+12%) and Superior (+8%) compared to the previous year, while the number decreased on lakes Huron (-16%), Erie (-15%), and St. Clair (-17%). Thirty-four percent of all charter clients were not residents of Michigan. Lake Superior charter operators had the greatest percentage (60%) of nonresident clients (Table 4), while Lake St. Clair captains had the lowest percentage (2%) (Table 5).

A total of 250,825 fish were reported caught in all lakes. Lake Michigan accounted for 67% of all fish caught, while lakes Erie and Huron accounted for 16% and 9%, respectively, of the total catch. The most numerous species in the catch was yellow perch (86,900) which accounted for 35% of the total harvest. Numbers of other species harvested were: 46,300 lake trout (18%), 33,800 walleye (13%), 31,700 chinook salmon (13%), 28,600 rainbow trout (11%), 11,800

coho salmon (5%), and 3,400 brown trout (1%). The "other" species category was 3% of the total reported catch. Since other species are not identified on the catch reporting form, the actual composition of this category is unknown.

The greatest changes in the charter catch by species in 1991 compared to 1990 occurred for rainbow trout (+97%), brown trout (+65%), and walleye (-32%). Lake Michigan charter anglers accounted for most of the increased catch of rainbow and brown trout in 1991, harvesting 13,800 more rainbow trout and 1,200 more brown trout than in 1990. Most of the decline in the walleye catch occurred in lakes Erie and St. Clair, where 12,000 fewer walleye were reported in 1991 than in 1990.

Catch rates (fish per 100 angler hours) by Lake Michigan charter anglers in 1991 compared to 1990 increased for rainbow trout (+80%) and brown trout (+33%), but decreased for coho salmon (-28%) (Table 6). Catch rates for chinook salmon and lake trout on Lake Michigan were virtually unchanged. On Lake Huron, catch rates for rainbow and brown trout also increased in 1991 (+100% for each) compared to 1990, however the rate of catch for these two species was still relatively minor. The catch rate for lake trout in Lake Huron decreased (-19%) during 1991 compared to 1990, while catch rates for chinook and coho salmon were virtually unchanged. Lake Superior charter anglers experienced a better year in 1991 compared to 1990 based on catch rates, which increased for coho salmon (+167%), chinook salmon (+33%), and brown trout (+100%). Catch rates for Lake Superior rainbow trout and lake trout were unchanged in 1991 compared to 1990.

Walleyes play an important role in the charter fisheries on lakes Erie, Huron, and St. Clair. Catch rates for walleyes by charter clients in 1991 compared to 1990 decreased on lakes Erie (-16%) and St. Clair (-37%), but increased on Lake Huron (+39%) (Table 6). Lake Huron charter anglers fish for walleye primarily in Saginaw Bay.

The greatest catch per charter excursion for most of the salmonids occurred at Lake

Michigan ports (Table 7). Charter anglers at New Buffalo, Leland, and Onekama had the greatest catch per excursion on the Great Lakes for coho salmon (2.8), chinook salmon (5.1), and rainbow trout (5.7), respectively. Alpena, Lake Huron charter anglers had the best catch per excursion (0.7) for brown trout. The greatest catch per excursion for lake trout (10.4) occurred at Marquette on Lake Superior. Lake Michigan charter clients at South Haven had the greatest catch per excursion in Michigan's waters of the Great Lakes for yellow perch (79.3). The best catch per excursion for walleye (17.1) 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. As has been the case in previous years (1989-90), incidence rates (number of attached sea lamprey per 100 fish) were much higher in Lake Huron than in the other Great Lakes (Table 8). The incidence of lamprey attached to lake trout harvested from Lake Huron in 1991 was 5.1 compared to 1.1 for Lake Michigan and 1.6 for Lake Superior. Charter captains also reported 13.5 lamprey per 100 chinook salmon harvested on Lake Huron during 1991 compared to 0.2 for Lake Michigan and none for Lake Superior.

## Acknowledgments

This report is dedicated to Richard Rogers, who was a Fisheries Technician at the Charlevoix Great Lakes Research Station. The success of Charter Boat Reporting Program and the timely reporting of results each year were largely due to his diligence.

The author wishes to thank the Michigan Charter Boat Association for their support throughout the season. Donna Wesander entered the data on computer. This program is partially funded by the Sport Fish Restoration Act, Study 462, F-53-R, Michigan.



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	Gnd Fished	Hours Fished (Dock to Dock)	No. Anglers		Daily Catch								No. Lambrey seen on			
				Res.	Non Res.	COH	CHS	RBT	BNT	LAT	YEP	WAE	OTH	CHS	LAT		
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3																	
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COMMENTS \_\_\_\_\_

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

PR 6206 (Rev. 4/89)

Figure 1.—Michigan charter boat catch report form

Table 1.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for Lake Michigan charter boats, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0280	0.7995	2,288	2,862	683	813	2,660	1,353	217	10,876
Chinook salmon	0.0696	1.9852	275	3,460	1,628	6,151	12,300	3,007	186	27,007
Rainbow trout	0.0723	2.0624	249	1,383	5,366	6,165	11,948	1,948	998	28,057
Brown trout	0.0082	0.2337	678	648	332	766	602	109	44	3,179
Lake trout	0.0870	2.4812	16	4,970	7,748	10,278	10,204	526	12	33,754
Yellow perch	0.1683	4.7981	479	1,525	14,184	23,051	17,692	8,343	0	65,274
Walleye	0.0012	0.0330	0	49	213	108	57	21	1	449
Other	0.0008	0.0217	36	19	64	51	65	44	16	295
Lamprey on chinook salmon			1	8	5	25	22	6	0	67
Lamprey on lake trout			0	55	93	133	80	3	0	364
Angler hours			12,049	43,296	64,806	87,040	135,567	38,014	7,033	387,804
Angler trips			1,927	6,781	10,353	14,208	22,091	6,263	1,065	62,688
Anglers										
Resident			919	3,466	6,301	8,734	13,488	3,998	534	37,440
Nonresident			1,008	3,315	4,052	5,474	8,603	2,265	531	25,248
Charter excursions			468	1,570	2,123	3,060	4,643	1,450	290	13,604

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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0024	0.0488	20	37	15	12	71	13	0	168
Chinook salmon	0.0644	1.3289	74	463	225	1,037	2,300	472	3	4,574
Rainbow trout	0.0062	0.1287	8	28	44	156	175	31	1	443
Brown trout	0.0023	0.0471	14	20	26	48	23	31	0	162
Lake trout	0.0789	1.6273	0	487	1,608	2,155	1,328	23	0	5,601
Yellow perch	0.0739	1.5244	18	10	1,347	1,160	900	1,777	35	5,247
Walleye	0.0712	1.4689	28	171	341	2,551	1,853	112	0	5,056
Other	0.0176	0.3637	1	22	103	217	849	60	0	1,252
Lamprey on chinook salmon			8	27	22	160	343	55	1	616
Lamprey on lake trout			0	27	63	132	64	0	0	286
Angler hours			1,619	6,833	10,133	21,504	25,755	4,875	261	70,979
Angler trips			291	1,221	1,823	3,650	4,311	864	55	12,215
Anglers										
Resident			282	1,061	1,652	3,167	3,478	736	22	10,398
Nonresident			9	160	171	483	833	128	33	1,817
Charter excursions			82	347	517	1,030	1,190	264	12	3,442

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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0000	0.0007	1	0	0	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	1	2	3	0	0	0	0	6
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	0.3410	9.2657	0	333	379	2,311	1,007	5,373	3,986	13,389
Walleye	0.6276	17.0519	269	6,114	12,986	4,910	297	64	0	24,640
Other	0.0586	1.5924	33	634	849	326	137	258	64	2,301
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			673	8,001	19,279	7,877	1,019	1,660	755	39,263
Angler trips			115	1,477	3,504	1,388	182	320	141	7,127
Anglers										
Resident			113	1,306	2,979	1,202	174	272	130	6,176
Nonresident			2	171	525	186	8	48	11	951
Charter excursions			25	310	685	283	42	68	32	1,445

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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0321	1.0013	0	108	284	162	160	73	5	792
Chinook salmon	0.0035	0.1100	0	17	3	8	33	24	2	87
Rainbow trout	0.0032	0.0986	0	2	34	11	16	12	3	78
Brown trout	0.0015	0.0455	0	16	3	3	5	9	0	36
Lake trout	0.2794	8.7219	0	261	1,356	2,204	2,214	785	79	6,899
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	0.0001	0.0025	0	0	0	0	1	1	0	2
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	3	8	39	52	6	2	110
Angler hours			0	1,043	5,208	8,013	7,625	2,485	318	24,691
Angler trips			0	157	701	1,066	1,187	422	55	3,588
Anglers										
Resident			0	86	285	478	457	116	5	1,427
Nonresident			0	71	416	588	730	306	50	2,161
Charter excursions			0	41	151	220	264	100	15	791

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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0002	0.0062	3	1	0	0	0	0	0	4
Chinook salmon	0.0002	0.0047	3	0	0	0	0	0	0	3
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	0.1678	4.6159	0	24	283	611	555	661	834	2,968
Walleye	0.2040	5.6096	136	864	1,985	535	66	21	0	3,607
Other	0.2577	7.0886	0	162	1,517	1,593	719	549	18	4,558
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			278	1,660	6,255	4,432	2,923	1,864	272	17,684
Angler trips			57	271	940	691	450	289	35	2,733
Anglers										
Resident			51	267	910	682	448	279	31	2,668
Nonresident			6	4	30	9	2	10	4	65
Charter excursions			18	70	216	159	100	71	9	643

Table 6.—Catch rates (fish per 100 angler hours) by charter anglers for principle species on the Great Lakes during 1990-91.

Species	Michigan		Huron		Erie		St. Clair		Superior	
	1990	1991	1990	1991	1990	1991	1990	1991	1990	1991
Coho salmon	3.9	2.8	0.2	0.2	—	—	—	—	1.2	3.2
Chinook salmon	7.4	7.0	6.0	6.4	—	—	—	—	0.3	0.4
Rainbow trout	4.0	7.2	0.3	0.6	—	—	—	—	0.3	0.3
Brown trout	0.6	0.8	0.1	0.2	—	—	—	—	0.1	0.2
Lake trout	8.4	8.7	9.8	7.9	—	—	—	—	28.5	27.9
Yellow perch	14.1	16.8	9.2	7.4	29.4	34.1	13.8	16.8	—	—
Walleye	0.4	0.1	5.1	7.1	74.5	62.8	32.4	20.4	—	—

Table 7.—Maximum catch per excursion (number) of principle species by charter anglers on the Great Lakes, 1991.

Species	Catch per excursion	Location
Coho salmon	2.8	New Buffalo, Lake Michigan
Chinook salmon	5.1	Leland, Lake Michigan
Rainbow trout	5.7	Onkama, Lake Michigan
Brown trout	0.7	Alpena, Lake Huron
Lake trout	10.4	Marquette, Lake Superior
Yellow perch	79.3	South Haven, Lake Michigan
Walleye	17.1	Monroe, Lake Erie

Table 8.—Sea lamprey incidence (lamprey per 100 fish) for chinook salmon and lake trout harvested by the charter fishery in the Michigan waters of the Great Lakes, 1990-91.

	Lamprey per 100 fish			
	Chinook salmon		Lake trout	
	1990	1991	1990	1991
Michigan	0.5	0.2	1.8	1.1
Huron	18.6	13.5	6.6	5.1
Superior	0.0	0.0	1.8	1.6

## **References**

- 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.**
- Rakoczy, G. P., and R. D. Rogers. 1991. Charter boat catch and effort from the Michigan waters of the Great Lakes, 1990. Michigan Department of Natural Resources, Fisheries Technical Report 91-12, Ann Arbor**

**Report approved by J. C. Schneider  
Richard D. Clark, Jr., Editor  
James W. Peck, Editorial Board Reviewer  
A. D. Sutton, Graphics  
G. M. Zurek, Word Processor**

## **APPENDICES**

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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.1081	2.7972	135	205	43	14	1	2	0	400
Chinook salmon	0.0459	1.1888	6	55	46	2	44	17	0	170
Rainbow trout	0.0200	0.5175	0	14	31	16	10	3	0	74
Brown trout	0.0070	0.1818	4	5	3	3	11	0	0	26
Lake trout	0.0821	2.1259	0	53	74	73	100	4	0	304
Yellow perch	0.0476	1.2308	0	0	20	0	2	154	0	176
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	3	0	0	0	3
Angler hours			495	1,071	932	421	616	167	0	3,701
Angler trips			82	152	138	63	102	33	0	570
Anglers										
Resident			40	3	48	5	3	6	0	105
Nonresident			42	149	90	58	99	27	0	465
Charter excursions			15	41	34	17	26	10	0	143

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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0622	1.9656	1,622	1,316	166	114	41	38	19	3,316
Chinook salmon	0.0591	1.8696	83	760	299	583	904	506	19	3,154
Rainbow trout	0.0385	1.2175	66	467	436	574	291	100	120	2,054
Brown trout	0.0071	0.2241	183	82	24	42	41	3	3	378
Lake trout	0.1093	3.4558	6	1,876	1,350	1,314	1,128	149	7	5,830
Yellow perch	0.1139	3.6017	0	0	1,607	2,303	1,418	748	0	6,076
Walleye	0.0011	0.0350	0	0	25	32	1	1	0	59
Other	0.0002	0.0047	0	0	5	1	2	0	0	8
Lamprey on chinook salmon			0	1	1	3	0	0	0	5
Lamprey on lake trout			0	14	22	23	11	0	0	70
Angler hours			5,744	12,626	9,673	10,695	9,285	4,515	787	53,324
Angler trips			870	1,786	1,428	1,598	1,407	642	102	7,833
Anglers										
Resident			313	533	391	441	453	156	29	2,316
Nonresident			557	1,253	1,037	1,157	954	486	73	5,517
Charter excursions			209	383	301	343	281	133	37	1,687

Appendix 3.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on the St. Joseph River, Lake Michigan, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0085	0.2146	0	4	0	0	0	17	32	53
Chinook salmon	0.0252	0.6316	0	0	0	0	2	122	32	156
Rainbow trout	0.1103	2.7692	108	0	3	0	93	89	391	684
Brown trout	0.0069	0.1741	27	0	0	0	3	3	10	43
Lake trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Yellow perch	0.0008	0.0202	0	5	0	0	0	0	0	5
Walleye	0.0444	1.1134	0	47	117	66	44	0	1	275
Other	0.0179	0.4494	27	5	43	16	4	0	16	111
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			636	108	421	289	518	1,416	2,812	6,200
Angler trips			89	15	59	45	69	206	407	890
Anglers										
Resident			25	10	16	11	19	43	99	223
Nonresident			64	5	43	34	50	163	308	667
Charter excursions			27	6	15	12	26	53	108	247

Appendix 4.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0018	0.1332	0	22	3	15	20	7	0	67
Chinook salmon	0.0110	0.8151	0	89	29	70	165	57	0	410
Rainbow trout	0.0030	0.2207	0	4	9	50	28	20	0	111
Brown trout	0.0009	0.0676	0	0	4	6	19	5	0	34
Lake trout	0.0249	1.8509	0	51	251	225	388	16	0	931
Yellow perch	1.0671	79.2644	299	1,408	5,798	10,422	15,272	6,671	0	39,870
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0001	0.0040	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	1	0	1	1	0	0	3
Angler hours			160	2,216	7,777	8,341	16,239	2,630	0	37,362
Angler trips			32	422	1,523	1,653	3,283	520	0	7,433
Anglers										
Resident			7	229	909	1,069	1,874	341	0	4,429
Nonresident			25	193	614	584	1,409	179	0	3,004
Charter excursions			2	47	91	107	202	54	0	503

Appendix 5.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0164	0.4602	73	89	23	20	49	55	9	318
Chinook salmon	0.0653	1.8292	54	381	98	119	320	286	6	1,264
Rainbow trout	0.0269	0.7525	1	83	61	152	103	115	5	520
Brown trout	0.0112	0.3140	104	34	16	21	28	14	0	217
Lake trout	0.1337	3.7467	6	366	470	631	1,056	59	1	2,589
Yellow perch	0.9444	26.4616	0	0	6,601	10,274	786	624	0	18,285
Walleye	0.0013	0.0362	0	2	22	0	0	1	0	25
Other	0.0011	0.0318	0	3	2	1	0	16	0	22
Lamprey on chinook salmon			1	0	0	0	0	0	0	1
Lamprey on lake trout			0	5	2	11	16	1	0	35
Angler hours			737	3,024	3,799	4,543	4,835	2,282	142	19,362
Angler trips			126	443	582	713	734	351	30	2,979
Anglers										
Resident			84	312	375	486	409	207	11	1,884
Nonresident			42	131	207	227	325	144	19	1,095
Charter excursions			34	100	131	161	172	86	7	691

Appendix 6.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0113	0.2775	2	42	5	13	32	13	4	111
Chinook salmon	0.0621	1.5300	0	205	33	66	246	61	1	612
Rainbow trout	0.0177	0.4350	0	16	20	78	36	23	1	174
Brown trout	0.0078	0.1925	3	28	11	12	20	3	0	77
Lake trout	0.1560	3.8425	0	180	301	334	704	18	0	1,537
Yellow perch	0.0002	0.0050	0	0	1	0	1	0	0	2
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0001	0.0025	0	0	0	1	0	0	0	1
Lamprey on chinook salmon			0	0	0	1	1	0	0	2
Lamprey on lake trout			0	4	4	1	2	0	0	11
Angler hours			59	1,749	1,587	1,961	3,788	701	10	9,855
Angler trips			9	270	273	336	585	117	2	1,592
Anglers										
Resident			9	153	164	222	290	69	2	909
Nonresident			0	117	109	114	295	48	0	683
Charter excursions			2	68	70	85	144	30	1	400

Appendix 7.— 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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0066	0.1663	11	29	11	45	79	66	5	246
Chinook salmon	0.0803	2.0216	23	900	201	316	1,082	441	27	2,990
Rainbow trout	0.0207	0.5199	1	35	46	259	203	209	16	769
Brown trout	0.0062	0.1548	5	22	44	72	62	20	4	229
Lake trout	0.1029	2.5916	0	514	1,021	952	1,302	44	0	3,833
Yellow perch	0.0041	0.1041	0	0	140	2	3	9	0	154
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0007	0.0169	0	2	0	3	5	15	0	25
Lamprey on chinook salmon			0	3	0	1	2	0	0	6
Lamprey on lake trout			0	1	8	11	3	0	0	23
Angler hours			211	6,627	7,056	6,300	11,893	4,835	312	37,233
Angler trips			35	1,119	1,184	1,096	2,003	820	54	6,311
Anglers										
Resident			29	779	909	808	1,521	649	34	4,729
Nonresident			6	340	275	288	482	171	20	1,582
Charter excursions			10	274	268	261	460	194	12	1,479

Appendix 8.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0155	0.3723	4	31	5	20	55	17	24	156
Chinook salmon	0.0588	1.4081	1	130	56	68	203	114	18	590
Rainbow trout	0.0467	1.1193	0	12	31	112	176	116	22	469
Brown trout	0.0067	0.1599	3	18	6	8	21	10	1	67
Lake trout	0.0610	1.4606	0	72	150	180	203	7	0	612
Yellow perch	0.0187	0.4487	180	0	0	0	5	3	0	188
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0002	0.0048	0	0	0	0	2	0	0	2
Lamprey on chinook salmon			0	0	1	1	1	0	0	3
Lamprey on lake trout			0	2	1	5	2	0	0	10
Angler hours			150	1,314	1,805	1,693	3,438	1,378	259	10,035
Angler trips			29	215	311	309	568	259	60	1,751
Anglers										
Resident			19	140	235	241	369	189	51	1,244
Nonresident			10	75	76	68	199	70	9	507
Charter excursions			7	53	71	73	134	67	14	419

Appendix 9.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0177	0.4554	0	16	0	19	50	17	0	102
Chinook salmon	0.0641	1.6518	1	26	24	76	204	39	0	370
Rainbow trout	0.0750	1.9330	1	10	9	139	233	41	0	433
Brown trout	0.0033	0.0848	0	0	6	9	4	0	0	19
Lake trout	0.0509	1.3125	0	24	57	118	95	0	0	294
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	0.0134	0	0	2	0	0	1	0	3
Lamprey on chinook salmon			0	0	0	0	4	0	0	4
Lamprey on lake trout			0	0	0	3	3	0	0	6
Angler hours			24	283	832	1,652	2,164	817	0	5,771
Angler trips			6	48	141	215	348	133	0	891
Anglers										
Resident			6	38	106	124	192	97	0	563
Nonresident			0	10	35	91	156	36	0	328
Charter excursions			1	16	32	54	88	33	0	224

Appendix 10.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0170	0.4483	0	7	2	55	101	17	0	182
Chinook salmon	0.0918	2.4187	0	147	68	329	404	34	0	982
Rainbow trout	0.1490	3.9286	0	9	34	321	1,086	145	0	1,595
Brown trout	0.0064	0.1700	0	9	7	41	12	0	0	69
Lake trout	0.0897	2.3645	0	152	183	353	267	5	0	960
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	1	0	0	0	1
Lamprey on lake trout			0	0	1	2	1	0	0	4
Angler hours			0	855	1,093	3,138	4,924	693	0	10,702
Angler trips			0	135	177	502	741	112	0	1,667
Anglers										
Resident			0	85	99	322	372	46	0	924
Nonresident			0	50	78	180	369	66	0	743
Charter excursions			0	35	46	123	177	25	0	406

Appendix 11.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0321	0.9643	0	14	117	191	1,192	182	58	1,754
Chinook salmon	0.0934	2.8043	2	302	255	1,121	2,928	452	41	5,101
Rainbow trout	0.1688	5.0687	1	26	971	1,128	6,195	769	130	9,220
Brown trout	0.0077	0.2325	4	68	58	161	121	8	3	423
Lake trout	0.0678	2.0357	0	250	652	1,497	1,286	18	0	3,703
Yellow perch	0.0044	0.1325	0	111	10	0	120	0	0	241
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0003	0.0104	0	0	2	9	7	1	0	19
Lamprey on chinook salmon			0	2	1	3	6	2	0	14
Lamprey on lake trout			0	3	3	10	24	1	0	41
Angler hours			102	2,079	5,965	11,420	28,764	5,677	623	54,628
Angler trips			23	302	826	1,613	4,094	814	98	7,770
Anglers										
Resident			20	255	647	1,133	2,635	602	77	5,369
Nonresident			3	47	179	480	1,459	212	21	2,401
Charter excursions			7	86	197	371	938	195	25	1,819

Appendix 12.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0281	0.7608	2	7	111	122	292	237	21	792
Chinook salmon	0.0684	1.8492	7	151	164	346	1,026	212	19	1,925
Rainbow trout	0.1226	3.3141	4	27	1,656	676	931	75	81	3,450
Brown trout	0.0174	0.4707	236	109	19	81	34	10	1	490
Lake trout	0.0583	1.5764	0	207	382	656	387	5	4	1,641
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	0.0006	0.0173	0	1	2	3	9	3	0	18
Lamprey on chinook salmon			0	1	1	1	1	0	0	4
Lamprey on lake trout			0	9	6	9	4	0	0	28
Angler hours			1,005	1,818	6,233	6,433	9,714	2,496	451	28,149
Angler trips			152	289	816	859	1,357	377	63	3,913
Anglers										
Resident			137	250	733	739	1,098	311	49	3,317
Nonresident			15	39	83	120	259	66	14	596
Charter excursions			41	79	199	226	372	103	21	1,041

Appendix 13.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0222	0.6815	0	0	27	72	77	20	3	199
Chinook salmon	0.0696	2.1404	0	34	47	199	306	35	4	625
Rainbow trout	0.1839	5.6541	0	33	560	556	443	21	38	1,651
Brown trout	0.0092	0.2842	14	12	5	23	18	3	8	83
Lake trout	0.0675	2.0753	0	54	152	269	130	1	0	606
Yellow perch	0.0003	0.0103	0	0	0	0	3	0	0	3
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0001	0.0034	0	0	0	0	1	0	0	1
Lamprey on chinook salmon			0	0	0	1	0	0	0	1
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			30	348	2,094	3,114	2,779	421	190	8,976
Angler trips			6	55	249	401	382	73	33	1,199
Anglers										
Resident			2	42	211	302	266	60	18	901
Nonresident			4	13	38	99	116	13	15	298
Charter excursions			3	15	54	89	100	20	11	292

Appendix 14.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0352	0.9446	0	2	31	47	601	643	41	1,365
Chinook salmon	0.0598	1.6048	3	79	170	647	1,229	185	6	2,319
Rainbow trout	0.0800	2.1453	5	6	1,095	703	1,029	173	89	3,100
Brown trout	0.0098	0.2616	61	98	32	76	89	11	11	378
Lake trout	0.0935	2.5080	0	268	657	1,332	1,339	28	0	3,624
Yellow perch	0.0001	0.0021	0	0	0	0	3	0	0	3
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0009	0.0235	1	2	2	6	15	8	0	34
Lamprey on chinook salmon			0	0	0	2	1	1	0	4
Lamprey on lake trout			0	7	3	1	1	0	0	12
Angler hours			414	1,359	5,574	8,990	16,726	5,132	561	38,756
Angler trips			53	246	868	1,437	2,580	811	93	6,088
Anglers										
Resident			50	217	711	1,106	1,947	670	76	4,777
Nonresident			3	29	157	331	633	141	17	1,311
Charter excursions			14	65	203	337	605	198	23	1,445

Appendix 15.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0016	0.0379	0	0	2	13	14	3	0	32
Chinook salmon	0.2125	5.0568	0	2	79	1,630	2,436	126	0	4,273
Rainbow trout	0.1210	2.8805	0	0	279	1,149	984	22	0	2,434
Brown trout	0.0149	0.3538	0	133	64	56	44	2	0	299
Lake trout	0.0480	1.1420	0	105	380	259	182	39	0	965
Yellow perch	0.0069	0.1645	0	0	5	0	0	134	0	139
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0001	0.0036	0	0	1	0	2	0	0	3
Lamprey on chinook salmon			0	1	0	11	3	0	0	15
Lamprey on lake trout			0	2	2	11	8	0	0	23
Angler hours			0	797	2,386	7,469	8,239	1,217	0	20,108
Angler trips			0	160	429	1,309	1,478	226	0	3,602
Anglers										
Resident			0	135	349	891	1,015	164	0	2,554
Nonresident			0	25	80	418	463	62	0	1,048
Charter excursions			0	42	101	306	344	52	0	845

Appendix 16.—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, 1991.

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	0.0594	0.7778	0	3	1	16	91	134	7	252
Rainbow trout	0.0057	0.0741	0	0	4	12	8	0	0	24
Brown trout	0.0017	0.0216	0	0	1	2	4	0	0	7
Lake trout	0.2209	2.8920	0	121	228	358	225	5	0	937
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	0.0033	0.0432	0	4	2	5	3	0	0	14
Lamprey on chinook salmon			0	0	0	0	2	3	0	5
Lamprey on lake trout			0	0	11	1	1	0	0	13
Angler hours			0	267	630	1,239	1,380	609	117	4,242
Angler trips			0	67	160	309	320	151	15	1,022
Anglers										
Resident			0	48	134	231	252	103	15	783
Nonresident			0	19	26	78	68	48	0	239
Charter excursions			0	22	49	98	104	47	4	324

Appendix 17.—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, 1991.

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	0.0330	0.5374	29	1	1	2	73	87	1	194
Rainbow trout	0.0024	0.0388	2	0	2	4	4	2	0	14
Brown trout	0.0015	0.0249	5	0	1	0	2	1	0	9
Lake trout	0.0955	1.5568	0	123	126	141	165	7	0	562
Yellow perch	0.0134	0.2188	0	1	0	0	78	0	0	79
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0041	0.0665	1	2	2	5	14	0	0	24
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			492	532	679	1,146	2,054	942	40	5,885
Angler trips			123	140	174	292	530	251	10	1,520
Anglers										
Resident			123	81	84	179	269	124	0	860
Nonresident			0	59	90	113	261	127	10	660
Charter excursions			24	29	38	70	135	63	2	361

Appendix 18.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0002	0.0048	0	0	0	0	1	0	0	1
Chinook salmon	0.0488	0.9524	0	0	2	26	138	32	2	200
Rainbow trout	0.0027	0.0524	0	3	0	4	4	0	0	11
Brown trout	0.0029	0.0571	0	0	0	11	1	0	0	12
Lake trout	0.0737	1.4381	0	17	105	129	47	4	0	302
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	3	0	0	0	9
Angler hours			0	95	477	1,080	1,908	496	41	4,096
Angler trips			0	19	94	221	427	97	9	867
Anglers										
Resident			0	18	59	133	272	78	0	560
Nonresident			0	1	35	88	155	19	9	307
Charter excursions			0	6	21	52	103	26	2	210

Appendix 19.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0023	0.0484	0	0	0	1	8	0	0	9
Chinook salmon	0.1341	2.8118	0	0	7	139	306	71	0	523
Rainbow trout	0.0046	0.0968	0	0	0	6	12	0	0	18
Brown trout	0.0005	0.0108	0	0	0	0	2	0	0	2
Lake trout	0.0133	0.2796	0	0	2	41	9	0	0	52
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	0.0105	0.2204	0	0	0	4	37	0	0	41
Lamprey on chinook salmon			0	0	4	31	56	8	0	99
Lamprey on lake trout			0	0	0	6	1	0	0	7
Angler hours			0	0	104	984	2,507	305	0	3,900
Angler trips			0	0	20	194	409	57	0	680
Anglers										
Resident			0	0	8	132	266	41	0	447
Nonresident			0	0	12	62	143	16	0	233
Charter excursions			0	0	5	52	111	18	0	186

Appendix 20.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0010	0.0191	0	0	0	2	1	0	0	3
Chinook salmon	0.0971	1.7771	2	2	19	139	74	43	0	279
Rainbow trout	0.0198	0.3631	2	3	7	28	9	8	0	57
Brown trout	0.0365	0.6688	8	13	10	36	10	28	0	105
Lake trout	0.0379	0.6943	0	28	20	43	18	0	0	109
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0640	1.1720	24	133	22	0	0	5	0	184
Other	0.0289	0.5287	0	0	11	37	35	0	0	83
Lamprey on chinook salmon			0	0	1	26	12	1	0	40
Lamprey on lake trout			0	0	0	8	3	0	0	11
Angler hours			28	270	191	1,287	840	259	0	2,875
Angler trips			6	64	39	194	123	50	0	476
Anglers										
Resident			6	40	33	145	103	50	0	377
Nonresident			0	24	6	49	20	0	0	99
Charter excursions			5	24	15	62	31	20	0	157

Appendix 21.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0012	0.0222	0	1	0	0	5	0	0	6
Chinook salmon	0.0910	1.6778	1	9	31	133	234	42	3	453
Rainbow trout	0.0135	0.2481	1	2	5	27	26	5	1	67
Brown trout	0.0010	0.0185	1	0	1	0	2	1	0	5
Lake trout	0.1211	2.2333	0	15	118	261	208	1	0	603
Yellow perch	0.0018	0.0333	0	0	0	9	0	0	0	9
Walleye	0.0004	0.0074	1	0	0	0	1	0	0	2
Other	0.0042	0.0778	0	2	3	4	7	5	0	21
Lamprey on chinook salmon			0	0	5	18	36	7	1	67
Lamprey on lake trout			0	0	8	25	24	0	0	57
Angler hours			36	82	775	1,707	1,978	367	35	4,979
Angler trips			9	21	146	298	341	69	10	894
Anglers										
Resident			9	21	130	269	312	67	10	818
Nonresident			0	0	16	29	29	2	0	76
Charter excursions			3	9	44	86	102	22	4	270

Appendix 22.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0027	0.0577	0	0	4	0	36	1	0	41
Chinook salmon	0.0796	1.7197	0	35	51	197	734	204	0	1,221
Rainbow trout	0.0095	0.2042	0	3	17	36	76	13	0	145
Brown trout	0.0012	0.0268	0	2	10	2	4	1	0	19
Lake trout	0.0931	2.0127	0	50	584	470	322	3	0	1,429
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0044	0.0944	0	0	0	41	23	3	0	67
Other	0.0044	0.0958	0	2	15	23	21	7	0	68
Lamprey on chinook salmon			0	1	4	16	110	23	0	154
Lamprey on lake trout			0	0	31	26	19	0	0	76
Angler hours			0	657	2,445	3,718	6,967	1,555	0	15,341
Angler trips			0	117	434	607	1,115	249	0	2,522
Anglers										
Resident			0	111	408	542	881	220	0	2,162
Nonresident			0	6	26	65	234	29	0	360
Charter excursions			0	39	120	162	317	72	0	710

Appendix 23.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0013	0.0299	3	9	5	2	3	1	0	23
Chinook salmon	0.0138	0.3147	1	66	38	35	76	26	0	242
Rainbow trout	0.0026	0.0598	1	6	5	14	19	1	0	46
Brown trout	0.0009	0.0195	0	3	5	6	1	0	0	15
Lake trout	0.0260	0.5930	0	98	149	146	63	0	0	456
Yellow perch	0.2844	6.4915	15	3	1,308	1,056	836	1,739	35	4,992
Walleye	0.2096	4.7841	0	23	306	2,128	1,145	77	0	3,679
Other	0.0106	0.2419	0	11	52	60	55	8	0	186
Lamprey on chinook salmon			0	4	2	3	6	4	0	19
Lamprey on lake trout			0	17	3	2	1	0	0	23
Angler hours			100	1,198	3,234	7,334	4,716	941	30	17,551
Angler trips			23	213	557	1,191	753	152	5	2,894
Anglers										
Resident			23	185	509	1,089	628	141	5	2,580
Nonresident			0	28	48	102	125	11	0	314
Charter excursions			6	56	141	322	198	45	1	769

Appendix 24.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0062	0.1185	9	1	1	0	4	10	0	25
Chinook salmon	0.0530	1.0142	18	63	9	27	79	18	0	214
Rainbow trout	0.0035	0.0664	0	0	0	5	9	0	0	14
Brown trout	0.0007	0.0142	1	0	0	0	2	0	0	3
Lake trout	0.0887	1.6967	0	14	66	159	110	9	0	358
Yellow perch	0.0332	0.6351	3	7	0	71	23	30	0	134
Walleye	0.0518	0.9905	1	0	0	35	151	22	0	209
Other	0.0037	0.0711	1	5	0	2	3	4	0	15
Lamprey on chinook salmon			2	11	1	7	13	1	0	35
Lamprey on lake trout			0	1	1	8	3	0	0	13
Angler hours			270	798	386	861	1,290	435	0	4,038
Angler trips			47	138	77	155	235	77	0	729
Anglers										
Resident			47	119	76	151	225	65	0	683
Nonresident			0	19	1	4	10	12	0	46
Charter excursions			15	39	23	46	65	23	0	211

Appendix 25.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0055	0.1221	2	13	1	0	0	0	0	16
Chinook salmon	0.0543	1.2061	43	94	6	5	3	7	0	158
Rainbow trout	0.0048	0.1069	2	7	3	1	1	0	0	14
Brown trout	0.0010	0.0229	2	1	0	0	0	0	0	3
Lake trout	0.0038	0.0840	0	1	8	1	1	0	0	11
Yellow perch	0.0096	0.2137	0	0	0	0	27	1	0	28
Walleye	0.0048	0.1069	1	6	0	2	5	0	0	14
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			5	7	0	2	2	2	0	18
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			803	1,353	360	139	158	98	0	2,910
Angler trips			133	230	81	26	36	23	0	529
Anglers										
Resident			133	220	57	23	36	21	0	490
Nonresident			0	10	24	3	0	2	0	39
Charter excursions			32	58	19	6	10	6	0	131

Appendix 26.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0167	0.3235	6	5	0	0	0	0	0	11
Chinook salmon	0.0533	1.0294	9	26	0	0	0	0	0	35
Rainbow trout	0.0061	0.1176	2	1	0	0	1	0	0	4
Brown trout	0.0030	0.0588	2	0	0	0	0	0	0	2
Lake trout	0.0015	0.0294	0	1	0	0	0	0	0	1
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0244	0.4706	1	0	0	15	0	0	0	16
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			1	0	0	0	0	0	0	1
Lamprey on lake trout			0	0	0	0	0	0	0	0
Angler hours			302	297	0	42	16	0	0	657
Angler trips			54	49	0	9	4	0	0	116
Anglers										
Resident			52	47	0	9	4	0	0	112
Nonresident			2	2	0	0	0	0	0	4
Charter excursions			16	14	0	3	1	0	0	34

Appendix 27.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0601	2.5808	0	59	217	96	27	32	0	431
Chinook salmon	0.0052	0.2216	0	0	2	1	13	21	0	37
Rainbow trout	0.0057	0.2455	0	1	30	5	5	0	0	41
Brown trout	0.0018	0.0778	0	1	0	0	3	9	0	13
Lake trout	0.2274	9.7725	0	6	481	449	460	227	9	1,632
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	0.0001	0.0060	0	0	0	0	1	0	0	1
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	1	5	7	7	2	0	22
Angler hours			0	251	2,369	1,763	1,799	975	20	7,177
Angler trips			0	37	289	217	226	142	4	915
Anglers										
Resident			0	19	47	63	54	29	1	213
Nonresident			0	18	242	154	172	113	3	702
Charter excursions			0	8	50	41	40	27	1	167

Appendix 28.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0534	1.4079	0	24	40	33	10	0	0	107
Chinook salmon	0.0075	0.1974	0	11	1	1	2	0	0	15
Rainbow trout	0.0005	0.0132	0	0	1	0	0	0	0	1
Brown trout	0.0105	0.2763	0	15	3	2	1	0	0	21
Lake trout	0.3655	9.6447	0	61	169	224	267	12	0	733
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	2	5	30	0	0	37
Angler hours			0	185	444	658	669	50	0	2,006
Angler trips			0	32	78	115	130	10	0	365
Anglers										
Resident			0	32	53	66	54	4	0	209
Nonresident			0	0	25	49	76	6	0	156
Charter excursions			0	7	18	24	25	2	0	76

Appendix 29.—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, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0112	0.3784	0	7	10	2	16	16	5	56
Chinook salmon	0.0028	0.0946	0	6	0	0	4	2	2	14
Rainbow trout	0.0008	0.0270	0	0	1	1	1	1	0	4
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.3087	10.3851	0	103	358	545	372	141	18	1,537
Yellow perch	0.0000	0.0000	0	0	0	0	0	0	0	0
Walleye	0.0000	0.0000	0	0	0	0	0	0	0	0
Other	0.0000	0.0000	0	0	0	0	0	0	0	0
Lamprey on chinook salmon			0	0	0	0	0	0	0	0
Lamprey on lake trout			0	0	1	15	3	1	0	20
Angler hours			0	289	1,112	1,960	1,227	361	30	4,979
Angler trips			0	48	144	230	195	81	6	704
Anglers										
Resident			0	30	92	126	130	55	0	433
Nonresident			0	18	52	104	65	26	6	271
Charter excursions			0	14	33	35	42	21	3	148

Appendix 30.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats in the vicinity of Isle Royale National Park, Lake Superior, 1991.

Species	Total catch per hour	Total catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0190	0.5103	0	0	0	5	71	23	0	99
Chinook salmon	0.0029	0.0773	0	0	0	2	12	1	0	15
Rainbow trout	0.0052	0.1392	0	0	0	4	10	10	3	27
Brown trout	0.0000	0.0000	0	0	0	0	0	0	0	0
Lake trout	0.3115	8.3711	0	73	201	362	606	330	52	1,624
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	2	0	4	3	2	2	13
Angler hours			0	232	528	1,219	2,141	826	268	5,213
Angler trips			0	28	72	162	351	139	45	797
Anglers										
Resident			0	0	4	26	57	1	4	92
Nonresident			0	28	68	136	294	138	41	705
Charter excursions			0	8	18	39	82	36	11	194