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FISHERIES DIVISION**

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Charter Boat Catch and Effort from the Michigan Waters of the Great Lakes, 1997

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

Ninety-eight percent of the 469 charter fishing operators complied with the law by returning their completed catch reporting forms in 1997. These operators reported making 15,929 charter fishing excursions during April through October. The total number of charter excursions increased by 287 (+2%) in 1997 compared to 1996. Approximately 444,000 angler hours were spent fishing by some 73,300 charter clients. The distribution of charter fishing excursions was: 67% Lake Michigan, 17% Lake Huron, 11% Lake Erie, 3% Lake Superior, and 2% Lake St. Clair. Over 242,000 fish were reported harvested. The harvest was composed of about 89,000 yellow perch, 42,000 walleye, 40,200 chinook salmon, 33,100 lake trout, 16,000 rainbow trout, 12,300 coho salmon, and 5,000 brown trout.

Michigan's charter boat industry increased from 250 operations in 1979 to nearly 900 in 1989. Since the late 1980s, the number of charter boats used for sport fishing excursions on Michigan's Great Lakes waters has declined to 469 in 1997. The charter fishing industry provides Michigan's economy with significant economic benefits each year. For example, 239,000 clients spent an estimated \$21 million in addition to charter fees in 1985, and the total statewide investment by charter boat firms in the same year was estimated to exceed \$30 million (Mahoney et al. 1986).

The Michigan Legislature in 1992 passed Act 115, Public Acts of 1992. This legislation re-authorized and strengthened the law, first enacted during 1989 (Act 22, Public Acts of 1989), which required the reporting of sport catch and effort by the charter fishing industry. The legislation was supported by both Michigan Charter Boat Association (MCBA), an industry representative, and Michigan Department of Natural Resources (MDNR). Among other provisions, the law provides more stringent penalties for charter fishing operators who are delinquent by more than 60 days with their catch reports. Also, the

law requires that all operators maintain on board an up to date daily log of their catch and fishing activity.

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

Methods

The Michigan Charter Boat Daily Catch Report form (PR8206) was developed in 1989 by a committee made up of two members each from MDNR and MCBA (Figure 1). Forms and grid maps of the Great Lakes were mailed to all known charter operators during March 1997. Charter operators were identified from previous years' lists of reporting operators and from Sport Trolling Licenses purchased from Law Enforcement Division. Charter operators who used their vessels for fishing were informed that they were required by law to complete the form each time they fished. A form was to be mailed by the tenth of each month following the month of fishing to MDNR's Charlevoix Fisheries Station.

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

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

Each month (June through October), 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 November 1997, operators who had not filed reports for one or more months during the period May through September were sent letters via certified mail. These letters informed the operator that this would be the last notice he or she would receive. If the recipient did not respond in writing within 14 days of receipt of this notice, his or her name was submitted to MDNR's Law Enforcement Division recommending non-issuance of an inspection certificate for the 1998 season.

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

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

Results

Compliance

During the 1997 fishing season, an average of 66% of all charter boat operators complied with the law by submitting their catch reports by the due date, while 85% submitted reports within 30 days of the due date. Monthly rate of compliance in 1997 was virtually the same as compared to 1996. By the end of the 1997 season, 98% of all charter

operators had complied with the law. Final compliance rate for 1997 was slightly greater than 1996 (92%) (Rakoczy 1998).

Catch and effort

Charter operators submitted reports on 15,929 charter excursions during April through October, 1997 on lakes Michigan, Huron, Erie, Superior and St. Clair (Tables 1 through 5). The total number of charter excursions in 1997 increased by 287 (+2%) compared to 1996 (Rakoczy 1998). Increases in the number of charter excursions in 1997 as compared to 1996 occurred on lakes Michigan (+3%) and Huron (+4%). The number of charter excursions during 1997 as compared to 1996 declined on lakes Erie (-3%), Superior (-5%) and St. Clair (-3%). The distribution of charter fishing effort (excursions) by lake was: 67% Lake Michigan, 17% Lake Huron, 11% Lake Erie, 3% Lake Superior, and 2% Lake St. Clair. The distribution of charter fishing effort by lake in 1997 was very similar to previous years.

A total of 444,072 hours were spent fishing by 73,300 charter anglers in Michigan's waters and tributaries of the Great Lakes (Tables 1 through 5). The total number of charter anglers in 1997 decreased slightly (<1%) compared to 1996. Twenty-nine percent of all charter clients were not residents of Michigan. Lake Superior charter operators had the greatest percentage of nonresident clients (48%; Table 4), while Lake St. Clair charter captains had the lowest percentage (6%; Table 5). The main reason Lake Superior has always had a large percentage of non-resident charter anglers can be attributed to the active charter fishery in the vicinity of Isle Royale National Park. The majority of these charter trips originate in Minnesota.

A total of 242,000 fish were reported harvested in all lakes. Lake Michigan accounted for 53% of all fish harvested, while lakes Erie and Huron accounted for 31% and 8%, respectively, of the total harvest. The most numerous species in the harvest was yellow perch (89,000) which accounted for

37% of the total harvest. Numbers of other species harvested were: 42,000 walleye (17%), 40,200 chinook salmon (17%), 33,100 lake trout (14%), 16,100 rainbow trout (7%), 12,300 coho salmon (5%), and 5,000 brown trout (2%). The "other" species category was approximately 2% of the total reported catch. Since other species are not identified on the catch reporting form, the actual composition of this category is unknown.

In general, the numbers of salmonines harvested from Michigan's Great Lakes waters increased during 1997 compared to 1996. The harvest of chinook salmon (+19%), coho salmon (+31%), and brown trout (+28%) all increased as compared to the previous year. The only species of the salmonine complex that showed a decline in harvest during 1997 compared to 1996 was rainbow trout (-23%). The harvest of lake trout was virtually unchanged during 1997 as compared to the previous year.

Lake Michigan was responsible for most of the increase in the salmonine harvest. The harvest of coho salmon (+3,100 or +35%), chinook salmon (+2,600 or +9%), and brown trout (+1,300 or +40%) on Lake Michigan increased during 1997 compared to 1996. Lake Michigan's lake trout harvest declined slightly (<500 fish or -2%) in 1997 compared to 1996. Lake Huron anglers catch of chinook salmon increased by nearly 3,800 fish (+59%) while the harvest of rainbow trout (-27%) and brown trout (-55%) decreased as compared to 1996. The lake trout harvest on Lake Huron was virtually unchanged as compared to the previous year.

The number of walleye harvested decreased slightly (-3%) compared to 1996, while the yellow perch harvest was virtually unchanged. The majority of walleye harvested by charter anglers in the Michigan waters of the Great Lakes come from Lake Erie. The Lake Erie walleye harvest declined slightly (-2%) in 1997 compared to 1996. Forty-nine percent of the total yellow perch harvest during 1997 came from Lake Michigan, while 38% came from Lake Erie. The Lake Michigan harvest of yellow perch increased by 8% in 1997, while the Lake Erie harvest

decreased by the same amount, as compared to the previous year.

Catch rates (fish per 100 angler hours) by Lake Michigan charter anglers in 1997 as compared to 1996 increased for coho salmon (+31%), chinook salmon (+7%) and brown trout (+36%) (Table 6). Catch rates for rainbow trout (-24%) declined. On Lake Huron, catch rates for chinook salmon increased by 57% compared to the previous year. Chinook salmon catch rates have increased over three fold since 1990. Catch rates on Lake Huron for rainbow trout (-23%) and brown trout (-50%) declined during 1997 as compared to 1996, while the rate for lake trout was virtually unchanged. Lake trout are the most important salmonine in the charter catch from Lake Superior and catch rates for lake trout have been virtually unchanged during the past eight seasons.

Walleye play an important role in charter fisheries on lakes Erie, Huron, and St. Clair. Catch rates for walleye by charter clients were virtually unchanged on lakes St. Clair and Erie during 1997 as compared to 1996 (Table 7). Catch rates for walleye on Lake Huron declined slightly (-12%) during 1997 compared to the previous year.

Most charter excursions which took place on Michigan's Great Lakes waters during 1997 were aimed at the various species of salmonines. The total catch per charter excursion for all five species of salmonines combined decreased during 1997 compared to 1996 at the Lake Michigan ports of St. Joseph/Benton Harbor, Ludington, Manistee, Frankfort/Elberta and Leland (Table 8). Grand Haven was the only port of those listed in Table 8 which saw an increase in the salmonine catch rate. However the 1997 Lake Michigan salmonine fishery was well above

the 7 year average (1990-96) at all of these ports except Ludington. Catch rates for salmonines increased at four of five Lake Huron ports during 1997 compared to 1996. A comparison of catch rates at these five Lake Huron ports (Rogers City, Alpena, Oscoda, Grindstone City and Harbor Beach) with the 1990-96 average indicates that the 1997 fishery for salmonines on Lake Huron was one of the best on record. On Lake Superior, salmonine catch rates decreased at Marquette, Ontonagon and Black River Harbor during 1997 compared to the previous year. Salmonine catch rates on Lake Superior were above the 1990-96 average during 1997 at Marquette and Black River Harbor.

As has been the case in previous years (1990-96), numbers of sea lamprey attached to chinook salmon and lake trout were much higher on Lake Huron than the other Great Lakes (Table 9). Numbers of sea lamprey attached per 100 lake trout harvested from Lake Huron in 1997 was 3.0, as compared to 1.1 for Lake Michigan and 0.6 for Lake Superior. Charter captains also reported 4.7 lamprey per 100 chinook salmon harvested on Lake Huron during 1996 as compared to 0.2 for Lake Michigan and zero for Lake Superior. In general, the numbers of sea lamprey observed during 1997 increased on lakes Michigan and Huron for both lake trout and chinook salmon as compared to 1996.

Acknowledgments

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MICHIGAN DEPARTMENT OF NATURAL RESOURCES - FISHERIES DIVISION

MICHIGAN CHARTER BOAT DAILY CATCH REPORT

Submission of this information is required by authority of Section 44508 of Part 445 of Act 451, P. A. of 1994, as amended. Failure to comply with the provisions of this Act will prohibit issuance of an Inspection Certificate for the following season.

Please reference instructions on reverse side.

IDENTIFICATION NUMBER	
LAKE	
MONTH	YEAR

Date	Port Fished	Grid Fished	Hours Fished (Dock to Dock)	No. of Anglers		Daily Catch								No. of Lamprey Seen On		
				Res.	Non-Res.	COH	CHS	RBT	BNT	LAT	YEP	WAE	OTH	CHS	LAT	
1																
2																
3																
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Comments:

Signature _____ Date _____

DISTRIBUTION: White - Charlevox; Canary - Charter Captain

PR 8206 (Rev. 02/26/98)

Figure 1.-Michigan charter boat daily catch report form.

Table 1.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.038	1.125	636	2,618	1,309	1,154	3,510	2,442	289	11,958
Chinook salmon	0.096	2.823	382	5,088	4,276	5,063	11,608	3,427	151	29,995
Rainbow trout	0.048	1.404	372	1,884	2,886	3,306	3,942	1,749	786	14,925
Brown trout	0.015	0.450	1,288	1,132	607	647	858	182	67	4,781
Lake trout	0.072	2.109	39	2,473	5,072	8,165	6,274	381	4	22,408
Yellow perch	0.139	4.085	23,029	6,080	6,538	3,747	3,671	349	0	43,414
Walleye	0.002	0.054	7	35	175	208	106	19	22	572
Other	0.001	0.028	54	60	8	44	25	69	35	295
Lamprey on:										
Chinook salmon			3	7	17	11	21	7	0	66
Lake trout			0	22	72	78	67	8	0	247
Angler hours			15,135	41,301	51,619	67,586	99,030	32,926	5,660	313,256
Angler trips			2,600	6,709	8,380	11,201	15,960	5,546	832	51,228
Anglers										
Resident			1,451	3,860	5,486	7,340	11,073	3,880	398	33,488
Nonresident			1,149	2,849	2,894	3,861	4,887	1,666	434	17,740
Charter excursions			320	1,219	1,701	2,373	3,483	1,304	227	10,627

Table 2.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.002	0.050	6	18	21	30	44	14	1	134
Chinook salmon	0.185	3.779	196	1,301	891	1,852	4,691	1,189	24	10,144
Rainbow trout	0.020	0.407	154	128	166	279	280	54	31	1,092
Brown trout	0.004	0.073	15	26	15	95	30	14	1	196
Lake trout	0.098	2.007	2	641	1,212	1,900	1,570	63	0	5,388
Yellow perch	0.016	0.319	0	0	3	236	579	37	0	855
Walleye	0.030	0.609	5	71	93	1,072	383	11	0	1,635
Other	0.005	0.104	3	4	30	134	101	8	0	280
Lamprey on:										
Chinook salmon			1	54	26	100	236	58	2	477
Lake trout			0	13	47	64	38	0	0	162
Angler hours			1,545	5,744	7,217	14,662	19,993	5,284	438	54,882
Angler trips			235	992	1,230	2,573	3,611	939	67	9,647
Anglers										
Resident			212	936	1,114	2,117	3,043	797	61	8,280
Nonresident			23	59	116	456	568	142	6	1,370
Charter excursions			83	266	360	709	967	271	28	2,684

Table 3.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake Erie, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.000	0	0	0	0	0	0	0	0
Chinook salmon	0.000	0.000	0	0	0	0	0	0	0	0
Rainbow trout	0.000	0.009	0	6	9	0	0	0	0	15
Brown trout	0.000	0.000	0	0	0	0	0	0	0	0
Lake trout	0.000	0.000	0	0	0	0	0	0	0	0
Yellow perch	0.746	19.815	17	239	542	810	12,720	17,312	2,581	34,221
Walleye	0.839	22.288	240	4,079	18,352	14,617	1,149	6	49	38,492
Other	0.033	0.875	0	528	649	318	8	0	8	1,511
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	0	0	0	0	0	0
Angler hours			355	6,918	19,273	12,324	3,560	3,039	422	45,891
Angler trips			65	1,203	3,456	2,206	660	603	91	8,284
Anglers										
Resident			56	979	3,163	2,003	635	575	80	7,491
Nonresident			9	224	293	203	55	28	11	823
Charter excursions			16	253	708	457	149	123	21	1,727

Table 4.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake Superior, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.011	0.441	0	7	93	85	22	12	0	219
Chinook salmon	0.001	0.026	0	1	6	3	3	0	0	13
Rainbow trout	0.003	0.133	0	0	36	15	15	0	0	66
Brown trout	0.001	0.026	0	4	9	0	0	0	0	13
Lake trout	0.269	10.757	0	25	1,164	2,031	1,871	255	0	5,346
Yellow perch	0.001	0.036	0	18	0	0	0	0	0	18
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.008	0	0	0	1	3	0	0	4
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	1	8	10	10	3	0	32
Angler hours			0	188	4,647	7,463	6,580	973	0	19,850
Angler trips			0	30	539	893	867	132	0	2,461
Anglers										
Resident			0	26	333	469	378	78	0	1,284
Nonresident			0	4	206	424	489	54	0	1,177
Charter excursions			0	9	104	177	177	30	0	497

Table 5.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Lake St. Clair and the St. Clair River, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.000	0	0	0	0	0	0	0	0
Chinook salmon	0.006	0.160	12	47	4	0	0	0	0	63
Rainbow trout	0.000	0.000	0	0	0	0	0	0	0	0
Brown trout	0.000	0.000	0	0	0	0	0	0	0	0
Lake trout	0.000	0.000	0	0	0	0	0	0	0	0
Yellow perch	1.033	26.723	0	545	2,067	1,390	902	4,437	1,188	10,529
Walleye	0.131	3.401	117	143	186	475	372	47	0	1,340
Other	0.260	6.739	0	3	758	889	572	432	1	2,655
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	0	0	0	0	0	0
Angler hours			211	726	2,173	2,802	1,998	1,876	407	10,193
Angler trips			47	157	377	425	331	271	72	1,680
Anglers										
Resident			47	157	371	395	302	236	66	1,574
Nonresident			0	0	6	30	29	35	6	106
Charter excursions			12	34	89	103	75	63	18	394

Table 6.—Catch rates (fish per 100 angler hours) by charter anglers for salmonines on Lakes Michigan, Huron and Superior during 1990-97.

Species	Year							
	1990	1991	1992	1993	1994	1995	1996	1997
Michigan								
Coho salmon	3.9	2.8	3.4	4.5	2.6	2.2	2.9	3.8
Chinook salmon	7.4	7.0	4.9	4.0	4.0	5.0	9.0	9.6
Rainbow trout	4.0	7.2	6.5	5.0	5.2	3.0	6.3	4.8
Brown trout	0.6	0.8	0.4	0.7	1.1	0.7	1.1	1.5
Lake trout	8.4	8.7	7.6	9.7	10.4	10.2	7.5	7.2
Huron								
Coho salmon	0.2	0.2	0.2	0.3	0.3	0.1	0.4	0.2
Chinook salmon	6.0	6.4	6.4	7.2	8.3	11.7	11.8	18.5
Rainbow trout	0.3	0.6	0.7	1.4	1.3	2.6	2.6	2.0
Brown trout	0.1	0.2	0.7	1.7	2.1	1.9	0.8	0.4
Lake trout	9.8	7.9	6.6	4.3	6.3	6.6	9.4	9.8
Superior								
Coho salmon	1.2	3.2	1.3	1.0	1.6	1.7	1.9	1.1
Chinook salmon	0.3	0.4	0.3	0.3	0.1	0.2	0.3	0.1
Rainbow trout	0.3	0.3	0.1	0.2	0.3	0.3	0.3	0.3
Brown trout	0.1	0.2	0.1	0.0	0.1	<0.1	<0.1	0.1
Lake trout	28.5	27.9	25.5	28.2	25.3	26.2	28.5	26.9

Table 7.—Catch rates (fish per 100 angler hours) by charter anglers for yellow perch and walleye on Lakes Huron, St. Clair and Erie during 1990-97.

Species	Year							
	1990	1991	1992	1993	1994	1995	1996	1997
Huron								
Yellow perch	9.2	7.4	6.3	4.0	4.9	3.7	2.8	1.6
Walleye	5.1	7.1	6.7	7.4	6.7	3.5	3.4	3.0
St. Clair								
Yellow perch	13.8	16.8	15.1	40.4	85.5	66.9	100.3	103.3
Walleye	32.4	20.4	12.5	18.4	12.3	15.5	12.3	13.1
Erie								
Yellow perch	29.4	34.1	43.3	43.9	28.7	51.7	78.4	74.6
Walleye	74.5	62.8	78.5	81.4	69.6	82.4	82.2	83.9

Table 8.—Total and mean (1990-96) catch per excursion for all salmonines combined by charter anglers at various ports on lakes Michigan, Huron and Superior 1990-97.

Port	1990	1991	1992	1993	1994	1995	1996	1997	Mean
Lake Michigan									
St. Joseph/Benton Harbor	7.3	8.7	7.3	8.1	7.7	7.7	10.0	9.8	8.1
Grand Haven	5.0	5.5	4.7	5.3	5.0	5.2	6.1	6.7	5.3
Ludington	9.3	11.1	8.4	8.8	7.4	7.2	10.8	8.4	9.0
Manistee	6.2	8.0	5.7	6.2	5.8	6.9	10.3	8.8	7.0
Frankfort/Elberta	7.1	7.5	5.8	6.6	6.2	6.7	8.8	7.6	7.0
Leland	7.2	9.5	9.0	6.9	9.1	8.6	9.4	9.1	8.5
Lake Huron									
Rogers City	3.2	3.3	2.5	3.9	5.2	6.6	5.9	8.2	4.4
Alpena	3.4	3.5	4.7	4.9	4.7	5.1	5.2	6.4	4.5
Oscoda	4.0	4.0	3.6	3.0	3.2	5.2	6.2	7.1	4.2
Grindstone City	5.6	6.1	5.9	4.7	5.5	7.0	8.0	9.3	6.1
Harbor Beach	3.6	2.9	3.2	2.8	3.5	4.9	6.6	6.5	3.9
Lake Superior									
Marquette	10.9	10.9	11.4	10.9	8.3	11.2	13.0	11.9	10.9
Ontonagon	12.5	11.5	14.1	14.0	10.1	11.1	15.9	11.9	12.7
Black River Harbor	12.0	12.9	10.6	13.5	14.1	12.6	14.0	13.1	12.8

Table 9.–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, 1990-97.

Location	Chinook salmon								Lake trout							
	1990	1991	1992	1993	1994	1995	1996	1997	1990	1991	1992	1993	1994	1995	1996	1997
Lake Michigan	0.5	0.3	0.2	0.1	0.3	0.3	0.1	0.2	1.8	1.2	0.8	0.6	0.6	1.0	0.7	1.1
Lake Huron	18.6	13.9	13.6	7.6	7.1	6.2	3.9	4.7	6.6	5.7	4.6	2.1	3.3	2.7	1.9	3.0
Lake Superior	0.0	8.0	0.0	0.0	0.0	3.0	0.0	0.0	1.8	1.6	0.8	0.5	1.1	0.7	1.0	0.6

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Appendix 1.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Michigan City, Indiana, Lake Michigan (catch from Michigan waters only), 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.223	7.714	72	1,779	674	401	691	15	9	3,641
Chinook salmon	0.028	0.972	17	127	52	65	183	15	0	459
Rainbow trout	0.090	3.108	42	724	226	122	344	8	1	1,467
Brown trout	0.004	0.133	4	5	19	14	20	1	0	63
Lake trout	0.116	4.025	1	171	817	173	670	64	4	1,900
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			1	0	1	0	0	0	0	2
Lake trout			0	1	12	1	10	3	0	27
Angler hours			264	4,567	4,107	2,739	4,366	246	24	16,313
Angler trips			38	694	620	405	655	41	4	2,457
Anglers										
Resident			0	85	68	15	8	0	0	176
Nonresident			38	609	552	390	647	41	4	2,281
Charter excursions			7	129	118	78	130	9	1	472

Appendix 2.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at New Buffalo, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.194	6.420	149	104	21	16	27	4	0	321
Chinook salmon	0.037	1.240	5	37	4	0	15	1	0	62
Rainbow trout	0.059	1.940	24	36	4	7	26	0	0	97
Brown trout	0.013	0.440	6	10	2	0	3	1	0	22
Lake trout	0.029	0.960	0	9	8	7	24	0	0	48
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	2	0	0	0	0	2
Angler hours			434	540	101	131	362	90	0	1,658
Angler trips			62	76	13	17	43	12	0	223
Anglers										
Resident			30	0	1	0	5	0	0	36
Nonresident			32	76	12	17	38	12	0	187
Charter excursions			15	17	3	4	9	2	0	50

Appendix 3.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at St. Joseph/Benton Harbor, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.078	2.542	400	589	510	323	750	166	12	2,750
Chinook salmon	0.117	3.850	273	1,981	694	284	682	246	6	4,166
Rainbow trout	0.060	1.969	74	435	413	728	379	61	40	2,130
Brown trout	0.012	0.395	135	98	94	51	36	8	5	427
Lake trout	0.031	1.030	0	291	205	249	358	12	0	1,115
Yellow perch	0.023	0.739	0	0	258	542	0	0	0	800
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.001	0.018	11	1	0	0	2	1	5	20
Lamprey on:										
Chinook salmon			1	1	2	0	1	0	0	5
Lake trout			0	1	2	7	4	0	0	14
Angler hours			2,509	9,750	7,116	6,344	6,866	2,598	294	35,476
Angler trips			357	1,364	1,001	898	967	393	44	5,024
Anglers										
Resident			144	485	303	249	359	159	20	1,719
Nonresident			213	879	698	649	608	234	24	3,305
Charter excursions			83	281	213	195	209	89	12	1,082

Appendix 4.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on the St. Joseph River, 1997.

Species	Total catch per hour	Total catch per excursion	Month												Season		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Coho salmon	0.023	0.635	0	0	0	0	5	0	0	0	0	0	146	229	41	5	426
Chinook salmon	0.013	0.358	0	0	0	0	19	0	0	1	156	60	4	0	0	0	240
Rainbow trout	0.120	3.350	60	95	353	122	17	1	7	2	59	491	591	450	2,248		
Brown trout	0.021	0.581	2	15	118	158	5	0	0	0	6	34	23	29	390		
Lake trout	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow perch	<0.001	0.004	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3
Walleye	0.022	0.617	3	47	5	3	0	149	142	18	9	8	5	25	414		
Other	0.011	0.303	1	0	0	42	54	2	16	1	54	29	4	0	203		
Angler hours			430	828	2,566	1,132	214	388	720	216	2,481	3,672	3,681	2,466	18,793		
Angler trips			62	125	359	160	26	52	92	27	334	511	498	352	2,598		
Anglers																	
Resident			23	31	97	61	8	21	28	8	98	168	170	110	823		
Nonresident			39	94	262	99	18	31	64	19	236	343	328	242	1,775		
Charter excursions			17	30	88	34	8	17	26	9	92	134	126	90	671		

Appendix 5.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at South Haven, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.003	0.242	0	20	18	12	77	18	0	145
Chinook salmon	0.018	1.255	2	133	227	88	266	37	0	753
Rainbow trout	0.009	0.645	2	32	170	87	81	15	0	387
Brown trout	0.003	0.212	2	8	78	9	20	10	0	127
Lake trout	0.018	1.272	0	65	177	340	173	8	0	763
Yellow perch	0.988	69.618	23,029	5,737	5,986	3,154	3,516	349	0	41,771
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.018	0	1	0	1	5	4	0	11
Lamprey on:										
Chinook salmon			0	0	1	0	0	0	0	1
Lake trout			0	1	4	1	1	1	0	8
Angler hours			7,271	7,456	8,874	8,387	8,873	1,404	0	42,264
Angler trips			1,469	1,518	1,607	1,618	1,746	277	0	8,235
Anglers										
Resident			757	827	967	1,147	1,216	161	0	5,075
Nonresident			712	691	640	471	530	116	0	3,160
Charter excursions			58	91	132	133	154	32	0	600

Appendix 6.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Saugatuck, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.026	0.880	11	80	23	73	349	118	0	654
Chinook salmon	0.154	5.288	67	1,335	469	665	1,170	223	0	3,929
Rainbow trout	0.051	1.760	28	369	218	211	436	46	0	1,308
Brown trout	0.030	1.013	335	131	186	33	46	22	0	753
Lake trout	0.108	3.711	0	678	457	842	764	16	0	2,757
Yellow perch	0.006	0.191	0	0	109	18	15	0	0	142
Walleye	0.000	0.005	4	0	0	0	0	0	0	4
Other	0.000	0.008	0	0	1	0	5	0	0	6
Lamprey on:										
Chinook salmon			0	2	4	0	1	0	0	7
Lake trout			0	4	3	5	3	0	0	15
Angler hours			1,523	6,187	4,005	4,710	7,715	1,374	0	25,514
Angler trips			174	831	607	650	1,005	214	0	3,481
Anglers										
Resident			140	606	420	379	639	122	0	2,306
Nonresident			34	225	187	271	366	92	0	1,175
Charter excursions			30	164	140	139	214	56	0	743

Appendix 7.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Holland, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.029	0.700	0	0	4	25	78	21	14	142
Chinook salmon	0.122	2.956	1	82	65	107	306	32	7	600
Rainbow trout	0.032	0.778	0	3	8	52	90	1	4	158
Brown trout	0.013	0.325	5	10	13	23	11	4	0	66
Lake trout	0.102	2.453	0	51	85	174	188	0	0	498
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	2	0	0	0	0	2
Angler hours			44	449	734	1,384	1,991	278	22	4,902
Angler trips			9	76	120	234	338	48	6	831
Anglers										
Resident			9	30	91	137	215	34	6	522
Nonresident			0	46	29	97	123	14	0	309
Charter excursions			3	17	31	58	78	13	3	203

Appendix 8.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Grand Haven, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.026	0.633	0	10	13	37	334	577	1	972
Chinook salmon	0.144	3.529	2	1,018	918	588	1,920	961	13	5,420
Rainbow trout	0.033	0.807	8	170	181	164	614	66	37	1,240
Brown trout	0.011	0.278	13	142	62	62	114	34	0	427
Lake trout	0.058	1.407	0	497	525	667	470	2	0	2,161
Yellow perch	0.008	0.198	0	0	164	0	140	0	0	304
Walleye	0.000	0.002	0	0	0	0	1	2	0	3
Other	0.000	0.006	0	0	0	0	2	7	0	9
Lamprey on:										
Chinook salmon			0	4	6	2	2	5	0	19
Lake trout			0	4	10	3	5	0	0	22
Angler hours			48	6,039	7,111	6,656	11,589	6,000	120	37,562
Angler trips			8	1,040	1,211	1,209	2,045	1,102	25	6,640
Anglers										
Resident			8	894	1,011	962	1,667	980	19	5,541
Nonresident			0	146	200	247	378	122	6	1,099
Charter excursions			2	244	281	277	478	248	6	1,536

Appendix 9.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Muskegon, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.043	0.939	0	0	2	16	120	51	10	199
Chinook salmon	0.114	2.495	0	21	46	71	313	75	3	529
Rainbow trout	0.038	0.840	0	13	8	31	97	26	3	178
Brown trout	0.007	0.160	1	0	0	4	21	5	3	34
Lake trout	0.022	0.486	0	5	18	41	39	0	0	103
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	0	0	0	0	0	0
Angler hours			25	136	362	784	2,413	816	108	4,644
Angler trips			5	26	64	145	449	157	19	865
Anglers										
Resident			4	20	53	120	364	133	10	704
Nonresident			1	6	11	25	85	24	9	161
Charter excursions			1	6	15	35	109	41	5	212

Appendix 10.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Whitehall/Montague, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.032	0.718	1	5	7	26	21	19	0	79
Chinook salmon	0.097	2.200	0	9	5	95	124	9	0	242
Rainbow trout	0.063	1.418	1	7	6	55	75	12	0	156
Brown trout	0.010	0.236	8	9	1	2	6	0	0	26
Lake trout	0.041	0.927	0	10	12	46	34	0	0	102
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	2	0	0	0	0	0	2
Angler hours			42	207	179	830	1,051	183	0	2,491
Angler trips			10	37	30	129	185	30	0	421
Anglers										
Resident			10	34	29	73	99	19	0	264
Nonresident			0	3	1	56	86	11	0	157
Charter excursions			5	11	8	37	42	7	0	110

Appendix 11.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Pentwater, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.033	0.738	0	2	10	32	124	52	0	220
Chinook salmon	0.155	3.436	0	88	109	232	518	77	0	1,024
Rainbow trout	0.065	1.436	0	8	63	71	154	132	0	428
Brown trout	0.021	0.473	13	23	6	34	62	3	0	141
Lake trout	0.059	1.319	0	36	94	180	81	2	0	393
Yellow perch	0.008	0.174	0	0	21	31	0	0	0	52
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	1	0	0	0	0	1
Lake trout			0	1	2	0	0	0	0	3
Angler hours			30	284	758	1,646	3,094	800	0	6,611
Angler trips			5	49	120	262	482	128	0	1,046
Anglers										
Resident			5	49	113	190	311	82	0	750
Nonresident			0	0	7	72	171	46	0	296
Charter excursions			2	17	35	77	133	34	0	298

Appendix 12.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Ludington, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.028	0.839	0	10	10	112	599	434	5	1,170
Chinook salmon	0.112	3.372	0	158	615	1,080	2,302	541	4	4,700
Rainbow trout	0.068	2.047	1	21	522	587	1,026	651	45	2,853
Brown trout	0.017	0.505	37	278	41	140	181	26	1	704
Lake trout	0.054	1.642	0	54	406	974	849	6	0	2,289
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.005	1	1	0	0	4	0	1	7
Lamprey on:										
Chinook salmon			0	0	0	3	5	0	0	8
Lake trout			0	0	6	5	8	0	0	19
Angler hours			162	1,747	5,299	10,462	19,037	5,216	172	42,095
Angler trips			25	246	730	1,487	2,695	730	30	5,943
Anglers										
Resident			17	206	636	1,174	2,063	576	28	4,700
Nonresident			8	40	94	313	632	154	2	1,243
Charter excursions			7	62	170	344	622	180	9	1,394

Appendix 13.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Manistee, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.012	0.329	2	0	7	26	98	102	1	236
Chinook salmon	0.117	3.313	15	59	565	535	1,017	179	9	2,379
Rainbow trout	0.064	1.805	6	9	620	290	227	118	26	1,296
Brown trout	0.055	1.540	569	294	33	70	107	17	16	1,106
Lake trout	0.065	1.827	32	61	452	445	320	2	0	1,312
Yellow perch	0.017	0.478	0	343	0	0	0	0	0	343
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.001	0	0	1	0	0	0	0	1
Lamprey on:										
Chinook salmon			1	0	1	4	0	0	0	6
Lake trout			0	2	7	5	0	0	0	14
Angler hours			1,160	1,062	4,509	4,357	7,381	1,611	190	20,269
Angler trips			205	202	645	642	1,061	239	28	3,022
Anglers										
Resident			195	172	555	574	926	200	18	2,640
Nonresident			10	30	90	68	135	39	10	382
Charter excursions			52	43	149	157	253	56	8	718

Appendix 14.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Onekama, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.014	0.369	0	4	0	8	18	29	0	59
Chinook salmon	0.143	3.881	0	4	76	224	259	58	0	621
Rainbow trout	0.070	1.894	0	1	141	102	39	20	0	303
Brown trout	0.024	0.663	0	7	14	35	46	4	0	106
Lake trout	0.081	2.181	0	5	79	167	98	0	0	349
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	1	0	0	0	1
Lake trout			0	0	0	0	0	0	0	0
Angler hours			0	32	705	1,533	1,657	408	0	4,335
Angler trips			0	5	102	218	229	66	0	620
Anglers										
Resident			0	5	91	182	174	18	0	470
Nonresident			0	0	11	36	55	48	0	150
Charter excursions			0	2	26	53	61	18	0	160

Appendix 15.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Frankfort/Elberta, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.038	1.011	0	9	9	15	204	666	6	909
Chinook salmon	0.073	1.949	0	7	264	306	918	234	23	1,752
Rainbow trout	0.055	1.469	0	14	164	334	271	511	27	1,321
Brown trout	0.014	0.384	0	83	34	55	139	30	4	345
Lake trout	0.106	2.831	0	104	386	1,177	868	10	0	2,545
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.009	0	2	1	3	2	0	0	8
Lamprey on:										
Chinook salmon			0	0	1	0	3	0	0	4
Lake trout			0	0	3	5	3	0	0	11
Angler hours			0	830	2,627	5,496	10,426	4,475	198	24,051
Angler trips			0	138	439	887	1,597	684	36	3,781
Anglers										
Resident			0	129	385	745	1,394	608	33	3,294
Nonresident			0	9	54	142	203	76	3	487
Charter excursions			0	34	117	202	380	157	9	899

Appendix 16.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Leland, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.003	0.068	0	0	1	22	14	7	1	45
Chinook salmon	0.140	3.336	0	0	130	510	1,216	323	16	2,195
Rainbow trout	0.038	0.906	0	2	80	387	60	14	53	596
Brown trout	0.007	0.167	0	24	11	50	17	6	2	110
Lake trout	0.192	4.578	0	207	738	1,476	550	41	0	3,012
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.006	0	0	0	4	0	0	0	4
Lamprey on:										
Chinook salmon			0	0	0	1	1	0	0	2
Lake trout			0	2	16	32	16	0	0	66
Angler hours			0	678	2,184	6,029	5,436	1,184	211	15,722
Angler trips			0	140	411	1,078	1,002	234	39	2,904
Anglers										
Resident			0	121	329	784	735	188	30	2,187
Nonresident			0	19	82	294	267	46	9	717
Charter excursions			0	30	89	236	236	57	10	658

Appendix 17.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on the West Arm of Grand Traverse Bay (Grids 715, 815 and 915), Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.012	0.225	1	9	8	0	0	49	0	67
Chinook salmon	0.045	0.809	0	1	7	14	92	124	3	241
Rainbow trout	0.013	0.228	0	1	24	15	25	2	1	68
Brown trout	0.008	0.141	2	11	5	8	11	5	0	42
Lake trout	0.213	3.839	6	147	312	339	227	113	0	1,144
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.003	0.050	0	1	1	6	4	3	0	15
Lamprey on:										
Chinook salmon			0	0	0	0	1	0	0	1
Lake trout			0	3	0	4	2	4	0	13
Angler hours			16	430	839	1,242	1,488	1,332	28	5,374
Angler trips			5	95	197	274	299	285	7	1,162
Anglers										
Resident			5	79	154	185	225	217	7	872
Nonresident			0	16	43	89	74	68	0	290
Charter excursions			3	23	51	68	82	69	2	298

Appendix 18.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on the East Arm of Grand Traverse Bay (Grids 716, 816 and 916), Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.001	0.019	0	0	0	0	1	5	0	6
Chinook salmon	0.035	0.539	0	6	4	1	56	99	0	166
Rainbow trout	0.003	0.049	0	0	10	5	0	0	0	15
Brown trout	0.010	0.153	0	0	3	38	5	1	0	47
Lake trout	0.109	1.685	0	30	66	224	163	36	0	519
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.003	0.039	0	0	2	10	0	0	0	12
Lamprey on:										
Chinook salmon			0	0	0	0	4	0	0	4
Lake trout			0	0	0	0	7	0	0	7
Angler hours			0	240	527	1,131	1,403	1,443	0	4,744
Angler trips			0	60	137	291	362	368	0	1,218
Anglers										
Resident			0	56	98	133	255	162	0	704
Nonresident			0	4	39	158	107	206	0	514
Charter excursions			0	15	34	79	94	86	0	308

Appendix 19.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Charlevoix, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.002	0.036	0	0	0	10	0	0	0	10
Chinook salmon	0.029	0.626	0	0	0	50	105	19	0	174
Rainbow trout	0.000	0.004	0	0	0	1	0	0	0	1
Brown trout	0.000	0.011	0	0	0	2	1	0	0	3
Lake trout	0.178	3.881	0	56	153	482	323	65	0	1,079
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	2	0	2
Lake trout			0	1	1	6	6	0	0	14
Angler hours			0	188	688	1,850	2,561	773	0	6,059
Angler trips			0	37	156	398	498	163	0	1,252
Anglers										
Resident			0	17	78	162	266	91	0	614
Nonresident			0	20	78	236	232	72	0	638
Charter excursions			0	8	34	90	109	37	0	278

Appendix 20.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Harbor Springs/Petoskey, Lake Michigan, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.000	0	0	0	0	0	0	0	0
Chinook salmon	0.040	0.519	0	0	1	9	26	6	0	42
Rainbow trout	0.004	0.049	0	0	0	4	0	0	0	4
Brown trout	0.003	0.037	0	0	0	3	0	0	0	3
Lake trout	0.161	2.074	0	0	45	85	34	4	0	168
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	2	2	2	0	0	6
Angler hours			0	0	144	392	436	72	0	1,044
Angler trips			0	0	36	98	109	18	0	261
Anglers										
Resident			0	0	19	14	56	3	0	92
Nonresident			0	0	17	84	53	15	0	169
Charter excursions			0	0	12	31	31	7	0	81

Appendix 21.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Rogers City, Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.005	0	0	0	0	0	1	0	1
Chinook salmon	0.469	7.427	0	0	5	263	1,130	132	0	1,530
Rainbow trout	0.016	0.248	0	0	3	25	23	0	0	51
Brown trout	0.001	0.010	0	0	0	1	1	0	0	2
Lake trout	0.033	0.529	0	0	5	80	23	1	0	109
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.005	0	0	0	0	1	0	0	1
Other	0.000	0.005	0	0	0	1	0	0	0	1
Lamprey on:										
Chinook salmon			0	0	1	19	54	16	0	90
Lake trout			0	0	0	3	0	0	0	3
Angler hours			0	0	36	908	2,019	299	0	3,262
Angler trips			0	0	9	194	462	75	0	740
Anglers										
Resident			0	0	3	126	347	49	0	525
Nonresident			0	0	6	68	115	26	0	215
Charter excursions			0	0	2	55	125	24	0	206

Appendix 22.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Rockport, Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.006	0	0	0	0	1	0	0	1
Chinook salmon	0.340	6.350	0	0	7	204	737	49	0	997
Rainbow trout	0.007	0.140	0	0	1	7	14	0	0	22
Brown trout	0.001	0.025	0	0	0	1	3	0	0	4
Lake trout	0.082	1.535	0	22	10	110	99	0	0	241
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.006	0	0	0	0	0	1	0	1
Other	0.002	0.045	0	0	0	1	6	0	0	7
Lamprey on:										
Chinook salmon			0	0	0	22	60	2	0	84
Lake trout			0	0	0	7	2	0	0	9
Angler hours			0	36	32	830	1,873	164	0	2,935
Angler trips			0	8	8	157	343	33	0	549
Anglers										
Resident			0	0	8	82	251	3	0	344
Nonresident			0	8	0	75	92	30	0	205
Charter excursions			0	2	5	45	94	11	0	157

Appendix 23.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Alpena, Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.005	0.093	0	3	1	1	9	0	0	14
Chinook salmon	0.213	4.020	0	9	19	238	280	57	0	603
Rainbow trout	0.014	0.267	0	1	4	24	11	0	0	40
Brown trout	0.014	0.273	0	0	2	32	1	6	0	41
Lake trout	0.094	1.767	0	6	19	180	56	4	0	265
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.027	0.513	0	58	15	3	1	0	0	77
Other	0.002	0.040	0	0	4	2	0	0	0	6
Lamprey on:										
Chinook salmon			0	1	1	21	28	1	0	52
Lake trout			0	0	2	14	6	0	0	22
Angler hours			0	259	251	1,235	855	229	0	2,829
Angler trips			0	46	43	216	150	44	0	499
Anglers										
Resident			0	45	39	167	139	42	0	432
Nonresident			0	4	4	49	11	2	0	70
Charter excursions			0	15	15	68	38	14	0	150

Appendix 24.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Harrisville, Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.000	0	0	0	0	0	0	0	0
Chinook salmon	0.173	3.141	0	4	59	171	364	46	0	644
Rainbow trout	0.019	0.337	0	0	2	37	28	2	0	69
Brown trout	0.003	0.049	0	0	5	1	3	1	0	10
Lake trout	0.125	2.268	0	0	24	170	254	17	0	465
Yellow perch	0.000	0.005	0	0	0	1	0	0	0	1
Walleye	0.001	0.015	0	0	0	0	3	0	0	3
Other	0.001	0.024	0	0	0	3	2	0	0	5
Lamprey on:										
Chinook salmon			0	0	0	8	11	3	0	22
Lake trout			0	0	3	10	11	0	0	24
Angler hours			0	62	263	1,009	2,231	153	0	3,718
Angler trips			0	11	60	196	372	31	0	670
Anglers										
Resident			0	11	51	182	341	29	0	614
Nonresident			0	0	9	14	31	2	0	56
Charter excursions			0	4	24	63	104	10	0	205

Appendix 25.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Oscoda, Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.003	0.064	0	0	0	3	17	10	0	30
Chinook salmon	0.198	4.077	10	34	182	374	808	504	0	1,912
Rainbow trout	0.024	0.488	3	8	40	73	83	22	0	229
Brown trout	0.004	0.081	3	5	5	11	12	2	0	38
Lake trout	0.116	2.401	0	25	226	391	469	15	0	1,126
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.001	0.011	0	0	0	1	3	1	0	5
Other	0.000	0.009	0	0	0	2	2	0	0	4
Lamprey on:										
Chinook salmon			0	3	7	13	30	14	0	67
Lake trout			0	0	5	7	9	0	0	21
Angler hours			72	162	1,040	2,237	4,022	2,142	0	9,675
Angler trips			10	27	165	365	674	339	0	1,580
Anglers										
Resident			4	23	151	292	554	313	0	1,337
Nonresident			6	4	14	73	120	26	0	243
Charter excursions			5	10	50	111	197	96	0	469

Appendix 26.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats on Saginaw Bay (Tawas to Port Austin), Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.000	0.006	0	0	0	2	0	0	0	2
Chinook salmon	0.045	1.237	0	137	65	86	115	14	0	417
Rainbow trout	0.009	0.237	0	11	18	29	22	0	0	80
Brown trout	0.005	0.136	0	4	0	39	3	0	0	46
Lake trout	0.027	0.739	0	104	62	44	39	0	0	249
Yellow perch	0.093	2.531	0	0	3	235	579	36	0	853
Walleye	0.164	4.475	0	1	78	1,067	362	0	0	1,508
Other	0.019	0.525	0	0	17	119	41	0	0	177
Lamprey on:										
Chinook salmon			0	7	0	0	8	2	0	17
Lake trout			0	3	2	1	1	0	0	7
Angler hours			0	800	963	4,060	3,203	181	0	9,206
Angler trips			0	141	157	682	567	36	0	1,583
Anglers										
Resident			0	139	125	600	513	36	0	1,413
Nonresident			0	2	32	82	54	0	0	170
Charter excursions			0	33	39	148	114	3	0	337

Appendix 27.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Grindstone City, Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.002	0.044	0	6	8	7	0	0	0	21
Chinook salmon	0.188	3.863	0	524	286	278	658	85	0	1,831
Rainbow trout	0.017	0.357	0	14	53	51	47	4	0	169
Brown trout	0.001	0.023	0	2	0	6	3	0	0	11
Lake trout	0.242	4.968	0	412	692	750	479	22	0	2,355
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.002	0.034	0	2	0	0	11	3	0	16
Other	0.002	0.034	0	4	8	0	2	2	0	16
Lamprey on:										
Chinook salmon			0	25	11	15	14	0	0	65
Lake trout			0	10	29	19	7	0	0	65
Angler hours			0	1,703	2,827	2,410	2,531	280	0	9,750
Angler trips			0	308	480	403	438	53	0	1,682
Anglers										
Resident			0	279	457	378	404	52	0	1,570
Nonresident			0	29	23	25	34	1	0	112
Charter excursions			0	86	138	115	120	15	0	474

Appendix 28.—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, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.002	0.054	0	1	1	1	4	2	0	9
Chinook salmon	0.169	3.747	18	85	89	28	296	106	0	622
Rainbow trout	0.030	0.657	0	25	21	6	34	23	0	109
Brown trout	0.003	0.072	3	3	0	1	1	4	0	12
Lake trout	0.090	1.994	0	14	78	114	125	0	0	331
Yellow perch	0.000	0.006	0	0	0	0	0	1	0	1
Walleye	0.002	0.048	0	0	0	0	2	6	0	8
Other	0.001	0.030	0	0	0	2	0	3	0	5
Lamprey on:										
Chinook salmon			0	4	1	0	2	0	0	7
Lake trout			0	0	2	2	2	0	0	6
Angler hours			121	411	525	485	1,365	766	0	3,673
Angler trips			25	73	94	86	251	141	0	670
Anglers										
Resident			21	72	85	79	236	133	0	626
Nonresident			4	1	9	7	15	8	0	44
Charter excursions			7	19	25	20	61	34	0	166

Appendix 29.—Total catch per hour, catch per excursion, number caught, and fishing effort (angler hours, trips, and charter excursions) for charter boats at Port Sanialc, Lake Huron, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.003	0.073	0	4	2	0	2	1	0	9
Chinook salmon	0.209	5.056	35	428	82	42	40	0	0	627
Rainbow trout	0.022	0.524	0	40	14	2	9	0	0	65
Brown trout	0.006	0.145	5	12	0	0	1	0	0	18
Lake trout	0.023	0.556	0	44	10	8	7	0	0	69
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.008	0	1	0	0	0	0	0	1
Other	0.000	0.008	0	0	1	0	0	0	0	1
Lamprey on:										
Chinook salmon			0	14	2	1	1	0	0	18
Lake trout			0	0	0	1	0	0	0	1
Angler hours			200	1,734	523	179	297	63	0	2,995
Angler trips			35	277	96	32	41	11	0	492
Anglers										
Resident			35	276	96	21	37	11	0	476
Nonresident			0	1	0	11	4	0	0	16
Charter excursions			9	67	27	9	10	2	0	124

Appendix 30.—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, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.019	0.483	5	3	5	13	3	0	0	29
Chinook salmon	0.173	4.367	109	62	41	47	3	0	0	262
Rainbow trout	0.017	0.417	9	5	6	3	2	0	0	25
Brown trout	0.005	0.133	3	0	3	2	0	0	0	8
Lake trout	0.011	0.267	2	1	10	3	0	0	0	16
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.005	0.117	5	2	0	0	0	0	0	7
Other	0.002	0.050	3	0	0	0	0	0	0	3
Lamprey on:										
Chinook salmon			1	0	0	0	0	0	0	1
Lake trout			0	0	0	0	0	0	0	0
Angler hours			414	367	382	318	32	0	0	1,512
Angler trips			68	70	47	44	7	0	0	236
Anglers										
Resident			62	60	45	40	7	0	0	214
Nonresident			6	10	2	4	0	0	0	22
Charter excursions			19	20	9	10	2	0	0	60

Appendix 31.—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, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.041	2.024	0	7	80	60	15	10	0	172
Chinook salmon	0.000	0.012	0	0	0	0	1	0	0	1
Rainbow trout	0.009	0.459	0	0	26	8	5	0	0	39
Brown trout	0.001	0.047	0	4	0	0	0	0	0	4
Lake trout	0.214	10.553	0	12	269	248	282	86	0	897
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.001	0.047	0	0	0	1	3	0	0	4
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	4	1	5	2	0	12
Angler hours			0	100	1,357	1,296	982	460	0	4,195
Angler trips			0	19	155	154	138	51	0	517
Anglers										
Resident			0	15	76	23	42	17	0	173
Nonresident			0	4	79	131	96	34	0	344
Charter excursions			0	4	24	25	24	8	0	85

Appendix 32.—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, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.007	0.214	0	0	8	1	0	0	0	9
Chinook salmon	0.002	0.071	0	0	3	0	0	0	0	3
Rainbow trout	0.001	0.024	0	0	0	1	0	0	0	1
Brown trout	0.007	0.214	0	0	9	0	0	0	0	9
Lake trout	0.362	11.381	0	0	85	234	159	0	0	478
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	0	2	0	0	0	2
Angler hours			0	0	331	610	381	0	0	1,322
Angler trips			0	0	49	87	59	0	0	195
Anglers										
Resident			0	0	26	61	25	0	0	112
Nonresident			0	0	23	26	34	0	0	83
Charter excursions			0	0	12	19	11	0	0	42

Appendix 33.—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, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.001	0.032	0	0	2	2	0	0	0	4
Chinook salmon	0.001	0.032	0	1	3	0	0	0	0	4
Rainbow trout	0.002	0.105	0	0	9	2	2	0	0	13
Brown trout	0.000	0.000	0	0	0	0	0	0	0	0
Lake trout	0.269	11.750	0	13	401	586	351	106	0	1,457
Yellow perch	0.003	0.145	0	18	0	0	0	0	0	18
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	1	0	0	0	0	0	1
Angler hours			0	88	1,617	2,139	1,247	328	0	5,419
Angler trips			0	11	169	225	152	52	0	609
Anglers										
Resident			0	11	122	188	135	41	0	497
Nonresident			0	0	47	37	17	11	0	112
Charter excursions			0	5	30	45	30	14	0	124

Appendix 34.—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, 1997.

Species	Catch per hour	Catch per excursion	Month							Season
			Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.002	0.071	0	0	0	8	0	0	0	8
Chinook salmon	0.001	0.018	0	0	0	2	0	0	0	2
Rainbow trout	0.003	0.088	0	0	0	2	8	0	0	10
Brown trout	0.000	0.000	0	0	0	0	0	0	0	0
Lake trout	0.250	8.115	0	0	23	287	595	12	0	917
Yellow perch	0.000	0.000	0	0	0	0	0	0	0	0
Walleye	0.000	0.000	0	0	0	0	0	0	0	0
Other	0.000	0.000	0	0	0	0	0	0	0	0
Lamprey on:										
Chinook salmon			0	0	0	0	0	0	0	0
Lake trout			0	0	0	2	0	0	0	2
Angler hours			0	0	72	1,147	2,413	40	0	3,671
Angler trips			0	0	18	160	327	4	0	509
Anglers										
Resident			0	0	16	26	32	0	0	74
Nonresident			0	0	2	134	295	4	0	435
Charter excursions			0	0	7	35	70	1	0	113