

Illinois Department of Natural Resources
Division of Fisheries

Charter Boat Fishing in Lake Michigan: 2017 Illinois Reported Harvest

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Lake Michigan Program
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Executive Summary

Illinois charter boat operator permits were issued to 102 individuals in 2017. Illinois residents accounted for approximately 77% of 16,170 sport anglers who fished on charter boats and harvested a reported 43,157 salmon and trout from the Illinois waters of Lake Michigan; no yellow perch were reported in the harvest. Coho salmon comprised the greatest portion (71%) of the charter boat angler harvest; Chinook salmon (4%), lake trout (21%), rainbow trout (4%), and brown trout (1%) constituted smaller percentages of the harvest. The percentage of coho in the harvest was above average (1979-2017 average 65%; range 43-83%). The total harvest increased while effort declined compared to 2016. The 2017 overall harvest rate (51 fish per 100 angler-hours) was above the 43 fish per 100 angler-hours in 2016 and above the long-term average (48 fish/angler-hour, 1979-2016).

Introduction

Non-native salmonids have become an integral part of the Lake Michigan fish community and the sport fishery. Pacific salmon and various trout species have been stocked in Lake Michigan since the late 1960s. Approximately 12 million salmonid fingerlings were annually stocked lakewide during 1976-2012; current stocking plans call for approximately 9.4 million salmon and trout. Chinook salmon comprised the greatest portion of salmonids stocked in Lake Michigan until 2005, after which stocked Chinook salmon and lake trout numbers were similar. Lake trout, which are native to Lake Michigan, also are stocked to meet criteria set forth by *A Fisheries Management Implementation Strategy for the Rehabilitation of Lake Trout in Lake Michigan* and to achieve the Salmonine Objective of the Fish Community Objectives for Lake Michigan. Salmonid stocking in Illinois waters (Table 1) constitutes approximately 8.4% of the salmonids stocked lakewide.

The purposes for stocking these fish are to re-establish self sustaining lake trout populations, enhance naturalized populations, and provide sport fishing opportunities. The expansion of the Welland Canal bypassed Niagara Falls which acted as a natural barrier to aquatic invaders from the Atlantic Ocean. The alewife, a fish native to the Atlantic Ocean first discovered in Lake Michigan in 1950, drastically altered the Lake Michigan food web and negatively impacted native planktivores. The original introduction of the Pacific salmon was to control alewife population growth although a popular sport fishery was developed.

Charter boat operators receive a fee to provide sport anglers access to offshore fishing opportunities for salmonids. A catch reporting system is mandated through Illinois statutes governing charter boat licensees that engage in such activities in Illinois waters (Fish and Wildlife Code of Illinois, Section 5/10-135). This report summarizes the reported charter boat angler effort and salmonid harvest from the Illinois waters of Lake Michigan in 2017.

Methods

Lake Michigan Charter Boat Operator permits were issued to 102 individuals in 2017. In addition, operators also received standardized catch report forms (Appendix). Data requested on the catch report included: date of fishing trip, jurisdictional grid fished, number of resident and non-resident sport anglers, number of fishing lines used, total number of hours fished (excluding running time), and number and species of harvested fish. State regulations require that charter boat operators submit these completed catch reports on a monthly basis, even in months when no charter trips occur.

Harvest and fishing effort data from 3,217 charter boat excursions in 2017 were summarized by season, month, and statistical grid, and trends in harvest and effort were compared to previous years. The 2017 harvest data represent reported fishing effort by 12,570 Illinois residents and 3,600 non-residents that chartered boats to fish in the Illinois waters of Lake Michigan. Since the number of fishing lines per angler was not equivalent among trips, fishing effort was instead expressed as angler-hours and calculated by multiplying the total number of anglers by number of hours fished per trip. Seasonal harvest rate was calculated by dividing the total harvest of all salmonids by total effort for the season. Harvest rate for each statistical grid was based on total number of salmonids harvested within the grid divided by the fishing effort reported within the grid. All harvest rates were then standardized to 100 angler-hours because harvest rates are typically less than 1 fish per angler-hour.

Results and Discussion

Similar to previous years, most salmonids harvested from Illinois waters of Lake Michigan in 2017 were coho salmon (Figure 1). Coho salmon accounted for 71% of the 2017 salmonid harvest and have comprised, on average, the greatest portion (64%¹) of the salmonid harvest since 1979. The percentage of coho in the harvest was higher than in 2016 (50%). Lake trout (21%), rainbow trout (4%),

¹ Average 1979-2017

and brown trout (1%) constituted smaller percentages of the 2017 harvest. Both the number harvested and the percentage of Chinook salmon in the harvest decreased compared to 2016. Harvest of rainbow trout decreased by 73% and brown trout harvest was similar to 2016. Lake trout harvest decreased 10% but was still nearly double the typical harvest.

Charter boat angler effort (83,959 angler-hours) declined 7% from 2016 (89,408 angler-hours). Non-charter boat salmonid fishing effort also declined between 2016 and 2017 (decreased 7%; C. Roswell, INHS, pers. comm.). Charter boat sportfishing accounted for approximately 21%² of the total fishing effort directed at salmonids in the Illinois portion of Lake Michigan prior to 1999. More recently, charter boats have comprised 29%³ of the total angler effort for salmonids, due to a slow decline in shore-based salmon fishing since 1988 and a drop in non-charter boat effort following 1998 (Figure 2).

Charter boat harvest rate in 2017 (51 fish per 100 angler-hours) was higher than the harvest rate in 2016 (43 fish per 100 angler-hours) and 2015 (42 fish per 100 angler-hours) (Figure 1). Similar to previous years, the harvest rate of anglers fishing on charter boats was approximately twice that of anglers fishing on non-chartered boats (Figure 3).

Most chartered fishing trips typically occur during the months of May and June. The spring coho season in 2016 was typical, as it extended into June; most coho salmon (65%) were harvested in May with 39% harvested in June (Table 2). Although Chinook salmon harvest declined, it was seasonally typical; the majority of Chinook salmon harvest is usually nearly evenly divided between July and August. For example in 2017, less than 4% of the Chinook salmon harvest occurred in May and July and August accounted for 31% and 44%, respectively. Similar to Chinook salmon, rainbow trout harvest typically is highest in July and August. Rainbow trout harvest was typical; 65% of the harvest occurred in July and August. Brown trout harvest primarily occurred early (April) and in July. Overall, the majority of harvest occurred during May (35%) and was primarily driven by the coho salmon harvest (93% of May

² Average 1988-1998; ³ Average 1999-2017.

harvest).

No fishing was reported in five statistical grids. Approximately 55% of the salmonids were harvested from Grid 2302 which coincided with 49% of the fishing effort focused in that grid (Table 3). In general, harvest and effort are usually highest in the north and in grids closest to shore (i.e., 2302 and 2402). The harvest rate in grids 2302 (58 fish per 100 hrs) and 2304 (53 fish per 100 hrs) was above the overall average. Harvest rates in other grids ranged from 27 to 83 fish per 100 hrs.

Literature Cited

Roswell, C., and S. J. Czesny. 2018. A survey of sportfishing in the Illinois portion of Lake Michigan. Aquatic Ecology Technical Report 2018(X). Illinois Natural History Survey. xxpp.

Acknowledgements

I wish to thank Pat Bevell for entering data and monitoring reporting compliance.

Table 1. Number of salmon and trout stocked in the Illinois waters of Lake Michigan, 1990-2017.

Year	Coho Salmon	Chinook Salmon	Lake Trout	Rainbow trout (Arlee)	Rainbow trout (Skamania)	Brown Trout	Total
1990	302,600	479,400	27,843	51,100	55,084	102,510	1,018,537
1991	312,731	496,338	101,000	80,175	53,543	113,912	1,157,699
1992	308,581	352,669	100,033	52,076	53,195	100,107	966,661
1993	117,789	364,197	96,000	159,028	0	105,657	842,671
1994	328,004	285,583	96,700	51,618	46,080	100,528	908,513
1995	308,204	362,718	59,605	50,026	49,042	98,211	927,806
1996	305,581	365,427	60,900	50,071	51,980	85,160	919,119
1997	320,288	360,117	120,000	41,500	50,178	90,066	964,149
1998	305,835	366,172	60,000	50,050	52,933	99,748	874,738
1999	301,589	304,645	64,000	84,660	0	102,665	857,559
2000	302,300	305,706	0	100,000	0	100,000	808,006
2001	300,900	304,000	59,240	87,608	0	72,316	824,064
2002	300,932	305,341	61,024	46,003	60,461	100,000	873,761
2003	249,066	299,462	60,771	50,886	75,968	100,000	836,153
2004	300,076	302,673	60,300	48,423	64,300	100,000	875,772
2005	301,006	295,242	62,832	55,338	56,058	100,000	870,476
2006	304,242	242,542	67,849	49,462	55,201	93,000	812,276
2007	301,377	252,265	56,381	50,982	66,334	100,000	827,339
2008	282,201	253,809	126,631	51,003	56,040	100,144	817,297
2009	300,559	236,983	118,160	45,285	56,714	100,550	858,251
2010	308,805	255,752	120,166	51,156	61,132	104,953	904,964
2011	281,429	235,972	122,058	101,789	0	104,579	843,769
2012	300,748	253,244	125,692	49,261	52,160	99,460	874,873
2013	310,288	227,336	124,021	56,335	42,933	102,281	863,194
2014	311,184	236,625	123,784	60,409	58,528	111,397	901,927
2015	305,630	197,504	124,094	62,751	64,092	112,870	866,941
2016	299,396	231,378	123,120	60,068	54,432	110,791	879,185
2017	300,128	163,992	119,510	59,370	54,402	111,594	808,996

Table 2. Monthly totals of fishing effort and salmonid harvest from the Illinois waters of Lake Michigan by charter boat anglers in 2017.

Month	Trips	Number residents	Number non-residents	Effort (angler-hours)	Coho salmon	Chinook salmon	Lake trout	Rainbow trout	Brown trout	Total Catch
March	2	5	1	33	-	-	5	-	-	5
April	86	290	155	2,341	442	9	334	9	101	895
May	756	2,067	1,775	19,981	13,884	56	832	206	31	15,009
June	707	3,098	499	18,614	10,969	189	902	299	44	12,403
July	589	2,470	458	15,327	3,973	500	1,271	591	71	6,406
August	638	2,740	475	16,755	1,238	711	2,908	506	45	5,408
September	369	1,630	165	9,244	87	128	2,247	76	30	2,568
October	66	257	69	1,612	5	13	409	4	17	448
November	4	13	3	53	-	-	15	-	-	15
Total	3,217	12,570	3,600	83,959	30,598	1,606	8,923	1,691	339	43,157

Table 3. Number of salmonids, by Lake Michigan statistical grid ^a, harvested by charter boat anglers in 2017. No salmonids were harvested from grids 2305, 2306, 2406, 2502, and 2703.

Grid	Coho salmon	Chinook salmon	Lake trout	Rainbow trout	Brown trout	Total harvest	Effort (angler-hours)	Harvest rate ^b
2302	18,773	874	3,304	754	96	23,801	41,370.5	58
2303	2,171	118	583	162	16	3,050	5,835.0	52
2304	39	13	80	15	-	147	538.0	27
2305	-	-	-	-	-	-	-	na
2306	-	-	-	-	-	-	-	na
2402	3,339	186	752	86	113	4,476	8,371.5	53
2403	2,228	147	1,019	171	30	3,595	7,224.5	50
2404	7	1	36	5	-	49	140.0	35
2405	7	1	10	2	-	20	36.0	56
2406	-	-	-	-	-	-	-	na
2502	-	-	-	-	-	-	-	na
2503	916	67	850	78	30	1,941	6,384.5	30
2504	586	80	1,064	183	11	1,924	3,779.5	51
2505	87	-	28	18	-	133	209.0	64
2506	11	1	3	-	-	15	18.0	83
2603	1,001	44	759	102	32	1,938	5,881.5	33
2604	893	58	390	97	7	1,445	3,154.0	46
2605	44	5	15	1	1	66	132.0	50
2606	58	-	3	-	-	61	90.0	68
2703	-	-	-	-	-	-	-	na
2704	287	6	23	16	2	334	600.0	56
2705	151	5	4	1	1	162	194.5	83

^a See Appendix for grid map of Illinois waters.

^b Harvest rate (fish per 100 angler-hours) = total harvest / effort x 100.

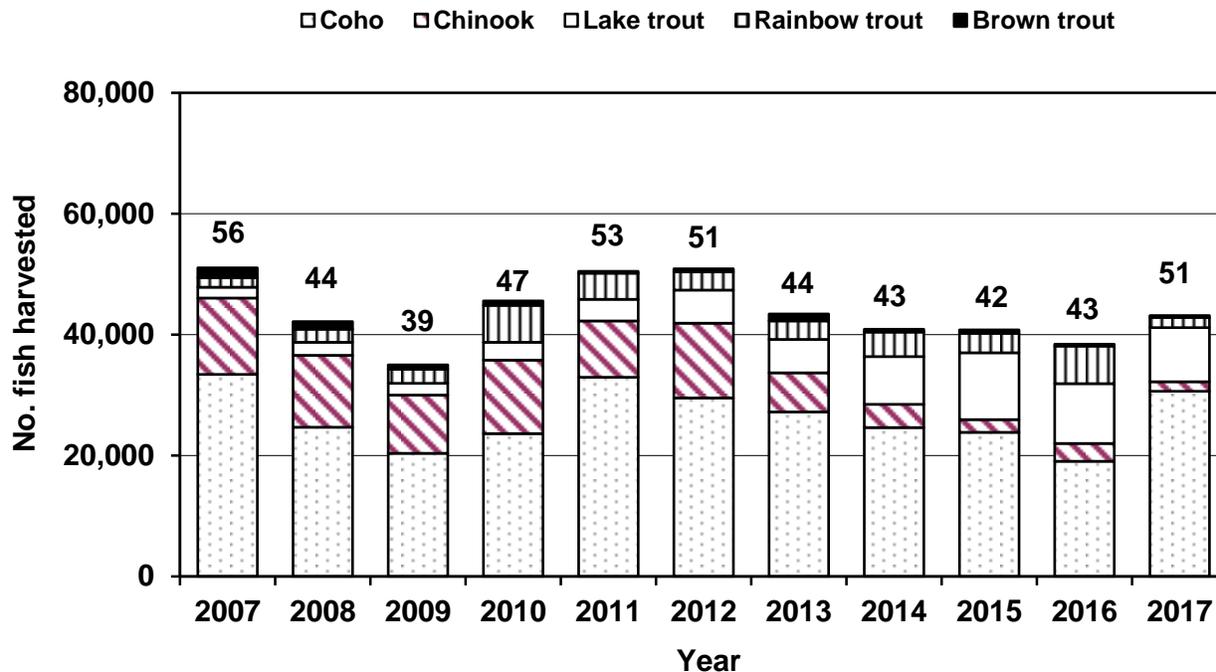


Figure 1. Reported harvest of salmonids, by species, by charter boat sport anglers, 2007-2017. The numbers above the columns indicate the charter boat angler catch rate (number salmonids per 100 angler-hours) in each year.

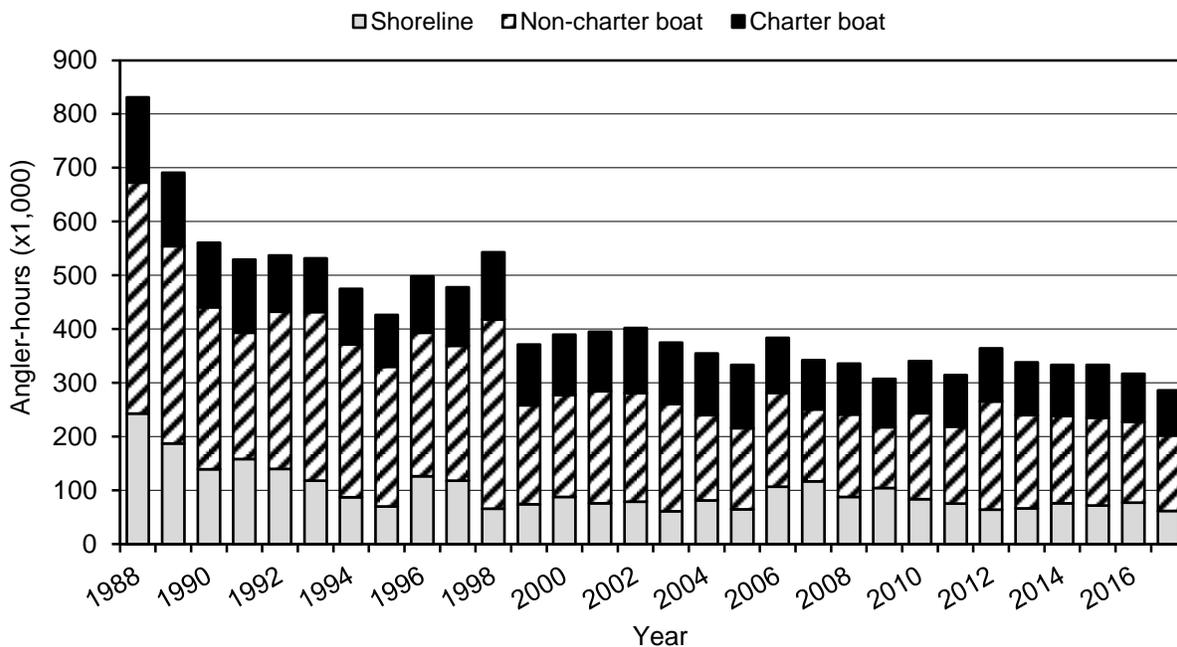


Figure 2. Fishing effort (angler-hours) by anglers fishing from shore, non-charter boats, and from charter boats, 1988-2017. Non-charter effort estimates from Roswell and Czesny (2018).

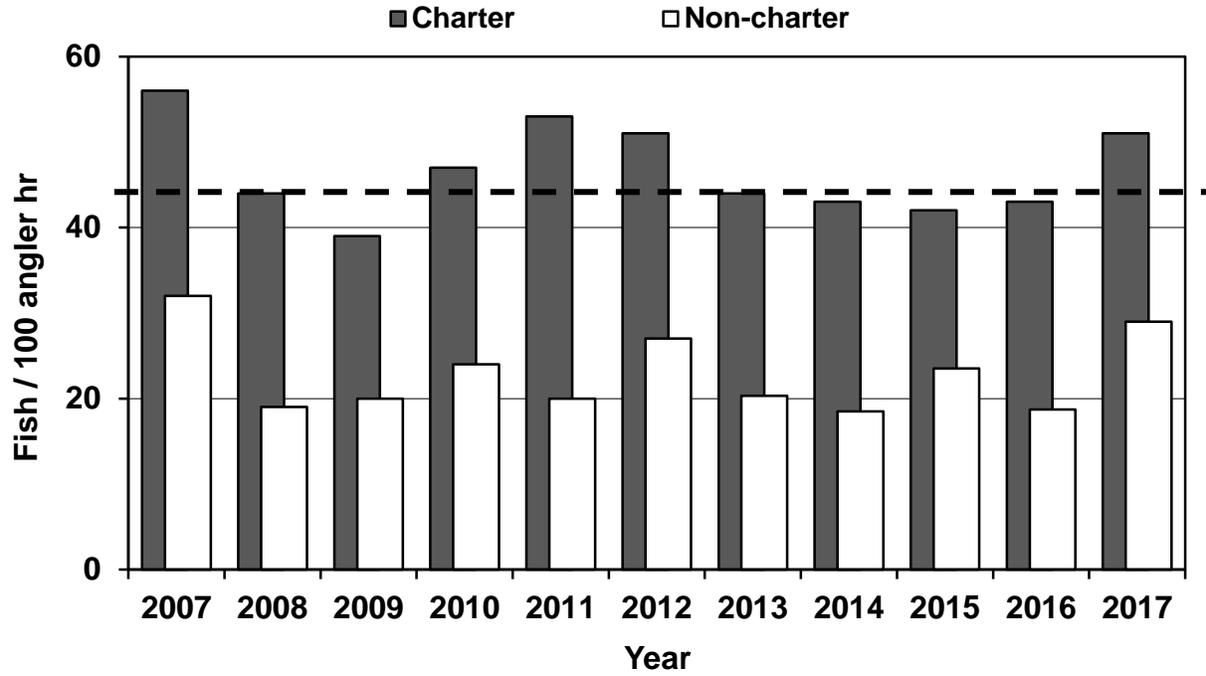


Figure 3. Illinois charter boat and non-charter boat harvest rates for all salmonids, 2007-2017. The dashed line represents the 1979-2017 average charter boat harvest rate. Non-charter harvest rate estimates from Roswell and Czesny (2018).

The Illinois Department of Natural Resources is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined in the Fish Code of Illinois, Section 5/10-135. Disclosure of this information is required by law. Failure to provide such information could result in the denial of future charter boat permits under Section 5/20-35. This form has been approved by the Forms Management Center. Information given on this report is confidential and no information revealing private enterprise will be given out.

Reports must be submitted for EACH month (March through November) and received on or before the 15th day of the following month, whether fishing occurred or not.

When no more fishing will occur for the season, the report must be submitted stating “NO MORE FISHING FOR CURRENT YEAR”, and reports will NOT have to be submitted for subsequent months.

INSTRUCTIONS FOR PREPARING REPORT

CHARTER BOAT OPERATOR PERMIT NUMBER – Enter your **current** Illinois operator permit number.

PORT – Enter the port of your **departure**.

MONTH – Name of the month (and year) for which the report is being prepared.

DATE – Enter the date on which the fishing occurred. **Use a separate line for each trip.**

LOCATION BY GRID NUMBER – Refer to the lake chart below and determine the number of the grid in which most of the fishing was done. Enter this number in the space provided.

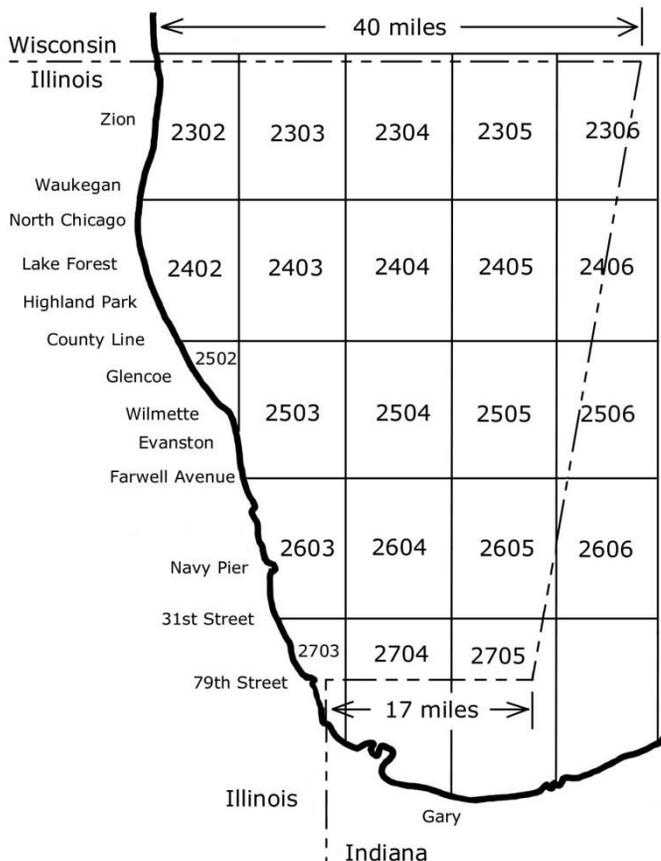
NUMBER OF ANGLERS, RESIDENT AND NON-RESIDENT – Enter the number of **Illinois** residents and non-resident anglers in the fishing party and include crew members if they fished.

NUMBER OF LINES – Enter the number of lines being fished from the boat.

HOURS FISHED – Enter the number of hours in which the party was engaged in fishing. **Do not include running time.**

CATCH DATA – Enter the number of fish of each species **kept** during the trip. Enter the color and number on any tags observed on those fish caught during the trip.

Preparer of form must sign and date on the bottom of the form in the space provided.



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