

Illinois Department of Natural Resources
Division of Fisheries

Charter Boat Fishing in Lake Michigan: 2014 Illinois Reported Harvest

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Executive Summary

Illinois charter boat operator permits were issued to 105 individuals in 2014. Illinois residents accounted for approximately 80% of 18,446 sport anglers who fished on charter boats and harvested a reported 40,902 salmon and trout and 161 yellow perch from the Illinois waters of Lake Michigan. Coho salmon comprised the greatest portion (60%) of the charter boat angler harvest; Chinook salmon (9%), lake trout (19%), rainbow trout (10%), and brown trout (1%) constituted smaller percentages of the harvest. The percentage of coho in the harvest was typical (1979-2014 average 65%; range 43-83%). The total harvest and effort decreased from the previous year. The 2014 overall harvest rate (43 fish per 100 angler-hours) was similar to the 44 fish per 100 angler-hours in 2013 and similar to the long-term average (43.8 fish/angler-hour, 1979-2014).

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; 11 million salmonid fingerlings are annually stocked lakewide. Chinook salmon have comprised the greatest portion of salmonids stocked in Lake Michigan since 1978. 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*. In some years, Atlantic salmon and tiger trout also have been stocked in low numbers, and splake, a hybrid of lake trout and brook trout, were stocked in Wisconsin waters between 1984 and 2007 and Michigan waters between 1987 and 2008. Salmonid stocking in Illinois waters (Table 1) constitutes approximately 7.8% of the salmonids stocked lakewide.

The purposes for stocking these fish are to re-establish self sustaining lake trout 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.

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 2014.

Methods

Lake Michigan Charter Boat Operator permits were issued to 105 individuals in 2014. 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 3,621 charter boat excursions in 2014 were summarized by season, month, and statistical grid, and trends in harvest and effort were compared to previous years. The 2014 harvest data represent reported fishing effort by 14,728 Illinois residents and 3,718 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 within the grid. All harvest rates were then standardized to 100 angler-hours because harvest rates were 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 2014 were coho salmon (Figure 1). Coho salmon accounted for 60% of the 2014 salmonid harvest and have comprised the greatest portion (65%¹) of the salmonid harvest since 1979. The percentage of coho in the harvest was less than in 2013 (63%). Lake trout (19%), rainbow trout (10%), and brown trout (1%) constituted smaller percentages of the 2014 harvest. Both the number harvested and the percentage of Chinook salmon in the harvest decreased compared to 2013. Harvest of brown trout decreased nearly 3-fold; harvests of lake trout and rainbow trout increased.

Charter boat angler effort (94,976 angler-hours) was slightly less than 2013 (98,328 angler-hours). Non-charter boat salmonid fishing effort decreased by 6% between 2013 and 2014 (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).

Harvest rate in 2014 (43 fish per 100 angler-hours) was similar to harvest rate in 2013 (44 fish per 100 angler-hours) although catch and effort declined (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).

¹ Average 1979-2014; ² Average 1988-1998; ³ Average 1999-2014.

Most chartered fishing trips typically occur during the months of May and June. The spring coho season in 2014 was non-typical, as it did not extend into June; most coho salmon (67%) were harvested in May (Table 2). Similarly, the majority of Chinook salmon harvest (32%) occurred during May; the majority of Chinook salmon harvest is usually nearly evenly divided between July and August. For example in 2013, less than 2% of the Chinook salmon harvest occurred in May and July and August accounted for 37% and 40%, respectively. Catches of rainbow trout also were highest in May and brown trout harvest peaked in April. Similar to Chinook salmon, rainbow trout harvest typically is highest in July and August. While total harvest and effort were similar to previous years, the majority of harvest occurred early in the season likely due to spring weather conditions (e.g., unusually late ice-out) and associated movement patterns of fish.

No fishing was reported in three statistical grids (2406, 2606, and 2705) and no fish were harvested in Grid 2703 although fishing did occur. Approximately 57% of the salmonids were harvested from Grid 2302 which coincided with 50% of the fishing effort focused in that grid (Table 3). In general, harvest rates are usually highest in the north and in grids closest to shore (i.e., 2302 and 2402). Grids 2302 and 2402 did indeed have the highest harvest rates at 49 and 50 fish per 100 hrs, respectively. Harvest rates in other grids ranged from 11 to 44 fish per 100 hrs.

Literature Cited

Roswell, C., and S. J. Czesny. 2015. A survey of sportfishing in the Illinois portion of Lake Michigan. Aquatic Ecology Technical Report 2015(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, 1990-2014.

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	300,559	236,983	120,166	45,285	56,714	100,550	858,251
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

Table 2. Monthly totals of fishing effort and salmonid harvest from the Illinois waters of Lake Michigan by charter boat anglers in 2014.

Month	Trips	Number residents	Number non-residents	Effort (angler-hours)	Coho salmon	Chinook salmon	Lake trout	Rainbow trout	Brown trout	Total Catch
March	0	0	0	0	0	0	0	0	0	0
April	55	194	64	1,089	922	6	27	20	158	1,133
May	1,019	3,664	1,587	23,780	16,636	1,241	689	2,157	74	20,797
June	772	3,231	763	21,521	5,262	786	1,431	720	36	8,235
July	737	3,012	697	20,341	1,347	558	1,904	494	61	4,364
August	633	2,757	419	17,492	204	804	2,039	405	49	3,501
September	320	1,505	148	8,674	130	307	1,396	249	45	2,127
October	78	323	40	1,853	85	128	340	41	43	637
November	7	42	0	228	39	13	41	7	8	108
Total	3,621	14,728	3,718	96,976	24,625	3,843	7,867	4,093	474	40,902

Table 3. Number of salmonids, by Lake Michigan statistical grid ^a, harvested by charter boat anglers in 2014. No salmonids were harvested from grids 2406, 2606, 2703, and 2705.

Grid	Coho salmon	Chinook salmon	Lake trout	Rainbow trout	Brown trout	Total harvest	Effort (angler-hours)	Harvest rate ^b
2302	15,804	2,431	2,213	2,714	132	23,294	47,639	49
2303	651	242	269	223	13	1,398	5,647	25
2304	135	33	50	99	1	318	849	37
2305	32	3	6	6	0	47	108	44
2306	2	10	14	8	0	34	137	25
2402	6,591	604	457	423	280	8,355	16,777	50
2403	359	89	175	113	11	747	3,057	24
2404	28	9	8	9	0	54	200	27
2405	5	0	5	1	0	11	72	15
2406	0	0	0	0	0	0	0	na
2502	2	1	8	0	1	12	56	21
2503	353	163	1,540	153	16	2,225	7,415	30
2504	128	90	1,108	85	4	1,415	4,437	32
2505	5	5	11	7	0	28	101	28
2506	1	1	2	0	0	4	36	11
2603	263	24	469	109	11	876	2,342	37
2604	256	121	1,498	132	5	2,012	5,780	35
2605	1	8	15	8	0	32	133	24
2606	0	0	0	0	0	0	0	na
2703	0	0	0	0	0	0	43	0
2704	9	9	19	3	0	40	147	27
2705	0	0	0	0	0	0	0	na

^a See Appendix for grid map of Illinois waters.

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

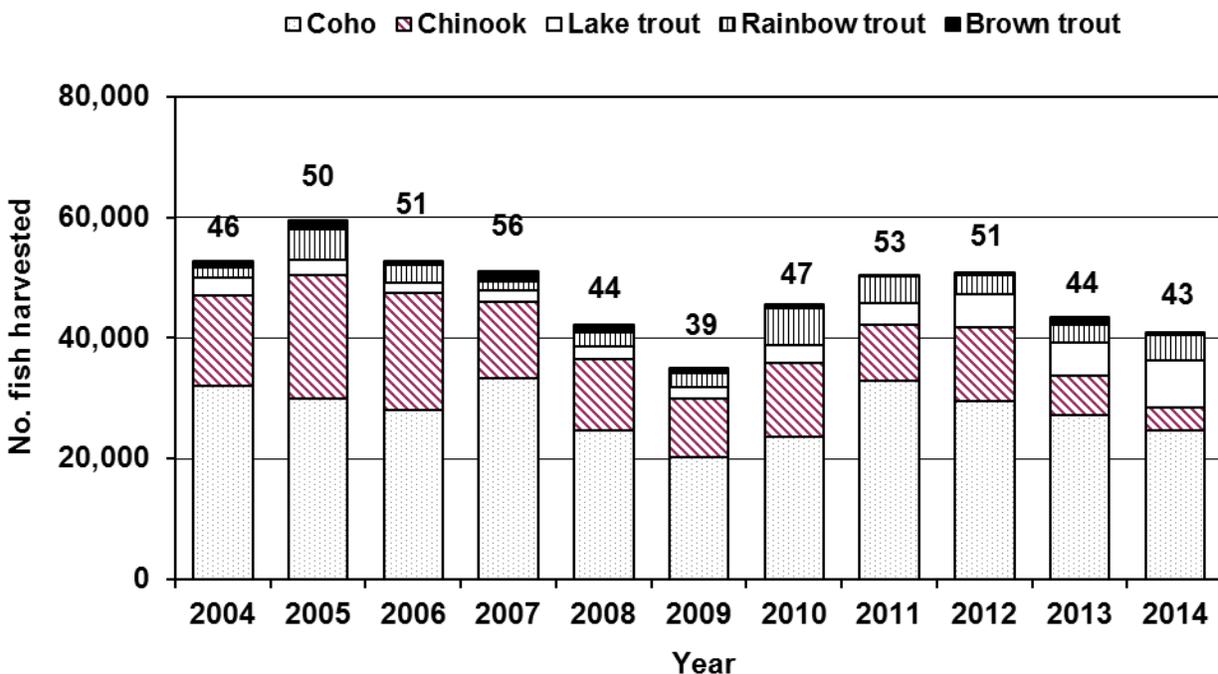


Figure 1. Reported harvest of salmonids, by species, by charter boat sport anglers, 2004-2014. The numbers above the columns indicate the charter boat angler catch rate (number salmonids per 100 angler-hours) in each year.

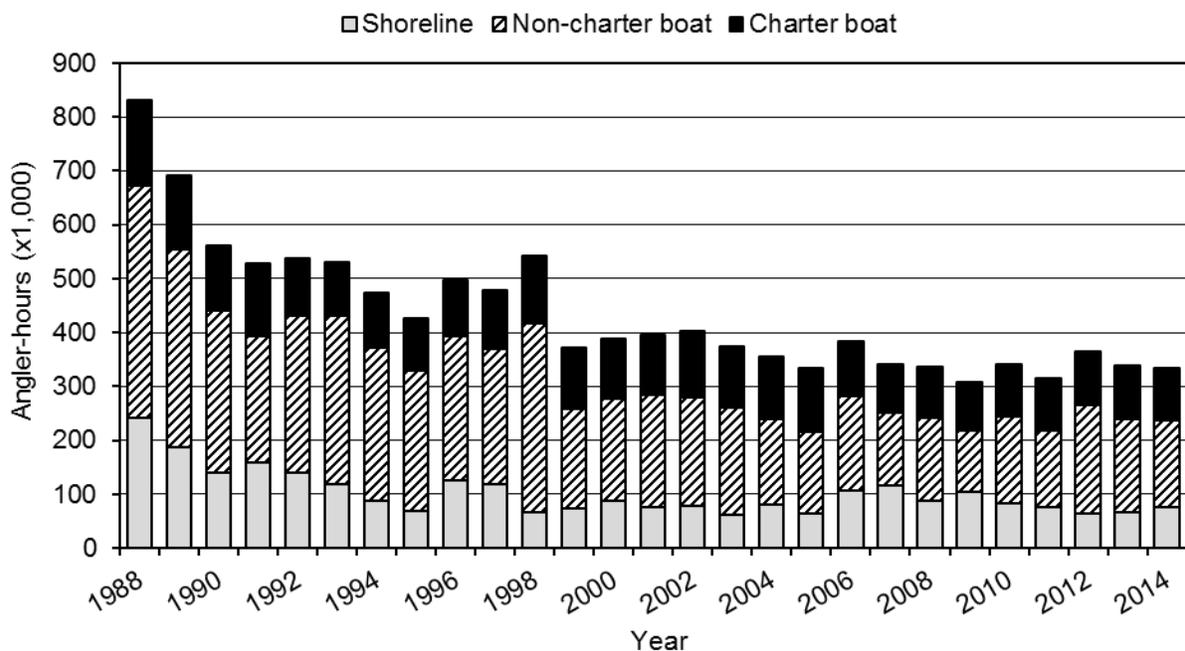


Figure 2. Fishing effort (angler-hours) by anglers fishing from shore, non-charter boats, and from charter boats, 1988-2014. Non-charter effort estimates from Roswell and Czesny (2015).

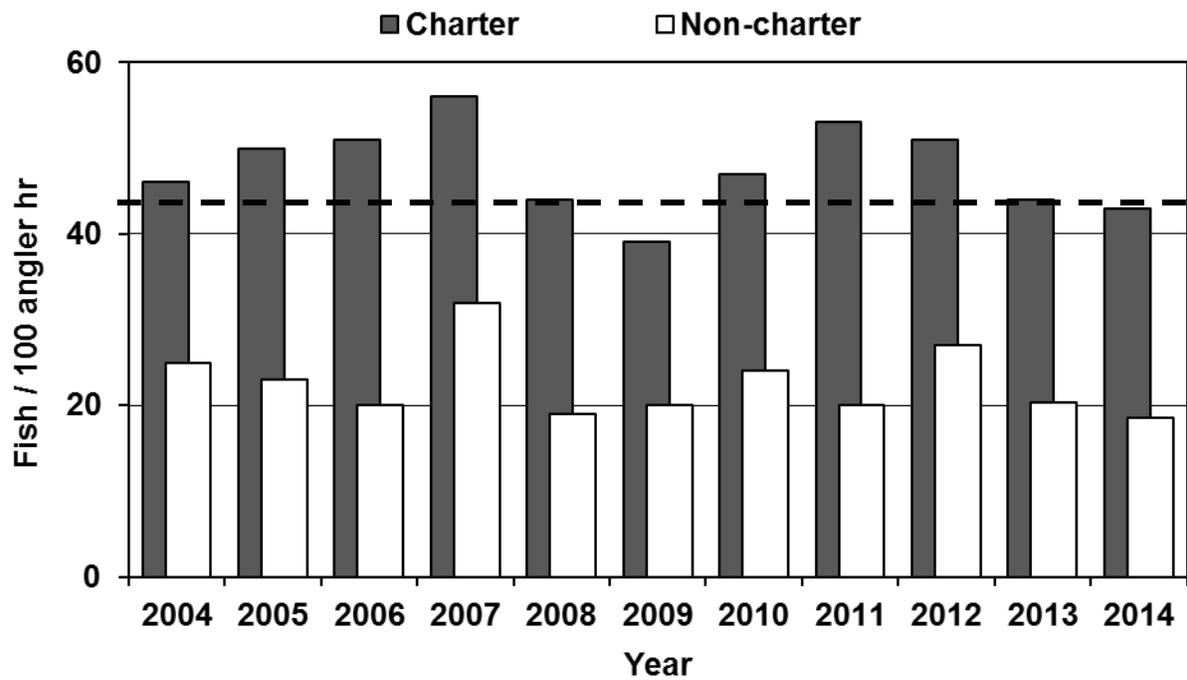


Figure 3. Illinois charter boat and non-charter boat harvest rates for all salmonids, 2004-2014. The dashed line represents the 1979-2014 average charter boat harvest rate. Non-charter harvest rate estimates from Roswell and Czesny (2015).

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.

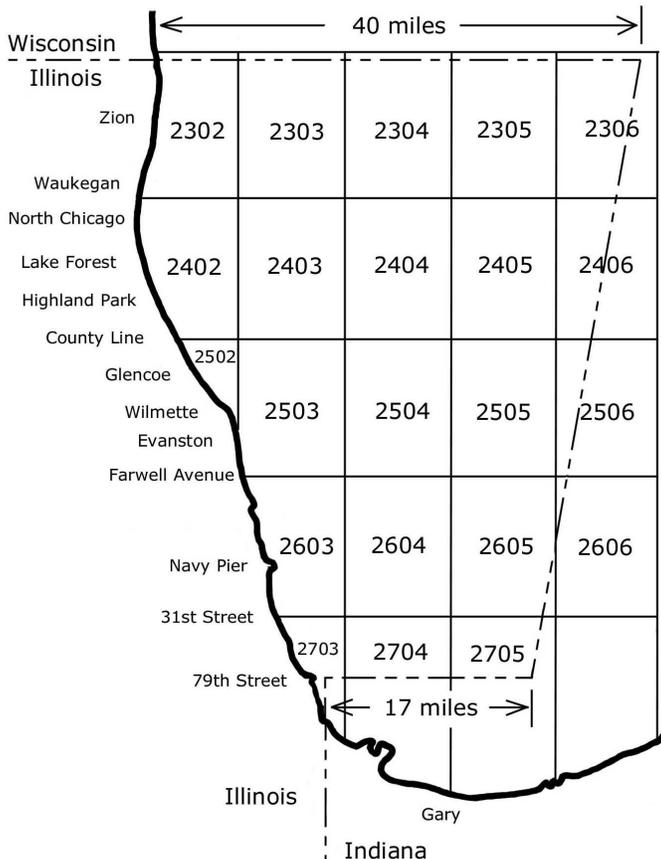
NUMBER OF ANGLERS, RESIDENT AND NON-RESIDENT – Enter the number of **Illinois** residents and non-resident anglers in the fishing party and include crew members if they fished.

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.



Mail completed forms to:

Illinois Department of Natural Resources
 Division of Fisheries
 Lake Michigan Program
 9511 Harrison Street
 Des Plaines, IL 60016

Unusual observations, comments, and requests for additional forms may be noted in the space below.

REMARKS:

Questions regarding this form? (847) 294-4134