

Illinois Department of Natural Resources
Division of Fisheries

Charter Boat Fishing in Lake Michigan: 2006 Illinois Reported Harvest

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Executive Summary

Illinois charter boat operator permits were issued to 140 individuals in 2006. Illinois residents accounted for approximately 81% of 20,929 sport anglers which fished on charter boats and harvested a reported 52,857 salmon and trout from the Illinois waters of Lake Michigan. Coho salmon comprised the greatest portion (53%) of the charter boat angler harvest; Chinook salmon (37%), lake trout (3%), rainbow trout (5%), and brown trout (1%) constituted smaller percentages of the harvest. The percentage of coho in the harvest was the second lowest since 1987 (44%) and likely attributable to reduced coho stocking in 2004 and an increase in the number and percentage of Chinook salmon in the harvest. The 2006 overall harvest rate, 51 fish per 100 angler-hours was similar to 50 fish per 100 angler-hours in 2005.

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; an average of 14.7 million salmonid fingerlings has been annually stocked lakewide since 1976. 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 the *Lakewide Management Plan for Lake Trout Rehabilitation 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, have been stocked in Wisconsin waters each year since 1983 and Michigan waters since 1986. Salmonid stocking in Illinois waters constitutes approximately 7% of the salmonids stocked lakewide (Table 1).

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 (*Alosa pseudoharengus*) 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 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 2006.

Methods

Lake Michigan Charter Boat Operator permits were issued to 139 individuals in 2006. 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 4,060 charter boat excursions were summarized by season, month, and statistical grid, and trends in harvest and effort were compared between years. These harvest data represent reported fishing effort by 16,860 Illinois residents and 4,069 non-residents that chartered boats to fish in the Illinois waters of Lake Michigan in 2006. 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. 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 most harvest rates were less than 1 fish per angler-hour.

Results and Discussion

Similar to previous years, most salmonids harvested from Illinois waters of Lake Michigan in 2006 were coho salmon (Figure 1). Coho salmon accounted for 53% of the 2006 salmonid harvest and have comprised the greatest portion (66.3%¹) of the salmonid harvest since 1979. The percentage of coho in the harvest was the second lowest since 1987 (44%) and attributable to an increase in the number and percentage of Chinook salmon (37%) in the harvest. Lake trout (3%), rainbow trout (5%), and brown trout (1%) constituted smaller percentages of the 2006 harvest. The 2006 harvest of Chinook salmon in Illinois waters was the second highest (2005 highest) since 1990 and has more than doubled in the past 4 years; harvest in 2006 was similar to 2005. Harvests of all species of trout and salmon declined between 2005 and 2006.

Charter boat angler effort (102,904 angler-hours) declined in comparison to 2005 (117,910 angler-hours). The non-charter salmonid fishing effort was also declined between 2005 and 2006. Charter boat sportfishing previously accounted for approximately 22%² of the total fishing effort directed at salmonids in the Illinois portion of Lake Michigan. More recently, charter boats have comprised 32%³ of the total angler effort for salmonids, due to a slow decline in shore-based salmon fishing since 1988 and a 50% reduction in non-charter boat effort after 1998 (Figure 2).

Overall harvest rate was influenced by both the number of coho and Chinook salmon in the harvest. There was a marginal increase in harvest rate from 50 fish per 100 angler-hours in 2005 to 51 fish per 100 angler-hours in 2006, but was similar to the long-term average (Figure 3).

Similar to previous years, the harvest rate of anglers fishing on charter boats was approximately twice that of anglers fishing on non-chartered boats (i.e., private boats).

¹ Average 1979-2006; ² Average 1988-1998; ³ Average 1999-2006.

Most chartered fishing trips typically occur during the months of May and June. In 2006 however, relatively few trips were conducted in June (Table 2). The spring coho season which usually extends into June was abbreviated in 2006; most coho salmon (56%) were harvested in May. Most Chinook salmon were harvested in August. Data from previous years indicate that coho salmon harvests are usually highest in spring, while other salmonids are more equally represented in the late-summer harvests.

No fishing was reported in five statistical grids (2305, 2405, 2406, 2502, and 2703). Approximately 59% of the salmonids were harvested from Grid 2302, however 51% of the fishing effort was focused in that grid (Table 3). The highest harvest rate (64 fish per 100 angler-hrs) occurred in Grid 2606, where 10 coho salmon, 3 lake trout, 2 rainbow trout, and one brown trout were harvested in 25 angler-hours (2 trips). In general, harvest rates are usually highest in grids closer to shore (e.g., 2302 and 2402).

Literature Cited

Brofka, W. A. and S. J. Czesny. 2007. A survey of sportfishing in the Illinois portion of Lake Michigan. Aquatic Ecology Technical Report 07/X. Illinois Natural History Survey. XXpp.

Acknowledgements

I wish to thank Pat Bevell, Lake Michigan Program office coordinator, for entering data and monitoring reporting compliance.

Table 1. Number of salmon and trout stocked in the Illinois waters of Lake Michigan, 1977-2006.

Year	Coho Salmon	Chinook Salmon	Lake Trout	Rainbow trout (Arlee)	Rainbow trout (Skamania)	Brown Trout	Total
1977	102,742	346,696	166,000	176,164		42,200	833,802
1978	252,377	611,331	116,000	39,848		12,800	1,037,936
1979	289,440	183,090	161,790	215,082			858,662
1980	39,000	152,181	87,000	112,880		22,762	434,623
1981	323,814	430,600	173,000	186,368		65,080	1,178,862
1982	158,675	793,270	203,800	169,950		18,300	1,547,795
1983	0	533,600	166,400	0		50,925	750,925
1984	276,800	537,750	100,000	164,678		88,452	1,167,680
1985	304,600	195,000	378,540	146,260		114,695	1,139,095
1986	312,191	215,000	302,000	151,908		59,324	1,040,423
1987	187,071	539,111	126,934	91,390	2,440	88,466	1,032,972
1988	297,272	456,805	166,548	116,584	12,214	94,695	1,131,904
1989	99,690	650,425	440,745	59,047	51,443	105,484	1,406,834
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

Table 2. Monthly totals of fishing effort and salmonid harvest from the Illinois waters of Lake Michigan by charter boat anglers in 2006.

Month	Trips	Number residents	Number non-residents	Effort (angler-hours)	Coho salmon	Chinook salmon	Lake trout	Rainbow trout	Brown trout	Total Catch
Mar	0	0	0	0	0	0	0	0	0	0
Apr	139	269	447	3,276.5	2,461	157	104	82	50	2,854
May	1,000	3,442	1,679	23,962.5	15,853	1,512	206	537	61	18,169
June	724	3,275	496	18,769.5	4,749	1,389	105	352	36	6,631
July	808	3,606	579	20,980.5	3,283	4,871	182	779	136	9,251
Aug	843	3,724	597	21,746.0	1,407	7,601	459	986	186	10,639
Sept	426	1,990	185	10,962.5	207	3,479	239	118	166	4,209
Oct	111	516	83	2,975.0	12	554	332	16	116	1,030
Nov	9	38	3	231.0	0	1	43	0	30	74
Total	4,060	16,860	4,069	27,972.0	27,972	19,564	1,670	2,870	781	52,857

Table 3. Number of salmonids, by Lake Michigan statistical grid ^a, harvested by charter boat anglers in 2006. No salmonids were harvested from grids 2305, 2405, 2406, 2502, or 2703.

Grid	Coho salmon	Chinook salmon	Lake trout	Rainbow trout	Brown trout	Total harvest	Effort (angler-hours)	Harvest rate ^b
2302	17,537	10,746	885	1,885	329	31,382	52,171	60
2303	1,558	1,453	148	196	27	3,382	7,415.5	46
2304	94	75	8	26	0	203	586	35
2306	8	0	0	0	0	8	30	27
2402	4,065	3,736	254	291	260	8,606	19,266.5	45
2403	435	377	219	63	47	1,141	2,489	46
2404	0	2	0	1	4	7	30	23
2503	465	431	13	34	5	948	2,611.5	36
2504	1,427	1,263	59	104	30	2,883	7,020	41
2505	3	3	1	2	0	9	35	26
2506	2	0	0	0	0	2	48	4
2603	302	278	3	39	46	668	3,082	22
2604	806	857	29	77	17	1,786	3,987	45
2605	645	129	20	77	5	876	1,867	47
2606	10	0	3	2	1	16	25	64
2704	186	82	13	28	2	311	985	32
2705	429	132	15	45	8	629	1,255	50

^a See Appendix for grid map of Illinois waters.

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

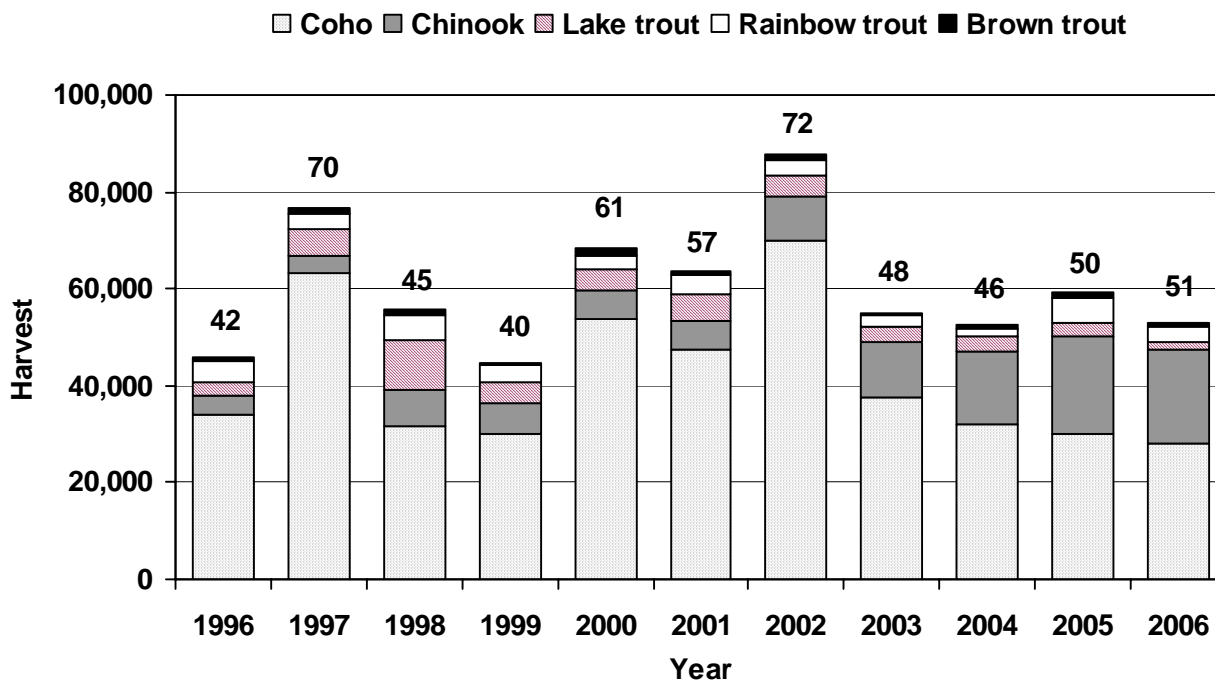


Figure 1. Estimated harvest of salmonids, by species, by charter boat sport anglers, 1996-2006. The numbers above the columns indicate the charter boat angler catch rate (number salmonids per 100 angler-hrs) in each year.

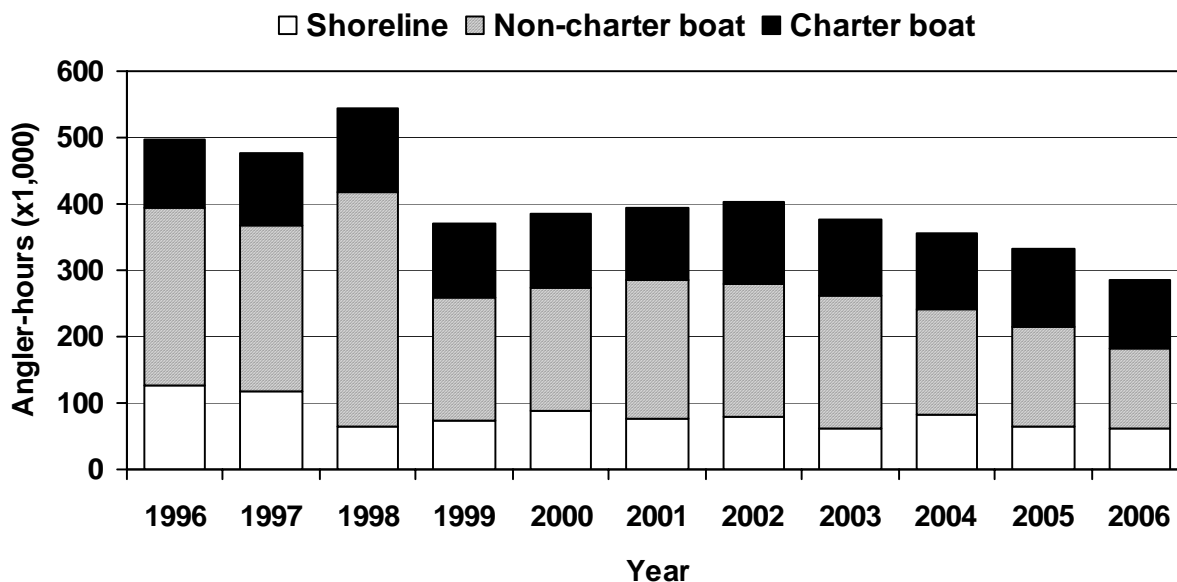


Figure 2. Estimated fishing effort (angler-hours) by anglers fishing from shore, private boats, and from charter boats, 1996-2006. Non-charter effort estimates from Brofka and Czesny (2007).

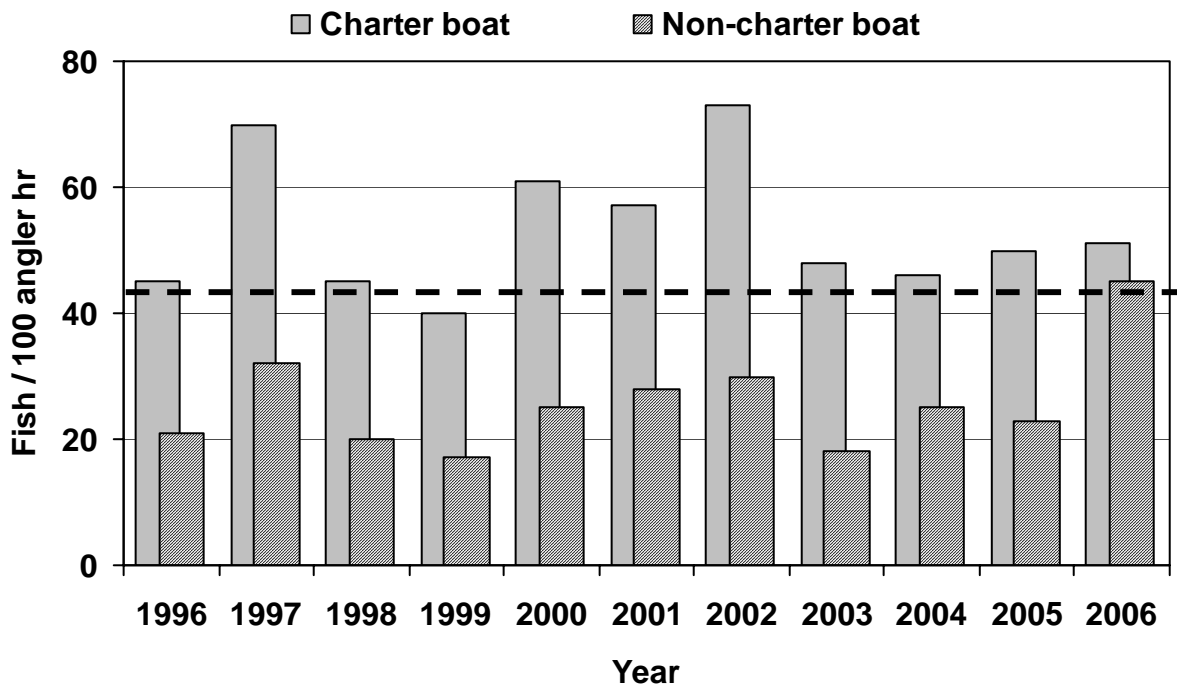


Figure 3. Illinois charter boat and non-charter boat harvest rates for all salmonids, 1995-2006. The dashed line represents the 1979-2006 average charter boat harvest rate. Non-charter harvest rate estimates from Brofka and Czesny (2007).



LAKE MICHIGAN CHARTER BOAT OPERATOR MONTHLY CATCH REPORT

(See instructions for preparing this form on reverse side)

IL Charter Boat Operator Permit # _____ Operator's Name _____
(Please print)
 Port _____ Month _____ Year 20 _____

Date	Location by Grid No.	No. of Anglers		No. Lines	Hours Fished	Lake Trout	Coho	Brown	Rainbow	Chinook	Yellow Perch	Tag Numbers (if any)
		IL Res	NonRes									
TOTAL												

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE.

Prepared By	Date Prepared
-------------	---------------

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.

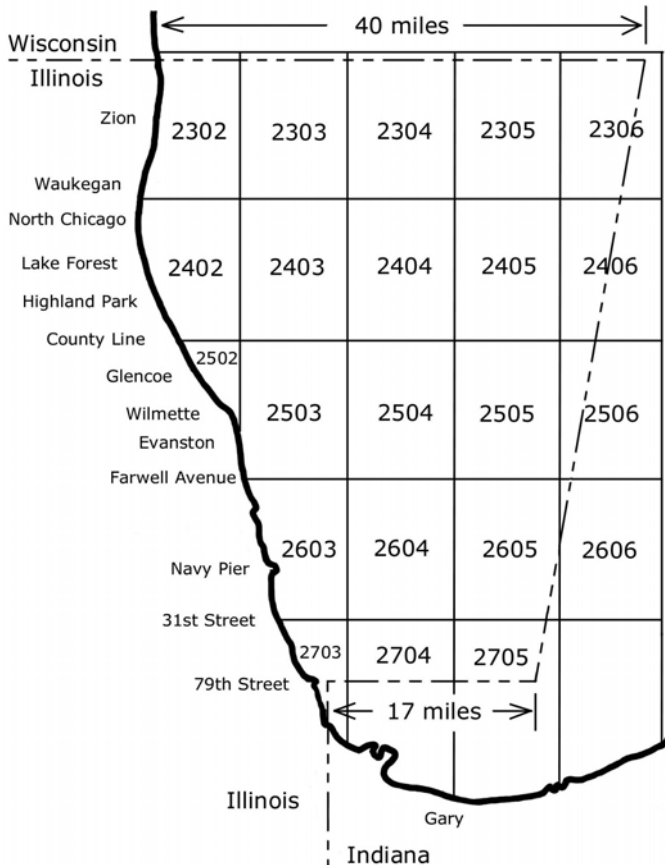
NUMBER OF ANGLERS, RESIDENT AND NON-RESIDENT – Enter the number of **Illinois** residents and non-resident anglers in the fishing party and include crew members if they fished.

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