

Illinois Department of Natural Resources  
Division of Fisheries

# Charter Boat Fishing in Lake Michigan: 2021 Illinois Reported Harvest

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## Table of Contents

Executive Summary	1
Introduction	2
Methods	3
Results and Discussion	3
Literature Cited	5
Tables	6-8
Figures	9-10
Appendix (Lake Michigan Charter Boat Operator Monthly Catch Report)	11-13

### List of Tables

Table 1. Number of salmon and trout stocked in the Illinois waters of Lake Michigan, 1993-2021.	6
Table 2. Monthly fishing effort and salmonid harvest from the Illinois waters of Lake Michigan by charter boat anglers in 2021.	7
Table 3. Number of salmonids, by Lake Michigan statistical grid <sup>a</sup> , harvested by charter boat anglers in 2021. No salmonids were harvested from grids 2305, 2405, 2406, and 2703.	8

### List of Figures

Figure 1. Reported harvest of salmon and trout by charter boat sport anglers, 2011-2021. The numbers above each column indicate the charter boat angler catch rate (number of salmonids per 100 angler-hours) in each year.	9
Figure 2. Salmonid fishing effort (angler-hours) by anglers fishing from shore, non-charter boats, and from charter boats, 1988-2021. Non-charter effort estimates from Roswell and Czesny (2021).	9
Figure 3. Illinois charter boat and non-charter boat harvest rates for all salmonids, 2011-2021. The dashed line represents the 1979-2021 average charter boat harvest rate. Non-charter boat harvest rate estimates from Roswell and Czesny (2021).	10

## Executive Summary

Illinois charter boat operator permits were issued to 77 individuals in 2021. Illinois residents accounted for approximately 80% of 13,847 sport anglers who fished on charter boats and harvested a reported 34,049 salmon and trout from the Illinois waters of Lake Michigan. A total of 1,253 Yellow Perch were also reported in the harvest. Coho Salmon (50%) comprised the greatest portion of the charter boat angler harvest. Lake Trout (39%), Rainbow Trout (6%), Chinook Salmon (5%), and Brown Trout (<1%) constituted smaller percentages of the harvest. The percentage of Coho Salmon in the harvest (50%) was less than the long-term average (1979-2021 average 64%; range 43-83%). Both total effort and harvest increased compared to 2020, but pandemic related restrictions impacted effort and likely harvest last year. The 2021 harvest rate for salmon and trout (47 fish per 100 angler-hours) was the same as that in 2020 and similar to the long-term average (1979-2021) of 48 fish per 100 angler-hours.

## Introduction

Stocked 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 9.8 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% of the salmonids stocked lakewide.

The purposes for stocking these fish are to provide sport fishing opportunities for Illinois and non-resident anglers, re-establish self-sustaining Lake Trout populations, and enhance naturalized populations of other stocked salmon and trout. The expansion of the Welland Canal at the turn of the century provided a bypass of Niagara Falls, which previously acted as a natural barrier to aquatic invaders from the Atlantic Ocean. Parasitic Sea Lamprey gained access to Lake Michigan and wreaked havoc on native predator populations. Alewife, another fish native to the Atlantic Ocean that was first discovered in Lake Michigan during 1950, drastically altered the food web and negatively impacted native fishes. Without predatory controls, Alewife populations reached nuisance levels of abundance. The original introduction of Pacific salmon in the 1960s was intended to take advantage of the abundant Alewife population by creating a popular sport fishery, while helping to control this overabundant non-native prey fish.

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 2021.

## Methods

Lake Michigan Charter Boat Operator permits were issued to 77 individuals in 2021. 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 2,772 charter boat excursions in 2021 were summarized by season, month, and statistical grid, and trends in harvest and effort were compared to previous years. The 2021 harvest data reported fishing effort by 11,098 Illinois residents and 2,749 non-residents during 2,743 charter trips targeting salmonids in the Illinois waters of Lake Michigan. Additionally, a total of 36 Illinois residents and 81 non-residents were reported charter fishing for yellow perch during 29 excursions. 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 within Illinois waters (map in Appendix) was based on total number of salmonids harvested within the grid divided by the fishing effort reported within the same grid. All harvest rates for salmonids were then standardized to 100 angler-hours because harvest rates are typically less than 1 fish per angler-hour.

## Results and Discussion

Similar to most years, the majority of salmonids harvested from Illinois waters of Lake Michigan were Coho Salmon (Figure 1). Coho Salmon accounted for 50% of the 2021 salmonid harvest and have comprised the greatest portion of the salmonid harvest since 1979 (64%; average 1979-2021). Lake Trout (39%), Rainbow Trout (6%), Chinook Salmon (5%), Brown Trout (<1%), and Pink Salmon (<1%) constituted smaller percentages of the 2021 charter fishing harvest. Harvest of all salmon and trout increased significantly compared to 2020, which is likely in part due to the

impact of COVID-19 restrictions last year. The number of Coho Salmon harvested increased by 90% and Chinook Salmon harvest increased by 132% compared to last year. The number of Lake Trout (+45%), Rainbow Trout (+172%), and Brown Trout (+11%) harvested also increased. Seven Pink Salmon were also reported during 2021; 2012 was the last time this species was reported in the Illinois Charter Boat harvest.

Similar to increases in harvest, charter boat angler effort (71,867 angler-hours) rose substantially (72%) compared to 2020 (41,797 angler-hours). This increase in effort is at least partially due to strict COVID-19 restrictions in place during 2020. Prior to 1999, charter boat sportfishing accounted for approximately 21% (average 1988-1998) of the total fishing effort directed at salmonids in the Illinois portion of Lake Michigan. More recently, charter boats have comprised 29% (average 1999-2021) of the total angler effort for salmonids, due to a slow decline in shore-based salmon fishing after 1988 and a drop in non-charter boat effort after 1998 (Figure 2).

Annual charter boat harvest rate in 2021 was the same as the harvest rate in 2020 (47 fish per 100 angler-hours; Figure 1) and similar to the long-term average of 48 fish per 100 angler-hours (average 1990-2021; Figure 3). Similar to previous years, the harvest rate of anglers fishing on charter boats was almost twice that of anglers fishing on non-chartered boats (Figure 3).

Most charter fishing trips occurred during the months of May and June. The spring Coho Salmon season in 2021 was typical in that it extended into June; 39% of Coho Salmon were harvested in May and 45% were harvested in June (Table 2). Chinook Salmon harvest was also seasonally typical; most of the Chinook Salmon harvest was nearly evenly divided between July and August. Monthly harvest of Lake Trout was similar for May through July and then peaked in August. Rainbow Trout harvest also peaked in August and Brown Trout harvest primarily occurred in May. Overall, the majority of all salmonid harvest was split nearly evenly between the months of May and June (27% and 29%, respectively) in 2021 and was primarily driven by the harvest of Coho Salmon.

No salmonid fishing was reported in four statistical grids. Approximately 56% of salmonids were harvested from Grid 2302 which also coincided with 53% of the fishing effort (Table 3). In general, harvest and effort are usually highest in the north and in grids closest to shore (i.e., 2302 and 2402). Harvest rates among grids where fishing occurred in Illinois waters ranged from 3 to 92 fish per 100 angler-hours. A map of Illinois's Lake Michigan statistical grids is included

within the Appendix.

A total of 1,253 Yellow Perch were harvested on charter boats. Yellow Perch were harvested during the months of January, March, June, November, and December and the harvest rate for Yellow Perch was 2.5 fish per angler-hour.

#### **Literature Cited**

Roswell, C., and S. J. Czesny. 2021. A survey of sport fishing in the Illinois portion of Lake Michigan: March through September 2021. Technical Report INHS 2021 (X). Illinois Natural History Survey. xxpp.

#### **Acknowledgements**

I wish to thank Pat Bevell for entering data and monitoring reporting compliance. Special thanks are also extended to Steve Robillard for his past efforts on database development and management as well as writing support in previous versions of this annual report.

Table 1. Number of salmon and trout stocked in the Illinois waters of Lake Michigan, 1993-2021.

Year	Coho Salmon	Chinook Salmon	Lake Trout	Rainbow Trout (Arlee)	Rainbow Trout (Skamania)	Brown Trout	Total
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
2018	258,505	172,642	120,485	57,284	52,422	96,038	757,376
2019	270,057	159,196	120,759	55,330	59,126	132,220	796,376
2020	317,577	185,734	0 <sup>a</sup>	60,092	88,297	120,095	771,795
2021	328,449	186,051	0 <sup>a</sup>	60,033	77,953	119,790	772,276

<sup>a</sup> Due to COVID-19 restrictions on operations, federally reared Lake Trout allocated to Illinois were stocked from shore in northern Wisconsin.



Table 2. Monthly fishing effort and salmonid harvest from the Illinois waters of Lake Michigan by charter boat anglers in 2021.

Month	Trips	Number residents	Number non-residents	Effort (angler-hours)	Coho Salmon	Chinook Salmon	Lake Trout	Rainbow Trout	Brown Trout	Total Catch
March	-	-	-	-	-	-	-	-	-	-
April	76	281	96	1,891	785	6	358	9	7	1,165
May	609	2,116	1,027	16,609	6,716	133	2,183	263	25	9,320
June	664	2,836	471	17,151	7,693	197	1,691	289	4	9,874
July	547	2,305	435	14,181	1,407	545	2,891	316	12	5,171
August	532	2,235	435	13,685	283	522	3,651	807	17	5,287
September	232	942	212	5,900	161	183	1,666	368	7	2,385
October	83	383	73	2,451	1	50	784	12	-	847
November	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2,743</b>	<b>11,098</b>	<b>2,749</b>	<b>71,867</b>	<b>17,046</b>	<b>1,636</b>	<b>13,224</b>	<b>2,064</b>	<b>72</b>	<b>34,042</b>

Table 3. Number of salmonids, by Lake Michigan statistical grid <sup>a</sup>, harvested by charter boat anglers in 2021. No salmonids were harvested from grids 2305, 2405, 2406, and 2703.

Grid	Coho salmon	Chinook Salmon	Lake trout	Rainbow Trout	Brown Trout	Total harvest	Effort (angler-hours)	Harvest rate <sup>b</sup>
2302	11,961	973	5,067	1,172	19	19,192	37,816	51
2303	420	53	272	111	2	858	2,037	42
2304	26	2	11	6	-	45	117	38
2305	-	-	-	-	-	-	-	na
2306	2	-	1	2	-	5	10	50
2402	2,154	240	1,425	236	22	4,077	8,570	48
2403	300	107	819	82	12	1,320	3,315	40
2404	3	2	2	16	-	23	36	64
2405	-	-	-	-	-	-	-	na
2406	-	-	-	-	-	-	-	na
2502	27	2	115	5	4	153	708	22
2503	315	23	842	52	2	1,234	3,849	32
2504	127	66	848	88	2	1,131	3,375	34
2505	36	10	55	3	-	104	308	34
2506	8	-	9	5	-	22	66	3
2603	506	40	1,153	54	3	1,756	3,849	46
2604	665	93	2,336	174	6	3,274	6,255	52
2605	200	19	162	44	-	425	1,018	42
2606	52	3	5	7	-	67	90	74
2703	-	-	-	-	-	-	-	na
2704	239	2	66	3	-	310	336	92
2705	5	1	36	4	-	46	114	40

<sup>a</sup> See Appendix for grid map of Illinois waters.

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

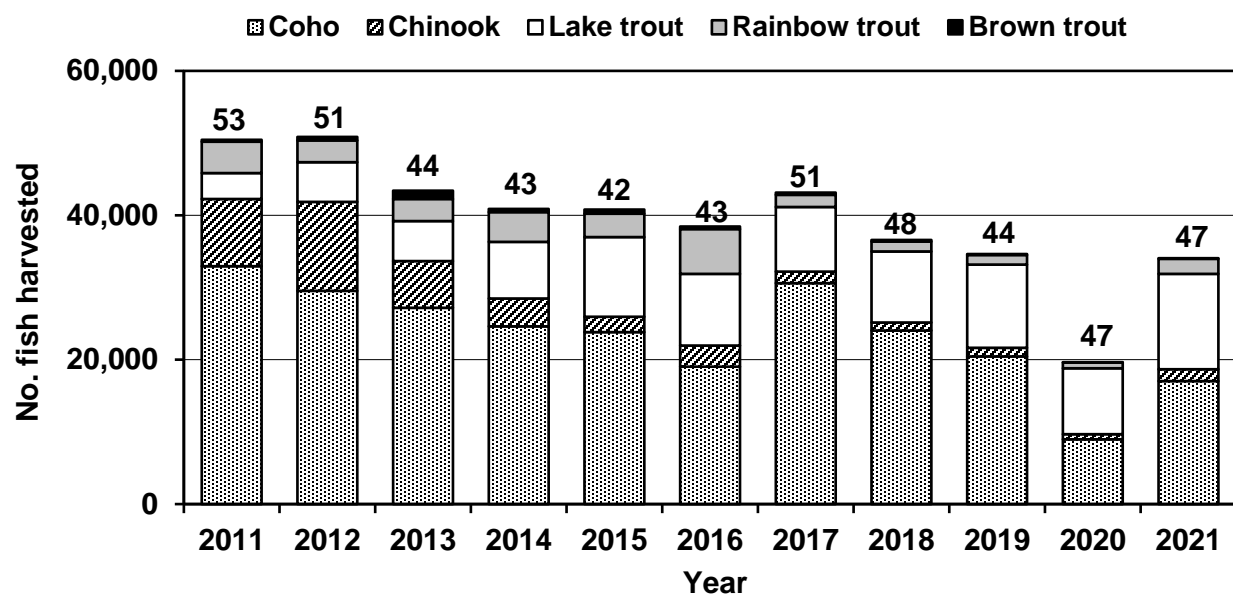


Figure 1. Reported harvest of salmon and trout by charter boat sport anglers, 2011-2021. The numbers above each column indicate the charter boat angler catch rate (number of salmonids per 100 angler-hours) in each year.

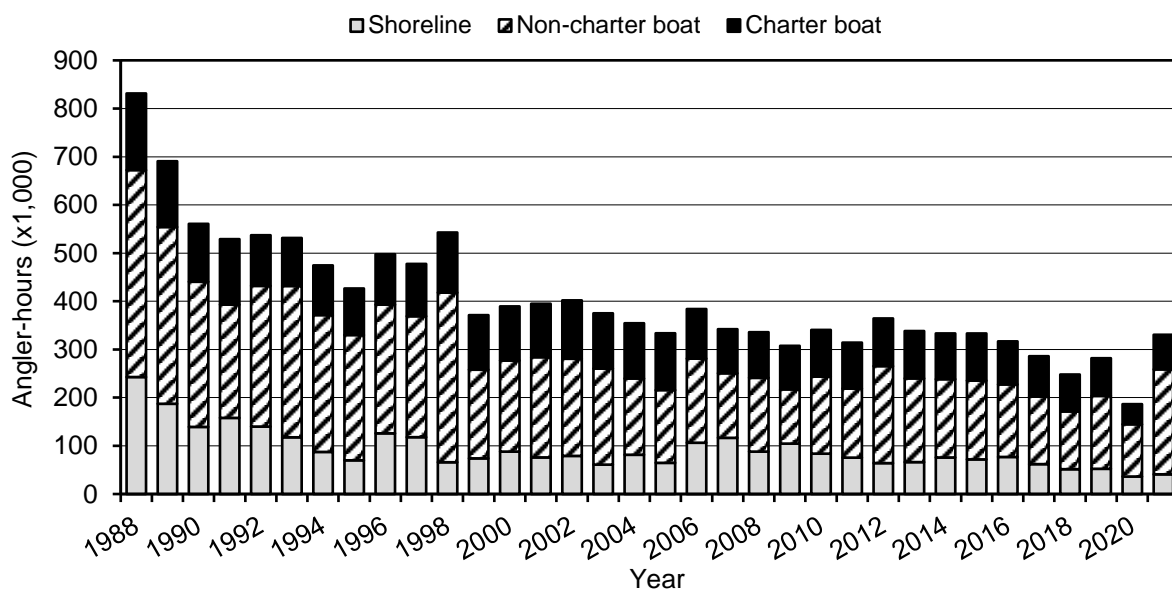


Figure 2. Salmonid fishing effort (angler-hours) by anglers fishing from shore, non-charter boats, and from charter boats, 1988-2021. Non-charter effort estimates from Roswell and Czesny (2021).

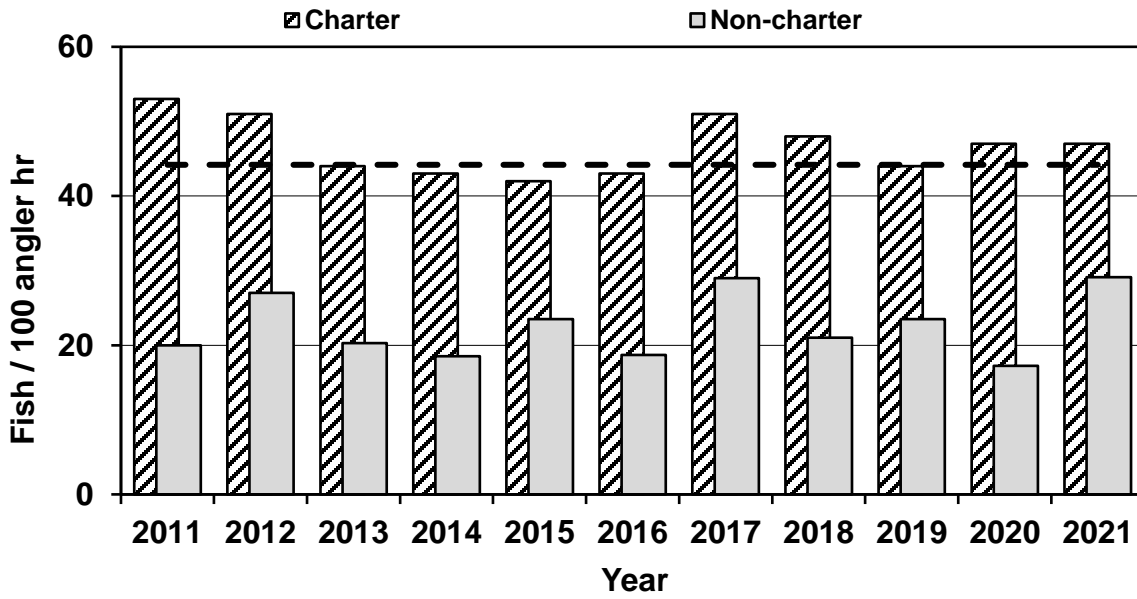


Figure 3. Illinois charter boat and non-charter boat harvest rates for all salmonids, 2011-2021. The dashed line represents the 1979-2021 average charter boat harvest rate. Non-charter boat harvest rate estimates from Roswell and Czesny (2021).



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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 15<sup>th</sup> 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.

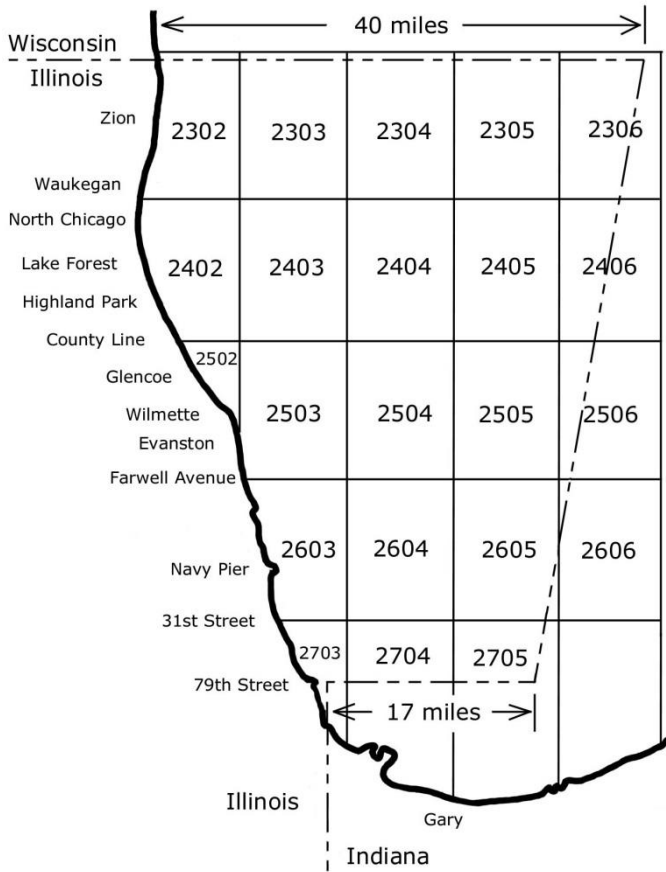
NUMBER OF ANGLERS, RESIDENT AND NON-RESIDENT – Enter the number of **Illinois** residents and non-resident anglers in the fishing party and include crew members if they fished.

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

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