

Illinois Department of Natural Resources  
Division of Fisheries

# Charter Boat Fishing in Lake Michigan: 2022 Illinois Reported Harvest

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February 28, 2023

*This work was funded by Federal Aid in Sport Fish Restoration Funds (F-65-R)*

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## Executive Summary

Illinois charter boat operator permits were issued to 80 individuals in 2022. Most of the harvest (96%) and effort (99%) from charter fishing trips in Illinois waters of Lake Michigan was directed at salmon and trout. Illinois residents accounted for approximately 76% of the 10,215 sport anglers who fished on charter boats targeting salmon and trout in Illinois waters of Lake Michigan. Combined harvest by resident and non-resident anglers was 26,138 salmonids. Additionally, 111 charter anglers harvested 1,203 Yellow Perch during 26 non-salmonid charter fishing excursions. Coho Salmon (62%) comprised the greatest portion of the charter boat angler harvest. Lake Trout (28%), Chinook Salmon (5%), Rainbow Trout (4%), Brown Trout (<1%), and Pink Salmon (<1%) constituted smaller percentages of the harvest. The percentage of Coho Salmon in the 2022 harvest (62%) was similar to the long-term average (1979-2021 average 64%; range 43-83%). Both total effort and harvest declined compared to 2021, but the 2022 harvest rate for salmon and trout (49 fish per 100 angler-hours) was higher than that in 2021 (47 fish per 100 angler-hours) and the long-term average (1979-2022) of 44 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 harvest from the Illinois waters of Lake Michigan in 2022.

## Methods

Lake Michigan Charter Boat Operator permits were issued to 80 individuals in 2022. 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 monthly March through November, even when no charter fishing trips occur within a given month.

Harvest and fishing effort data from 2,073 charter boat excursions in 2022 were summarized by season, month, and statistical grid, and trends in harvest and effort were compared to previous years. The 2022 harvest data reported fishing effort by 7,727 Illinois residents and 2,488 non-residents during 2,047 charter trips targeting salmonids in the Illinois waters of Lake Michigan. Additionally, a total of 34 Illinois residents and 77 non-residents were reported charter fishing for yellow perch during 26 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 62% of the 2022 salmonid harvest and have comprised the greatest portion of the salmonid harvest since 1979 (64%; average 1979-2021). Lake Trout (28%), Chinook Salmon (5%), Rainbow Trout (4%), Brown Trout (<1%), and Pink Salmon (<1%) constituted smaller percentages of the 2022 charter fishing harvest. Harvest of all salmon and trout decreased 23% compared to 2021. The number of Coho Salmon harvested

decreased by 4% and Chinook Salmon harvest decreased by 18% compared to last year. The number of Lake Trout (-45%) and Rainbow Trout (-48%) also decreased. Harvest of Brown Trout (+156%) increased and 45 Pink Salmon were reported during 2022 which increased from the 7 individuals reported in 2021.

Similar to decreases in harvest, charter boat angler effort (53,789 angler-hours) decreased by 25% compared to 2021 (71,867 angler-hours). Prior to 1999, charter boat sportfishing accounted for approximately 21% (1988-1998 average) of the total fishing effort directed at salmonids in Illinois waters of Lake Michigan. Then, that proportion increased to 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 decline in non-charter boat effort after 1998. In the last two years, charter boat sportfishing accounted for 22-23% (2021 and 2022) of total directed effort for salmonids (Figure 2).

Annual charter boat harvest rate for salmon and trout in 2022 (49 fish per 100 angler-hours) was higher than that in 2021 (47 fish per 100 angler-hours) and the long-term average (1979-2022) of 44 fish per 100 angler-hours. 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 charter fishing trips occurred during the months of May and June. The spring Coho Salmon season in 2022 was typical in that it extended into June; 56% of Coho Salmon were harvested in May and an additional 26% 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. Lake Trout were harvested March through October, but most of the harvest was evenly split between July and August. Rainbow Trout harvest was highest in July and August and Brown Trout harvest primarily occurred during April and July. Overall, salmonid harvest peaked in May (38% of total harvest) and June (21%) and was primarily driven by the harvest of Coho Salmon.

No salmonid fishing was reported in six statistical grids. Approximately 58% of salmonids were harvested from Grid 2302 which also coincided with 52% 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 27 to 78 fish per 100 angler-hours. A map of Illinois's Lake Michigan statistical grids is included within the Appendix.

A total of 1,203 Yellow Perch were harvested on charter boats. Most (90%) of these fish were harvested during March, November and December and the harvest rate for Yellow Perch was 2.3 fish per angler-hour.

### **Literature Cited**

Roswell, C., and S. J. Czesny. 2022. A survey of sport fishing in the Illinois portion of Lake Michigan: March through September 2021. Technical Report INHS 2022 (22). Illinois Natural History Survey. 50pp.

### **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, 1998-2022.

| Year | Coho Salmon | Chinook Salmon | Lake Trout     | Rainbow Trout (Arlee) | Rainbow Trout (Skamania) | Brown Trout | Total   |
|------|-------------|----------------|----------------|-----------------------|--------------------------|-------------|---------|
| 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 | 328,446     | 186,051        | 0 <sup>a</sup> | 60,033                | 77,953                   | 119,790     | 772,273 |
| 2022 | 270,074     | 210,070        | 121,563        | 60,371                | 79,854                   | 123,760     | 865,692 |

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



Table 2. Monthly fishing effort and salmonid harvest from the Illinois waters of Lake Michigan by charter boat anglers in 2022.

| Month        | Trips        | Number residents | Number non-residents | Effort (angler-hours) | Coho Salmon   | Chinook Salmon | Lake Trout   | Rainbow Trout | Brown Trout | Total Catch   |
|--------------|--------------|------------------|----------------------|-----------------------|---------------|----------------|--------------|---------------|-------------|---------------|
| March        | 1            | 3                | -                    | 12                    | 1             | -              | 6            | -             | 1           | 8             |
| April        | 42           | 173              | 30                   | 1,089                 | 317           | -              | 113          | 4             | 64          | 498           |
| May          | 515          | 1,564            | 1,068                | 13,608                | 9,197         | 87             | 480          | 161           | 22          | 9,947         |
| June         | 512          | 2,043            | 495                  | 13,475                | 4,192         | 116            | 1,072        | 113           | 10          | 5,503         |
| July         | 408          | 1,607            | 422                  | 10,924                | 1,196         | 417            | 1,981        | 343           | 61          | 3,998         |
| August       | 336          | 1,317            | 296                  | 8,478                 | 975           | 449            | 1,976        | 369           | 15          | 3,784         |
| September    | 178          | 786              | 108                  | 4,727                 | 412           | 247            | 1,105        | 82            | 11          | 1,857         |
| October      | 55           | 234              | 69                   | 1,477                 | -             | 19             | 479          | -             | -           | 498           |
| November     | -            | -                | -                    | -                     | -             | -              | -            | -             | -           | -             |
| <b>Total</b> | <b>2,047</b> | <b>7,727</b>     | <b>2,488</b>         | <b>53,789</b>         | <b>16,290</b> | <b>1,335</b>   | <b>7,212</b> | <b>1,072</b>  | <b>184</b>  | <b>26,093</b> |

Table 3. Number of salmonids, by Lake Michigan statistical grid <sup>a</sup>, harvested by charter boat anglers in 2022. No salmonids were harvested from grids 2305, 2405, 2406, 2506, 2606, and 2703.

| Grid | Coho salmon | Chinook Salmon | Lake trout | Rainbow Trout | Brown Trout | Total harvest | Effort (angler-hours) | Harvest rate <sup>b</sup> |
|------|-------------|----------------|------------|---------------|-------------|---------------|-----------------------|---------------------------|
| 2302 | 10,993      | 812            | 2,693      | 569           | 33          | 15,100        | 28,044                | 54                        |
| 2303 | 206         | 83             | 299        | 79            | 8           | 675           | 1,843                 | 37                        |
| 2304 | 18          | 5              | 18         | 4             | 1           | 46            | 128                   | 36                        |
| 2305 | -           | -              | -          | -             | -           | -             | -                     | na                        |
| 2306 | 436         | -              | 38         | 11            | -           | 485           | 664                   | 73                        |
| 2402 | 2,553       | 136            | 448        | 61            | 93          | 3,291         | 5,746                 | 57                        |
| 2403 | 271         | 84             | 335        | 36            | 4           | 730           | 2,038                 | 36                        |
| 2404 | 29          | 7              | 10         | -             | -           | 46            | 105                   | 44                        |
| 2405 | -           | -              | -          | -             | -           | -             | -                     | na                        |
| 2406 | -           | -              | -          | -             | -           | -             | -                     | na                        |
| 2502 | -           | -              | 8          | 6             | -           | 14            | 18                    | 78                        |
| 2503 | 207         | 16             | 298        | 43            | 16          | 580           | 2,118                 | 27                        |
| 2504 | 365         | 47             | 834        | 69            | 4           | 1,319         | 4,606                 | 29                        |
| 2505 | 8           | 3              | 13         | 2             | -           | 26            | 68                    | 39                        |
| 2506 | -           | -              | -          | -             | -           | -             | -                     | -                         |
| 2603 | 545         | 25             | 349        | 35            | 19          | 973           | 2,365                 | 41                        |
| 2604 | 484         | 93             | 1,706      | 154           | 6           | 2,443         | 5,395                 | 45                        |
| 2605 | 44          | 6              | 22         | -             | -           | 72            | 128                   | 56                        |
| 2606 | -           | -              | -          | -             | -           | -             | -                     | na                        |
| 2703 | -           | -              | -          | -             | -           | -             | -                     | na                        |
| 2704 | 126         | 17             | 135        | 3             | -           | 281           | 485                   | 58                        |
| 2705 | 5           | 1              | 6          | -             | -           | 12            | 41                    | 30                        |

<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.

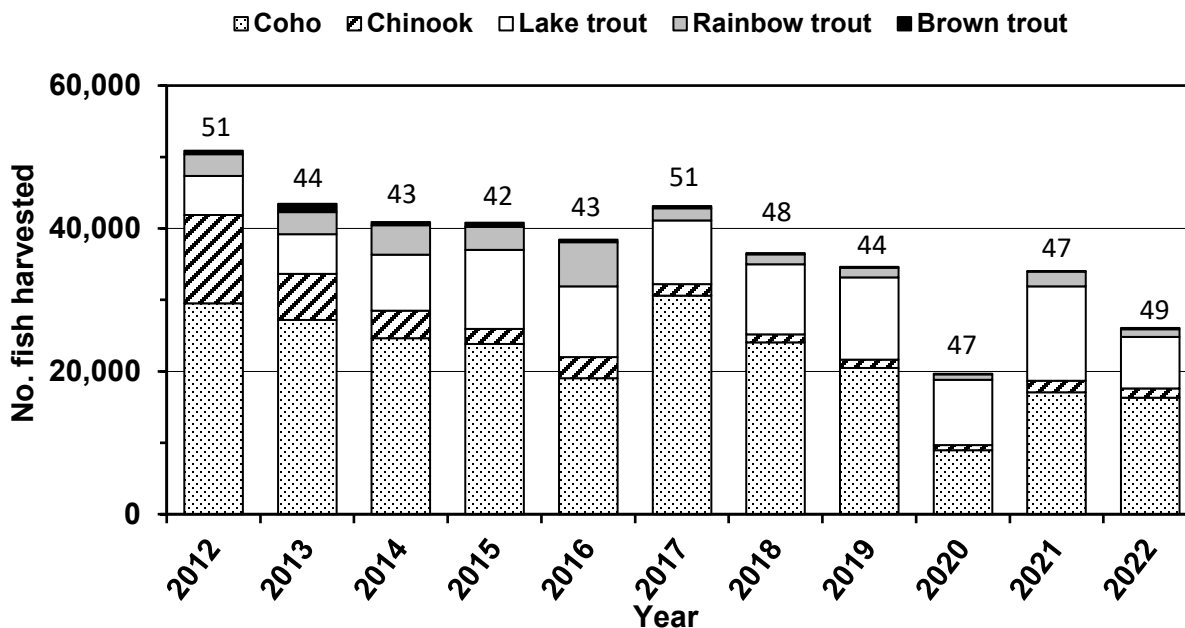


Figure 1. Reported harvest of salmon and trout by charter boat sport anglers, 2012-2022. The numbers above each column indicate the charter boat angler catch rate (number of salmonids per 100 angler-hours) in each year.

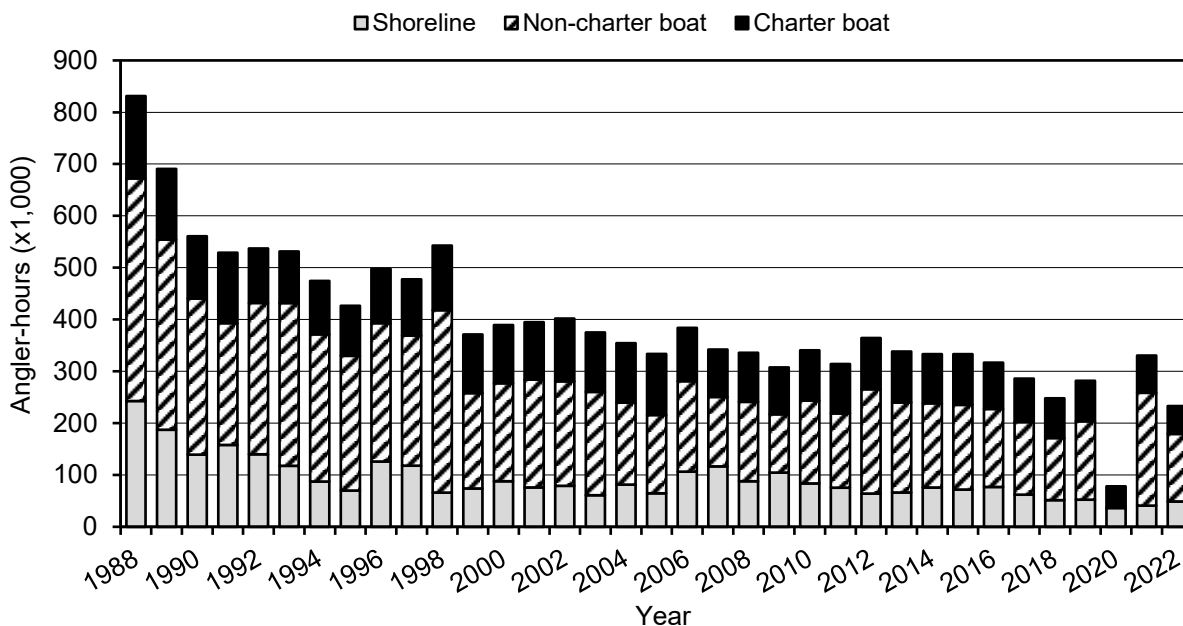


Figure 2. Salmonid fishing effort (angler-hours) by anglers fishing from shore, non-charter boats, and from charter boats, 1988-2022. Non-charter effort estimates from Roswell and Czesny (2022); no directed angler effort for salmonids available in 2020 due to Covid related restrictions.

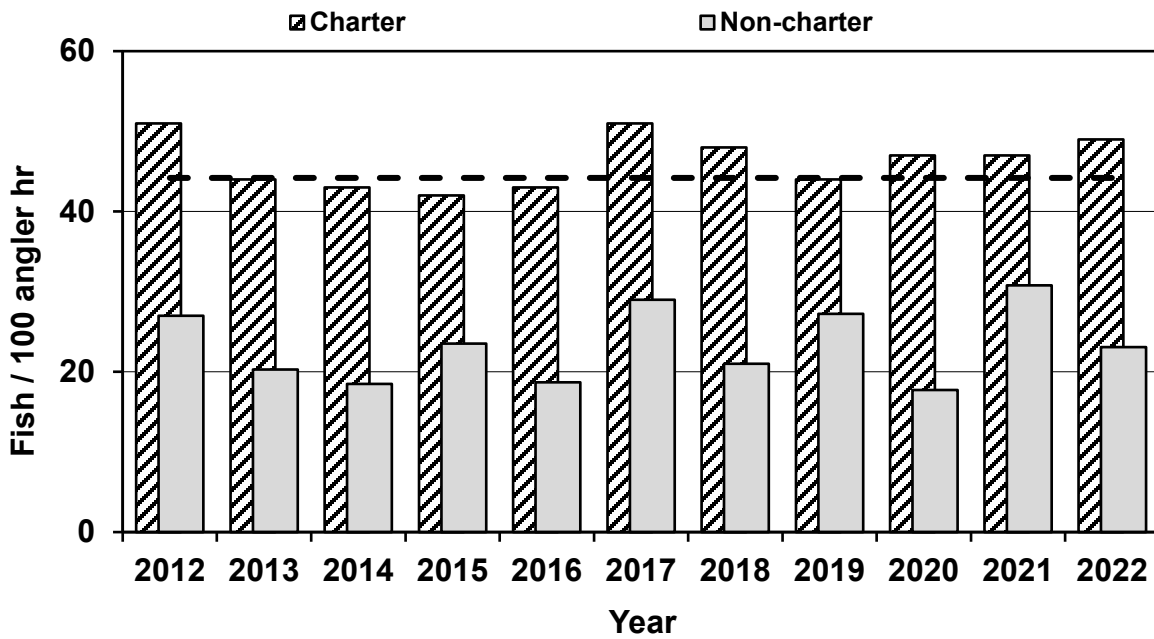


Figure 3. Illinois charter boat and non-charter boat harvest rates for all salmonids, 2012-2022. The dashed line represents the 1979-2022 average charter boat harvest rate. Non-charter boat harvest rate estimates from Roswell and Czesny (2022).



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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.

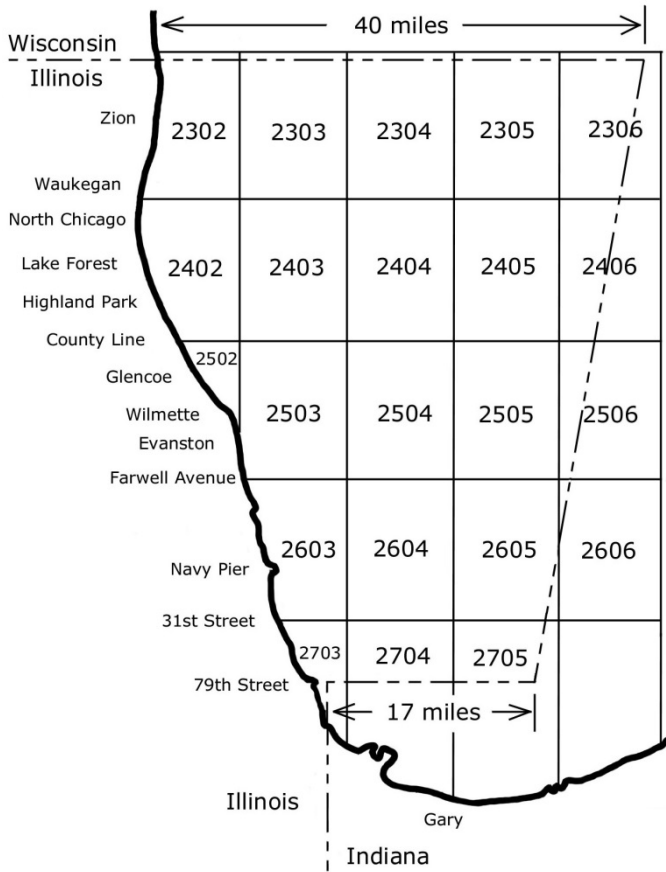
NUMBER OF ANGLERS, RESIDENT AND NON-RESIDENT – Enter the number of **Illinois** residents and non-resident anglers in the fishing party and include crew members if they fished.

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.**



**Mail completed forms to:**

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 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.

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