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# A Survey of Sport Fishing in the Illinois Portion of Lake Michigan
## March through September 2024

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**INHS Technical Report 2025 (17)**

Prepared for Illinois Department of Natural Resources, Division of Fisheries

Grant/Contract No: Federal Aid Project F-196 R-8

Issue Date: 01 December 2025

*Unrestricted, for immediate release*

INHS 2025 (17)

# A SURVEY OF SPORT FISHING IN THE ILLINOIS PORTION OF LAKE MICHIGAN

**March through September, 2024**

**Charles R. Roswell and Sergiusz J. Czesny**

University of Illinois
Prairie Research Institute
Illinois Natural History Survey

Submitted to
Division of Fisheries, Illinois Department of Natural Resources
Federal Aid Project F-196-8

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This study is conducted under a memorandum of understanding between the Illinois Department of Natural Resources and the Board of Trustees of the University of Illinois. The actual research is performed by the Illinois Natural History Survey, Prairie Research Institute. The project is supported through the Federal Aid in Sport Fish Restoration by the U.S. Fish and Wildlife Service, the Illinois Department of Natural Resources and the Illinois Natural History Survey. The form, content, and data interpretations are the responsibility of the Illinois Natural History Survey and the University of Illinois and not the Illinois Department of Natural Resources.

**TABLE OF CONTENTS**

## LIST OF TABLES



## LIST OF FIGURES

Table 1. Common and scientific names of fishes appearing in this report of the survey of sport fishing in the Illinois portion of Lake Michigan. Only common names are used in the following text.

| Common Name | Scientific Name |
|---|---|
| Alewife | *Alosa pseudoharengus* |
| Bluegill | *Lepomis macrochirus* |
| Brown bullhead | *Ameiurus nebulosus* |
| Brown trout | *Salmo trutta* |
| Chinook salmon | *Oncorhynchus tshawytscha* |
| Coho salmon | *Oncorhynchus kisutch* |
| Common carp | *Cyprinus carpio* |
| Freshwater drum | *Aplodinotus grunniens* |
| Lake trout | *Salvelinus namaycush* |
| Largemouth bass | *Micropterus salmoides* |
| Northern pike | *Esox lucius* |
| Pumpkinseed sunfish | *Lepomis gibbosus* |
| Rainbow smelt | *Osmerus mordax* |
| Rainbow trout | *Oncorhynchus mykiss* |
| Rock bass | *Ambloplites rupestris* |
| Round goby | *Neogobius melanostomus* |
| Sea lamprey | *Petromyzon marinus* |
| Smallmouth bass | *Micropterus dolomieu* |
| Yellow perch | *Perca flavescens* |

## EXECUTIVE SUMMARY

The purpose of this study was to estimate sport fishing effort, harvest, and expenditures by anglers fishing the Illinois portion of Lake Michigan (excluding charter fishing). Information provided by this study is important for management of sport fisheries in the Illinois waters of Lake Michigan. Data were collected via a contact creel survey on randomly-selected days over a six month period (4/1 - 9/30), and were summarized and extrapolated over the six month period to obtain estimates for specific locations as well as for the entire Illinois portion of Lake Michigan. Sampling dates were randomly chosen for access sites within two strata: time period (segment = three week blocks) and type of day (weekday vs. weekend/holiday). An additional March survey was conducted at selected sites along the Lake Michigan shoreline. The March survey was stratified by weekend/ weekday, but the entire month of March was treated as one segment. An additional winter survey of sport fishing occurred during October 2024 – February 2025. All data have been summarized by month for this report.

Conclusions:

1. Total angler effort in 2024 increased 3.8% from 2023. Effort increased 13.7% for boat anglers and decreased 16.5% for pedestrian anglers.

2. Yellow perch harvest increased 504.9% from 2023 estimates to 5,022 fish. Mean length increased 36.9% to 32.0 cm (12.6 in), and mean weight increased 156.9% to 430.6 g (0.95 lb.).

3. Coho salmon comprised most of the salmonid harvest (85.7%); Coho salmon harvest increased 41.1% compared to 2023, to 70,177 fish. Mean weight of harvested Coho salmon increased 57.9% compared to 2023, to 1,419 g (3.1 lb.) and mean length increased 14.6% to 53.6 cm (21.1 in).

4. Chinook salmon harvest increased 55.4% from 2023 to an estimated 5,881 fish. The mean size of Chinook in 2024 was 3,370 g (7.4 lb., a decrease of 23.6%) and 68.3 cm (26.9 in) long (a decrease of 6.4% from 2023).

5. Compared to 2023, rainbow trout harvest decreased 7.8% to 2,730 fish. Mean rainbow trout weight decreased 21.8% to 2,584 g (5.7 lb.) and length decreased 8.7% to 65.7 cm (25.9 in).

6. Lake trout harvest decreased 34.6% from 2023 to an estimated 2,711 fish. The mean length of lake trout harvested decreased compared to 2023 by 3.6% to 62.7 cm (24.7 in), and mean weight decreased 23.2% to 2,244 g (4.95 lb.).

7. The estimated brown trout harvest decreased 7.8% from 2023 to 353 fish.

8. Estimates of total expenditures for boats, motors, trailers and fishing gear in 2024 were $3.97 million, an increase of 163.4% from 2023.

9. In March 2024, angler effort increased 4.5% compared to 2023, to 10,526 angler hours. Coho salmon harvest decreased 76.8% to 582 fish. Brown trout harvest was estimated at 58 fish, compared with zero in 2023. No harvest of other salmonids or of yellow perch was documented in March 2024.

10. In the winter of 2024-2025 (October -February), 37,034 angler-hours were directed at yellow perch. Estimated harvest of yellow perch was 20,080, representing 80.0% of the estimated March 2024-February 2025 yellow perch harvest.

## ABSTRACT

A contact creel survey was conducted from April 1 to September 30, 2024, covering all legal sport fishing during that period (both by pedestrians and anglers fishing from boats), excluding fishing from chartered boats and smelt netting. The intent of the survey was to provide reliable estimates of sport fishing activity, sport fish harvest, expenditures for sport fishing, and the quality and distribution of sport fishing for the Illinois portion of Lake Michigan. Total fishing effort for pedestrians and boaters for the survey period was estimated at 237,545 angler-hours. Total harvest estimates for major species during the survey period include 5,022 yellow perch, 353 brown trout, 2,730 rainbow trout, 2,711 lake trout, 70,177 Coho salmon, and 5,881 Chinook salmon. Angler expenditures for boats, motors, trailers and fishing gear were estimated at $3.97 million. Anglers traveled an estimated 1.74 million miles (round trip). The yield value of fish harvested by sport fishing was approximately $3.3 million.

An additional early-season survey was conducted during March 1 to March 31 at Waukegan Harbor, Montrose Harbor, and Calumet Park for pedestrian anglers and Waukegan Harbor and Calumet Park for launched-boat anglers. In total, anglers harvested an estimated 582 Coho salmon and 58 brown trout in an estimated total of 10,526 hours of fishing during March.

Another additional survey of sport fishing was conducted during October 2023-February 2024 at multiple sites in Chicago. Yellow perch anglers harvested an estimated 20,080 yellow perch in an estimated 37,034 hours of angling in the fall and winter period of 2024-2025.

## INTRODUCTION

This report summarizes results of a survey of sport fishing in the Illinois portion of Lake Michigan from April 1 to September 30, 2024. All types of legal sport fishing during that period, with the exceptions of charter-boat fishing and smelt netting, were covered by the survey. Two supplemental surveys were completed: 1) a survey of the early spring fishery was conducted from March 1 to March 31, and 2) a survey of “winter” angling was carried out during October 2024-February 2025 (see Appendix B). The intent of the project was to provide estimates of sport fishing effort, harvest, and quality, as well as estimated fishing-related expenditures for anglers fishing Illinois waters of Lake Michigan. Biological data concerning length, weight, sea lamprey wounding and scarring, and marks (fin clips and external tags) were also collected from angler-harvested fish. Creel surveys for the Illinois portion of Lake Michigan have been conducted annually by the Illinois Natural History Survey since 1985; results from the first thirty-nine years of these surveys have been reported in annual technical reports, most recently for the 2023 survey (Roswell and Czesny 2024). Prior to these annual surveys, the most recent creel survey of this type in Illinois was conducted in 1979 by the Illinois Department of Conservation (Muench 1981).

**Geographic setting**

This survey occurred at access locations along the 63-mile Illinois shoreline of Lake Michigan (Figure 1), a highly-developed stretch of shoreline. Chicago covers roughly one-third of the Illinois shore, and a series of smaller cities cover most of the remainder. No significant tributary streams enter Lake Michigan in Illinois waters. The slope of the near-shore lake bottom is steeper in the northern part of Illinois waters than near Chicago, which forces boaters from Chicago to go considerably farther from shore to reach good salmon waters (deep and cold) during the summer than boaters departing from North Point Marina. Another geographic feature is the easy access to other states' waters for boaters (e.g., Wisconsin waters for boaters launching at North Point Marina and Indiana waters for anglers launching at Calumet Park). For this survey, data were assumed to represent anglers fishing in Illinois waters.

Figure 1. The Illinois shoreline of Lake Michigan.

## METHODS

Non-charter angling activity was categorized into two groups that were evaluated separately: (1) Pedestrian and launched-boat anglers, for which data were generated via personal interviews and direct head counts, and (2) anglers using moored boats. The moored boat estimates presented here are based on extrapolating estimates for anglers using launched boats using data quantifying the distribution of moored-boat angling relative to launched-boat angling.

### Pedestrians and launched-boat anglers

Effort and harvest were estimated for pedestrian and launched-boat anglers using selected primary fishing areas (i.e., selected shore access locations and boat ramps), and those estimates were extrapolated to other areas. For each primary fishing area, a modified stratified random sampling design similar to that suggested by Malvestuto (1996) was used. The primary sampling unit of the survey was the fishing day. Daily estimates (e.g., total harvest by species, expenditures by category, etc.) for each primary site were combined to estimate seasonal totals using the formula for stratified random samples given by Cochran (1977).

### Use of primary fishing areas

The primary fishing areas for pedestrian anglers were North Point Marina (Winthrop Harbor), Waukegan Harbor (Waukegan), and four locations in Chicago: Montrose Harbor, Belmont Harbor, Jackson Park, and Calumet Park. The primary fishing areas for launched boats were boat ramps at North Point Marina (Winthrop Harbor), Waukegan Harbor (Waukegan), Diversey Harbor (Chicago), and Calumet Park (Chicago). For each day scheduled to be surveyed, a creel clerk was assigned to visit three areas, two pedestrian areas and one launch area, in a prescribed order. The three areas were always one of three groups: (1) Waukegan Harbor (pedestrians), North Point Marina (pedestrians), North Point Marina (launched boats); (2) Montrose Harbor (pedestrians), Belmont Harbor (pedestrians), Diversey Harbor (launched boats); and (3) Jackson Park (pedestrians), Calumet Park (pedestrians), Calumet Park (launched boats). Additional visits to the launch ramps at Waukegan Harbor were added to the design in 2006 and were surveyed in the same manner as the launch ramp sites in the three groups.

Estimates obtained for the primary fishing areas were extrapolated to all other areas of the Illinois shoreline based on the distribution of pedestrian anglers and boat trailers. Data describing these distributions were obtained via an annual series of aerial counts during helicopter flights (conducted on weekends during the spring and summer during 2007-2013, 2016, 2019, and 2022; no helicopter flights during 2014, 2015, 2017, 2018, 2020, 2021, 2023, or 2024). During each flight, pedestrian anglers were counted and recorded on a form divided by site and the type of pedestrian site: structure (piers and breakwalls), shore (shoreline) and harbor (inside enclosed harbors). Pedestrian anglers who were not at a recognized site were counted and listed in the vicinity of the closest recognized site; the sum of these became the total for "other areas" on the form. Boat trailers with a vehicle attached were counted in the parking lots of launch ramps and were listed on the form at the appropriate site. All of the data collected were

combined for the period to calculate an average percentage of total fishing effort occurring at each location (Table 2). Ten years of flight data were included to increase confidence in extrapolating estimates from primary fishing areas.

**Distribution of fishing**

*Pedestrians and launched boats*

The aerial survey documented angler use of 24 fishing areas (in addition to "other" areas; Table 2). During 2007 – 2013, 2016, 2019, 2022 these 24 areas accounted for 96.9% of the pedestrian anglers observed in the aerial surveys and 100% of the boat trailers parked near launch areas. Boats launched from the Calumet Yacht Club were not included in this survey (located in Illinois, but boats must leave the marina via Indiana waters). Interviews for the creel survey were conducted at six pedestrian fishing areas that accounted for 78.7% of the pedestrian anglers observed during the helicopter flights and four launch areas that accounted for 81.7% of the boat trailers observed near launch areas.

Table 2. Distribution of pedestrian anglers and boat trailers along the Illinois shoreline of Lake Michigan, determined by helicopter flights during 2007-2013, 2016 2019, and 2022.

| Area | Pedestrian anglers (%) | Boat trailers (%) |
|---|---|---|
| 1. IL Beach State Park & North Point Marina | 1.2 | 41.5 |
| 2. Waukegan Harbor and breakwalls | 6.0 | 26.8 |
| 3. Great Lakes Naval Training Station | 0.1 | 0.3 |
| 4. Forest Park | 0.0 | 0.9 |
| 5. Central Park | 0.1 | 1.4 |
| 6. Winnetka (Lloyd and Tower Parks) | 0.3 | 3.3 |
| 7. Wilmette Harbor | 1.3 | 0.0 |
| 8. Northwestern Univ. and Dawes Park | 0.2 | 5.3 |
| 9. Farwell Avenue pier | 0.9 | 0.0 |
| 10. Hollywood Avenue pier | 0.7 | 0.0 |
| 11. Foster Avenue pier | 0.6 | 0.0 |
| 12. Montrose Harbor and breakwalls | 60.1 | 0.0 |
| 13. Belmont Harbor | 5.8 | 0.0 |
| 14. Diversey Harbor and breakwalls | 2.1 | 6.9 |
| 15. North Avenue pier | 0.1 | 0.0 |
| 16. Navy Pier | 0.2 | 0.0 |
| 17. Monroe Street breakwalls | 0.5 | 0.0 |
| 18. Burnham Harbor and vicinity | 9.1 | 6.2 |
| 19. McCormick Place seawall | 0.7 | 0.0 |
| 20. 31st Street Marina | 0.5 | 0.5 |
| 21. 50th Street access area | 0.2 | 0.0 |
| 22. 59th Street Harbor | 0.6 | 0.0 |
| 23. Jackson Park Harbor and breakwall | 4.8 | 0.4 |
| 24. Calumet Park | 0.7 | 6.5 |
| 25. other areas | 3.1 | 0.0 |

*Moored boats*

In the Illinois portion of Lake Michigan, boats are moored at several locations: North Point Marina, Waukegan Harbor, Great Lakes Naval Training Station, Wilmette Harbor, and the Chicago Park District harbors. The number of power boats kept at moorings was used as an index of fishing activity from moored, non-charter power boats (Table 3). Some fishing may occur from sail boats, but we assumed that it was a negligible portion of all fishing. Two private lift services (referred to as I/O service in Table 3) were included in the survey: Larsen Marine at Waukegan Harbor and Skipper Bud's at North Point Marina. Boats kept at moorings or on land (lift service) in the Calumet or Chicago River systems were assumed to represent a negligible portion of fishing activity and were not included.

Table 3. Mooring locations along the Illinois shoreline of Lake Michigan and numbers of non-charter power boats moored at each location, as determined by the marinas and port authorities. Total number of power boats per port in bold.

| Mooring area | Number of power boats |
|---|---|
| North Point Marina | **351** |
| Public Moorings | 294 |
| Skipper Bud's I/O service | 57 |
| Waukegan Harbor | **258** |
| Public Moorings | 177 |
| Larsen Marine I/O service | 81 |
| Great Lakes Naval Training Station | **18** |
| Wilmette Harbor | **223** |
| Chicago Park District | **3,114** |
| Diversey | 606 |
| other harbor moorings | 2,508 |

**Early spring survey**

Only two groups of sites were surveyed in the month of March. A group in Lake County consisted of Waukegan Harbor (pedestrians) and Waukegan Harbor (launched boats). A Chicago group consisted of Montrose Harbor (pedestrians), Calumet Park (pedestrians), and Calumet Park (launched boats). Virtually all the open boat ramps and the areas of heaviest concentrations of open water pedestrian anglers this early in the season were included in these groups (based on personal observations and previous surveys). Effort, harvest, and expenditures by moored-boat anglers were not estimated in the March survey because very few boats are at moorings at that time.

**Selection of dates in a stratified random sample**

The creel survey season (1 April through 30 September 2024, representing the major portion of fishing activity) was stratified by segment (three-week time periods) and type of day (weekends and holidays, or weekdays). The following 18 strata were formed:

| | |
|---|---|
| 1. Week days 4/1 - 4/21 | 2. Weekend days 4/1 - 4/21 |
| 3. Week days 4/22 - 5/12 | 4. Weekend days 4/22 - 5/12 |
| 5. Week days 5/13 – 6/2 | 6. Weekend days 5/13 - 6/2 |
| 7. Week days 6/3- 6/23 | 8. Weekend days 6/3- 6/23 |
| 9. Week days 6/24 - 7/14 | 10. Weekend days 6/23 - 714 |
| 11. Week days 7/15 – 8/4 | 12. Weekend days 7/15– 8/4 |
| 13. Week days 8/5 - 8/25 | 14. Weekend days 8/5 - 8/25 |
| 15. Week days 8/26 - 9/15 | 16. Weekend days 8/26 - 9/15 |
| 17. Week days 9/16 - 9/30 | 18. Weekend days 9/16 - 9/30 |

For each of the three groups of sites, four survey dates were selected at random within each stratum, with the restriction that all three groups were sampled at least one week day (Monday through Friday) and one weekend day each week. For strata 17 and 18, which were shorter than the others, fewer than four dates were selected for each group of sites. All three sites in each group were visited on the dates selected for that group. In addition to the surveys conducted at the three groups of sites, the launch ramps at Waukegan Harbor were surveyed three times per stratum, except during stratum 18, when only two visits were made.

The early spring survey was treated in a similar fashion to the core survey except that the segment duration was the entire month of March.

| | |
|---|---|
| 1. Week days 3/1 - 3/31 | 2. Weekend days 3/1 - 3/31 |

**Data collection**

Data were collected via two methods at each site: interviews during a two-hour period, and counts at the beginning and end of the two-hour period. Additionally, at boat launch sites, the arrival times of returning boats were recorded for all boats (whether interviews were conducted or not). Each interview was designed for one angling party (i.e., one or more anglers fishing together) to increase the number of angling parties that could be interviewed and to minimize redundant questions within angling parties. At the eight pedestrian sites, the two-hour interview period was either 0600 to 0800 or 0830 to 1030. At the boat launch sites, the two-hour period was always 1100 to 1300. For pedestrian sites, individual anglers were counted at the beginning and end of each two-hour period. For boat launch sites, trailers with vehicles attached (excluding personal watercraft trailers) were counted.

Creel clerks (who conducted the interviews) gathered information related to effort (number of angler-hours, number of angler-trips), expenditures for the present fishing trip (by category: major = boat, motor, or trailer; minor = fishing gear), zip code (to calculate distance driven to fishing locations, round-trip), harvest (by species), and species sought by angling parties. The species sought by anglers were grouped into four categories: Salmonids (including salmon and trout), yellow perch, other species (any species or group of species – e.g., “bass” – except salmonids and

yellow perch), and unspecified (when the angling party was not targeting a specific species or group, i.e., "anything that bites"). Clerks also weighed and measured fish in possession of the anglers, noted whether each fish had sea lamprey wounds and scars, and noted any tags or marks (including clipped fins). The instructions to, and data form used by, creel clerks are in Brofka and Czesny (2008).

**Calculation of round trip miles**

The distance traveled by automobile was estimated for each angling party using Google Earth (Google Inc., 2015) in November 2025. The "Get Directions" application was used to estimate distance from each party's zip code (using the location provided by Google Earth for that zip code) and the main parking area at the location where the angler was surveyed. As many drivers utilize Google for directions, these results likely closely match true distances driven, accounting for decisions to optimize both distance and travel time. The use of Google Earth instead of Google Maps resulted in directions not influenced by traffic; while traffic likely is a factor influencing the route taken by anglers to fishing sites, traffic is always changing, and optimal routes accounting for traffic would likely be different at the time distance was estimated (long after the interview). The distances given by Google Earth were doubled to produce a round trip estimate. When anglers provided other locations instead of zip codes (e.g., city, neighborhood, or intersection), we used the "Get Directions" application in the same way, replacing the zip code with the given location. When anglers in a party traveled from separate zip codes, we used the zip code provided by the party leader (i.e., the angler providing most answers for the survey).

**Variables measured for each date**

Data collected during interviews were used to estimate the following variables for each date at each site: (1) Harvest per angler-hour, determined for each species by dividing the number of fish harvested by all parties interviewed by the number of hours of fishing by individuals in those parties; (2) Expenditures per angler-trip, categorized into major and minor categories. For all expenditures, total expenditures by all anglers interviewed were divided by the number of anglers interviewed; (3) Distance traveled (by automobile) per angler-trip. As for expenditures, the total, round-trip miles traveled by all anglers interviewed were divided by the number of anglers interviewed; (4) Angler-hours (i.e., total time spent fishing by all anglers; see following paragraph); (5) angler-trips (i.e., total number of anglers who fished; see following paragraph); (6) total harvest was calculated for each species as harvest per angler-hour multiplied by angler-hours; and (7) total expenditures were determined for each category as expenditures per angler-trip multiplied by angler-trips.

Angler-hours and angler-trips were determined differently for pedestrians and boaters. For pedestrians, angler-hours were calculated by multiplying the average number of anglers (from counts at the beginning and end of each two-hour period) by the number of hours in the day (from 0.75 hour before sunrise to 0.75 hour after sunset), and angler-trips were calculated as angler-hours divided by the average duration of a pedestrian fishing trip (mean of 3.88 hours for all pedestrian interviews in 2024). The number of angler-trips for anglers using launched boats was estimated by multiplying the number of anglers returning on boats during the two-hour interview period by the ratio of the

number of all boats returning in a day to the number returning between 1100 and 1300. By monitoring all boat ramp traffic at North Point Marina on 28 days during 2018, 2021, and 2024, the number of boats returning all day was estimated to be 3.437 times the number returning during 1100 to 1300 interview period. Launched-boat angler-hours were estimated by multiplying the number of angler-trips by the mean trip duration. In 2024, the annual mean number of anglers per boat was 2.47, and the annual mean trip duration for boat anglers was 5.59 hours.

**Expansion of daily estimates**

The formula given by Cochran (1977) for stratified random samples was used to expand daily estimates to seasonal site-specific estimates of effort, harvest, and expenditures. A different set of strata were used for expansion of estimates: we used month-long segments (e.g., April, May, June), each divided into weekend days and week days (instead of the three-week segments described above) and obtained monthly totals for each type of estimate.

**Extrapolation to other areas**

Extrapolations of seasonal estimates from primary fishing areas to other areas were based on the distributions of pedestrian anglers and boat trailers (assumed to reflect the distribution of launched-boat anglers; Table 2). Harvest, effort, and expenditures at areas not visited were estimated by extension of estimates for the nearest primary fishing areas. Thus, for pedestrian anglers, estimates for Waukegan Harbor were extended to all other areas north of and including Wilmette Harbor (except North Point Marina); estimates for Montrose Harbor were extended to all remaining areas north of Belmont Harbor; estimates for Belmont Harbor were extended to all remaining areas north of the Monroe Street breakwalls; estimates for Jackson Park were extended to all areas south of Monroe Street except for Calumet Park. For launched boats, estimates for Waukegan Harbor were extended to all launch ramps north of Wilmette (including the "other" areas listed in Table 2, but excluding North Point Marina); estimates for Diversey were extended to Dawes Park; and results for Calumet Park were extended to the ramps at Jackson Park, 31$^{st}$ Street Harbor, and Burnham Harbor.

**Moored boats**

Effort, harvest, and expenditure estimates for anglers using moored boats were extrapolated from calculations for launched boats. First, the ratios of moored fishing boats to launched fishing boats for North Point Marina and Diversey Harbor were estimated using surveys conducted during 2010-2017, 2020, and 2023. In these surveys, the numbers of fishing boats returning to moorings were counted while, simultaneously, the numbers of fishing boats returning to the launch ramp were also counted. Charter boats were excluded from these counts. The estimated ratios of moored to launched boats are 0.714 in North Point Marina and 1.923 in Diversey Harbor.

Using these figures, seasonal estimates of effort, harvest, and expenditures by anglers using launched boats at North Point, Waukegan (ratio assumed to be equal to North Point Marina), and Diversey harbors were extrapolated to moored boats. Thus, for example, the moored boat effort at North Point Marina for a given segment was estimated to be the launched boat effort for that segment multiplied by 0.714. Based on the distribution of moored power

boats, estimates for Waukegan Harbor were extrapolated to boats moored in Wilmette Harbor and Great Lakes Naval Training Station, and the estimates for Diversey Harbor were extrapolated to all other boats moored in Chicago.

**Changes in creel survey methods**

Creel survey methods have varied during the past thirty-nine years of the creel survey, so comparisons should be made with caution. In particular, estimation of round-trip miles differs from years prior to 2015. The influences of changes in methods will continue to be evaluated.

**Confidence intervals and bias**

Estimates of harvest, effort, and expenditures are presented without confidence intervals, as we have not fully evaluated bias in our estimates. Although we have collected and will continue to collect data with which to partially assess biases, assessing potential impacts on precision of estimates is not possible at this time.

**Yield values**

The term “yield value” is used in this report to describe the hypothetical market price of fish harvested by anglers (if sold as fillets). To estimate the yield value, the estimated harvest for each species was multiplied by the estimated mean weight of that species to produce an estimated round weight. That round weight was then multiplied by 0.4 (assuming 60% loss in filleting process in keeping with previous years’ estimates; e.g., Roswell and Czesny 2024) to produce the harvested marketable weight for each species. The marketable weight for each species was then multiplied by species-specific prices (estimated using prices observed on the internet in September 2024 by C.R. Roswell) to produce the market value of the 2024 harvest for each species.

**Missing data**

On some dates creel clerks are unable to complete their assigned interviews due to factors such as illness and vehicle break-downs. In 2024, all or some surveys were not completed on approximately 6.1% of all scheduled survey days, mostly due to unexpected staff shortages. When possible, schedules were adjusted in response to cancelled shifts to maintain an even distribution of sampled dates across sites/ strata. When data were missing from some of the assigned dates in a stratum, estimates for the stratum were based only on data from the surveyed dates. Thus, the sample size was smaller in these cases than for strata in which all interview sets were completed, and the resulting estimates were not as precise as estimates derived from full data sets.

**Other impacts on access**

The fishing pier at North Point was closed for the duration of the survey in 2024.

**Winter surveys**

See Appendix B for methods of the winter surveys.

## RESULTS

### Overview

Estimates reported here are rounded; this may result in values for “totals” that differ slightly from the sum of individual values in tables. For simplicity, the words "approximately" or “estimated” are not repeated with each estimated value. Detailed results for 2024 are presented in Tables 4 - 10. Tables 4 and 5 list seasonal harvest and effort (angler hours) estimates for anglers. Tables 6 and 7 present effort and harvest for each segment. Table 8 provides yield values. Table 9 lists fin clip abbreviations; fin clips observed by our creel clerks are listed in Table 10, with the number of occurrences of each clip or clip combination listed by species. Table 10 can assist in determining the contributions of different stockings of fish to the sport fishery in the Illinois portion of Lake Michigan. Tables 11 and 12 report angler trips and expenditures among angler types and among years. Tables 13 and 14 compare angler hours and harvest by fish species between angler types and for each year. Table 15 compares minor fish species harvest for each year.

Total April-September non-charter sport fishing effort in the Illinois portion of Lake Michigan was 237,545 angler-hours. Harvest for major species included 5,022 yellow perch, 70,177 Coho salmon, 5,881 Chinook salmon, 2,730 rainbow trout, 2,711 lake trout and 353 brown trout (Table 4). Anglers spent $3.97 million during April-September for boats, motors, trailers, and fishing gear used on Lake Michigan fishing trips (Table 11). Anglers fishing Lake Michigan drove 1.74 million miles (round trip, April-September; Table 11). The Illinois sport fishing harvest was estimated to have a yield value of $3.3 million (Table 8).

### Pedestrian fishing

From April 1 - September 30, 2024, pedestrian anglers spent 62,837 hours fishing in 16,211 trips to Lake Michigan (Table 4, Table 11). Yellow perch comprised the largest portion of the pedestrian harvest (5,022 fish; Table 4). Pedestrian anglers spent $112,764 (mean = $6.96 per trip) for fishing gear and drove 532,740 miles (mean = 32.9 miles per round trip – to and from the lake shore; Table 11).

### Boater fishing

Anglers using launched or moored boats made 31,098 trips to Lake Michigan (Table 11) and spent 174,708 hours fishing (Table 4). The most abundant components of boater harvest were Coho salmon (65,673) and Chinook salmon (5,563; Table 4). North Point Marina and Waukegan Harbor accounted for 36.0% and 36.9%, respectively, of the salmonines (lake trout, brown trout, rainbow trout, Chinook salmon, and Coho salmon) taken by all anglers who used boats (Table 4). See Appendix A for a comparison of the charter-boat fishery with non-charter boat angling. No yellow perch harvest by boat anglers was observed in 2024 (Table 4). Total fishing-related expenditures by anglers using boats were $3,858,437 ($124.07 per trip), with 88% of that amount spent on boats, motors, and trailers (Table 11). Boaters drove 1,202,419 round-trip miles (38.7 miles per trip; Table 11).

**Yield values**

The estimated yield values of the three most valuable (in total yield) sport species were $2,248,254 for Coho salmon, $721,048 for Chinook salmon, and $142,190 for rainbow trout (Table 8). Aside from yellow perch harvested from the Wisconsin portion of Green Bay, none of the species listed in Table 8 are currently commercially available from Lake Michigan. Therefore, the values of all species are estimated from the retail prices for fish that are farm-raised or commercially-harvested in other waters. An estimated price for brown trout fillets was not available, so the price for lake trout fillets was used to estimate the yield value of brown trout.

**Comparisons with preceding years**

Compared to 2023, total angler fishing effort increased by 3.8% (Table 13). Boater effort increased 13.7% and pedestrian effort decreased 16.5% (Table 13). Compared to 2023, angler harvest rates for salmonids (number of fish per angler hour) increased for boat anglers but declined for pedestrian anglers (Figure 2a). Harvest rates for yellow perch increased compared to 2023 (Figure 2b). Total effort directed at salmonids was 188,722 angler-hours, slightly lower than in 2023; about 79% of salmonid-directed effort occurred from boats (Table 4, Figure 3a). Total effort directed at yellow perch was 9,709 angler-hours; pedestrians accounted for 86% of perch-directed effort (Table 4, Figure 3b).

The yellow perch harvest of 5,022 was 504.9% increase over the 2023 harvest (Table 13 and Figure 4). The average weight of yellow perch kept by anglers increased to 431 g (0.95 lb.; Table 8) and average length increased 36.9% to 320 mm (Figure 5). Pedestrian harvest of yellow perch peaked in June (89.6% of pedestrian harvest), and the largest portion of the pedestrian harvest for the entire period occurred at Montrose (95.3% of overall pedestrian harvest; Table 6). June and July together accounted for 95.1% of harvest in 2024 (Figure 6).

The 2024 harvest of Coho salmon increased by 41.1% compared to 2023 (Table 13 and Figure 7). The majority (53.0%) of the harvest occurred in April (Tables 6 and 7). Mean length increased 14.6% from 2023 to 536 mm, and mean weight increased 57.9% to 1419 g (3.13 lb.; Table 8).

The Chinook salmon harvest was 5,881 fish in 2024, an increase of 55.4% from 2023 (Table 13 and Figure 9). Average length was 683 mm, a decrease of 6.4% compared to 2023, and the average weight decreased 23.6% compared to 2023, to 3370 g (7.43 lb.; Table 8 and Figure 10). Chinook salmon harvest peaked in August (34.6% of harvest; Tables 6 and 7).

The 2024 harvest of lake trout was 2,711, a decrease of 34.6% from harvest in 2023 (Table 13). The average weight decreased by 23.2% and average length decreased by 3.6% compared to 2023 (Table 8). Lake trout harvest was highest in July and August (72.8% of total harvest; Tables 6 and 7).

The 2023 brown trout harvest (353) decreased by 7.8% from 2023 (Table 13). The mean weight of brown trout harvested in 2024 was 3,914 g (Table 8), a 14.4% increase from 2023. The majority (63.0%) of brown trout harvest occurred in April (Tables 6 and 7).

The 2024 rainbow trout harvest (2,730) decreased from 2023 by 7.8% (Table 13). The average length of 657 mm was 8.7% shorter than creeled rainbow trout in 2023, and weight (2,584 g, or 5.70 lb.) decreased 21.8% (Table 8). More harvest occurred in July and August (58.8%) than in other months (Tables 6 and 7).

Anglers fishing the Illinois waters of Lake Michigan spent an estimated $3.40 million on boats and motors, and $567,008 on bait, tackle, and fishing gear in 2024. Compared with 2023, boat and motor expenditures increased 184.3%, and bait, tackle, and fishing gear expenditures increased 82.7% (Table 11).

The 2024 early spring (March) survey saw an increase of 4.5% in angling effort compared to March of 2023. Coho salmon harvest decreased 76.8% to 582 fish. While there was no harvest of brown trout in March of 2023, 58 brown trout were harvested in March of 2024. No yellow perch, Chinook salmon, lake trout, or rainbow trout were harvested in the month of March in 2024, consistent with 2023 (Table 14).

**Seasonal patterns in salmonid harvest and effort**

The majority of salmon and trout were harvested in April and May (75.1%; Figure 11a, b). The majority of brown trout and Coho salmon harvest occurred in April (63.0% and 53.0% of annual totals, respectively). July and August accounted for most rainbow trout and lake trout harvest (58.8% and 72.8%, respectively), and most Chinook salmon were harvested in August and September (62.7%). Salmonid-directed effort by pedestrians was highest during April, intermediate in May and September, and lower during June-August. Boater salmonid effort was highest during April and May, and lowest during September.

**Minor species**

In addition to the species for which results are presented in detail in Tables 4 - 14 (commonly-encountered salmonids and yellow perch), creel clerks reported the catch and/ or harvest of several other species by anglers (referred to here as “minor species”; Table 15). For some species, the total number of fish harvested (and total numbers caught) were estimated. For other species, very few fish were observed, so only the actual number observed in anglers’ possession by creel clerks during interviews is reported. Most of these “minor” species were harvested in or near the harbors. Minor species harvested (estimated total caught in parentheses) included: **round goby**, 1,702 (3,160); **freshwater drum**, 692 (740); **rock bass**, 393 (1,809); **smallmouth bass**, 228 (18,166); **bluegill**, 25 (182); **alewife**, 66 harvested fish observed (total not estimated); **northern pike**, 2 harvested fish and one released fish observed; and **brown bullhead**, 1 harvested fish observed. Additionally, an estimated 232 **largemouth bass and 283 common carp** were released (none harvested).

**Winter surveys**

See Appendix B for results of the winter surveys.

## DISCUSSION

**Changes in the fishery and the creel survey in 2024**

The primary purpose of this report is to report data summaries and other information from this long-term monitoring project to fisheries scientists and managers. As such, much of the data collection, analyses, and reporting are very similar to previous years. This provides a better comparison with previous years' data, enabling a more complete understanding of inter-annual trends in the fishery. However, some minor changes have occurred as a result of changing information needs and changes in the fishery (e.g., access and regulation changes).

Unlike years prior to 2012, formal estimates of vehicle fuel costs were not included in this report. Previously, an estimate of $0.10 per mile for fuel was applied to the total miles driven by anglers to and from creel locations. Due to changes in gas prices, this likely would underestimate the actual amount spent by anglers on vehicle fuel. One approach to estimating fuel costs, used by Melstrom and Lupi (2013) as part of a model estimating the value of Great Lakes recreational fishing, uses rates published annually by AAA (AAA 2024). Average gas cost reported by AAA was $0.1490 per mile in 2023 (AAA 2023). Melstrom and Lupi (2013) added $0.05 per mile for vehicles towing trailers to account for increased fuel consumption; employing this approach produces an estimate of $0. 1990 per mile for vehicles towing trailers in 2024. Applying the average rate for pedestrian and moored boat anglers' round-trip miles, and the vehicle-with-trailer rate for launched boat anglers' miles, produces estimated fuel costs of $291,174 for all non-charter anglers fishing Illinois waters of Lake Michigan during April – September, 2024.

Another change related to vehicle fuel costs is the use of zip codes to estimate round-trip miles for angling trips beginning in 2015 (see Methods).

An important change to the fishery occurred in 2015 (and continues to present): the establishment of a closed season for yellow perch fishing from May 1 – June 15. Previously (2001 – 2013), fishing for yellow perch was not permitted during the month of July (except for children under 16, with a reduced bag limit, since 2007), and in 2014 there was no closed season for yellow perch. In 2024, June and July accounted for 51.8% and 38.0%, respectively, of angler hours directed at yellow perch. July accounted for 5.5% of yellow perch harvest in 2024, while 89.6% of harvest occurred during June. During 2004-2013 (the last ten years with a July closure), July accounted for 3.7% of yellow perch harvest, on average. Thus, the opening of July to yellow perch angling has allowed increased yellow perch opportunities during that month, but in 2024, relatively little harvest occurred in July. Furthermore, total harvest and perch-directed effort in 2024 remained relatively low compared with years prior to 2015. This is significant because the decade 2015-2024 has consistently seen lower yellow perch harvest than previous years in this survey (since 1986). These low spring and summer harvest totals may be driven by a seasonal shift in angling

effort and success, with fall and winter months increasingly important to the perch fishery in recent years (Roswell and Czesny 2024).

**Angler effort**

Total angler fishing effort (indexed by angler-hours) increased 13.7% for boats but decreased 16.5% for pedestrians compared to 2024; total effort has declined 26.0% over the last decade (from angler hours in 2015). Effort has generally been declining since this survey began in 1986, but total angler effort in 2024 was the higher than 2021-2023, suggesting a potential stabilizing or reversing of this trend.

**Yellow perch**

Annual yellow perch harvests by anglers in Illinois have varied substantially over time. Estimated angler harvest was well over one million fish each year from 1986 through 1993 (except 1989). However, harvest fell to fewer than 600,000 in 1994, and by 1997 fell to well under 60,000 (driven in part by regulation changes and reduced effort; Brofka and Dettmers, 1999). Harvest increased somewhat in 2001 (to 169,967) in response to increased effort and new regulation changes (repeal of an unprotected slot limit and moving the month closure from June to July). Yellow perch harvest generally increased from 2002 through 2008 to around 300,000, but then declined. Total spring and summer yellow perch harvest has now been below 50,000 fish for the last 10 years (2015-2024) and under 10,000 fish for last six years (2019-2024). The mean April-September yellow perch harvest during 2015-2024 was 6,821; however, the mean harvest during 2020-2024 was 2,669, 39.1% of the ten-year mean. Harvest in 2024 increased 504.9% from 2023, and the 2024 harvest of 5,022 yellow perch was the highest since 2019. Overall effort directed at yellow perch increased 78.3% compared to 2023, and overall HPE (harvest per angler effort expressed in fish-per-angler-hour) was 0.52 yellow perch per angler-hour, the highest since 2018.

**Coho salmon**

Coho salmon consistently comprise the largest part of both the boat and pedestrian salmonid fishery. Coho salmon typically make up about 69% of the total salmonid harvest, and in 2024 accounted for 85.7% of salmonids harvested by the overall non-charter angling fishery (including pedestrians). The 2024 harvest of 70,177 Coho salmon was 41.1% higher than harvest in 2023, and the highest total since 1997. Mean weight of harvested Coho salmon during 2024 was 1,419 g, 4.0% lower than the 39-year mean, while the mean length of harvested Coho increased 14.6% from 2023 to 53.6 cm.

**Other salmonids**

While the Coho salmon harvest has traditionally dominated spring and early-summer salmonid harvest, other salmonids often make up large portions of the harvest during mid-summer through early fall.

Chinook salmon are popular, as they can attain very large sizes and provide anglers with a good fight. The annual Chinook harvest has fluctuated through time. Bacterial kidney disease (BKD) was blamed for die-offs of Chinook

salmon beginning in 1988, resulting in reduced angler harvest of Chinook salmon, (as low as 2,900 fish in 1994). Chinook salmon have since been closely monitored in the hatchery and in the wild for BKD (Clark, 1996). Harvest in 2024 increased by 55.4% (5,881) compared to 2023 and was above the ten-year mean harvest (2015-2024) of 4,353 fish. Mean weight decreased 23.6% from 2023 to 3,370 g (7.43 lbs.).

Lake trout harvest in 2024 (2,711 fish) fell 34.6% from 2023 and was substantially lower than the highest harvest on record observed in 2021 (20,019 fish). Lake trout harvest peaked previously in 1998 at 12,000, while the lowest harvest occurred in 2006 (653). Lake trout harvests have fluctuated in recent years, but generally remain higher than during a period of relatively low harvest during 2003-2010. The mean lake trout harvest for the past ten years is 5,794 fish; the mean harvest for 2020-2024 is 6,758 fish.

Brown trout are often an important component of the spring salmonid fishery with a ten-year mean harvest (2015-2024) of 1,341 fish. The 2024 harvest of 353 browns was a decrease of 7.8% from the 2023 harvest.

Rainbow trout are a common component of the fishery during spring and summer. Typically, most rainbow trout harvest occurs in the boat fishery. The average annual harvest for the past ten years has been 3,103. The fishery in 2024 saw a decrease of 7.8% compared to 2023 with a harvest of 2,730 fish. The mean weight decreased to 2,584 g (5.70 lbs.) in 2024, which is 21.8% lower than the mean weight of rainbow trout harvested in 2023, and is 3.6% below the long-term mean (1986-2023).

**Minor species**

Some species provide a smaller, yet consistent component of the fishery. The state record smallmouth bass was caught (and released) from the Chicago shoreline of Lake Michigan in October of 2019. The estimated 17,938 smallmouth bass released in 2024 is further evidence that a strong catch-and-release fishery continues for this species. Common carp and freshwater drum are targeted both by anglers fishing for food and catch-and-release anglers. Panfish (other than yellow perch) are targeted or kept incidentally by pedestrian anglers; rock bass harvest has averaged about 9.6% of the annual yellow perch harvest for the last ten years, representing the largest component of the non-perch panfish fishery. Approximately 11.2% of total angling effort was directed at minor species in 2024 (i.e., “other” recorded as the species sought during interviews).

**Early spring (March) survey**

Fishing effort and success during March is heavily influenced by the weather and the severity of the winter preceding March. For example, ice limited angling at Waukegan Harbor during 2014 and 2015, resulting in low effort, and thus low yellow perch and brown trout harvests. Effort in March of 2024, at 10,526 angler hours, was slightly above the mean of the last 10 years (10,113 angler hours). March 2024 harvest was 45.0% lower than the ten-year mean for Coho salmon. The March harvest of 58 brown trout in 2024 represented the return of an important early spring species after none were harvested in March of 2023, but the 2024 total remained 75.5% below the ten-

year mean March harvest. No yellow perch, rainbow trout, or lake trout were harvested in March of 2024, despite each of these species having been harvested in at least four of the last 10 years.

**Winter surveys**

See Appendix B for discussion of winter survey results.

## ACKNOWLEDGMENTS

We thank Vic Santucci, Dan Makauskas, Rebecca Redman, and Will Stacy-Duffy for coordination, advice, and review of this report; Frances Leskovec for administrative tasks; and Lauren Cygnar, Kayla Durden, Hillary Glandon, Katie Lowenstein, Kat Scerini, Amy Schneider, Sarah Shamash, Zach Vinette, and Julia Wojcik for their long hours collecting data. We also thank the staff of Chicago Harbors, Wilmette Harbor, Naval Station Great Lakes, Waukegan Port District, Larsen Marine, North Point Marina, and Skipper Bud's North Point for assistance with moored boat estimates.

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Table 4. Effort (anglers-hours) and harvest (by species) by non-charter anglers in the Illinois portion of Lake Michigan during April-September, 2024. Wau. = Waukegan, Peds = Pedestrian.

| | | Effort | | | Harvest | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Type of angler** | Area | Total hours | Target perch | Target salmon | Yellow perch | Brown trout | Rainbow trout | Lake trout | Coho salmon | Chinook salmon |
| **Peds** | North Point | 309 | 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wau. Harbor | 14,069 | 84 | 11,912 | 0 | 0 | 162 | 0 | 1,893 | 67 |
| | Montrose | 25,584 | 7,011 | 10,695 | 4,785 | 46 | 0 | 0 | 1,032 | 21 |
| | Belmont | 3,120 | 259 | 1,756 | 25 | 13 | 0 | 0 | 197 | 0 |
| | Jackson | 2,240 | 160 | 1,881 | 0 | 0 | 0 | 0 | 76 | 49 |
| | Calumet | 984 | 0 | 147 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 16,531 | 775 | 12,858 | 212 | 7 | 81 | 0 | 1,306 | 181 |
| | TOTALS | 62,837 | 8,378 | 39,249 | 5,022 | 66 | 243 | 0 | 4,504 | 318 |
| **Boat** | North Point | 69,184 | 0 | 68,877 | 0 | 76 | 1,324 | 1,359 | 19,925 | 4,941 |
| | Wau. Harbor | 45,820 | 268 | 44,944 | 0 | 81 | 767 | 891 | 26,168 | 410 |
| | Diversey | 4,924 | 0 | 1,399 | 0 | 0 | 0 | 0 | 1,319 | 0 |
| | Calumet | 7,846 | 547 | 1,832 | 0 | 42 | 0 | 0 | 382 | 0 |
| | others | 46,934 | 516 | 32,421 | 0 | 88 | 396 | 461 | 17,879 | 212 |
| | TOTALS | 174,708 | 1,331 | 149,473 | 0 | 287 | 2,487 | 2,711 | 65,673 | 5,563 |
| **Combined** | TOTALS | 237,545 | 9,709 | 188,722 | 5,022 | 353 | 2,730 | 2,711 | 70,177 | 5,881 |

Table 5. Effort (anglers-hours) and harvest (by species) by non-charter anglers at selected sites along the Illinois portion of Lake Michigan during March, 2024. Wau. = Waukegan, Cal. = Calumet, Peds = Pedestrian.

| | Effort | | | Harvest | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Location | Total hours | Target perch | Target salmon | Yellow perch | Brown trout | Rainbow trout | Lake trout | Coho salmon | Chinook salmon |
| Wau. Harbor | 722 | 0 | 675 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wau. Ramp | 481 | 0 | 481 | 0 | 0 | 0 | 0 | 0 | 0 |
| Montrose | 5,783 | 12 | 5,344 | 0 | 44 | 0 | 0 | 298 | 0 |
| Cal. Park Peds | 1,542 | 0 | 1,535 | 0 | 14 | 0 | 0 | 109 | 0 |
| Cal. Park Ramp | 1,998 | 0 | 1,212 | 0 | 0 | 0 | 0 | 175 | 0 |
| Total | 10,526 | 12 | 9,247 | 0 | 58 | 0 | 0 | 582 | 0 |

Table 6. Effort and harvest for each month by pedestrian anglers of the Illinois portion of Lake Michigan during April-September, 2024. Wau. = Waukegan.

| | | Effort | | | Harvest | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time Period | Area | Total hours | Target perch | Target salmon | Yellow perch | Brown trout | Rainbow trout | Lake trout | Coho salmon | Chinook salmon |
| April | North Point | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wau. Harbor | 2,443 | 0 | 2,421 | 0 | 0 | 0 | 0 | 339 | 0 |
| | Montrose | 6,288 | 0 | 5,863 | 0 | 19 | 0 | 0 | 993 | 0 |
| | Belmont | 1,432 | 1 | 1,188 | 0 | 13 | 0 | 0 | 153 | 0 |
| | Jackson | 915 | 0 | 915 | 0 | 0 | 0 | 0 | 76 | 0 |
| | Calumet | 142 | 0 | 142 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 4,873 | 0 | 4,700 | 0 | 6 | 0 | 0 | 504 | 0 |
| May | North Point | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wau. Harbor | 4,766 | 0 | 4,501 | 0 | 0 | 0 | 0 | 1,507 | 0 |
| | Montrose | 2,749 | 221 | 1,250 | 0 | 27 | 0 | 0 | 27 | 0 |
| | Belmont | 387 | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Jackson | 160 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Calumet | 147 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 3,215 | 78 | 2,536 | 0 | 1 | 0 | 0 | 759 | 0 |
| June | North Point | 178 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wau. Harbor | 1,408 | 84 | 801 | 0 | 0 | 108 | 0 | 0 | 0 |
| | Montrose | 6,204 | 4,350 | 271 | 4,284 | 0 | 0 | 0 | 0 | 0 |
| | Belmont | 671 | 76 | 137 | 25 | 0 | 0 | 0 | 0 | 0 |
| | Jackson | 141 | 128 | 13 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Calumet | 176 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 1,750 | 394 | 676 | 191 | 0 | 55 | 0 | 0 | 0 |
| July | North Point | 99 | 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wau. Harbor | 679 | 0 | 281 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Montrose | 4,047 | 1,808 | 373 | 263 | 0 | 0 | 0 | 0 | 0 |
| | Belmont | 217 | 182 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Jackson | 164 | 0 | 164 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Calumet | 312 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 1,224 | 278 | 343 | 11 | 0 | 0 | 0 | 0 | 0 |
| August | North Point | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wau. Harbor | 1,212 | 0 | 861 | 0 | 0 | 11 | 0 | 27 | 0 |
| | Montrose | 3,756 | 625 | 916 | 238 | 0 | 0 | 0 | 0 | 0 |
| | Belmont | 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Jackson | 153 | 0 | 153 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Calumet | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 1,286 | 25 | 930 | 10 | 0 | 6 | 0 | 14 | 0 |
| September | North Point | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wau. Harbor | 3,560 | 0 | 3,048 | 0 | 0 | 42 | 0 | 19 | 67 |
| | Montrose | 2,541 | 6 | 2,021 | 0 | 0 | 0 | 0 | 11 | 21 |
| | Belmont | 336 | 0 | 336 | 0 | 0 | 0 | 0 | 44 | 0 |
| | Jackson | 706 | 0 | 636 | 0 | 0 | 0 | 0 | 0 | 49 |
| | Calumet | 128 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 4,183 | 0 | 3,674 | 0 | 0 | 21 | 0 | 29 | 181 |

Table 7. Effort and harvest by anglers using boats of the Illinois portion of Lake Michigan during April-September, 2024. Wau. = Waukegan.

| | | Effort | | | Harvest | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time period | Area | Total hours | Target perch | Target salmon | Yellow perch | Brown trout | Rainbow trout | Lake trout | Coho salmon | Chinook salmon |
| April | North Point | 5,198 | 0 | 5,198 | 0 | 0 | 40 | 40 | 2,011 | 0 |
| | Wau. Harbor | 18,811 | 0 | 18,811 | 0 | 63 | 222 | 0 | 19,240 | 0 |
| | Diversey | 1,126 | 0 | 452 | 0 | 0 | 0 | 0 | 779 | 0 |
| | Calumet | 1,829 | 0 | 1,074 | 0 | 42 | 0 | 0 | 382 | 0 |
| | others | 15,076 | 0 | 12,523 | 0 | 79 | 115 | 0 | 12,687 | 0 |
| May | North Point | 18,109 | 0 | 17,937 | 0 | 0 | 51 | 204 | 11,920 | 137 |
| | Wau. Harbor | 9,323 | 0 | 9,323 | 0 | 0 | 193 | 45 | 4,292 | 0 |
| | Diversey | 1,266 | 0 | 947 | 0 | 0 | 0 | 0 | 540 | 0 |
| | Calumet | 2,118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 10,907 | 0 | 9,004 | 0 | 0 | 100 | 23 | 3,830 | 0 |
| June | North Point | 14,265 | 0 | 14,130 | 0 | 0 | 134 | 218 | 3,292 | 380 |
| | Wau. Harbor | 4,593 | 0 | 4,593 | 0 | 0 | 0 | 33 | 687 | 33 |
| | Diversey | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Calumet | 529 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 2,950 | 0 | 2,587 | 0 | 0 | 0 | 17 | 355 | 17 |
| July | North Point | 13,847 | 0 | 13,847 | 0 | 17 | 786 | 591 | 1,818 | 1,326 |
| | Wau. Harbor | 6,146 | 268 | 5,879 | 0 | 18 | 142 | 90 | 1,355 | 196 |
| | Diversey | 1,266 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Calumet | 1,492 | 547 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 8,584 | 516 | 3,833 | 0 | 9 | 73 | 47 | 700 | 101 |
| August | North Point | 10,065 | 0 | 10,065 | 0 | 16 | 270 | 150 | 883 | 1,759 |
| | Wau. Harbor | 5,709 | 0 | 5,709 | 0 | 0 | 210 | 723 | 594 | 181 |
| | Diversey | 1,266 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Calumet | 433 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 7,205 | 0 | 3,329 | 0 | 0 | 109 | 374 | 307 | 93 |
| September | North Point | 7,700 | 0 | 7,700 | 0 | 43 | 43 | 158 | 0 | 1,338 |
| | Wau. Harbor | 1,238 | 0 | 629 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Diversey | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Calumet | 1,444 | 0 | 758 | 0 | 0 | 0 | 0 | 0 | 0 |
| | others | 2,212 | 0 | 1,145 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 8. Yield values of fish harvested by non-charter sport anglers in the Illinois waters of Lake Michigan during April - September 2024. All fish are assumed to be prepared as fillets with 60% waste. Prices for all except brown trout (used lake trout value) are those current in national markets in September, 2024.

| Species | Total harvest | Av. wt. (lbs.) | Round wt. (lbs.) | Market wt. (lbs.) | Price per pound | Yield value |
|---|---|---|---|---|---|---|
| Yellow perch | 5,022 | 0.95 | 4,768 | 1,907 | $36.27 | $69,178 |
| Brown trout | 353 | 8.63 | 3,046 | 1,218 | $18.18 | $22,154 |
| Rainbow trout | 2,730 | 5.70 | 15,551 | 6,220 | $22.86 | $142,190 |
| Lake trout | 2,711 | 4.95 | 13,414 | 5,366 | $18.18 | $97,559 |
| Coho salmon | 70,177 | 3.13 | 219,499 | 87,800 | $25.61 | $2,248,254 |
| Chinook salmon | 5,881 | 7.43 | 43,687 | 17,475 | $41.26 | $721,048 |

*Combined yield value of all species: $3,300,382*

Table 9. Fin clip abbreviations.

| Name of fin or bone | Abbreviation |
|---|---|
| Adipose fin | ad |
| Dorsal fin | do |
| Left maxillary bone | lm |
| Right maxillary bone | rm |
| Left pectoral fin | lp |
| Right pectoral fin | rp |
| Left ventral fin | lv |
| Right ventral fin | rv |

Table 10. Fin clip summary for salmonids harvested by non-charter anglers in the Illinois waters of Lake Michigan during 2024. Typically, only a portion of the salmonids stocked each year are marked. However, all stocked lake trout are clipped. Lake trout examined by clerks which exhibit no fin clips are one of four possibilities: 1. the lake trout is naturally produced (wild), 2. the lake trout failed to receive a fin clip in the hatchery, 3. the lake trout regenerated the missing fin or fins, 4. the clerk did not examine the lake trout thoroughly enough and missed the clip or clips.

| | Species | | | | |
|---|---|---|---|---|---|
| Clip | Brown trout | Rainbow trout | Lake trout | Coho salmon | Chinook salmon |
| ad | 2 | 2 | 2 | 3 | 1 |
| no clip | 2 | 4 | 3 | 120 | 14 |

Table 11. Estimated number of angler trips and expenditures by non-charter anglers in the Illinois portion of Lake Michigan, during 2015 - 2024. NA = not applicable.
* Trip estimates for 2014 – 2019 and 2021 – 2023 are for April-September; 2020 estimates are for June - September.
**Expenditure and mileage estimates for 2021 are for July-September.

| | | Effort | Expenditures | | |
|---|---|---|---|---|---|
| Type of angler | Year | (angler-trips) | Major (boat) | Minor (gear) | Miles (travel) |
| Pedestrians | 2015 | 34,111 | NA | $302,143 | 1,142,899 |
| | 2016 | 33,755 | NA | $392,304 | 1,094,062 |
| | 2017 | 27,070 | NA | $444,502 | 794,390 |
| | 2018 | 24,199 | NA | $496,448 | 717,969 |
| | 2019 | 23,555 | NA | $166,293 | 565,001 |
| | 2020* | 16,441* | NA | NA | NA |
| | 2021 | 20,364 | NA | $109,244** | 206,845** |
| | 2022 | 21,309 | NA | $196,647 | 793,491 |
| | 2023 | 19,501 | NA | $140,922 | 622,645 |
| | 2024 | 16,211 | NA | $112,764 | 532,740 |
| Boats | 2015 | 32,484 | $3,377,158 | $576,078 | 1,303,955 |
| | 2016 | 30,500 | $128,238 | $445,616 | 1,486,934 |
| | 2017 | 28,445 | $2,696,374 | $645,545 | 1,423,337 |
| | 2018 | 25,215 | $4,861,307 | $2,831,105 | 1,142,288 |
| | 2019 | 30,214 | $17,360,298 | $275,290 | 1,359,943 |
| | 2020* | 21,619* | NA | NA | NA |
| | 2021 | 42,320 | $1,490,844** | $69,248** | 713,100** |
| | 2022 | 26,765 | $13,707,505 | $319,914 | 854,312 |
| | 2023 | 26,629 | $1,197,475 | $169,504 | 1,228,345 |
| | 2024 | 31,098 | $3,404,193 | $454,244 | 1,202,419 |
| Season Totals | 2015 | 66,595 | $3,377,158 | $878,221 | 2,446,854 |
| | 2016 | 64,255 | $128,238 | $837,920 | 2,580,996 |
| | 2017 | 55,515 | $2,696,374 | $1,090,047 | 2,217,727 |
| | 2018 | 49,414 | $4,861,307 | $3,327,553 | 1,860,257 |
| | 2019 | 53,769 | $17,360,298 | $441,583 | 1,924,944 |
| | 2020* | 38,060* | NA | NA | NA |
| | 2021 | 62,684 | $1,490,844** | $178,492** | 919,945** |
| | 2022 | 48,074 | $13,707,505 | $516,561 | 1,647,803 |
| | 2023 | 46,130 | $1,197,475 | $310,426 | 1,850,990 |
| | 2024 | 47,309 | $3,404,193 | $567,008 | 1,735,159 |

Table 12. March fishing effort and expenditures by non-charter anglers at selected sites in the Illinois portion of Lake Michigan, during 2015 – 2024.NA = not applicable. Expenditure and mileage data were not collected in March 2021.

| | | Effort | Expenditures | | |
|---|---|---|---|---|---|
| Type of angler | Year | (angler-trips) | Major (boat) | Minor (gear) | Miles (travel) |
| Pedestrians | 2015 | 1,517 | NA | $12,197 | 35,052 |
| | 2016 | 3,313 | NA | $30,779 | 112,738 |
| | 2017 | 1,897 | NA | $8,607 | 65,384 |
| | 2018 | 2,603 | NA | $148,723 | 58,036 |
| | 2019 | 1,654 | NA | $11,735 | 41,756 |
| | 2020 | 1,973 | NA | $9,805 | 10,434 |
| | 2021 | 3,077 | NA | NA | NA |
| | 2022 | 714 | NA | $2,781 | 28,806 |
| | 2023 | 2475 | 0 | $24,905 | 69,910 |
| | 2024 | 2,076 | 0 | $20,332 | 46,426 |
| Launched Boats | 2015 | 300 | $0 | $5,020 | 6,388 |
| | 2016 | 160 | $280,510 | $19,155 | 4,474 |
| | 2017 | 107 | $0 | $800 | 1,261 |
| | 2018 | 286 | $0 | $8,275 | 24,615 |
| | 2019 | 329 | $0 | $869 | 7,641 |
| | 2020 | 288 | $0 | $437 | 78,810 |
| | 2021 | 299 | NA | NA | NA |
| | 2022 | 1,387 | $0 | $65,775 | 19,108 |
| | 2023 | 90 | $0 | $555 | 3,092 |
| | 2024 | 441 | $0 | $2,142 | 6,740 |
| March Totals | 2015 | 1,817 | $0 | $17,217 | 41,440 |
| | 2016 | 3,473 | $280,510 | $49,934 | 117,212 |
| | 2017 | 2,004 | $0 | $9,407 | 66,645 |
| | 2018 | 2,889 | $0 | $156,998 | 82,651 |
| | 2019 | 1,983 | $0 | $12,604 | 49,397 |
| | 2020 | 2,261 | $0 | $10,242 | 89,244 |
| | 2021 | 3,376 | NA | NA | NA |
| | 2022 | 2,101 | $0 | $68,556 | 47,914 |
| | 2023 | 2,565 | $0 | $25,460 | 73,002 |
| | 2024 | 2,517 | $0 | $22,474 | 53,166 |

Table 13. Fishing effort and harvest by non-charter anglers in the Illinois portion of Lake Michigan, in 2015 - 2024. Estimates were rounded to the nearest whole number. Peds = Pedestrian anglers, Boat = Boat anglers. * Estimates for 2015 – 2019 and 2021 – 2024 are for April-September; 2020 estimates are for June - September.

| | | Effort | Harvest | | | | | |
|---|---|---|---|---|---|---|---|---|
| Angler type | Year | (angler-hours) | Yellow perch | Brown trout | Rainbow trout | Lake trout | Coho Salmon | Chinook salmon |
| Peds | 2015 | 133,885 | 8,289 | 793 | 303 | 0 | 9,663 | 463 |
| | 2016 | 131,329 | 11,110 | 2,018 | 122 | 193 | 3,470 | 1,011 |
| | 2017 | 105,905 | 9,516 | 1,030 | 218 | 13 | 1,368 | 1,230 |
| | 2018 | 95,798 | 14,649 | 678 | 168 | 0 | 5,820 | 277 |
| | 2019 | 94,855 | 9,402 | 581 | 317 | 0 | 4,416 | 312 |
| | 2020* | 53,984* | 3,373* | 11* | 132* | 0* | 0* | 420* |
| | 2021 | 75,035 | 1,162 | 80 | 285 | 32 | 2,603 | 630 |
| | 2022 | 80,562 | 2,957 | 377 | 287 | 29 | 3,548 | 402 |
| | 2023 | 75,222 | 830 | 0 | 72 | 0 | 7,854 | 487 |
| | 2024 | 62,837 | 5,022 | 66 | 243 | 0 | 4,504 | 318 |
| Boat | 2015 | 187,078 | 0 | 655 | 3,039 | 2,418 | 25,193 | 7,093 |
| | 2016 | 174,154 | 121 | 1,212 | 6,972 | 7,220 | 22,025 | 5,095 |
| | 2017 | 160,658 | 52 | 3,348 | 2,029 | 2,771 | 30,711 | 2,127 |
| | 2018 | 144,127 | 1,580 | 191 | 1,968 | 4,539 | 26,182 | 3,423 |
| | 2019 | 168,418 | 145 | 86 | 3,574 | 6,999 | 23,320 | 1,577 |
| | 2020* | 125,590* | 0* | 61* | 1,694* | 3,482* | 12,345* | 1,085* |
| | 2021 | 246,120 | 0 | 1,041 | 2,910 | 19,987 | 33,039 | 6,387 |
| | 2022 | 154,177 | 0 | 512 | 1,322 | 3,405 | 17,778 | 2,327 |
| | 2023 | 153,710 | 0 | 384 | 2,889 | 4,144 | 41,868 | 3,298 |
| | 2024 | 174,708 | 0 | 287 | 2,487 | 2,711 | 65,673 | 5,563 |
| Season | 2015 | 320,963 | 8,289 | 1,448 | 3,342 | 2,418 | 34,856 | 7,556 |
| | 2016 | 305,483 | 11,231 | 3,230 | 7,094 | 7,413 | 25,495 | 6,106 |
| | 2017 | 266,563 | 9,568 | 4,378 | 2,247 | 2,784 | 32,079 | 3,357 |
| | 2018 | 239,925 | 16,229 | 869 | 2,136 | 4,539 | 32,002 | 3,700 |
| | 2019 | 263,273 | 9,547 | 667 | 3,891 | 6,999 | 27,736 | 1,889 |
| | 2020* | 179,574* | 3,373* | 72* | 1,826* | 3,482* | 12,345* | 1,505* |
| | 2021 | 321,155 | 1,162 | 1,121 | 3,195 | 20,019 | 35,642 | 7,017 |
| | 2022 | 234,739 | 2,957 | 889 | 1,609 | 3,434 | 21,326 | 2,729 |
| | 2023 | 228,932 | 830 | 384 | 2,961 | 4,144 | 49,722 | 3,785 |
| | 2024 | 237,545 | 5,022 | 353 | 2,730 | 2,711 | 70,177 | 5,881 |

Table 14. March fishing effort and harvest by non-charter anglers at selected sites in the Illinois portion of Lake Michigan, in 2015 - 2024. Estimates were rounded to the nearest whole number. Peds = Pedestrian, Lau'd = Launched boat anglers.

| Angler type | Year | Effort (angler-hours) | Harvest Yellow perch | Brown trout | Rainbow trout | Lake trout | Coho salmon | Chinook salmon |
|---|---|---|---|---|---|---|---|---|
| Peds | 2015 | 5,954 | 0 | 199 | 0 | 0 | 754 | 0 |
| | 2016 | 12,891 | 0 | 567 | 41 | 0 | 1,921 | 0 |
| | 2017 | 7,420 | 0 | 125 | 0 | 124 | 372 | 0 |
| | 2018 | 10,305 | 0 | 74 | 17 | 0 | 237 | 0 |
| | 2019 | 6,661 | 0 | 18 | 10 | 0 | 276 | 0 |
| | 2020 | 6,477 | 0 | 33 | 0 | 0 | 252 | 0 |
| | 2021 | 11,338 | 0 | 186 | 16 | 49 | 875 | 0 |
| | 2022 | 5,243 | 0 | 58 | 0 | 0 | 343 | 0 |
| | 2023 | 9,548 | 0 | 0 | 0 | 0 | 2,162 | 0 |
| | 2024 | 8,047 | 0 | 58 | 0 | 0 | 407 | 0 |
| Lau'd | 2015 | 1,730 | 0 | 654 | 0 | 0 | 541 | 0 |
| | 2016 | 915 | 0 | 19 | 0 | 0 | 18 | 0 |
| | 2017 | 603 | 0 | 0 | 0 | 0 | 19 | 0 |
| | 2018 | 1,635 | 695 | 0 | 13 | 139 | 530 | 0 |
| | 2019 | 1,833 | 0 | 205 | 0 | 25 | 19 | 0 |
| | 2020 | 1,673 | 1,401 | 37 | 0 | 0 | 1,051 | 0 |
| | 2021 | 1,742 | 248 | 52 | 0 | 121 | 255 | 0 |
| | 2022 | 4,115 | 4,535 | 86 | 0 | 106 | 29 | 0 |
| | 2023 | 520 | 0 | 0 | 0 | 0 | 344 | 0 |
| | 2024 | 2,479 | 0 | 0 | 0 | 0 | 175 | 0 |
| March Totals | 2015 | 7,684 | 0 | 853 | 0 | 0 | 1,295 | 0 |
| | 2016 | 13,806 | 0 | 586 | 41 | 0 | 1,939 | 0 |
| | 2017 | 8,023 | 0 | 125 | 0 | 124 | 391 | 0 |
| | 2018 | 11,940 | 695 | 74 | 30 | 139 | 767 | 0 |
| | 2019 | 8,494 | 0 | 223 | 10 | 25 | 295 | 0 |
| | 2020 | 8,150 | 1,401 | 70 | 0 | 0 | 1,303 | 0 |
| | 2021 | 13,080 | 248 | 238 | 16 | 170 | 1,130 | 0 |
| | 2022 | 9,358 | 4,535 | 145 | 0 | 106 | 372 | 0 |
| | 2023 | 10,068 | 0 | 0 | 0 | 0 | 2,506 | 0 |
| | 2024 | 10,526 | 0 | 58 | 0 | 0 | 582 | 0 |

Table 15. Minor species harvest by non-charter anglers in the Illinois portion of Lake Michigan, in 2015 - 2024. Estimates were rounded to the nearest whole number.

| Year | Smallmouth bass | Largemouth bass | Rock bass | Bluegill Sunfish | Pumpkinseed sunfish | Common carp | Freshwater drum | Round goby |
|---|---|---|---|---|---|---|---|---|
| 2015 | 0 | 0 | 284 | 76 | 0 | 121 | 2,786 | 18,803 |
| 2016 | 0 | 27 | 159 | 93 | 0 | 154 | 1,223 | 6,506 |
| 2017 | 337 | 54 | 0 | 0 | 0 | 30 | 534 | 1,695 |
| 2018 | 110 | 53 | 20 | 0 | 0 | 0 | 541 | 3,319 |
| 2019 | 80 | 0 | 181 | 24 | 0 | 200 | 3,509 | 4,190 |
| 2020 | 826 | 0 | 424 | 119 | 0 | 31 | 542 | 3,872 |
| 2021 | 1,344 | 0 | 610 | 0 | 0 | 0 | 698 | 1,797 |
| 2022 | 0 | 0 | 176 | 0 | 0 | 100 | 572 | 2,723 |
| 2023 | 188 | 0 | 87 | 0 | 0 | 14 | 2,502 | 1,882 |
| 2024 | 228 | 0 | 393 | 25 | 0 | 0 | 692 | 1,702 |

**Figure 2 (a). Salmonid harvest per unit effort, derived from the Illinois sport fishing surveys of Lake Michigan, 2015-2024**

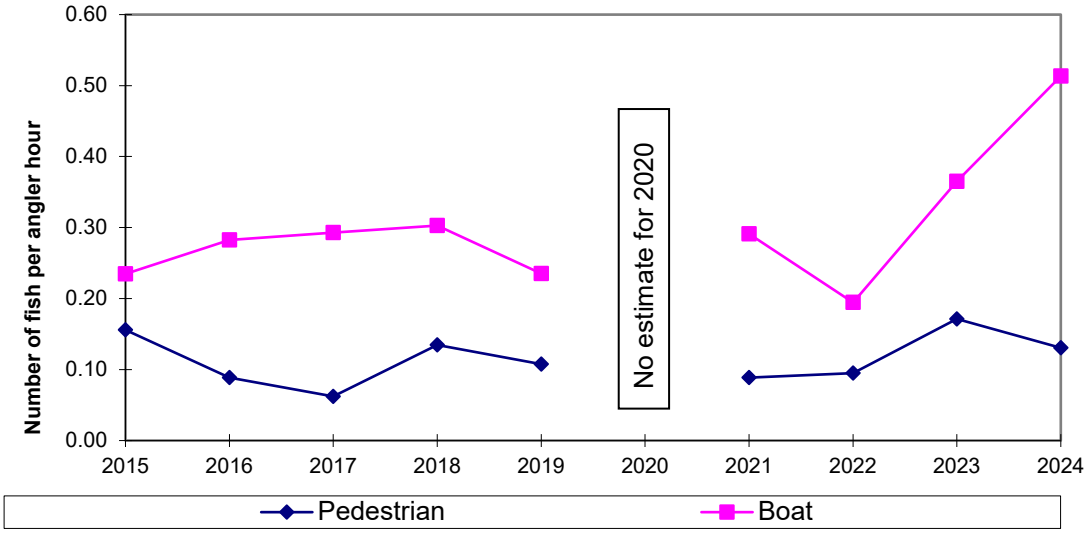



**Figure 2 (b). Yellow perch harvest per unit effort, derived from Illinois sport fishing surveys of Lake Michigan, 2015-2024**

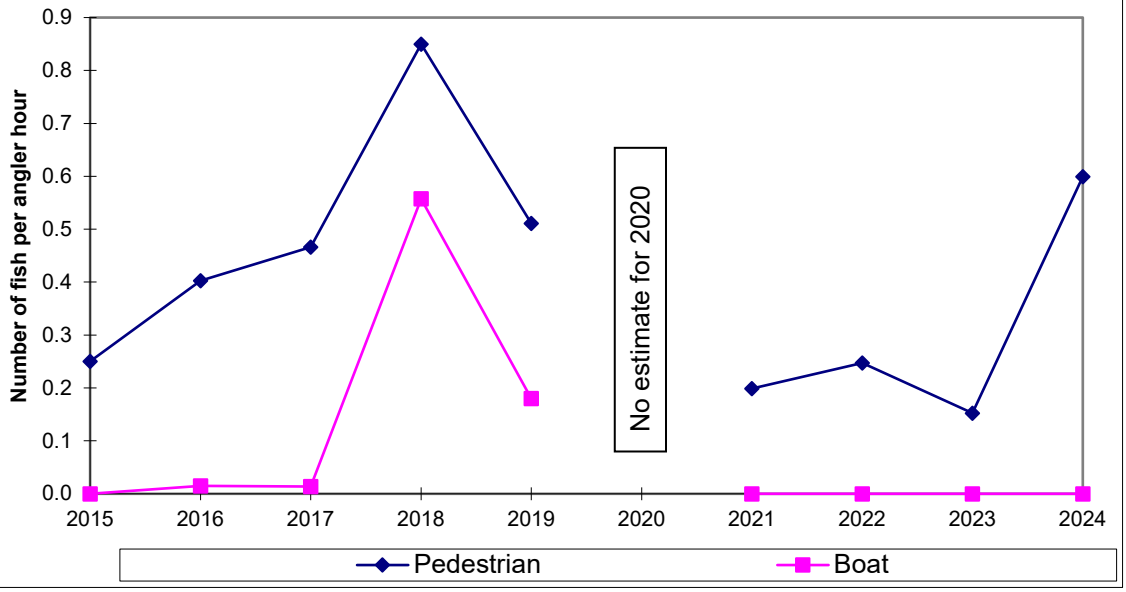


**Figure 3 (a). Directed angler effort for salmonids in the Illinois portion of Lake Michigan, 2015-2024**

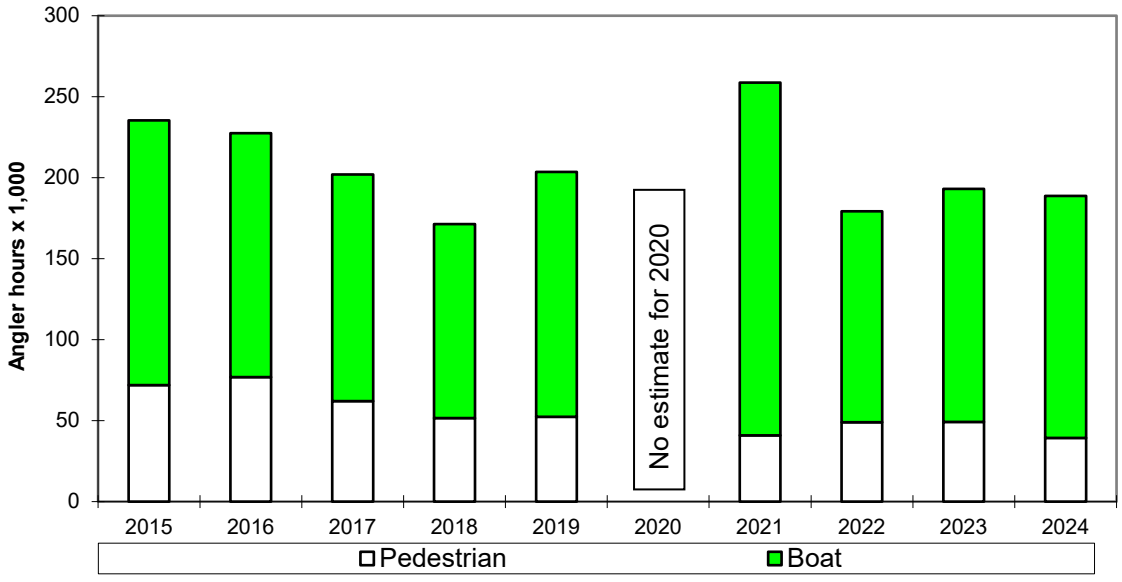



**Figure 3 (b). Directed angler effort for yellow perch in the Illinois portion of Lake Michigan, 2015-2024**

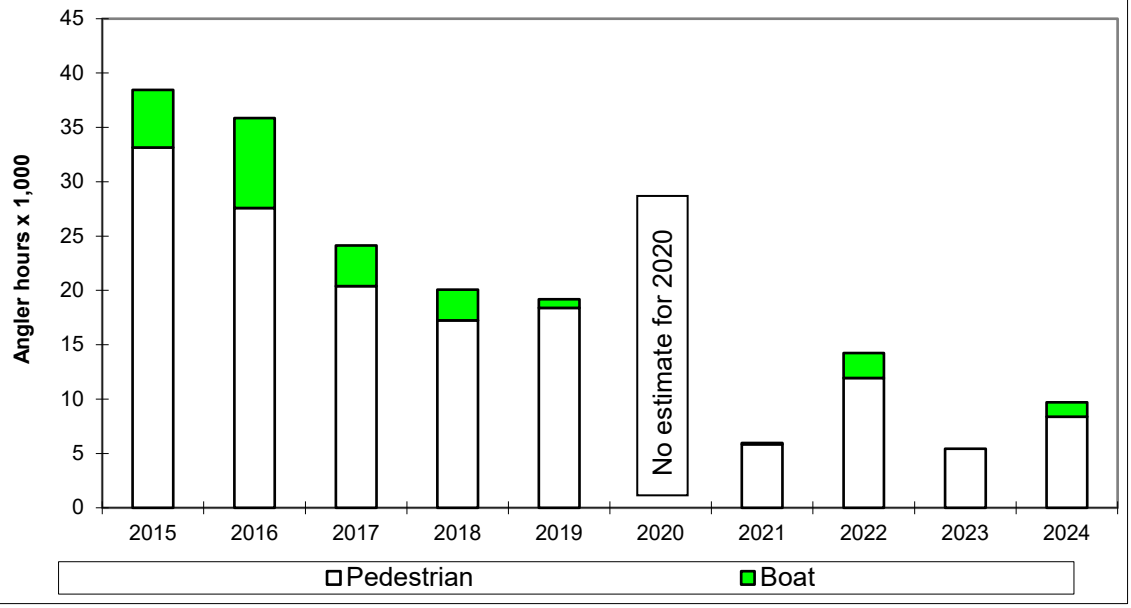


**Figure 4. Total yellow perch non-charter sport harvest in the Illinois waters of Lake Michigan, 2015-2024**

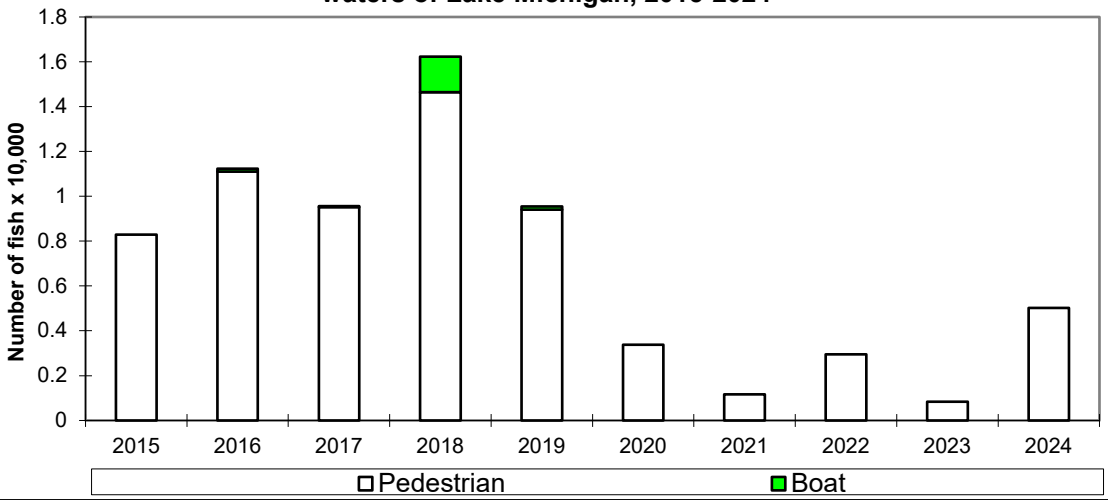



**Figure 5. Average lengths of creeled yellow perch from the Illinois waters of Lake Michigan, 1986 - 2024**

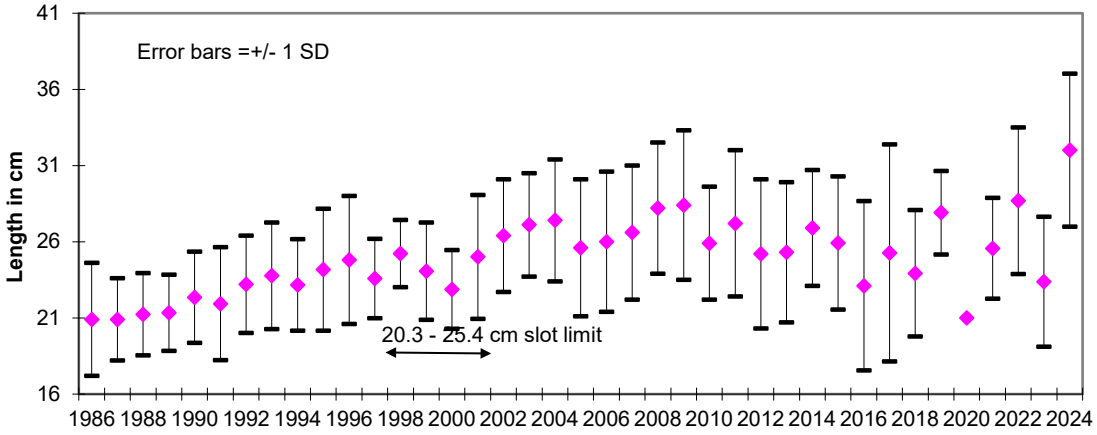



**Figure 6. 2024 yellow perch sport harvest from the Illinois waters of Lake Michigan, per month**

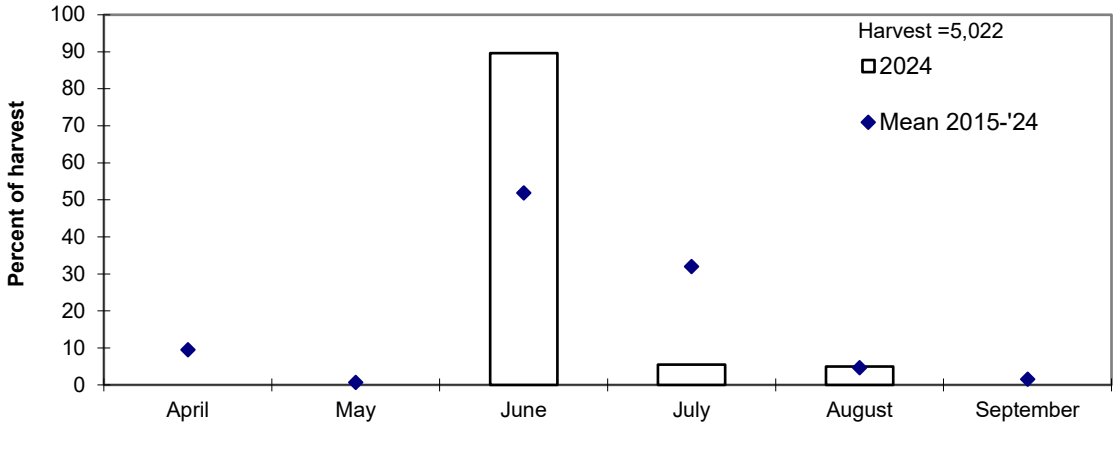


**Figure 7. Total non-charter Coho salmon sport harvest in the Illinois waters of Lake Michigan, 2015- 2024**

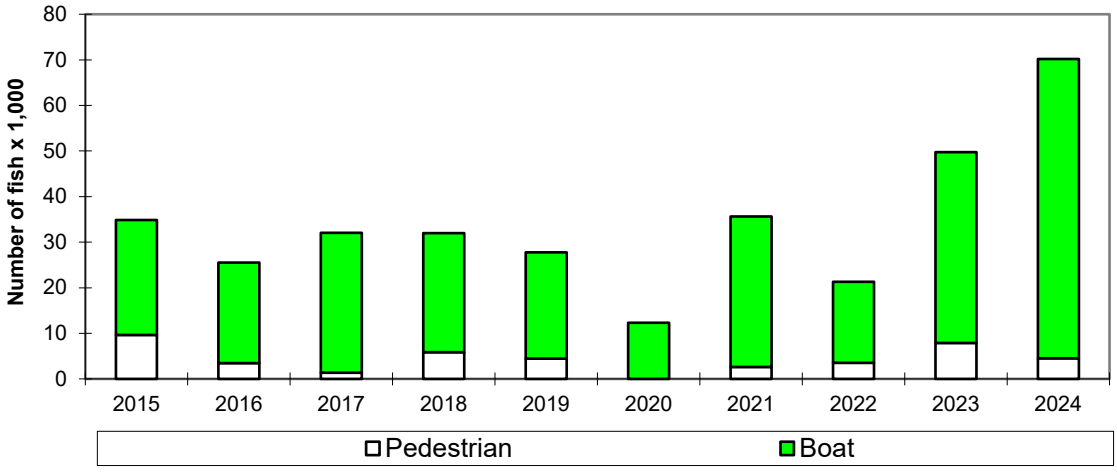



**Figure 8. Average lengths of creeled Coho salmon from the Illinois waters of Lake Michigan, 1986 - 2024**

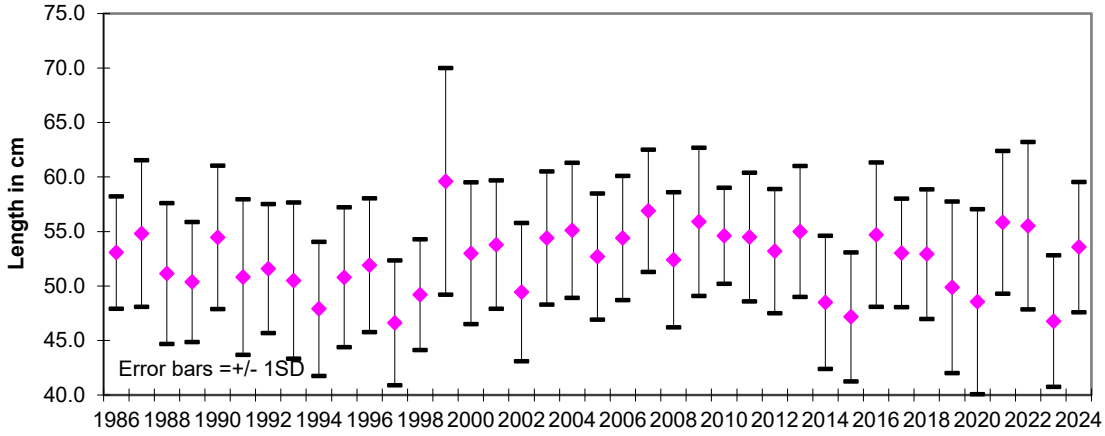


**Figure 9. Total non-charter Chinook salmon sport harvest in the Illinois waters of Lake Michigan, 2015-2024**

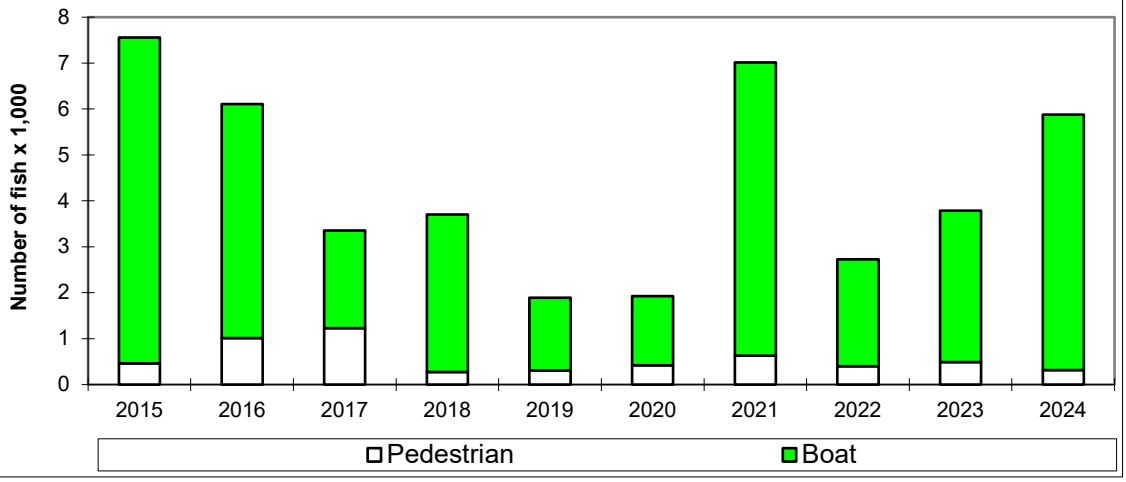



**Figure 10. Average lengths of creeled chinook salmon from the Illinois waters of Lake Michigan, 1986 - 2024**

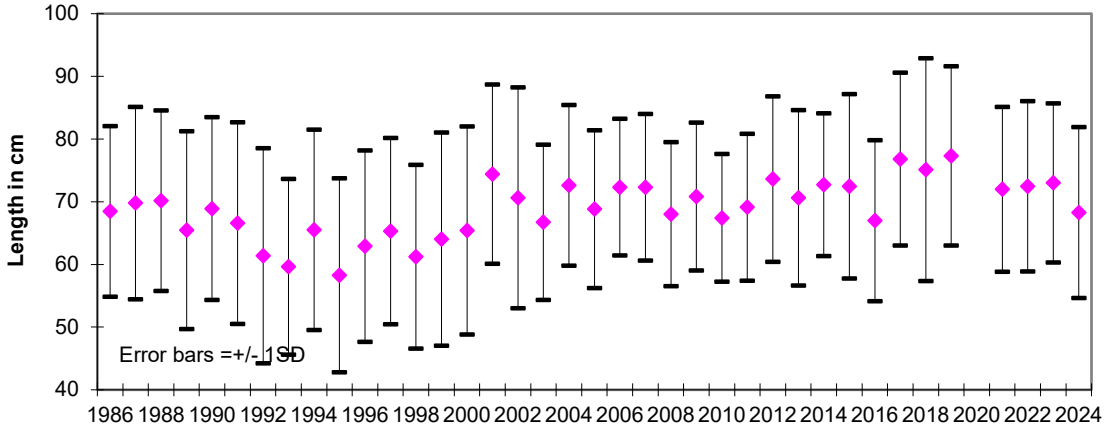


**Figure 11 (a). 2024 Salmonid non-charter harvest by pedestrians, per month**

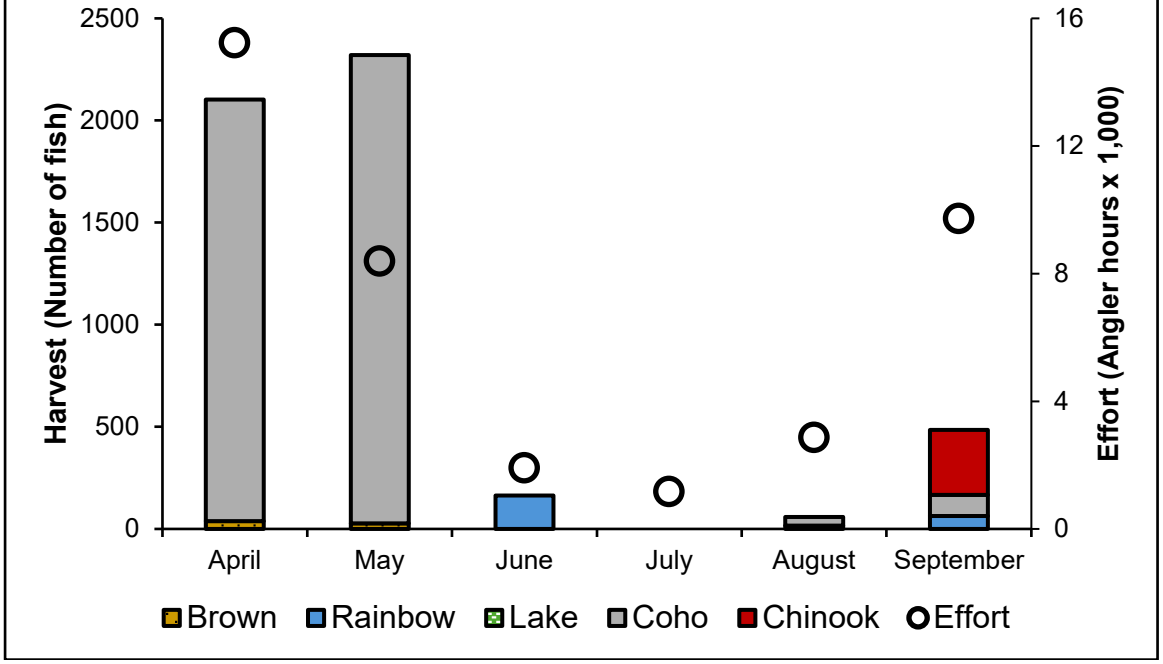
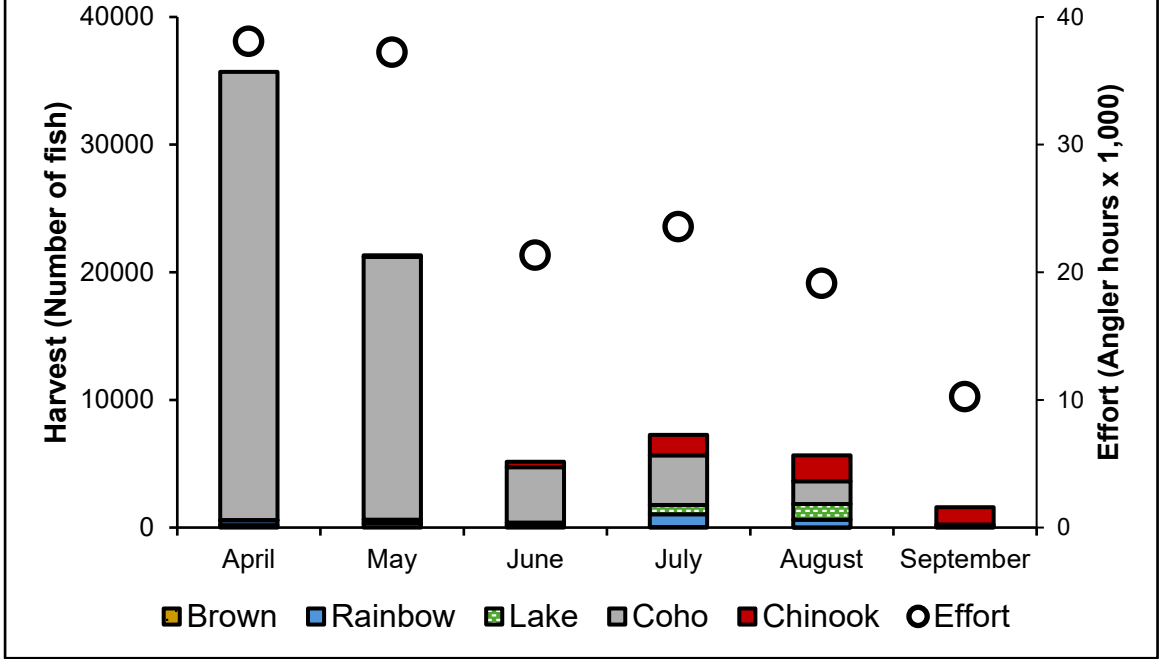



**Figure 11 (b). 2024 Salmonid non-charter harvest by boaters, per month**



## APPENDIX A - COMPARISON OF THE CHARTER AND NON - CHARTER SALMONID BOAT FISHERY

The charter and non -charter boat salmonid fisheries were compared to evaluate whether the two groups target the same salmonid species (Tables A1 and A2). Composition of total harvest for both groups has been mostly similar for the last ten years, but lake trout harvest has become more important to charter boat harvest than non-charter harvest. Harvest-per-unit-effort (HPE) for both groups is presented in Figure A1; the charter fishery has generally exhibited higher success than the non - charter boat fishery (charter HPE approximately 72% higher than non-charter HPE). The combined harvest of both charter and non - charter anglers (boats and pedestrians) for 2015 - 2024 is presented in Figure A2. The creel (non-charter) data represent harvest and effort from April-September (early spring and winter surveys are not included).

Table A1. Non-charter boat harvest composition (boats only) April – September 2015 - 2024. * Data for 2015-2019 and 2021 – 2024 are for April-September, while data for 2020 are for June-September. Directed effort estimates are not available for 2020.

| | Effort | Percent of total harvest | | | | | |
|---|---|---|---|---|---|---|---|
| Year | (angler-hours) | Brown trout | Rainbow trout | Lake trout | Coho salmon | Chinook salmon | Total salmonids |
| 2015 | 163,424 | 1.7 | 7.9 | 6.3 | 65.6 | 18.5 | 38,398 |
| 2016 | 150,456 | 2.9 | 16.4 | 17.0 | 51.8 | 12.0 | 42,524 |
| 2017 | 140,028 | 8.2 | 5.0 | 6.8 | 74.9 | 5.2 | 40,986 |
| 2018 | 119,817 | 0.5 | 5.4 | 12.5 | 72.1 | 9.4 | 36,303 |
| 2019 | 151,216 | 0.2 | 10.1 | 19.7 | 65.6 | 4.4 | 35,556 |
| 2020 | NA | 0.3 | 9.1 | 18.7 | 66.1 | 5.8 | 18,670 |
| 2021 | 217,760 | 1.6 | 4.6 | 31.5 | 52.1 | 10.1 | 63,364 |
| 2022 | 130,345 | 2.0 | 5.2 | 13.4 | 70.1 | 9.2 | 25,344 |
| 2023 | 144,055 | 0.7 | 5.5 | 7.9 | 79.6 | 6.3 | 52,583 |
| 2024 | 149,473 | 0.4 | 3.2 | 3.5 | 85.6 | 7.3 | 76,721 |

Table A2. Charter boat harvest composition April – September 2015 - 2024.

| | Effort | | | | | | Percent of total harvest |
|---|---|---|---|---|---|---|---|
| Year | (angler-hours) | Brown trout | Rainbow trout | Lake trout | Coho salmon | Chinook salmon | Total salmonids |
| 2015 | 97,893 | 1.4 | 7.9 | 27.1 | 58.4 | 5.2 | 40,902 |
| 2016 | 89,409 | 0.9 | 16.1 | 25.8 | 49.5 | 7.6 | 38,439 |
| 2017 | 83,960 | 0.8 | 3.9 | 20.7 | 70.9 | 3.7 | 43,157 |
| 2018 | 76,684 | 0.6 | 3.7 | 26.9 | 65.8 | 3.1 | 36,563 |
| 2019 | 78,240 | 0.4 | 3.9 | 33.2 | 59.1 | 3.4 | 34,641 |
| 2020 | 41,793 | 0.3 | 3.9 | 46.5 | 45.7 | 3.6 | 19,656 |
| 2021 | 71,868 | 0.2 | 6.1 | 38.8 | 50.1 | 4.8 | 34,049 |
| 2022 | 53,790 | 0.7 | 4.1 | 27.6 | 62.4 | 5.1 | 26,138 |
| 2023 | 56,048 | 0.3 | 4.8 | 24.4 | 64.2 | 6.3 | 30,195 |
| 2024 | 58,936 | 0.5 | 3.8 | 15.9 | 72.9 | 6.8 | 41,574 |

**Figure A1. Comparison of charter and non-charter boat salmonid harvest rates for the Illinois portion of Lake Michigan, 2015-2024**

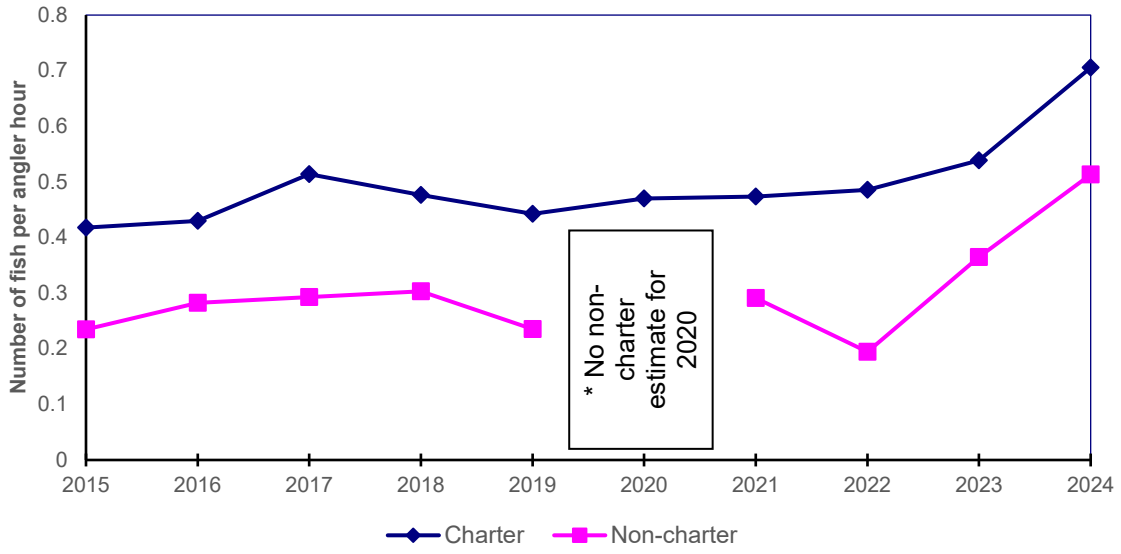
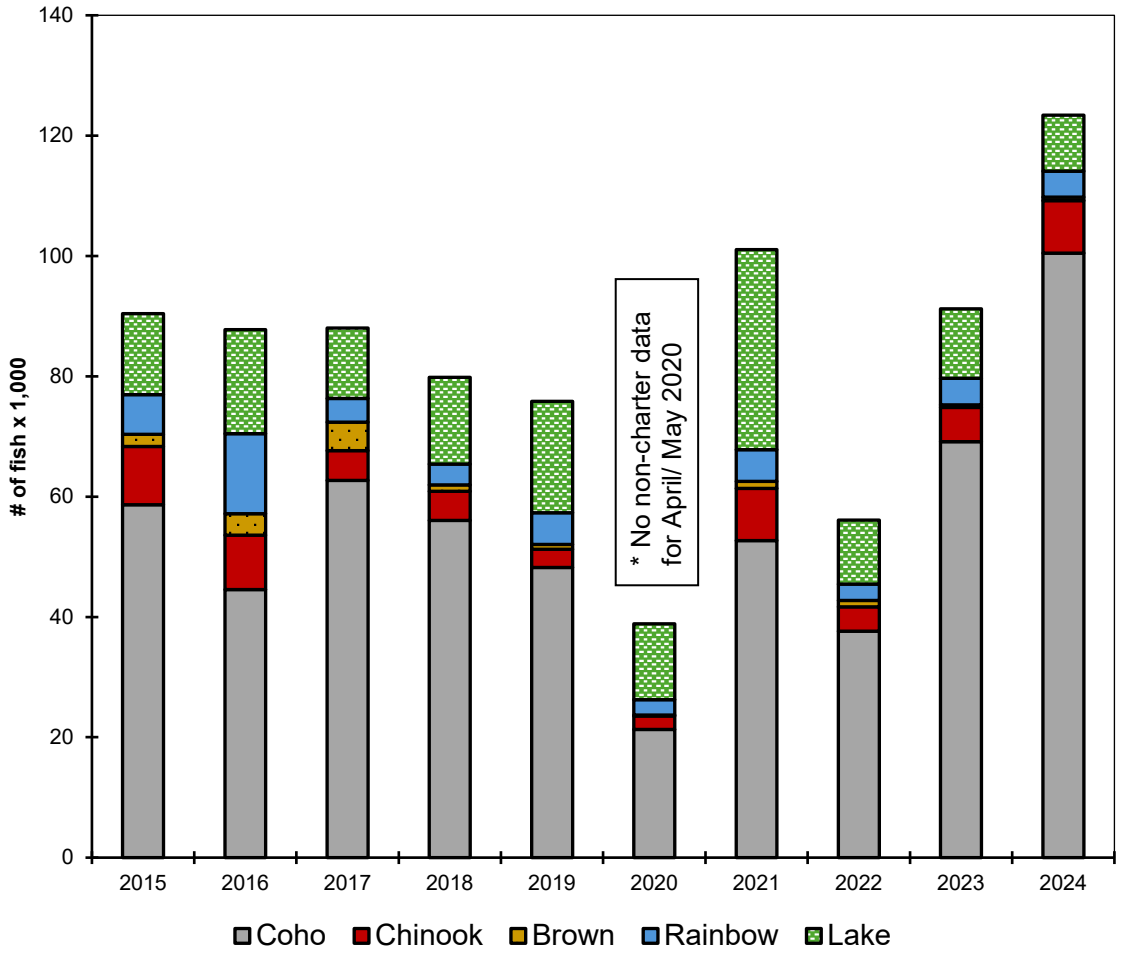



**Figure A2. Illinois Lake Michigan sportfishing harvest (charter & regular combined) 2015 - 2024**



## APPENDIX B – WINTER YELLOW PERCH ANGLING EFFORT AND CATCH IN CHICAGO

### INTRODUCTION

Previous surveys of recreational angling have shown a significant, but relatively small amount of angling effort in Chicago during fall and winter months, primarily targeting yellow perch. Creel surveys during the October-February period (hereafter referred to as winter surveys) were conducted during the winters of 1986-'87, 1987-'88, 1988-'89, and 2006-'07. In these surveys, yellow perch harvest estimates ranged from 2,886 fish to 91,314 fish, representing between 0.2% and 8.4% of the total annual yellow perch harvest estimates (INHS data).

Since the 2006-'07 winter survey, important changes have occurred in the Lake Michigan ecosystem, and harvest estimates for yellow perch during the typical survey months (March-September) have declined substantially. In addition, access to some lakefront locations in the south side of Chicago has improved since 2007; creel clerk observations and online fishing reports suggest angler use has dramatically increased in the winter months at some of these sites (most notably at the 85$^{th}$ Street slip, which adjoins Steelworkers Park). Furthermore, previous winter surveys indicated fishing effort varied substantially based on weather (i.e., ice cover in the harbors). Thus, surveys of winter angling were needed to assess the impact of the ecosystem and access changes on the Lake Michigan fishery in Chicago, and to further evaluate the impact of meteorological variables on fishing effort. We conducted winter surveys eight times between 2014 and 2024; the results of these surveys indicated the winter season had become much more important for the yellow perch fishery (Roswell and Czesny 2024).

Our objective was to obtain additional data for the winter of 2024-2025; we intended to produce results comparable to those from previous winter surveys and used similar methodology.

### METHODS

We used methods similar to the standard Lake Michigan shoreline creel survey (Roswell and Czesny 2024). In this case, however, clerks moved along on a route, with no set time to spend at each site. All angling parties encountered were surveyed, until the threshold of ten parties targeting one of three categories of fish (perch, salmonids, or other species) was reached, all anglers at the site were interviewed, or more than 40 minutes had elapsed at that site. After one of these conditions was met, the clerk would move to the next site. If no anglers were fishing at a site, the clerk would wait five minutes and, if no anglers arrived, record a count of zero anglers and proceed to the next site. If all anglers were on private land (e.g., at 89$^{th}$ Street) or otherwise inaccessible, the clerk would wait 40 minutes (or up to 1 hour at 85$^{th}$ Street) and interview any anglers that became accessible in that time.

As in most previous winters, the clerk would always start the day at Navy Pier at 7:00 AM each sampling day. The clerk would then move to the next site (either north or south depending on the schedule) and continue until all of the sites

were visited. The clerk would always end at the launch ramp at Calumet Park (and stay there for an hour if there were boat trailers in the lot). A complete list of sites can be found in Table B1; note that some sites have changed compared with some previous winters due to observations of fishing effort (or lack thereof).

All sites were visited on scheduled dates. Dates were selected based on a stratified random sample, in which weekends vs. weekdays represented the two strata. One random date was selected from each weekend (Saturday or Sunday), and one random weekday (Monday-Friday) was selected every other week. One survey shift in February was re-scheduled to a randomly-selected date due to severe winter weather. Data were summarized using strata means for each month and site.

**Table B1. Sites visited in Chicago for the winter survey.**

| Site | Order visited (North schedule) | Order Visited (South schedule) | Angler Type |
|---|---|---|---|
| Navy Pier | 1 | 1 | Pedestrian |
| Diversey Harbor | 2 | 4 | Pedestrian |
| Montrose Harbor | 3 | 5 | Pedestrian |
| DuSable Harbor | 4 | 2 | Pedestrian |
| Burnham Harbor | 5 | 3 | Pedestrian |
| Jackson Harbor | 6 | 6 | Pedestrian |
| 85th Street Slip | 7 | 7 | Pedestrian |
| 89th Street | 8 | 8 | Pedestrian |
| Calumet Ramp | 9 | 9 | Launched Boat |

## RESULTS

On 32 dates during October 2024 – February 2025, creel clerks conducted 376 interviews of pedestrian anglers and 22 interviews of boat anglers. Creel clerks measured 57 fish harvested by anglers, including 51 yellow perch. To facilitate consistent comparisons with previous winter surveys, the results in this report focus on yellow perch-directed effort and harvest, which constitutes the dominant fishery component during the fall and winter months.

An estimated 37,034 angler-hours were directed at yellow perch angling, resulting in an estimated harvest of 20,080 yellow perch; HPE (harvest per angler effort expressed in fish-per-angler-hour) was 0.54 yellow perch per angler-hour. December and February accounted for 70.5% and 20.6%, respectively, of pedestrian yellow perch harvest. Most perch harvested by pedestrians were caught at 85th Street (71.4%), or Navy Pier (16.8%; Table B2). All (100%) observed perch harvest by boaters using the Calumet Park boat ramp occurred during December.

Yellow perch harvested in the winter of 2024-’25 were generally smaller than perch harvested in spring and summer of 2024 (Figure B1). The mean length of yellow perch harvested in winter was 25.4 cm, and the mean weight was 175 grams, compared to means of 32.0 cm and 431 grams for perch harvested during spring and summer of 2024.

**Table B2. Estimated monthly total angler effort directed at yellow perch, yellow perch harvest, and number of yellow perch released for each site visited in the winter creel survey 2024-2025.**

| Month | Location | Yellow Perch Effort (angler hours) | Yellow Perch Harvested | Yellow Perch Released |
|---|---|---|---|---|
| October | 85th Street | 0 | 0 | 0 |
| | 89th Street | 0 | 0 | 0 |
| | Burnham | 0 | 0 | 0 |
| | Diversey | 0 | 0 | 0 |
| | DuSable | 0 | 0 | 0 |
| | Jackson Harbor | 0 | 0 | 0 |
| | Montrose | 64 | 0 | 0 |
| | Navy Pier | 21 | 0 | 0 |
| | Calumet Ramp | 0 | 0 | 0 |
| November | 85th Street | 2,575 | 204 | 550 |
| | 89th Street | 226 | 0 | 0 |
| | Burnham | 0 | 0 | 0 |
| | Diversey | 0 | 0 | 0 |
| | DuSable | 0 | 0 | 0 |
| | Jackson Harbor | 0 | 0 | 0 |
| | Montrose | 228 | 0 | 0 |
| | Navy Pier | 2,085 | 833 | 148 |
| | Calumet Ramp | 614 | 0 | 0 |
| December | 85th Street | 14,097 | 8,066 | 33,832 |
| | 89th Street | 1,428 | 1,149 | 4,659 |
| | Burnham | 0 | 0 | 0 |
| | Diversey | 51 | 0 | 0 |
| | DuSable | 626 | 361 | 278 |
| | Jackson Harbor | 0 | 0 | 0 |
| | Montrose | 124 | 0 | 0 |
| | Navy Pier | 3,683 | 1,892 | 4,701 |
| | Calumet Ramp | 2,888 | 3,820 | 9,179 |
| January | 85th Street | 2,789 | 0 | 5,614 |
| | 89th Street | 245 | 172 | 476 |
| | Burnham | 0 | 0 | 0 |
| | Diversey | 22 | 0 | 0 |
| | DuSable | 610 | 239 | 789 |
| | Jackson Harbor | 0 | 0 | 0 |
| | Montrose | 0 | 0 | 0 |
| | Navy Pier | 0 | 0 | 0 |
| | Calumet Ramp | 0 | 0 | 0 |
| February | 85th Street | 4,115 | 3,345 | 10,222 |
| | 89th Street | 341 | 0 | 0 |
| | Burnham | 0 | 0 | 0 |
| | Diversey | 0 | 0 | 0 |
| | DuSable | 59 | 0 | 68 |
| | Jackson Harbor | 0 | 0 | 0 |
| | Montrose | 104 | 0 | 0 |
| | Navy Pier | 38 | 0 | 0 |
| | Calumet Ramp | 0 | 0 | 0 |

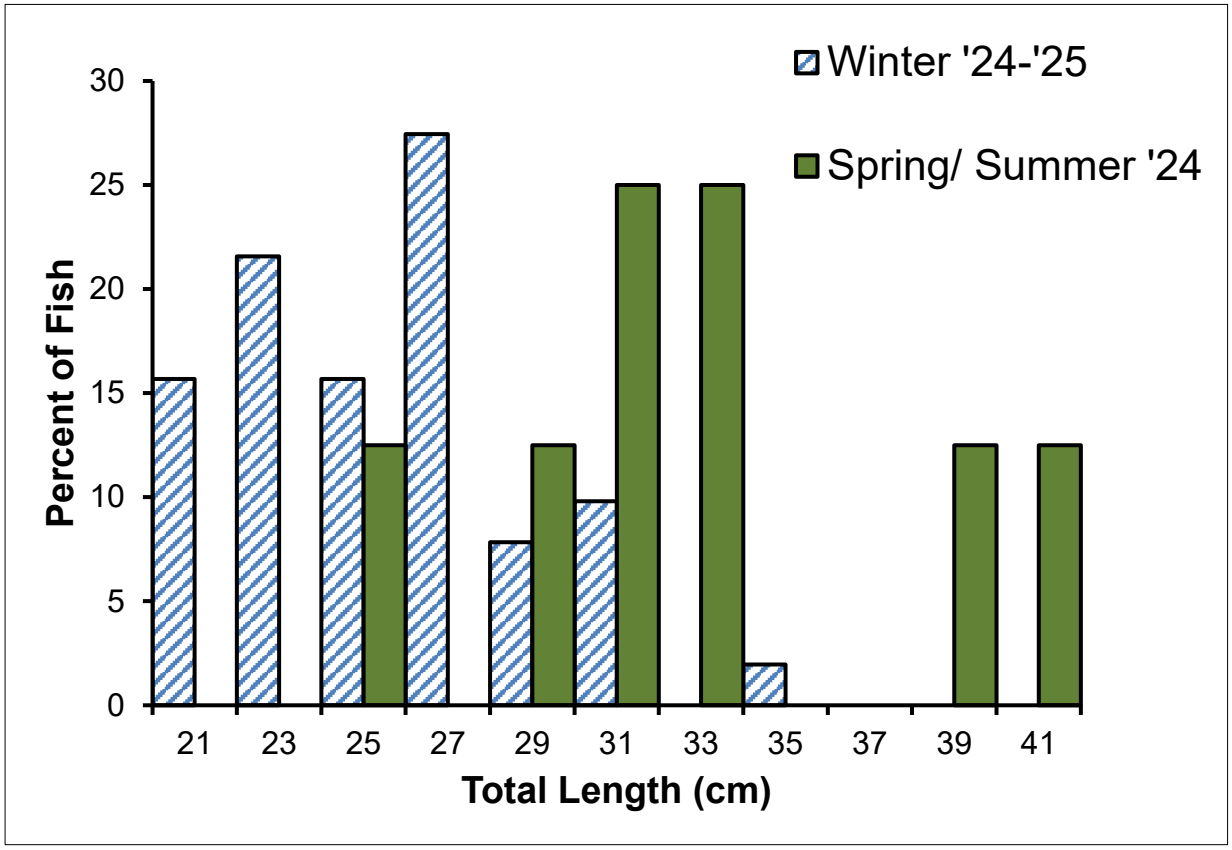



**Figure B1. Length frequency distribution of yellow perch harvested in winter (October 2024-February 2025, blue/ white striped bars) and spring/ summer (April-September 2024, solid green bars). Lengths are grouped into 2 cm bins (labeled by bin midpoint).**

## DISCUSSION

During the winter of 2024-‘25, yellow perch fishing constituted an important component of the Lake Michigan recreational fishery in Illinois. The 37,034 angler-hours spent by winter perch anglers is 281% more than the total perch-directed angler-hours fished in Illinois waters during April-September 2024. The estimated harvest of 20,80 yellow perch during winter represents 400% of the March-September 2024 harvest estimate, and 80.0%% of the total annual perch harvest for the period March 2024-February 2025. Overall HPE (0.54 yellow perch per angler-hour) was similar to the spring and summer HPE estimate of 0.52 yellow perch per angler-hour.

An important difference between the typical (March – September) survey periods and most winter surveys is the spatial distribution of anglers, and this continued in the winter of 2024-’25. During spring and summer, Montrose Harbor (and vicinity) usually accounts for the majority of pedestrian yellow perch fishing effort. However, results from these winter surveys suggest Montrose harbor represented only 1.6% of total perch-directed fishing effort by pedestrians. Instead, the

primary areas utilized by yellow perch anglers in the winter of 2024-‘25 were the 85th street slip and Navy Pier, together accounting for 87.7% of perch-directed angler-hours for pedestrians fishing. Combined, these areas (Navy Pier and 85th St) account for less than 5% of pedestrian anglers observed during helicopter flights conducted in the spring and summer (Table 2 in the main body of this report), a pattern corroborated by frequent observations by creel clerks. In addition to seasonal movement of yellow perch, the shift in spatial distribution of anglers may be attributable to several factors such as access changes, amenities (e.g., bathrooms), and weather-related factors (e.g., ice).

Weather is a major factor that likely has a large influence not only on locations anglers use for fishing, but also on the time spent fishing and fishing success of anglers. For example, the presence and thickness of ice (driven by cold temperatures) in harbor areas can play a large role in the ease of fishing. The presence of ice forces anglers at some locations to break holes in the ice to fish, which may make sites with open water more appealing. However, very thick ice may allow anglers to walk on the ice and drill holes to find fish, which may attract anglers interested in ice fishing at locations that freeze early (e.g., areas lacking wave action or current) following a long period of cold temperatures. High winds may drive anglers to seek sheltered areas, and prolonged periods of high winds can increase turbidity (anglers often attribute poor catch rates to turbidity, C. Roswell personal observations) through wave action. Large snow events can restrict access to some sites. All winters in Chicago have periods of cold temperatures, high winds, and snow; however, there can be considerable variation in the frequency, magnitude, and duration of these events from one winter to the next. The winter of 2024-‘25 was characterized by near-average temperatures and below average snowfall. However, periods of cold and snow did occur, with especially cold temperatures occurring in mid-January and mid-February. No boat angler effort was observed at Calumet during January and February 2025. Pedestrian perch angling success was primarily confined to southern access points and Navy Pier, suggesting environmental conditions in these areas were favorable for high abundance of yellow perch or higher catchability by anglers.

**Comparison with previous years and the importance of the winter season**

The winter harvest of 2024-’25, at 20,080 fish, was 7.0% lower than during the winter of 2023-’24. The winter harvest comprised 80.0% of the total annual harvest (March – February), lower than 2023-’24 (96.3%). Winter harvest of yellow perch never exceeded 5% of the annual total during the three completely surveyed years in the 1980s and was 8.4% for 2006-‘07. While yellow perch harvest in summer of 2024 increased compared with 2023, summer harvest remained much below the long-term mean, contributing to the relative importance of the 2024-’25 winter harvest .

Overall, this and other recent winter surveys demonstrate the current importance of fall and winter to the yellow perch fishery in the Illinois waters of Lake Michigan. Nine previous winter surveys since 2006 showed harvest in these months comprised larger portions of total annual harvest (8.4% - 96.3%) than the three winters surveyed in the late 1980s (0.2% - 5.0%), suggesting the winter component is becoming increasingly important relative to the spring/ summer period. Whether future increases in yellow perch effort, harvest, and harvest rates during spring and summer (if perch were to become more abundant) would be matched by similar increases in the winter fishery is unclear.

The viability of the winter yellow perch fishery is likely dependent on access. Unlike the spring and summer periods, when pedestrian anglers typically utilize shore access in parks, winter perch anglers rely on locations that are less accessible. The area around the former US Steel South Works has been particularly important during the winter in recent years. Most angler effort at 85th and 89th Streets occurred on private land (or U.S. Army Corps of Engineers land officially off limits to the public). Furthermore, much of the winter angling occurs from docks in the harbors, accessible through the purchase of a pass for the winter season (and only a select subset of piers are open to fishing), but typically inaccessible during the summer boating season. Typically, Navy Pier also accounts for large portions of angler effort and offers a discounted "fisherman's" parking rate for anglers leaving by 10:00 am.

Yellow perch harvested during the fall and winter period typically tend to be smaller on average than those harvested in the preceding spring and summer periods, and this was again the case for the winter of 2024-'25. Yellow perch harvested in the winter of 2024- '25 were smaller (mean TL: 25.4 cm) than during the winter of 2023-'24 (mean TL: 27.0 cm). The release rate during 2024-'25 was higher than the preceding winter (79.0% of caught perch were released vs. 49.9% released during 2023-'24), suggesting an overall smaller size distribution of yellow perch being caught during October 2024 - February 2025.

**Other types of fishing**

Yellow perch angling constituted a major component of recreational angling during the October – February period as a whole; 45.2% of angler parties contacted during the months of October – February were targeting perch. The majority of angling activity not directed at yellow perch was comprised of anglers targeting salmonines, especially in October; 72.7% of angler parties interviewed in October were targeting salmon and/ or trout. Only 15.6% of encountered angler parties in the October-February period were targeting other species or "anything that bites." Our estimates reported here only used interviews with angling parties targeting perch (i.e., perch-directed effort). However, all data from other types of angling are stored in an INHS database for future comparisons.

**Limitations**

Some uncertainty surrounds our estimates, especially due to a low level of survey effort. It is possible that some fishing activity was missed due to low temporal resolution of our survey; however, this would likely represent only a small portion of the overall fishery. Furthermore, with fewer survey dates, there is a higher likelihood of one date (with a very high catch rate, for example) being highly influential in our estimates of monthly means (this was not apparent in our dataset, however). Another important limitation is the lack of survey effort at locations inaccessible to creel clerks, especially on private land in and around the U.S. Steel property; based on our observations, private land areas between 85th and 91st streets appeared to be popular with anglers. A complete discussion of winter creel survey limitations can be found in Appendix B of Roswell and Czesny (2016).

**Conclusions**

Our survey produced meaningful estimates of catch of yellow perch and perch-directed angler effort during the winter of 2024-'25. Nearly half of angler effort in Chicago during winter months was directed at yellow perch. Winter perch

harvest was a significant portion of the fishery, representing 80.0 of the total estimated perch harvest between March and February. Yellow perch harvested in the winter were smaller than perch harvested during April – September. The fall and winter period continues to represent an important period for overall yellow perch angling effort and harvest.