Ohio’s Lake Erie Fisheries
2020 Annual Angler Report

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By:
Lake Erie Fisheries Units*
Ohio Department of Natural Resources
Division of Wildlife

Fairport Harbor Fisheries
Research Station
1190 High Street
Fairport Harbor, Ohio 44077
e-mail: Ann.Gorman@dnr.ohio.gov

Sandusky Fisheries Research Station
305 E. Shoreline Drive
Sandusky, Ohio 44870
e-mail: Eric.Weimer@dnr.ohio.gov

Ann Marie Gorman, Supervisor
Tim Bader
John Deller
Carey Knight
Jenne Riendeau
Brandon Slone
Andrew Gable

Eric Weimer, Supervisor
Mark DuFour
Matt Faust
Jim McFee
Sherry Russell
Brian Schmidt
Zak Slagle

Travis Hartman, Lake Erie Fisheries Program Administrator
Scott Hale, Executive Administrator, Fish Management and Research
Kendra Wecker, Chief
Mary Mertz, Director
Mike DeWine, Governor

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Note: The data and management summaries contained in this report are provisional. Every effort has been made to insure their correctness. Contact the Division of Wildlife’s Lake Erie office nearest you prior to using this data or before citing research and management findings. Additional data are available upon request.
The Ohio Department of Natural Resources, Division of Wildlife (ODNR-DOW) Lake Erie Fisheries Program manages sport and commercial fisheries for the 2.24 million acres of water under Ohio’s jurisdiction. Within this area, sampling activities are directed at three management units and provide information on how the fisheries and food web respond to changes in the ecosystem.

**2020 Data Caveat:** The COVID-19 pandemic impacted collection of data during 2020. Ohio’s creel survey was most heavily affected due to restrictions on when surveys could begin, reduced staffing, and limited spatial coverage in terms of interviews and biological data collected. As such, estimates generated for 2020 are unlike previous years and comparisons to prior years must consider the pandemic’s impact on this survey.

**Walleye**

Walleye fishing was above average in 2020 thanks to recent strong hatches. The West Basin hatch (also known as recruitment) was again strong this year, although lower than the historic highs of 2018-2019. Central Basin Walleye hatches were also well above average but lower than 2018-2019 hatches.

Angler harvest declined from 2.6 million Walleye in 2019 to 2.0 million in 2020 (see 2020 Data Caveat). Harvest rates also declined from 2019 highs.

Yellow Perch

Yellow Perch catch rates in the West Basin were low in 2020 despite recent years of consistent hatches (Fig.3). Hatches continue to be near or above average in the West Basin, signaling consistent fishing opportunities supported by several good hatches. However, angler harvest for 2020 was estimated at a below-average 0.8 million perch with a below-average harvest rate of 1.6 fish per hour (Fig.3).
Performance of the Yellow Perch fishery in the Central Basin was poor in 2020 (Fig.4). Recruitment indices have been below average since 2014. In May 2021, the MU 2 (West Central) daily limit was reduced to 10 fish per day due to low population levels and the ensuing decrease to Ohio’s Total Allowable Catch.

Ohio’s Yellow Perch commercial fishery experienced reduced harvest in all three management units. The decreased harvest in MU 2 was partially dictated by lower quota allocations. The lakewide catch rate was 76 pounds per lift, down 27% from the 2019 catch rate of 105 pounds per lift.

Steelhead Trout

Tributary and open lake fisheries should remain stable with continued annual stocking of yearling steelhead. In 2020, ODNR-DOW hatchery personnel raised and stocked 469,265 steelhead that were a mix of Little Manistee, Chambers Creek and Ganaraska strains. Annual targeted steelhead stocking numbers (450,000) and locations remain the same for 2021.

Forage Fish Community

Forage fish catch rates were about half of the average in the West Basin in August. Emerald Shiner catch rate remained historically low (although trawl surveys are not designed to catch them). Gizzard Shad catch rate was also low, while Round Goby catch was near average in 2020. In the Central Basin, forage fish catch rates remained low. Rainbow Smelt and Emerald Shiner catches also remained low, while Gizzard Shad rebounded from two minimal catch years.
Figure 1.1. Map of Ohio’s Lake Erie waters including Management Units (MUs) used for Yellow Perch management. The line between MU 1 and MU 2 is at 82°30.000’ longitude (near Huron) and the line between MU 2 and MU 3 is at 81°20.000’ longitude (near Mentor).
Walleye

**Figure 2.1.** Average adult Walleye catch from the ODW fall gillnet survey across all Ohio waters split into young (age-2) and older (age-3+) fish. In 2016, this survey switched from multifilament nets to monofilament; pre-2016 catches are not directly comparable to catches from 2016 to the present.

**Figure 2.2.** Average age-0 Walleye density from ODW trawl surveys for each of Ohio’s management units. This “hatch” or recruitment index is used to help determine how many adult Walleye can be expected in the future.
Figure 2.3. Average age-1 Walleye density from ODW trawl surveys for each of Ohio’s management units. These data, together with densities of age-0 Walleye, help biologists understand how many harvestable Walleye may be available in the near-future.

Figure 2.4. Walleye harvest rate (fish kept per hour per angler) from all of Ohio’s Lake Erie waters. Data come from annual creel surveys (angler interviews).
Figure 2.5. Walleye total harvest from all Ohio’s Lake Erie waters. Data come from annual creel surveys (angler interviews).

Figure 2.6. Walleye total effort (number of hours anglers fished for Walleye) for all Ohio’s Lake Erie waters. Data come from annual creel surveys (angler interviews).
Figure 2.7. Walleye length at age from the ODW fall gillnet survey across all management units. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average. The dotted line indicates the legal minimum length. This chart can be used to estimate the approximate age of a Walleye with a known length.

Figure 2.8. Walleye weight at length from the ODW fall gillnet survey across all management units. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average. The dotted line indicates the legal minimum length. This chart can be used to estimate the weight of a Lake Erie Walleye with a known length.
Figure 3.1. Average adult Yellow Perch catch from the ODW trawl survey for Management Unit 1 (West Basin, Toledo to Huron) split into young (age-2) and older (age-3+).

Figure 3.2. Average adult Yellow Perch catch from the ODW trawl survey for Management Unit 2 (Central Basin, Huron to Fairport Harbor) split into young (age-2) and older (age-3+).
Figure 3.3. Average adult Yellow Perch catch from the ODW trawl survey for Management Unit 3 (Central Basin, east of Fairport Harbor) split into young (age-2) and older (age-3+).

Figure 3.4. Average age-0 Yellow Perch density from ODW trawl surveys for each of Ohio’s management units. This “hatch” or recruitment index is used to help determine how many adult Yellow Perch can be expected in the future.
Figure 3.5. Average age-1 Yellow Perch density from ODW trawl surveys for each of Ohio’s management units. These data are used to help determine what will happen to the Yellow Perch population in the future.

Figure 3.6. Yellow Perch harvest rate (fish kept per hour per angler) for each of Ohio’s management units. Data come from annual creel surveys (angler interviews).
Figure 3.7. Yellow Perch total harvest for each of Ohio’s management units. Data come from annual creel surveys (angler interviews).

Figure 3.8. Yellow Perch total effort (number of hours angler fished for Yellow Perch) for each of Ohio’s management units. Data come from annual creel surveys (angler interviews).
Figure 3.9. Yellow Perch length at age from ODW trawl surveys for Management Unit 1 (West Basin, Toledo to Huron). This chart can be used to estimate the age of an MU1 Yellow Perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average.

Figure 3.10. Yellow Perch weight at length from ODW trawl surveys for Management Unit 1 (West Basin, Toledo to Huron). This chart can be used to estimate the weight of a MU1 Yellow Perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average.
Figure 3.11. Yellow Perch length at age from ODW trawl surveys for Management Unit 2 (Central Basin, Huron to Fairport Harbor). This chart can be used to estimate the age of an MU2 Yellow Perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average.

Figure 3.12. Yellow Perch weight at length from ODW trawl surveys for Management Unit 2 (Central Basin, Huron to Fairport Harbor). This chart can be used to estimate the weight of an MU2 Yellow Perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average.
Figure 3.13. Yellow Perch length at age from ODW trawl surveys for Management Unit 3 (Central Basin, east of Fairport Harbor). This chart can be used to estimate the age of an MU3 Yellow Perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average.

Figure 3.14. Yellow Perch weight at length from ODW trawl surveys for Management Unit 3 (Central Basin, east of Fairport Harbor). This chart can be used to estimate the weight of an MU3 Yellow Perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average.
Figure 4.1. Average Smallmouth Bass catch from the ODW September gillnet survey across all Ohio waters split into young (ages-0–3) and adult (age-4+).

Figure 4.2. Catch rate (fish caught per hour per angler) for Largemouth and Smallmouth Bass in the Ohio waters of Lake Erie. Data come from annual creel surveys (angler interviews) and are not available for 2020. Largemouth Bass catch rate recording began in 2006.
Figure 4.3. Harvest of Smallmouth Bass from Ohio waters of Lake Erie since 1990. Harvest declined substantially with stricter regulations in 2000 and 2004 (dashed lines). Data come from annual creel surveys (angler interviews) and are unavailable for 2020.

Figure 4.4. Hours spent fishing for Smallmouth and Largemouth Bass in the Ohio waters of Lake Erie. Data come from annual creel surveys (angler interviews) and are unavailable for 2020.
**Figure 4.5.** Smallmouth Bass length at age from the ODW gillnet survey across all management units. This chart can be used to estimate the age of a Lake Erie Smallmouth Bass with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average. The dotted line indicates the legal minimum length for most of the year (14 in), while the blue dashed line indicates the spring minimum (18 in).

**Figure 4.6.** Smallmouth Bass weight at length from the ODW gillnet survey across all management units. This chart can be used to estimate the weight of a Lake Erie Smallmouth Bass with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average. The dotted line indicates the legal minimum length for most of the year (14 in), while the blue dashed line indicates the spring minimum (18 in).
Figure 4.7. Largemouth Bass length at age from the ODW electrofishing survey in the West Basin. This chart can be used to estimate the age of a Lake Erie Largemouth Bass with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average. The dotted line indicates the legal minimum length for most of the year (14 in), while the blue dashed line indicates the spring minimum (18 in).

Figure 4.8. Largemouth Bass weight at length from the ODW electrofishing survey in the West Basin. This chart can be used to estimate the weight of a Lake Erie Largemouth Bass with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year’s average. The dotted line indicates the legal minimum length for most of the year (14 in), while the blue dashed line indicates the spring minimum (18 in).
Figure 4.9. Percent occurrence of prey species in Smallmouth Bass diets (excluding empty stomachs and unidentified gut contents). These data come from gillnet surveys. Round Goby make up the majority of Smallmouth Bass diets in Lake Erie.

Figure 4.10. Percent occurrence of prey species in Largemouth Bass diets (excluding empty stomachs and unidentified gut contents). These data come from electrofishing surveys. Largemouth Bass diets in Lake Erie are highly variable.
Forage Fishes

Figure 5.1. Total catch (fish per hectare) of forage fishes over time from the West and Central Basin bottom trawl surveys. Forage fishes include any fish that would fit into an adult Walleye mouth (roughly between 2–7 inches) and include Emerald Shiners, Gizzard Shad, White Perch, and Rainbow Smelt (Figure 5.2).
Figure 5.2. Proportion of total forage (percent) for various fish groups over time from the West (top) and Central Basin (bottom) trawl surveys. White Perch make up the majority of the West Basin forage populations (yellow), while Rainbow Smelt make up a greater proportion of Central Basin forage populations (blue).
Figure 6.1. West Basin lake bottom dissolved oxygen measurements by month in 2020 (orange points) compared to the ten-year average (black line) and 95% range (grey area). Fish behavior, including feeding, tends to be impacted when dissolved oxygen is below ~ 4.5 mg/L (dashed line), which was prevalent in August 2020.
Figure 6.2. Central Basin lake bottom dissolved oxygen measurements by month in 2020 (orange points) compared to the ten-year average (black line) and 95% range (grey area). Offshore areas (bottom) tend to be more affected by low oxygen than do nearshore areas (top). Fish behavior, including feeding, tends to be impacted when dissolved oxygen is below ~4.5 mg/L (dashed line), which was prevalent in August 2020.
More Information

This document represents a small summary of the data that Ohio Division of Wildlife biologists collect every year. Greater detail can be found in the Division’s annual Status Reports (prior to 2020) and Data Reports (2020-present). Background information on the multitude of annual surveys can be found in the Data Report Appendix. If you have questions, concerns, or would like to use these data, please contact one of the Division of Wildlife’s Lake Erie offices:

Sandusky Fisheries Research Station
305 E. Shoreline Dr.
Sandusky, Ohio 44870
(419) 625-8062

Fairport Fisheries Research Station
1190 High Street
Fairport Harbor, Ohio 44077
(440) 352-4199

Citation: