Ohio's Lake Erie Fisheries
2022 Angler Report

Prepared
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**Most work was completed under Federal Aid in Sport Fish Restoration Project F-69-P, Fish Management in Ohio*

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Note: The data and management summaries contained in this report are provisional. Every effort has been made to ensure their correctness. Contact the Division of Wildlife's Lake Erie office nearest you before using these data or before citing research and management findings. Additional data are available upon request.

Suggested citation:

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Ohio Department of Natural Resources
DIVISION OF WILDLIFE

Executive Summary
Ohio's Lake Erie Fisheries 2022 Annual Report

The 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 zones and provide information on how the fisheries and food web respond to changes in the ecosystem.

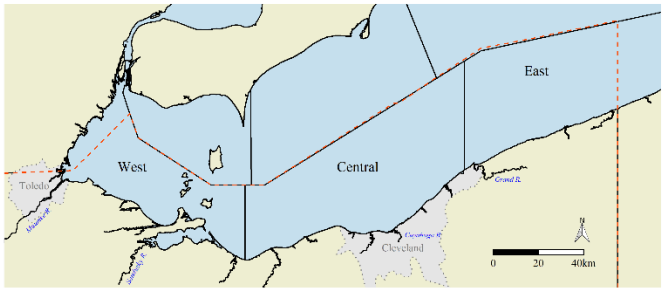


Fig. Map of Ohio's Lake Erie fishing zones.

Walleye

Walleye fishing was excellent in 2022 thanks to recent strong hatches. In the West Zone, recruitment in Ohio waters was the 9th highest since 1988 in the 2022 Interagency trawl survey. Additionally, walleye hatches in the Central and East zones were well above average.

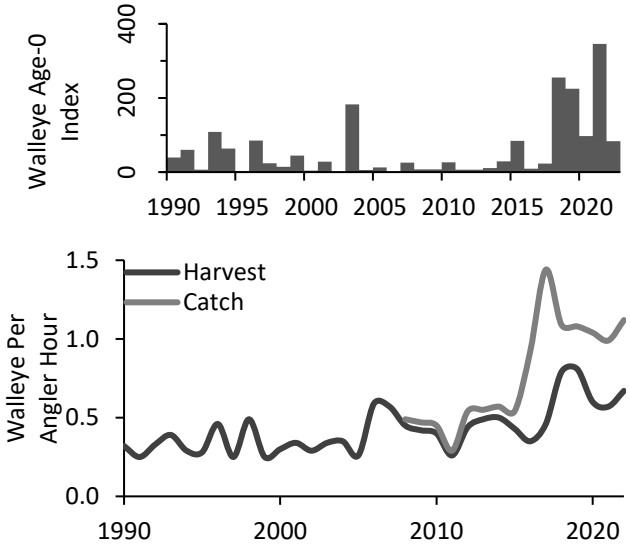


Fig. Ohio's Lake Erie walleye - **Top**: West Zone recruitment index of age-0 fish (catch-per-hectare). **Bottom**: Targeted walleye fishing rates for private boat trips across all Ohio waters. Recording of catch started in 2008.

Angler harvest was 2.6 million fish in 2022, slightly higher than the 2.5 million harvested in 2021. Angler catch rates continue to be exceptional, with strong contributions from the 2015, 2018, and 2019 year-classes.

Yellow Perch

Yellow perch catch rates and harvest in the West Zone had a slight uptick in 2022 but remained below average. Hatches have been near or above average for ten years in the West Zone, signaling consistent fishing opportunities across multiple year classes. In 2022, anglers harvested an estimated 1.3 million fish, with a harvest rate of 2 fish per angler hour.

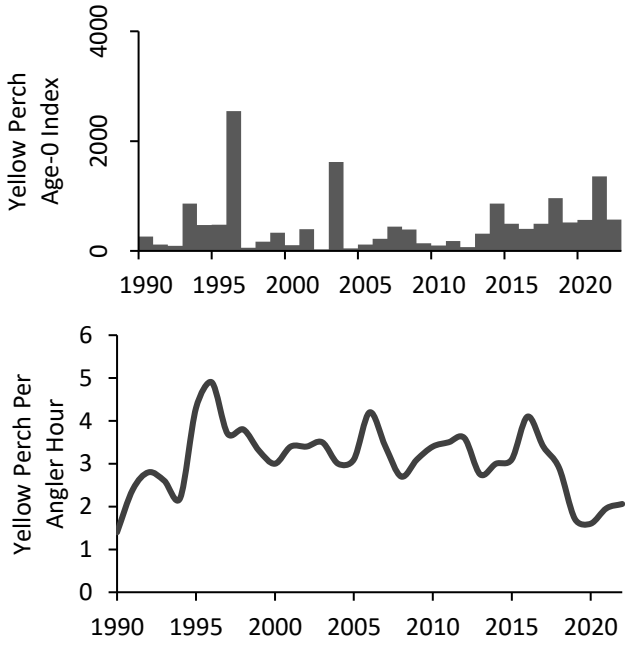


Fig. Ohio's West Zone Lake Erie yellow perch – **Top**: Recruitment index of age-0 fish (catch-per-hectare). **Bottom**: Targeted yellow perch harvest rates for private boat trips in the West Zone.

Yellow perch fishing catch rates in the central basin were low in 2022. Recruitment indices have been below average since 2014. Angler harvest and targeted angler hours in 2022 were among the lowest since the creel survey began 1975.

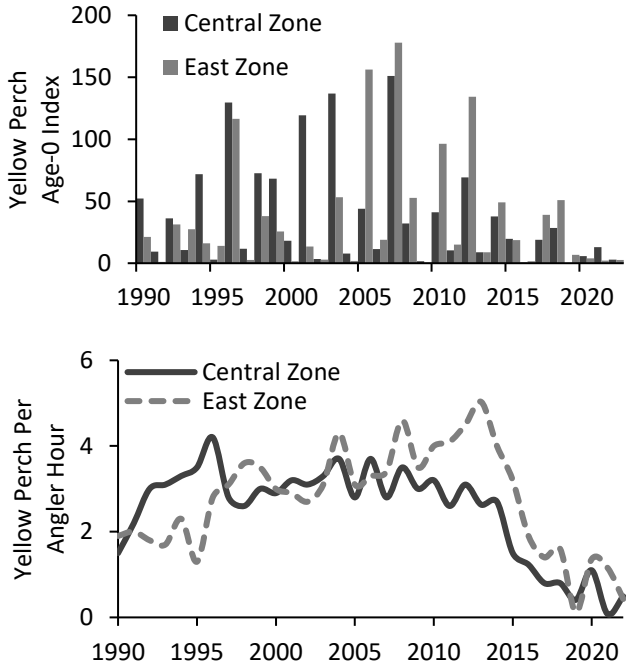


Fig. Ohio's central basin Lake Erie yellow perch – **Top**: Relative abundance of age-0 fish (catch-per-hectare) **Bottom**: Targeted yellow perch harvest rates for private boat trips in the central basin.

The Ohio yellow perch commercial fishery experienced a slightly increased harvest in West and East zones and a decreased harvest in the Central Zone as dictated by a lower quota allocation. Catch rates decreased in all zones and the lake wide catch rate of 55 pounds per lift is well below the 10-year mean of 146 pounds per lift.

Smallmouth and Largemouth Bass

Smallmouth bass fishing in 2022 was consistent with recent years. This fishery continues to be a catch and release fishery with a harvest rate and total catch rate of 0.01 and 0.89 fish per hour, respectively. The average size of harvested smallmouth bass in 2022 was 18.3 inches long with a weight of 4.7 pounds.

Largemouth bass fishing continued to be strong in 2022. The average length of harvested largemouth bass was 16.7 inches with an average weight of 2.7 pounds in 2022. This fishery continues to produce exceptional catches with a catch rate of 1.72 fish per hour and some large fish in nearshore areas and harbors across Ohio's Lake Erie waters.

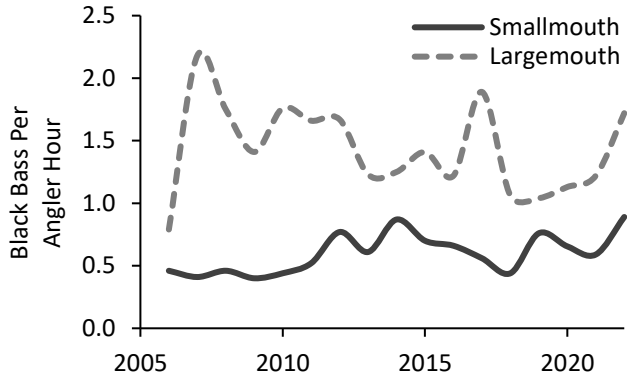


Fig. Smallmouth and largemouth bass targeted catch rates.

Steelhead Trout

Tributary and open lake fisheries should remain stable with continued annual stocking of yearling steelhead. In 2022, ODNR-DOW hatchery personnel raised and stocked 470,912 steelhead that were a mix of Little Shasta, Fish Lake, and Little Manistee River strains. Annual targeted steelhead stocking numbers will remain the same for 2023 (450,000). Stocking locations will also remain the same as previous years. The Lake Erie 2022 open lake recreational harvest was 22,000 fish, with a targeted harvest rate of 0.23 fish per angler hour.

Forage Fish Community

Total forage fish abundance remained well below the ten-year average in the West Zone in August. Catch was dominated by young white perch, yellow perch, freshwater drum, and trout perch, with yellow perch and trout perch above long-term means. Adult and young emerald shiner abundances remained near zero and have been low since 2015. October central basin forage abundance was well below the long-term average. Catches were primarily composed of rainbow smelt. Emerald shiner abundance increased compared to 2021 but is still low compared to long-term means. Round goby and spiny-rayed fish abundance were at some of the lowest levels in the time-series.

Lake Erie Map

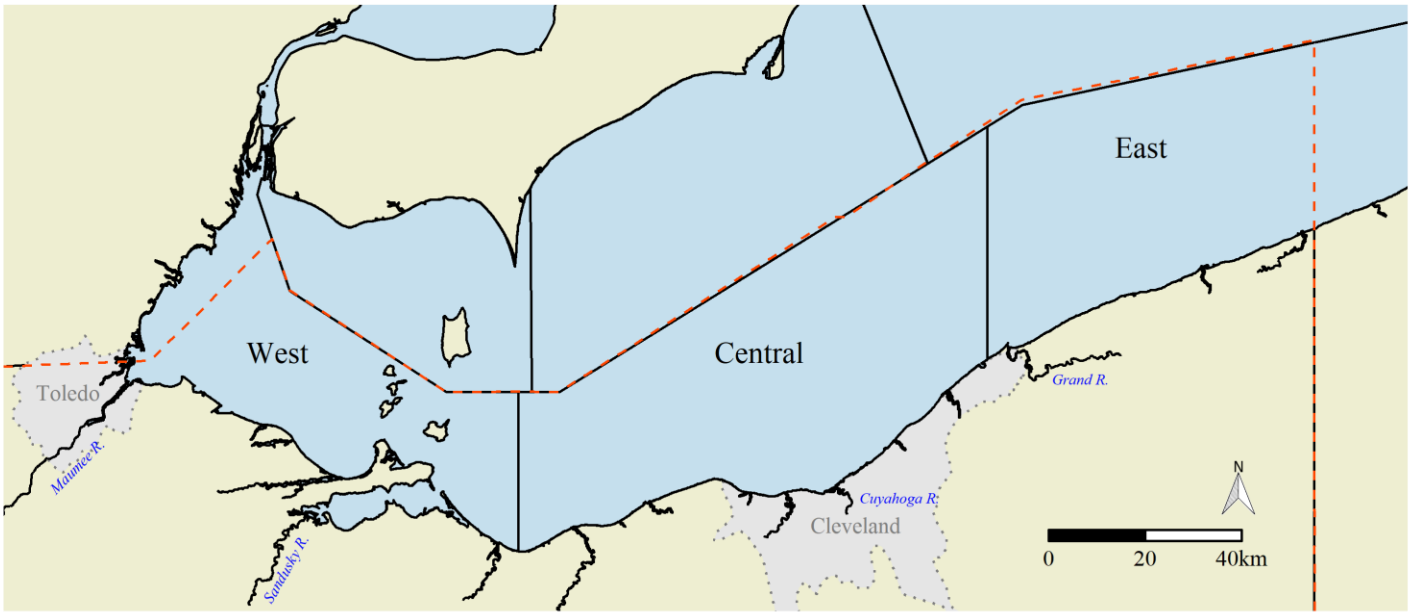


Figure 1.1. Map of Ohio's Lake Erie waters (dashed red line) including zones used for yellow perch management. The line between the West and Central Zones is at 82º 30.000' longitude (near Huron) and the line between the Central and East Zones is at 81º 20.000' longitude (near Fairport Harbor).

Walleye

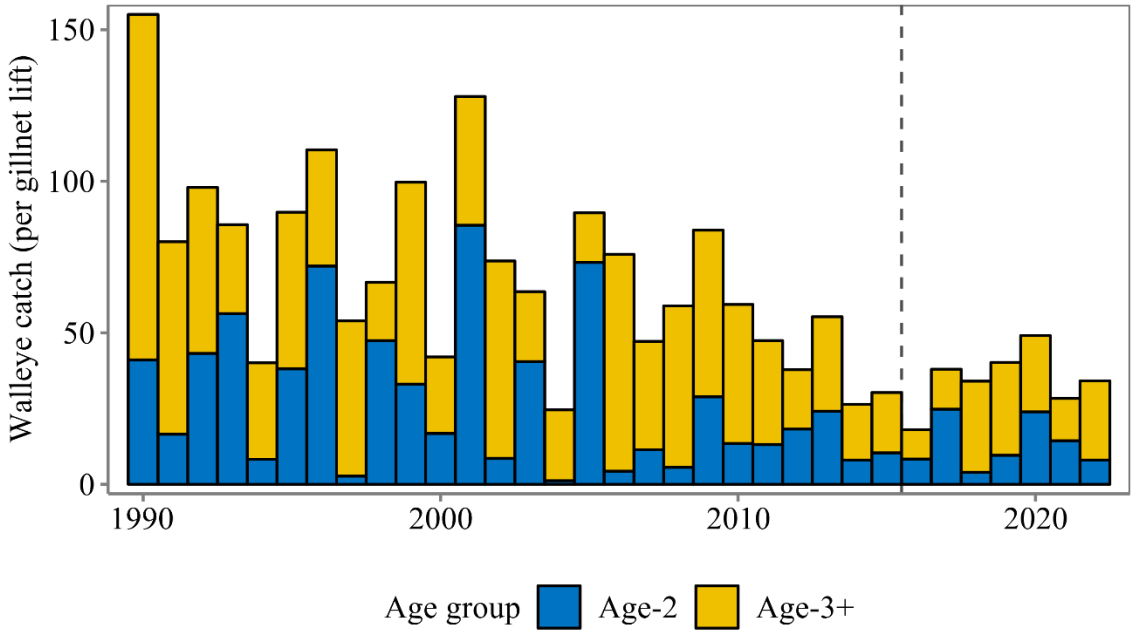


Figure 2.1. Average adult walleye catch from the fall gillnet survey across all Ohio waters split into age-2 and age-3+ fish. In 2016, this survey switched from multifilament nets to monofilament (vertical dashed line); pre-2016 catches are not directly comparable to catches from 2016 to the present.

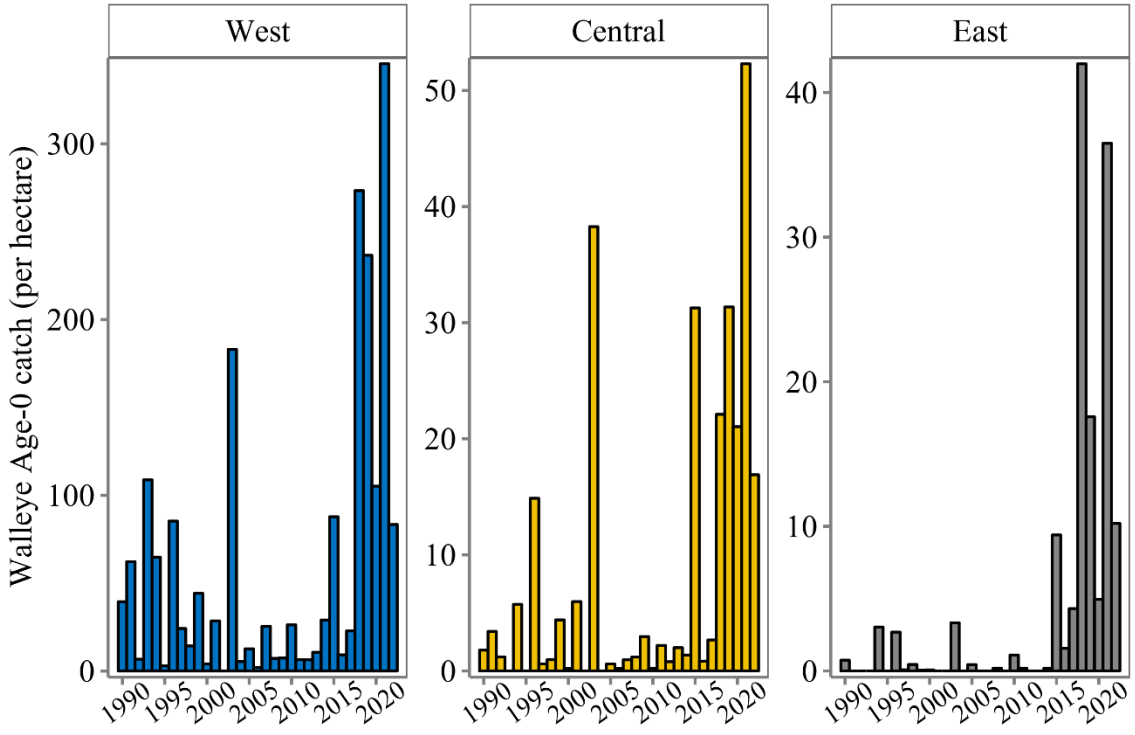


Figure 2.2. Average age-0 walleye density from trawl surveys for each of Ohio's zones. This "hatch" or recruitment index is used to help determine how many adult walleye can be expected in the future. Note that the catch-per-hectare scale differs between panels as the West Zone recruitment is occasionally much greater than the other zones.

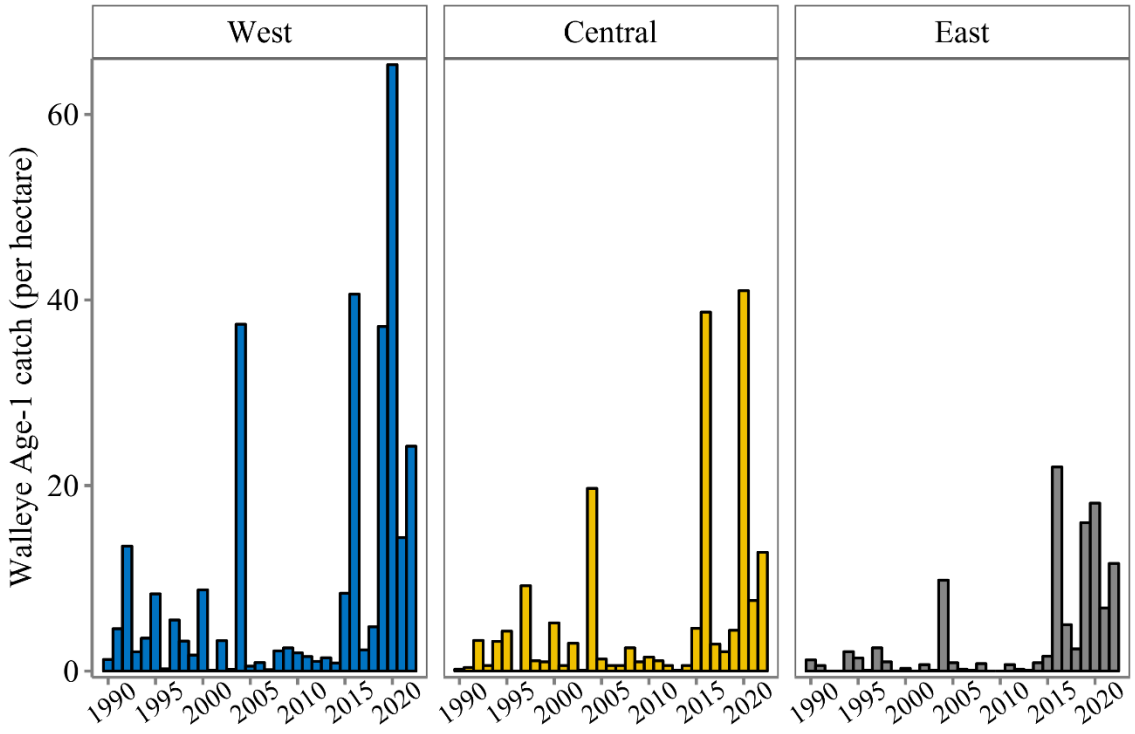


Figure 2.3. Average age-1 walleye density from trawl surveys for each of Ohio's zones. These data, together with densities of age-0 walleye, help biologists understand how many harvestable walleye may be available in the near-future.

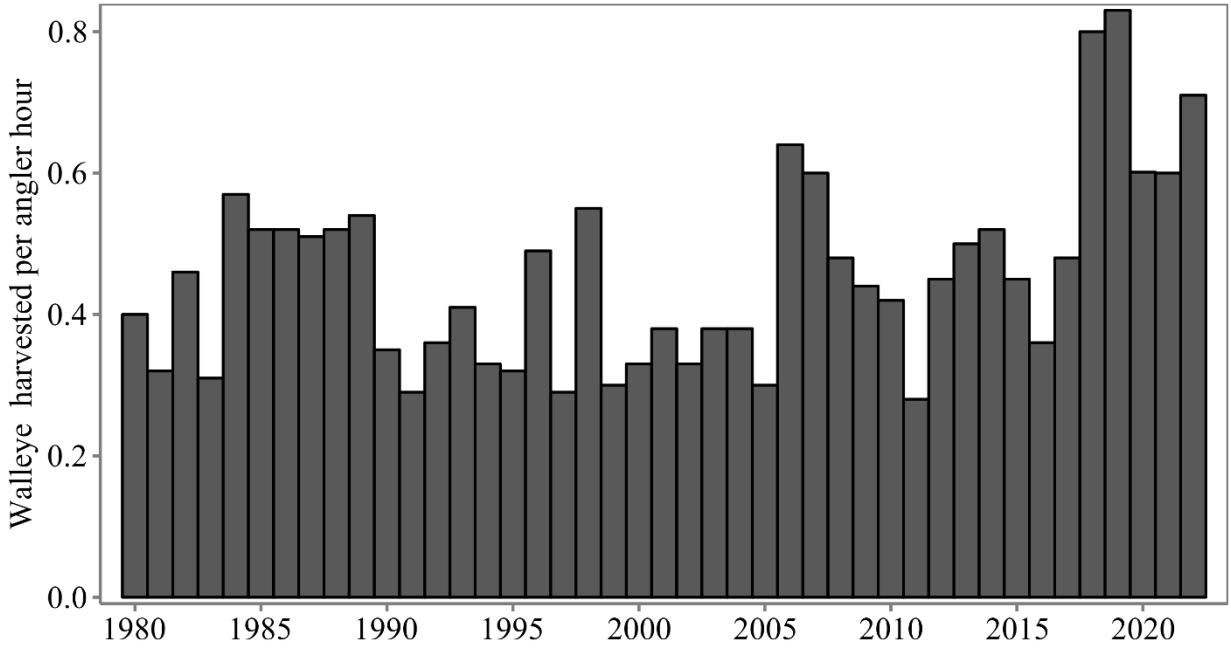


Figure 2.4. Walleye harvest rate (fish harvested per hour per angler) from private boat trips across all of Ohio's Lake Erie waters. Data come from annual creel surveys (angler interviews).

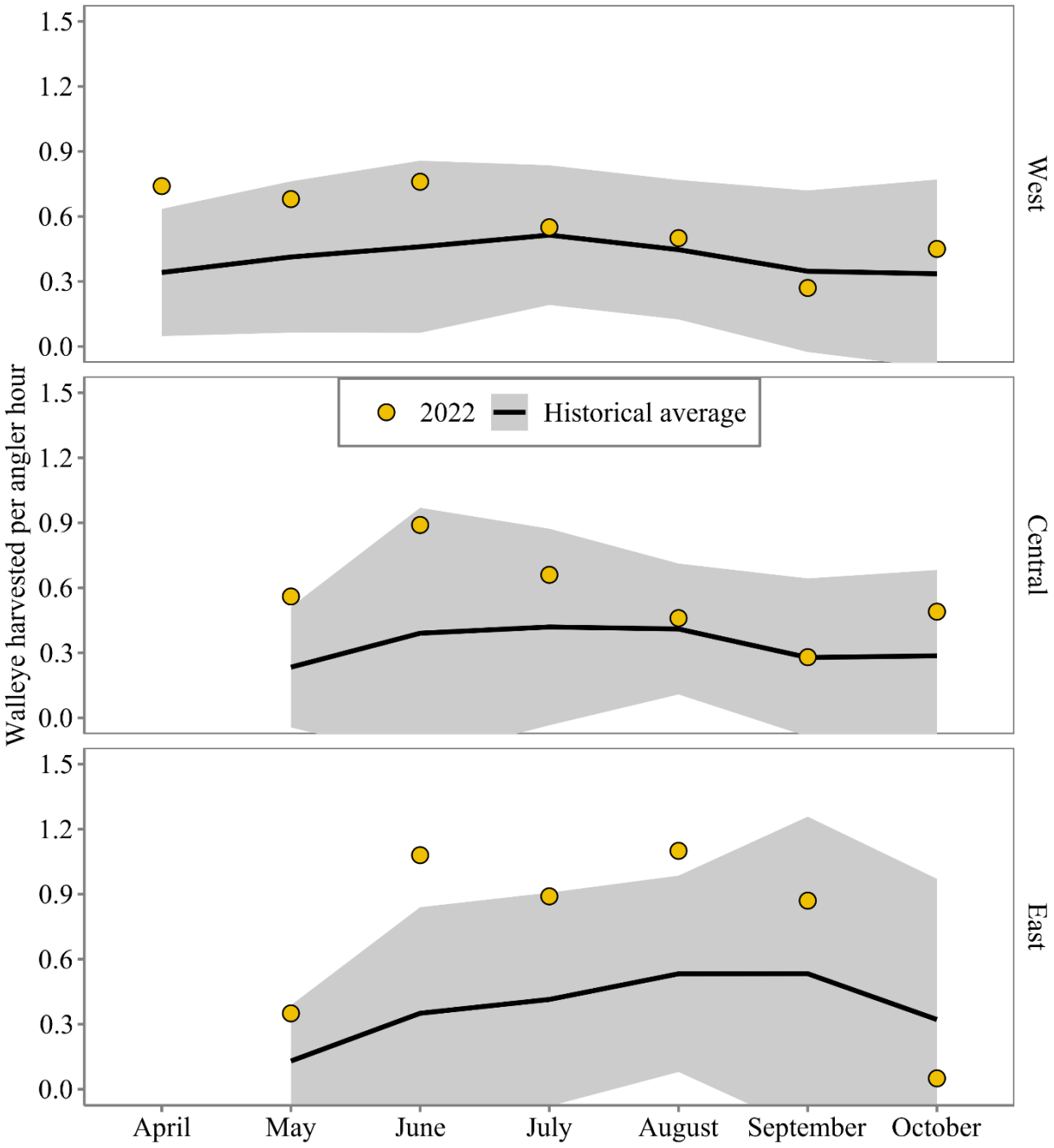


Figure 2.5. Walleye harvest rate (fish harvested per hour per angler) by month and zone from private boat trips across Ohio's Lake Erie waters. Data come from annual creel surveys (angler interviews); April surveys are restricted to the West Zone (top panel).

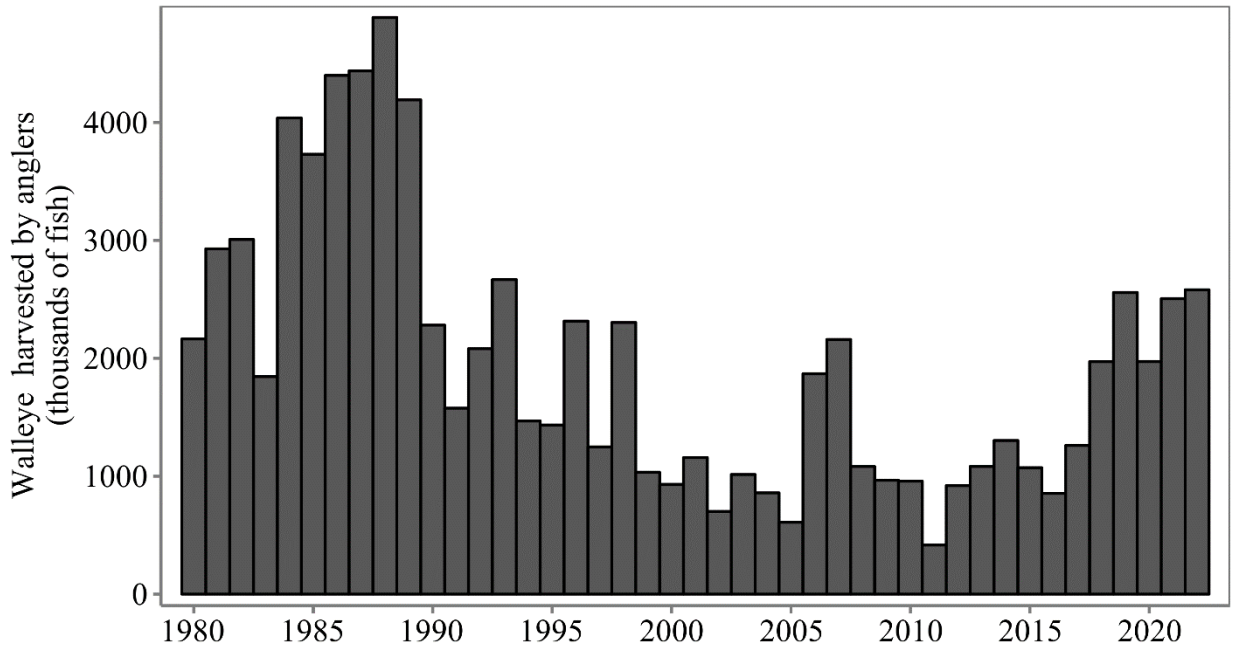


Figure 2.6. Total angler harvest of Walleye from all of Ohio's Lake Erie waters. Data come from annual creel surveys (angler interviews).

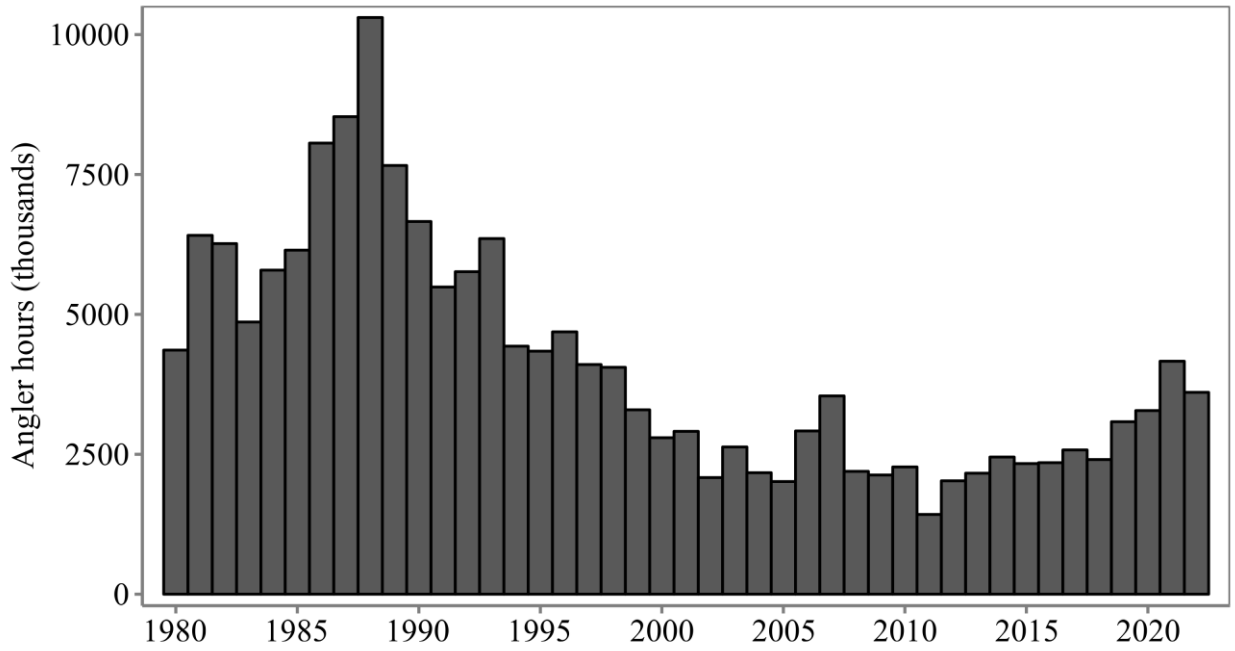


Figure 2.7. Walleye total angler effort (number of hours anglers fished for walleye) for all of Ohio's Lake Erie waters. Data come from annual creel surveys (angler interviews).

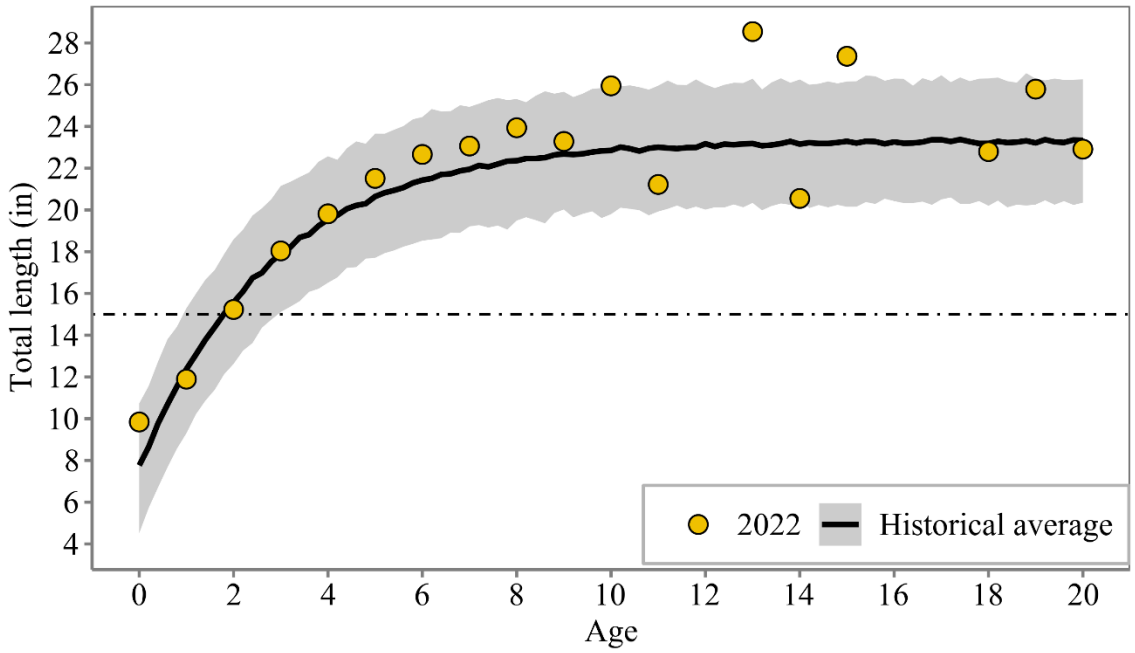


Figure 2.8. Walleye length at age from the fall gillnet survey across all Ohio waters. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average. The black dotted line indicates the legal minimum length (15 inches). This chart can be used to estimate the approximate age of a walleye with a known length.

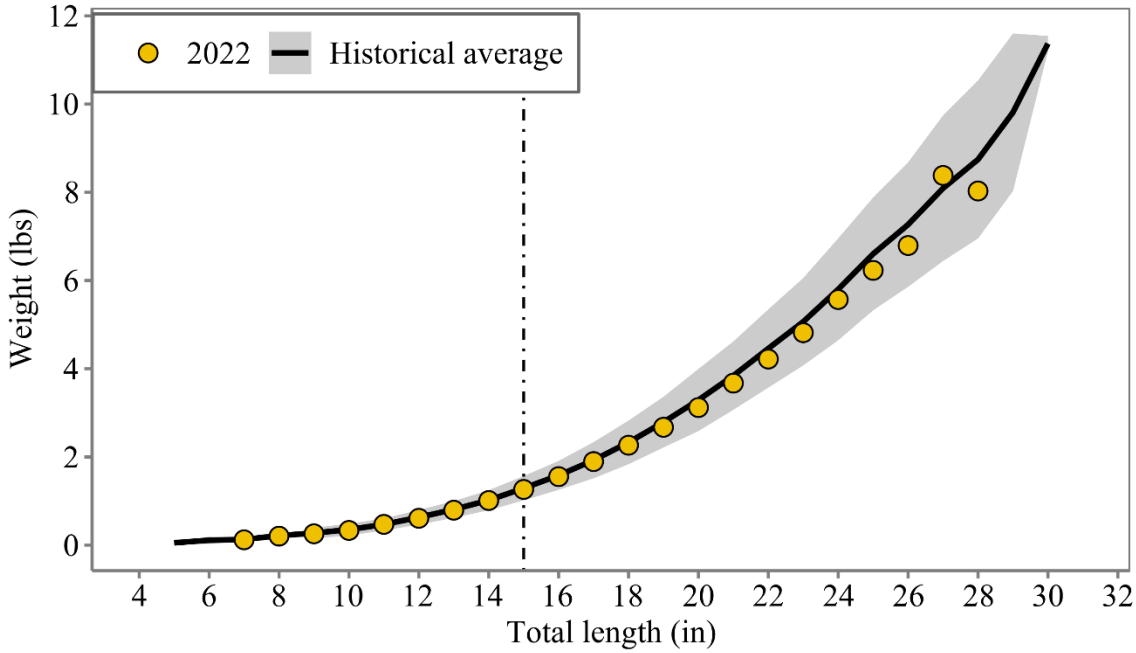


Figure 2.9. Walleye weight at length from the fall gillnet survey across all Ohio waters. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average. The black dotted line indicates the legal minimum length (15 inches). This chart can be used to estimate the weight of a Lake Erie walleye with a known length.

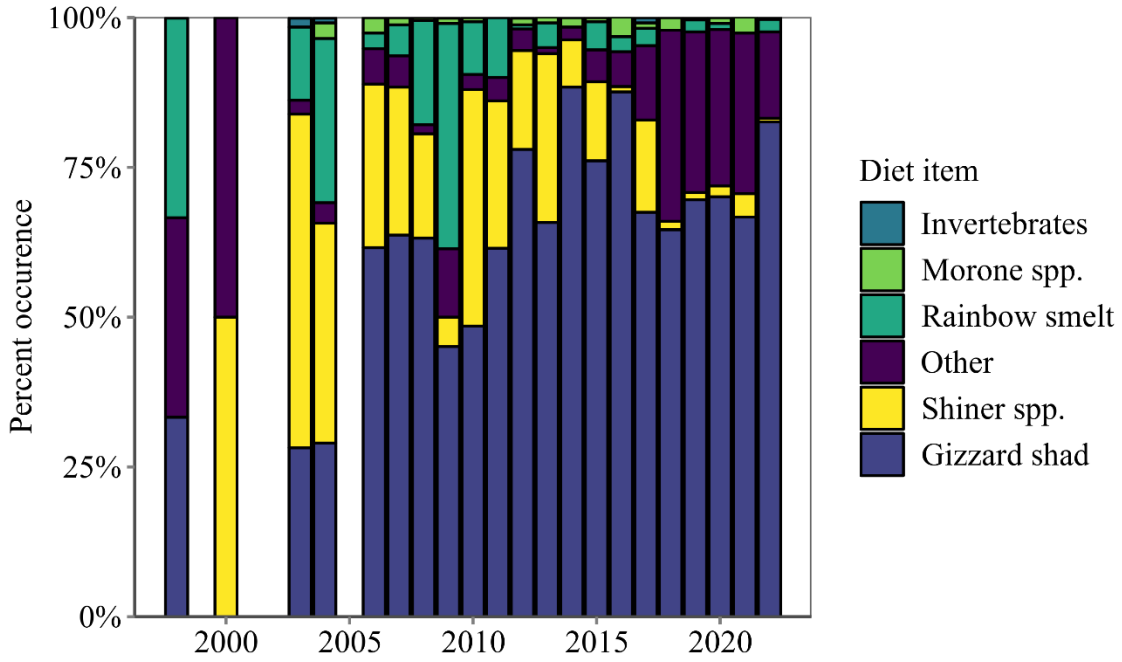


Figure 2.10. Percent occurrence of prey species in walleye diets in the fall across Ohio waters (excluding empty stomachs and unidentified gut contents). These data come from October gillnet surveys; gizzard shad make up the majority of walleye diets in Lake Erie in October, while yellow perch are not observed at this time.

Yellow Perch

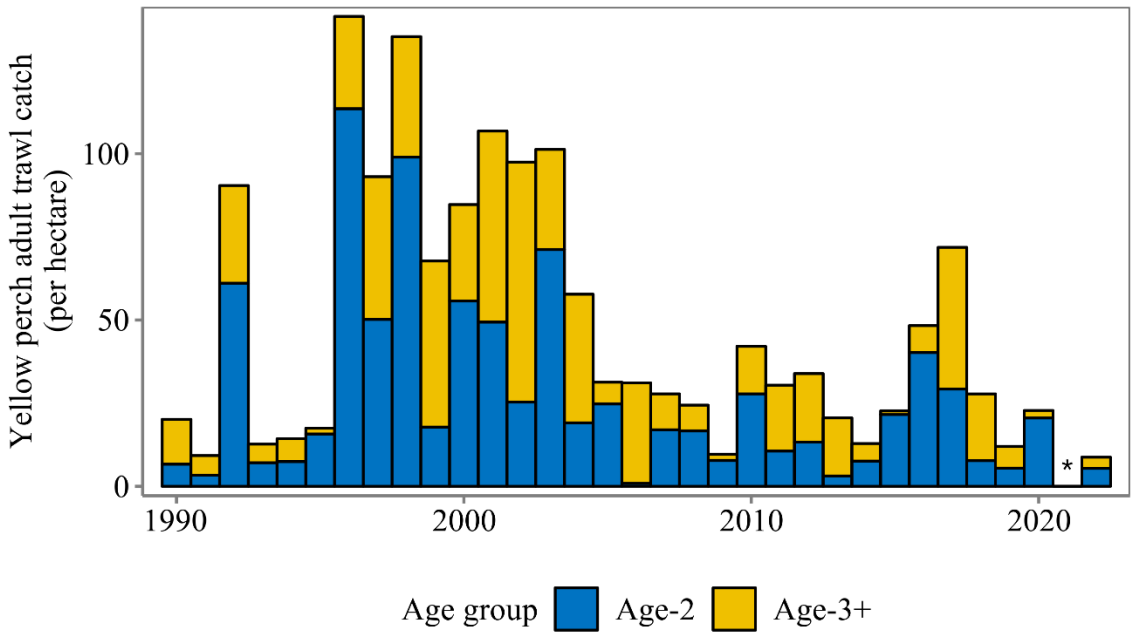


Figure 3.1. Average adult yellow perch catch from the trawl survey for the West Zone (west of Huron) split into young (age-2) and older (age-3+). The fall trawl survey did not take place in 2021 due to vessel issues (asterisk).

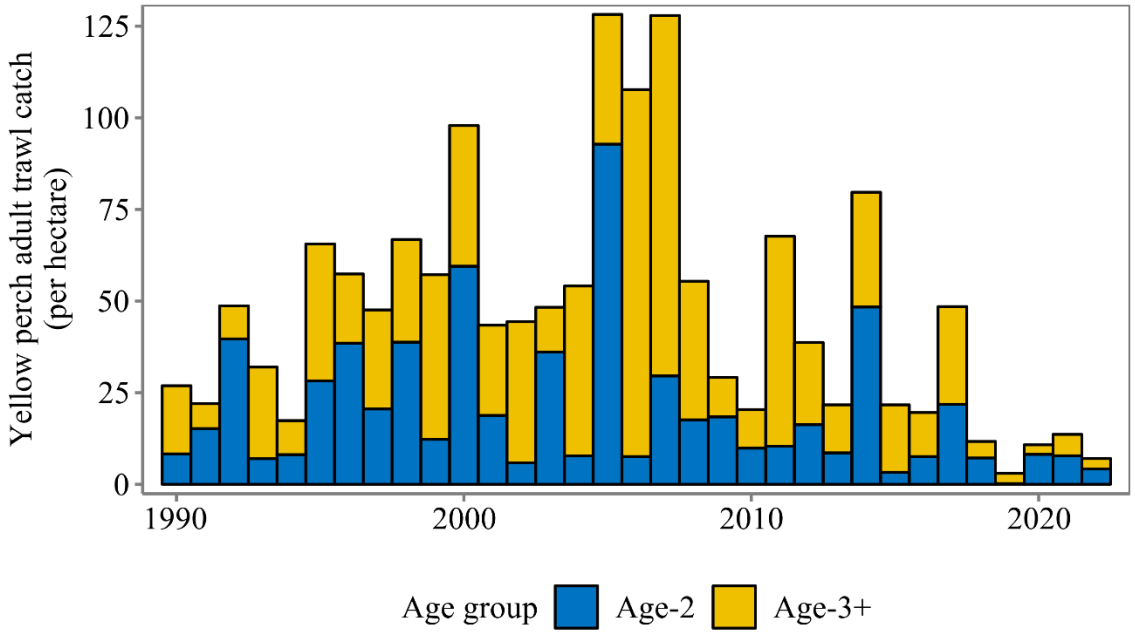


Figure 3.2. Average adult yellow perch catch from the trawl survey for the Central Zone (Huron to Fairport Harbor) split into young (age-2) and older (age-3+).

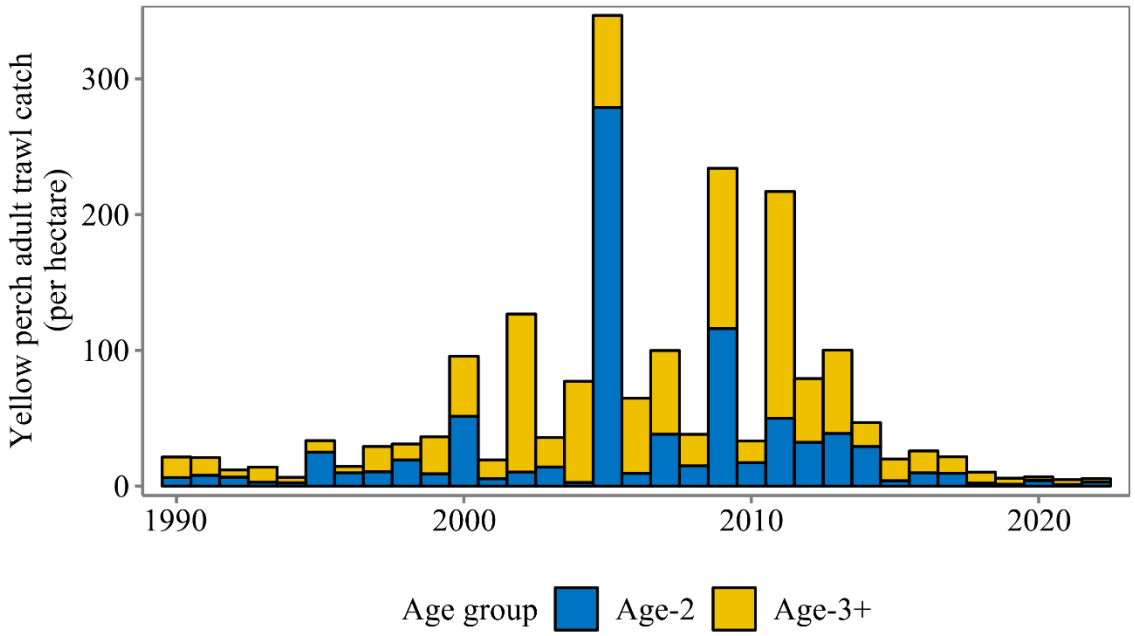


Figure 3.3. Average adult yellow perch catch from the trawl survey for the East Zone (east of Fairport Harbor) split into young (age-2) and older (age-3+).

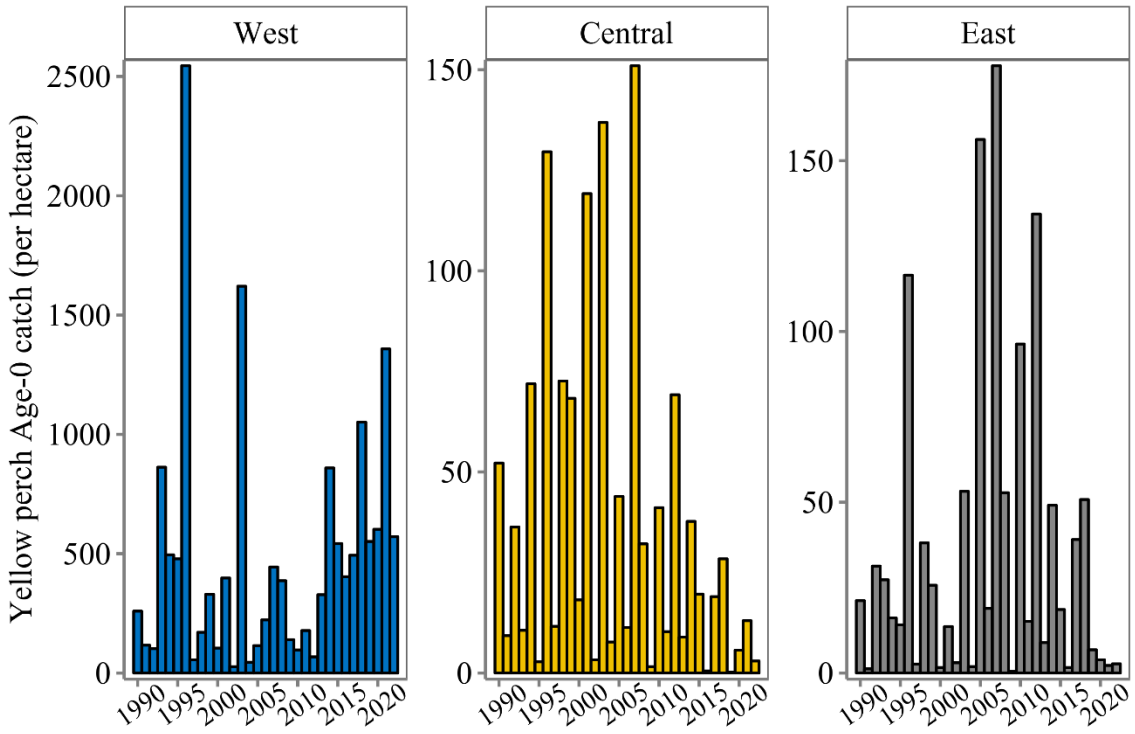


Figure 3.4. Average age-0 yellow perch density from trawl surveys for each of Ohio's zones. This "hatch" or recruitment index is used to help determine how many adult yellow perch can be expected in the future. Note that the catch-per-hectare scale differs between panels as the West Zone recruitment is occasionally much greater than the other zones.

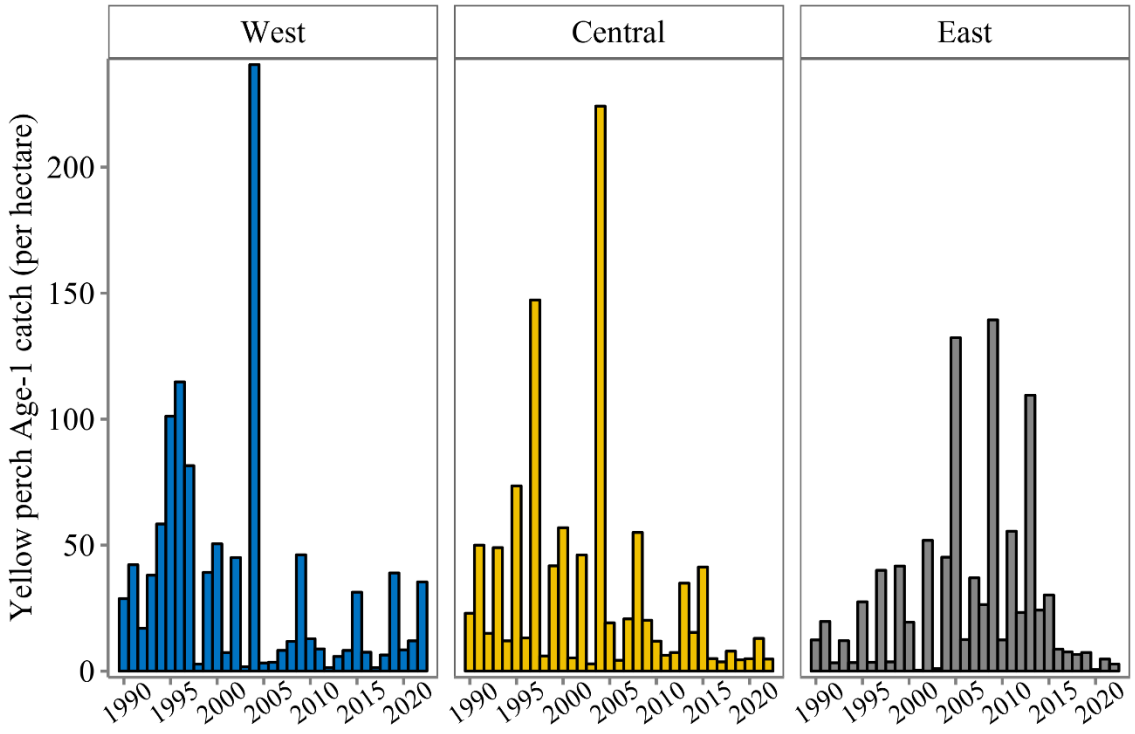


Figure 3.5. Average age-1 yellow perch density from trawl surveys for each of Ohio's zones. These data are used to help determine what will happen to the yellow perch population in the future.

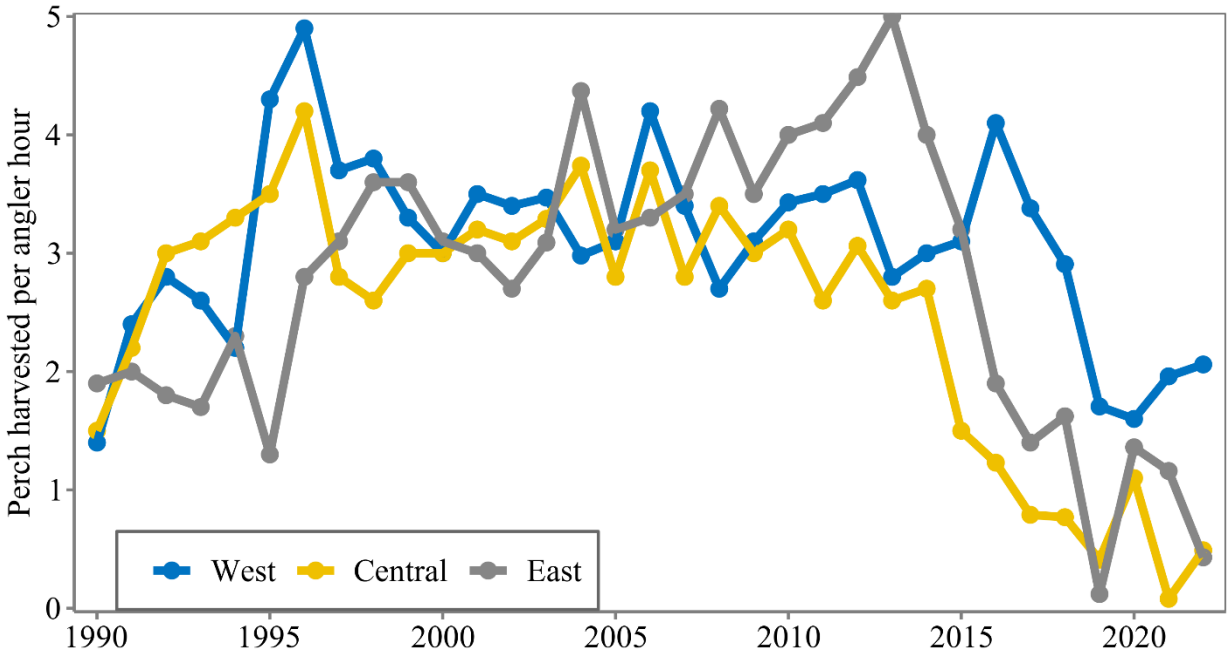


Figure 3.6. Yellow perch harvest rate (fish harvested per hour per angler) from private boat trips for each of Ohio's zones. Data come from annual creel surveys (angler interviews).

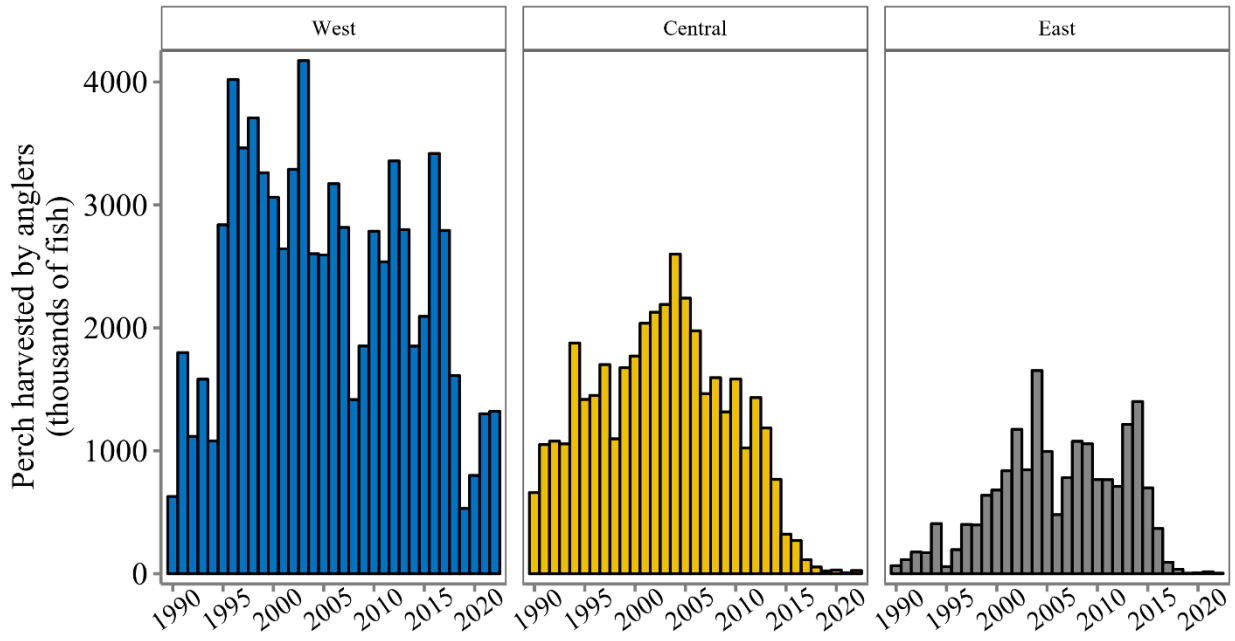


Figure 3.7. Yellow perch total angler harvest for each of Ohio's zones. Data come from annual creel surveys (angler interviews).

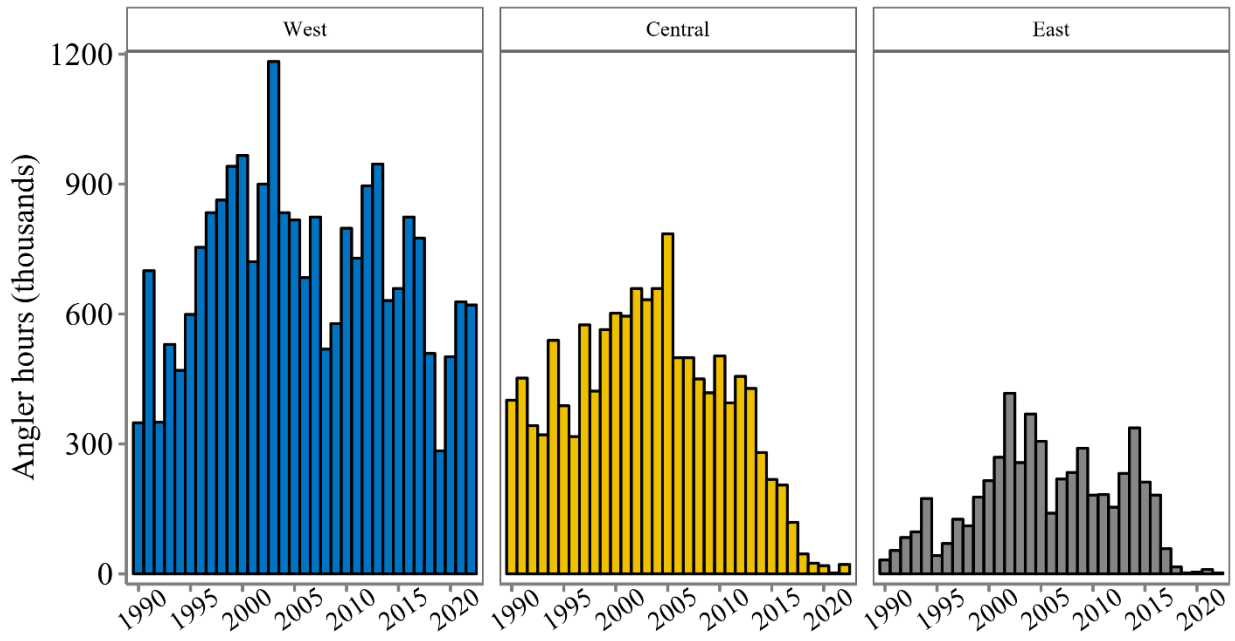


Figure 3.8. Yellow perch total angler effort (number of hours anglers fished for yellow perch) for each of Ohio's zones. Data come from annual creel surveys (angler interviews).

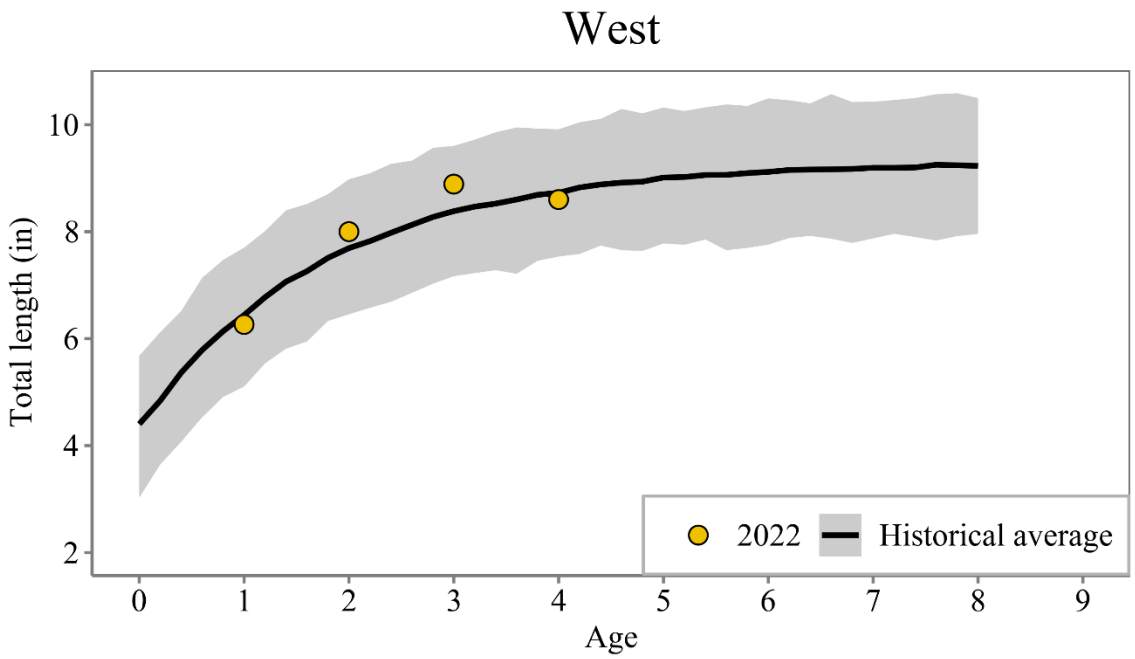
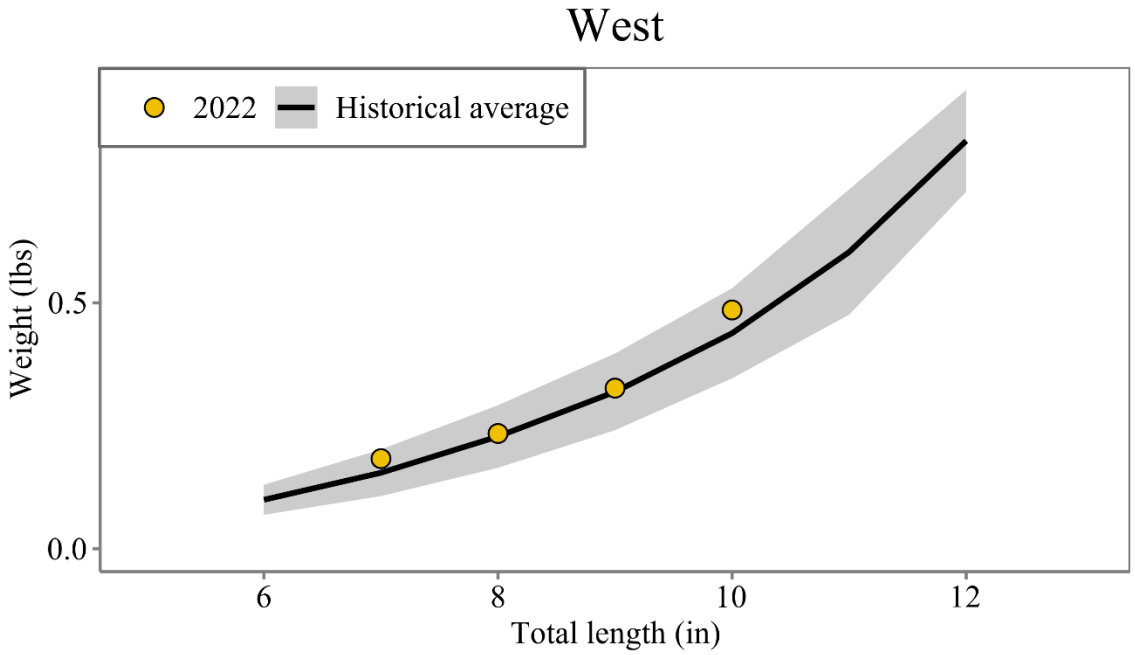


Figure 3.9. Yellow perch length at age from trawl surveys for the West Zone (Toledo to Huron). This chart can be used to estimate the age of a yellow perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average.



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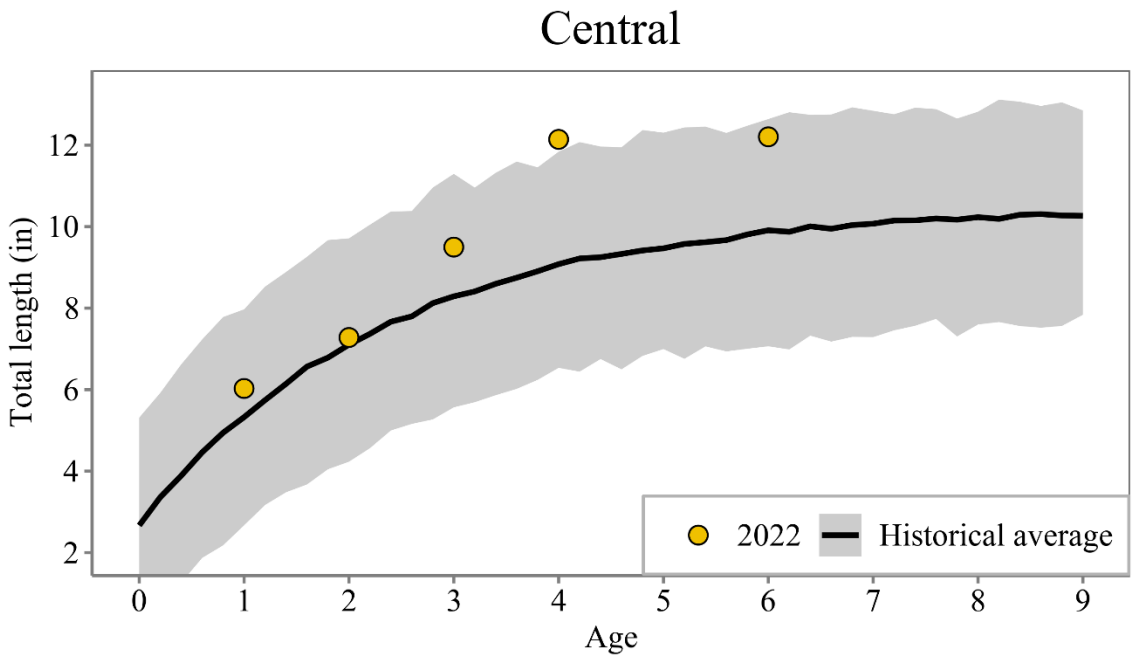

Figure 3.11. Yellow perch length at age from trawl surveys for the Central Zone (Huron to Fairport Harbor). This chart can be used to estimate the age of a yellow perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average.

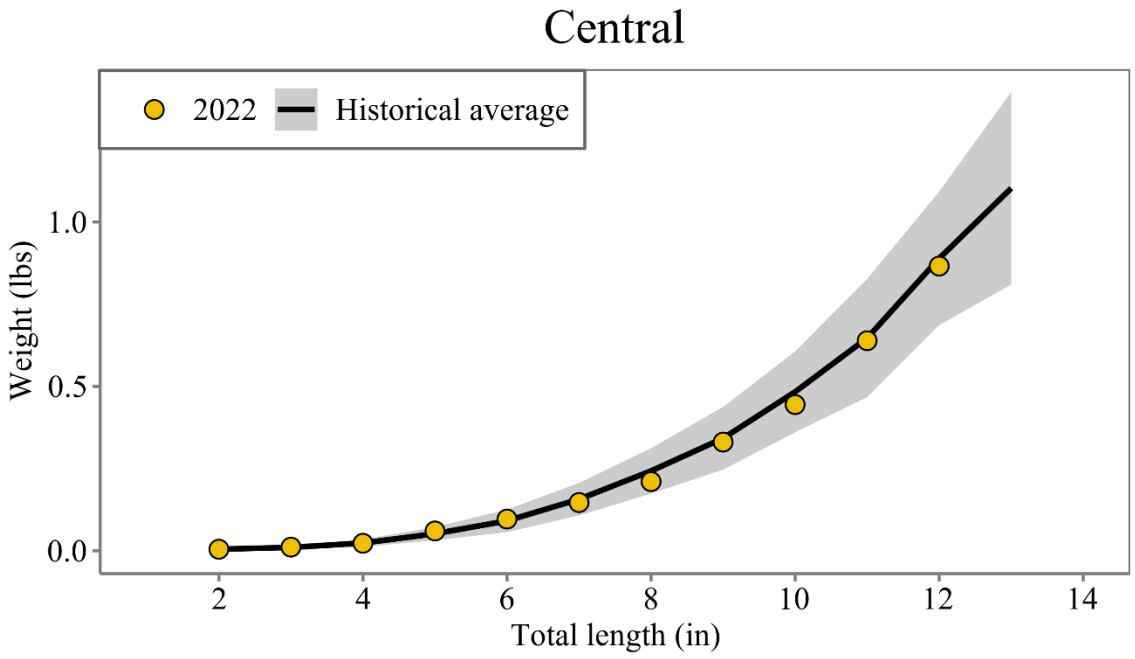

Figure 3.12. Yellow perch weight at length from trawl surveys for the Central Zone (Huron to Fairport Harbor). This chart can be used to estimate the weight of a yellow perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average.

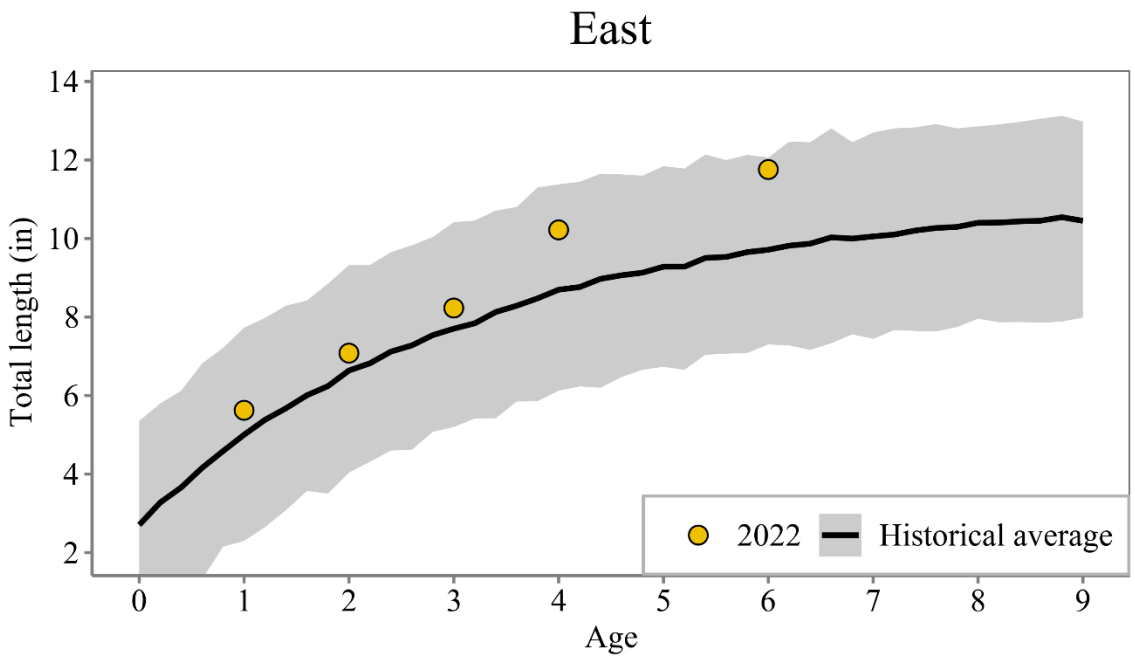

Figure 3.13. Yellow perch length at age from trawl surveys for the East Zone (east of Fairport Harbor). This chart can be used to estimate the age of a yellow perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average.

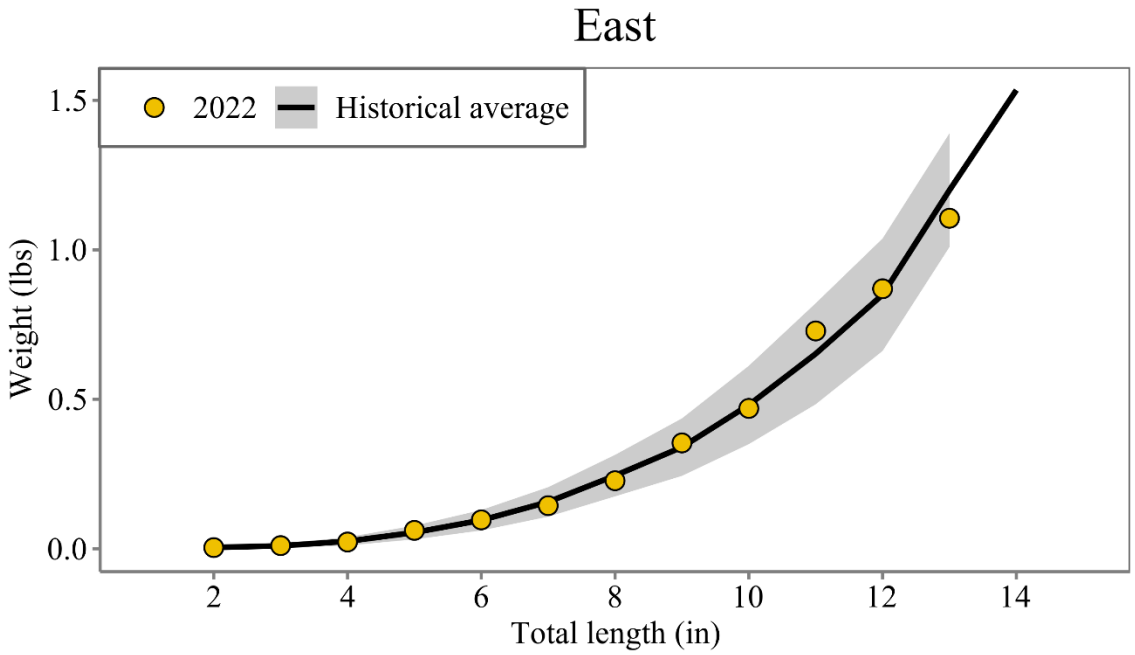

Figure 3.14. Yellow perch weight at length from trawl surveys for the East Zone (east of Fairport Harbor). This chart can be used to estimate the weight of a yellow perch with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average.

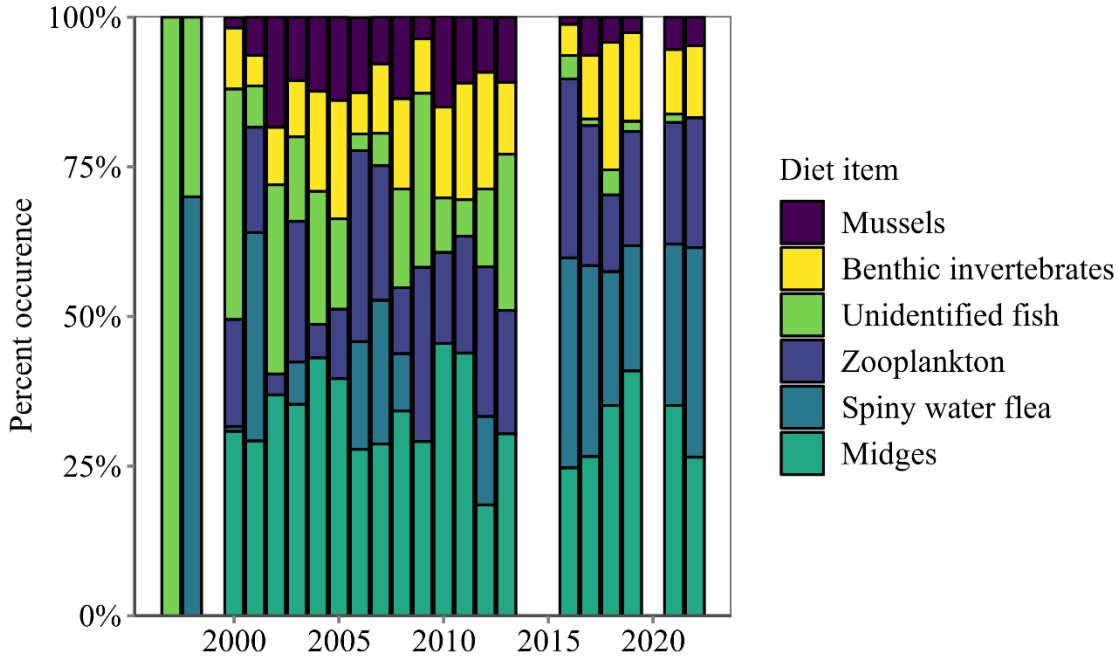

Figure 3.15. Percent occurrence of prey species in yellow perch diets in June (excluding empty stomachs and unidentified gut contents). These data come from Central and East Zone trawl surveys; midge larvae comprise the largest prey percent occurrence in June.

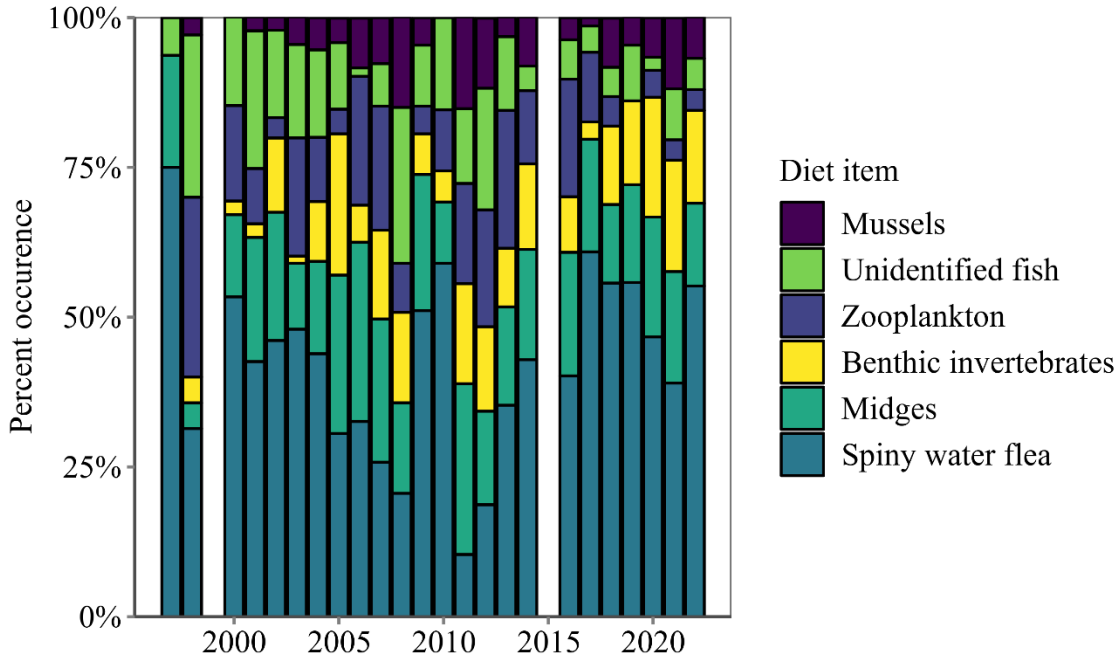

Figure 3.16. Percent occurrence of prey species in yellow perch diets in July and August (excluding empty stomachs and unidentified gut contents). These data come from Central and East Zone trawl surveys; Spiny water flea (*Bythotrephes*) comprise the largest prey percent occurrence in the summer.

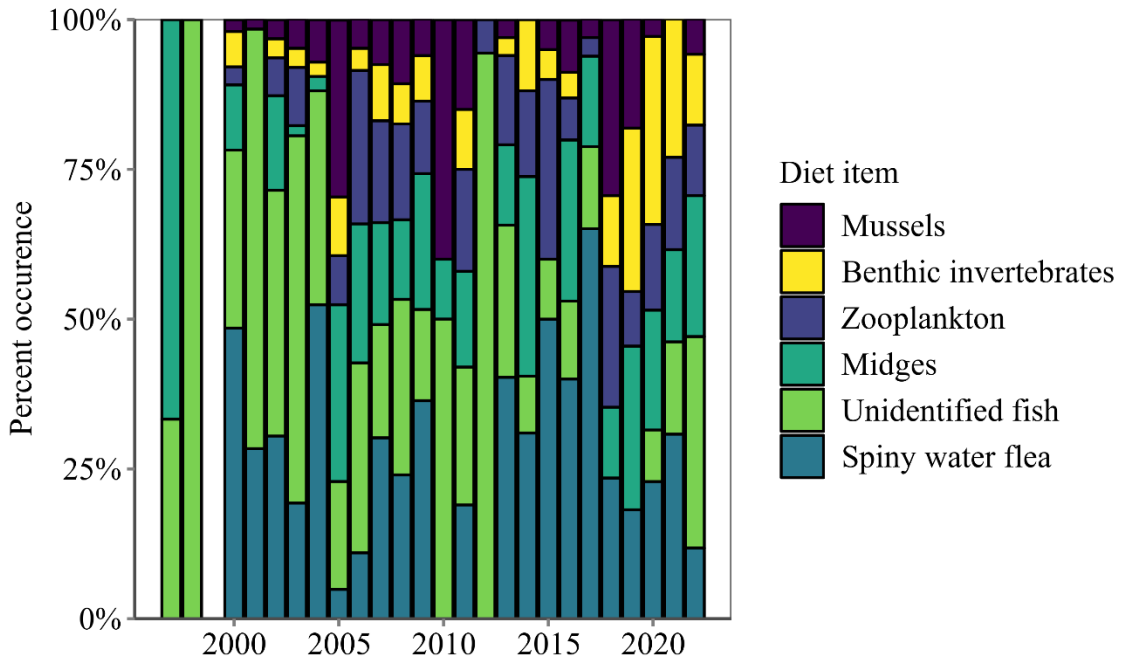

Figure 3.17. Percent occurrence of prey species in yellow perch diets in October (excluding empty stomachs and unidentified gut contents). These data come from trawl surveys; perch diets are more varied in the fall.

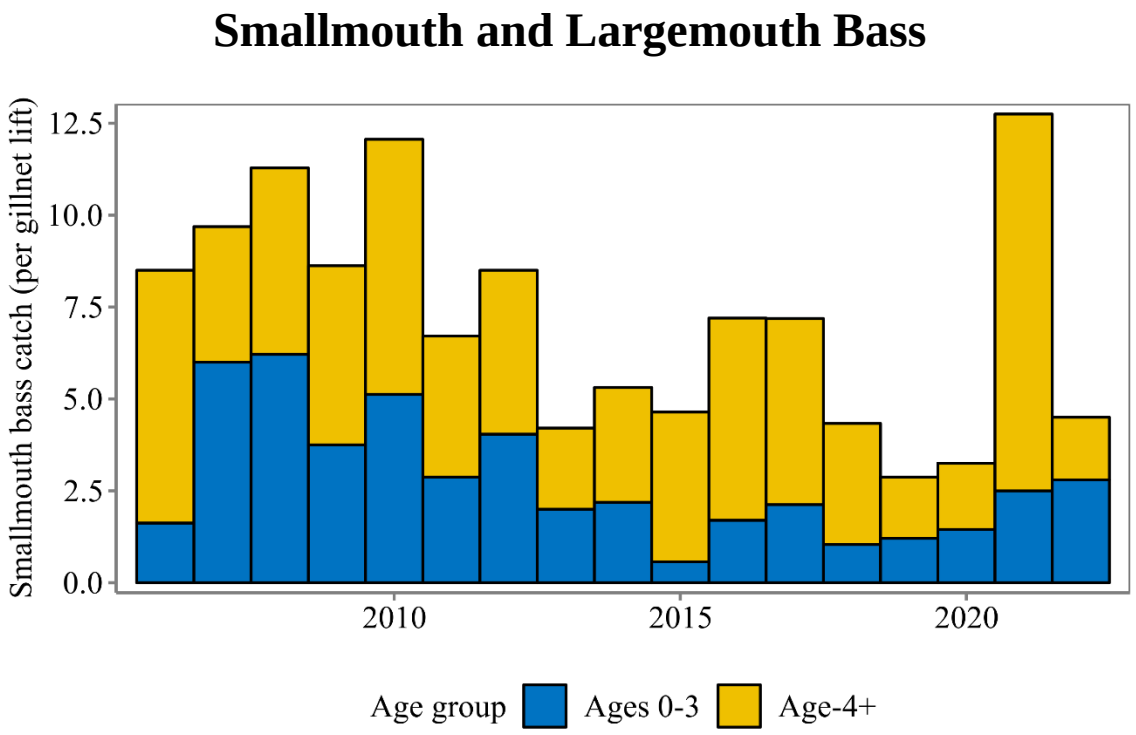

Figure 4.1. Average smallmouth bass catch from the September gillnet survey across all Ohio waters split into young (ages-0–3) and adult (age-4+).

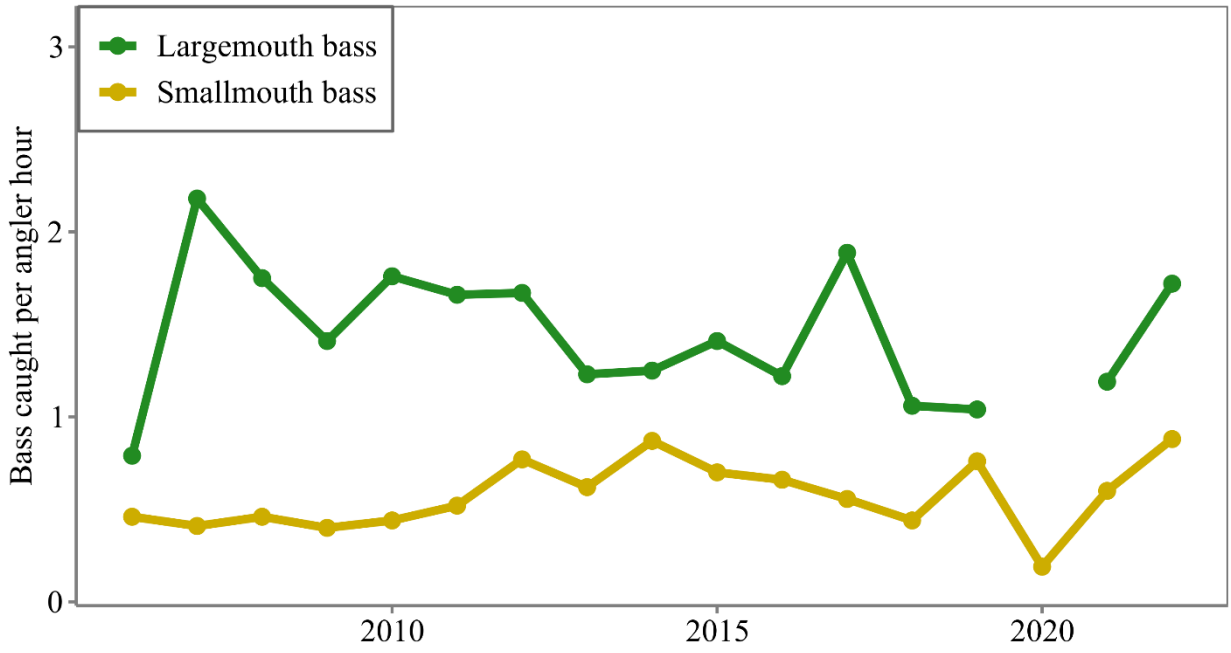

Figure 4.2. Angler catch rates (fish caught per hour per angler) for largemouth and smallmouth bass in the Ohio waters of Lake Erie. Data come from annual creel surveys (angler interviews). Largemouth bass catch rate recording began in 2006 and was unavailable for 2020.

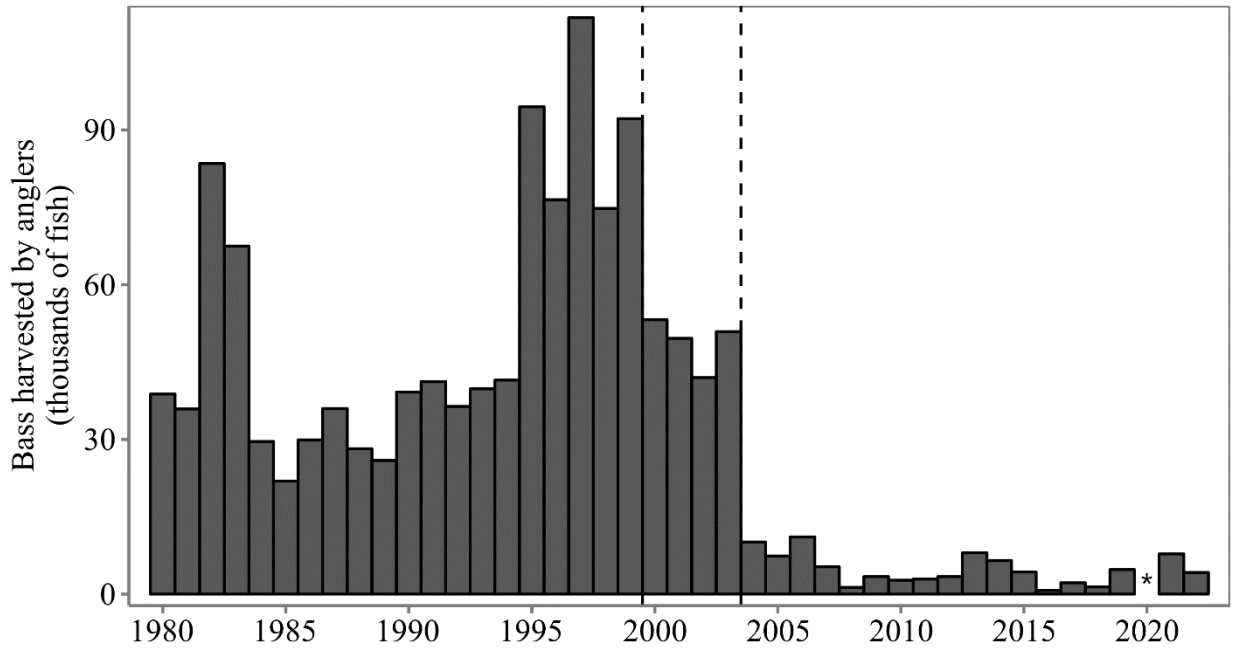

Figure 4.3. Harvest of smallmouth bass from Ohio waters of Lake Erie since 1990. Harvest declined substantially with stricter regulations implemented in 2000 and 2004 (dashed lines). Data come from annual creel surveys (angler interviews) and were unavailable for 2020.

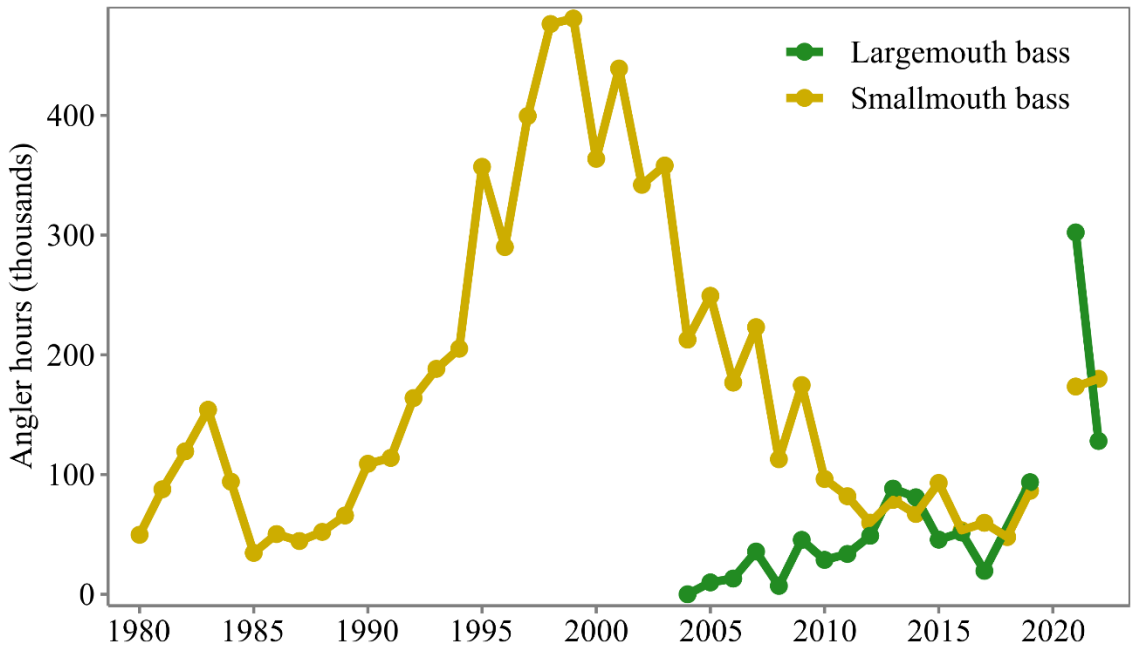

Figure 4.4. Black bass total angler effort (number of hours anglers fished for largemouth and smallmouth bass) for all Ohio's Lake Erie waters. Data come from annual creel surveys (angler interviews) and were unavailable for 2020.

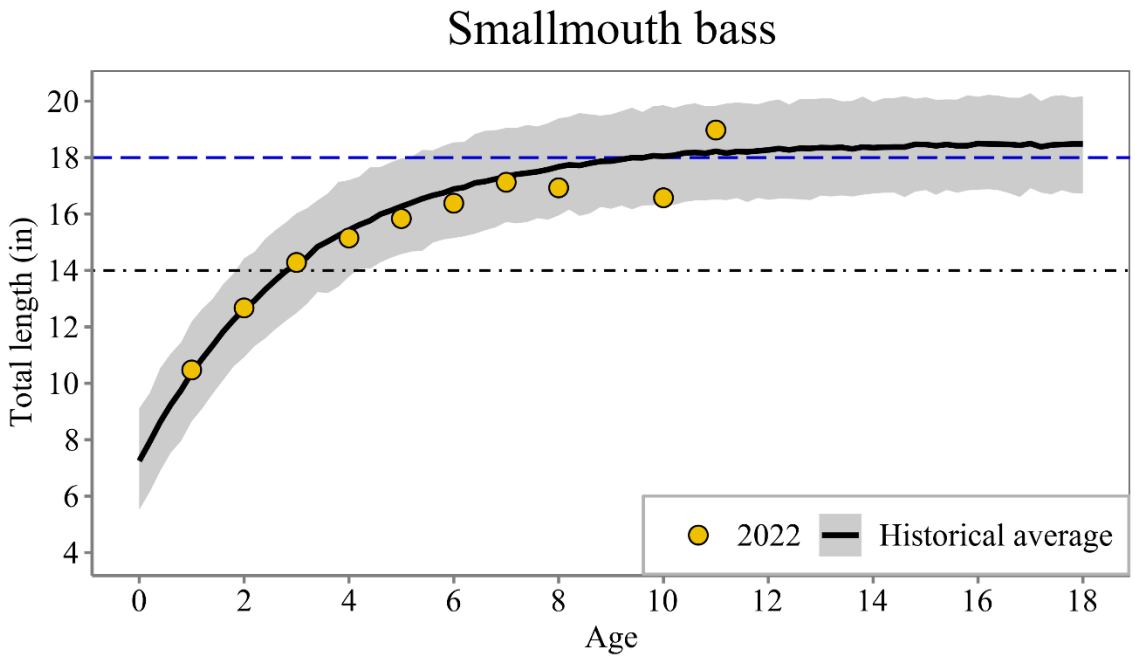

Figure 4.5. Smallmouth bass length at age from the gillnet survey across all Ohio waters of Lake Erie. This chart can be used to estimate the age of a smallmouth bass with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average. The black 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).

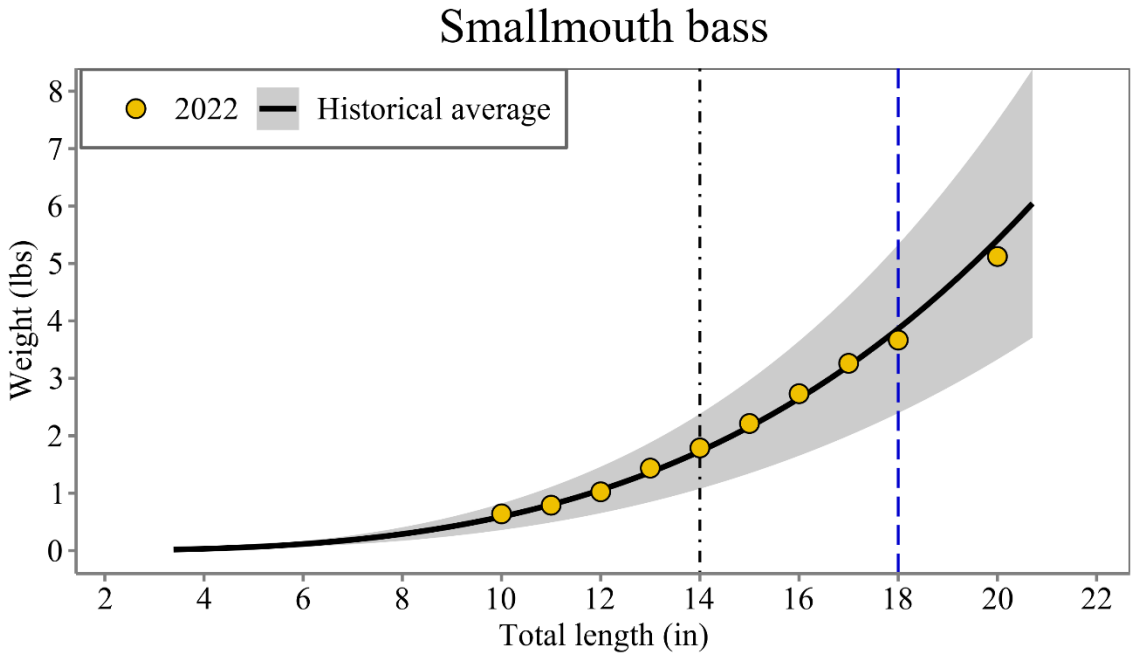

Figure 4.6. Smallmouth bass weight at length from the gillnet survey across all Ohio waters of Lake Erie. This chart can be used to estimate the weight of a smallmouth bass with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average. The black 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).

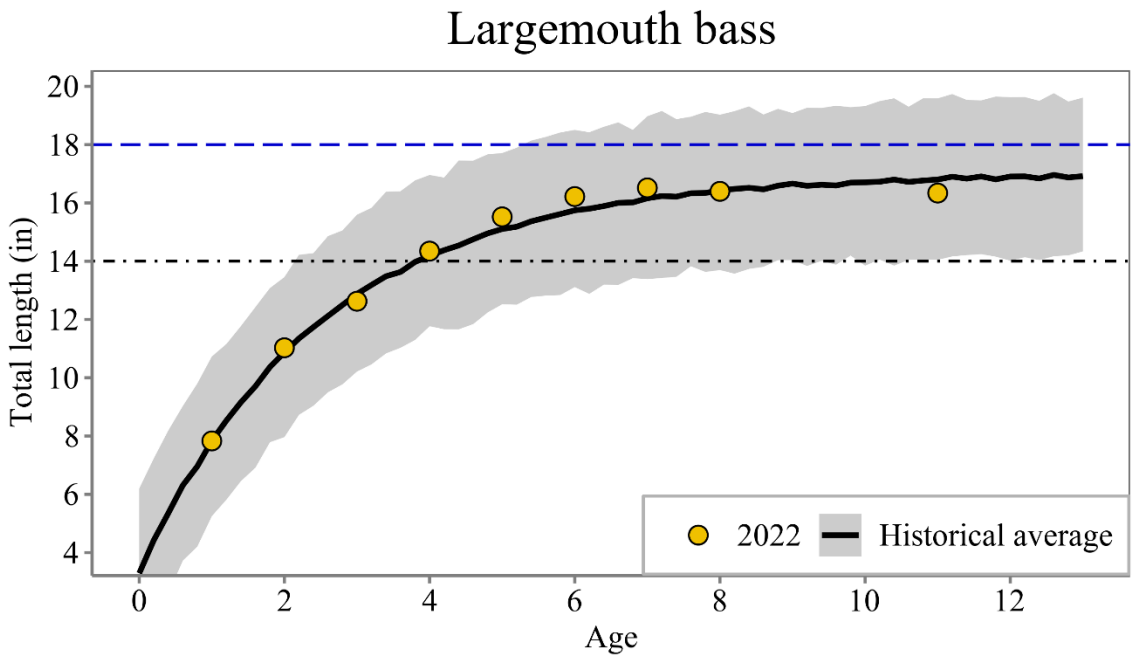

Figure 4.7. Largemouth bass length at age from the electrofishing survey across Ohio waters. This chart can be used to estimate the age of a largemouth bass with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average. The black 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).

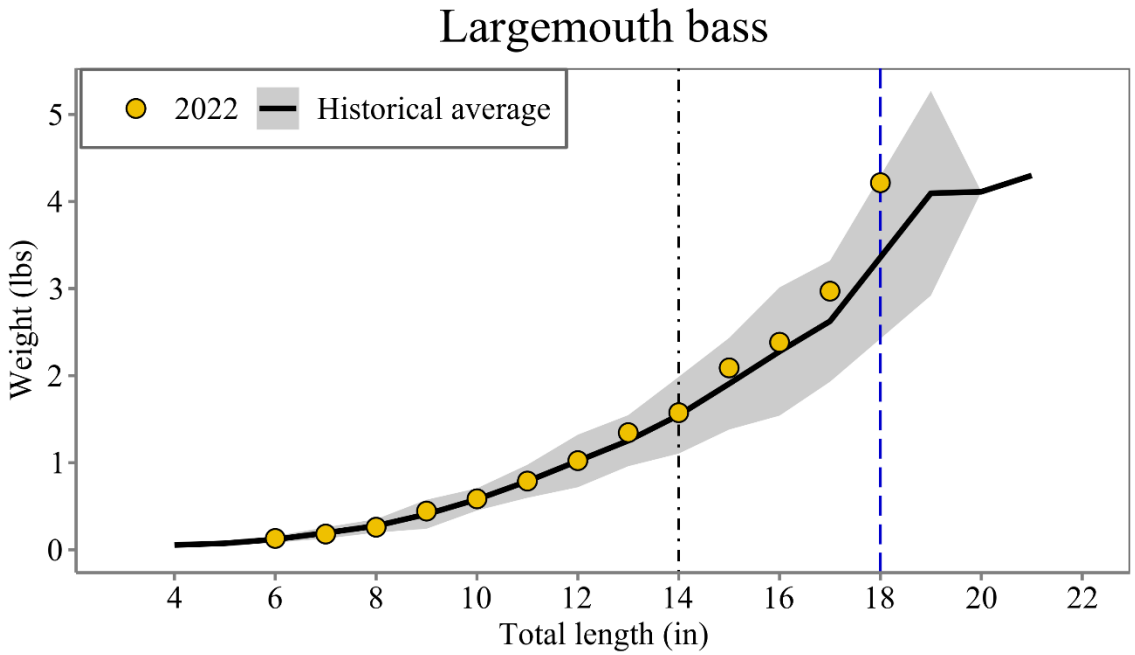

Figure 4.8. Largemouth bass weight at length from the electrofishing survey across Ohio waters. This chart can be used to estimate the weight of a largemouth bass with a known length. The black line indicates the average fish, grey area represents 95% of fish, and yellow points indicate this year's average. The black 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).

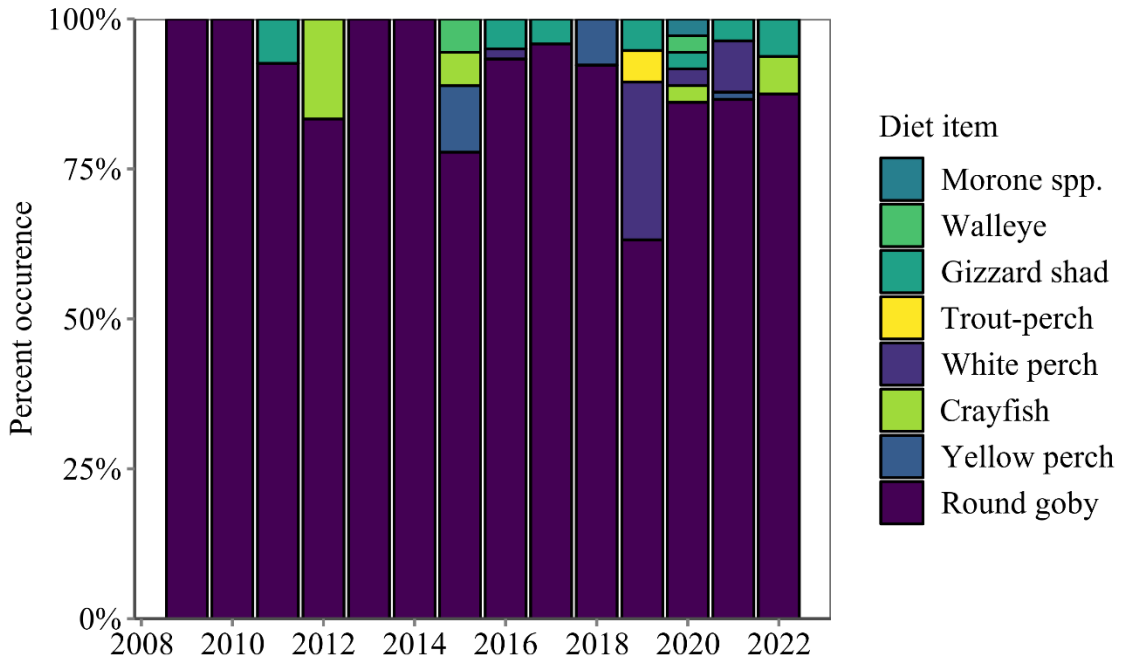

Figure 4.9. Percent occurrence of prey species in smallmouth bass diets in Ohio waters of Lake Erie (excluding empty stomachs and unidentified gut contents). These data come from early-fall gillnet surveys. Round goby make up the majority of smallmouth bass diets in Lake Erie.

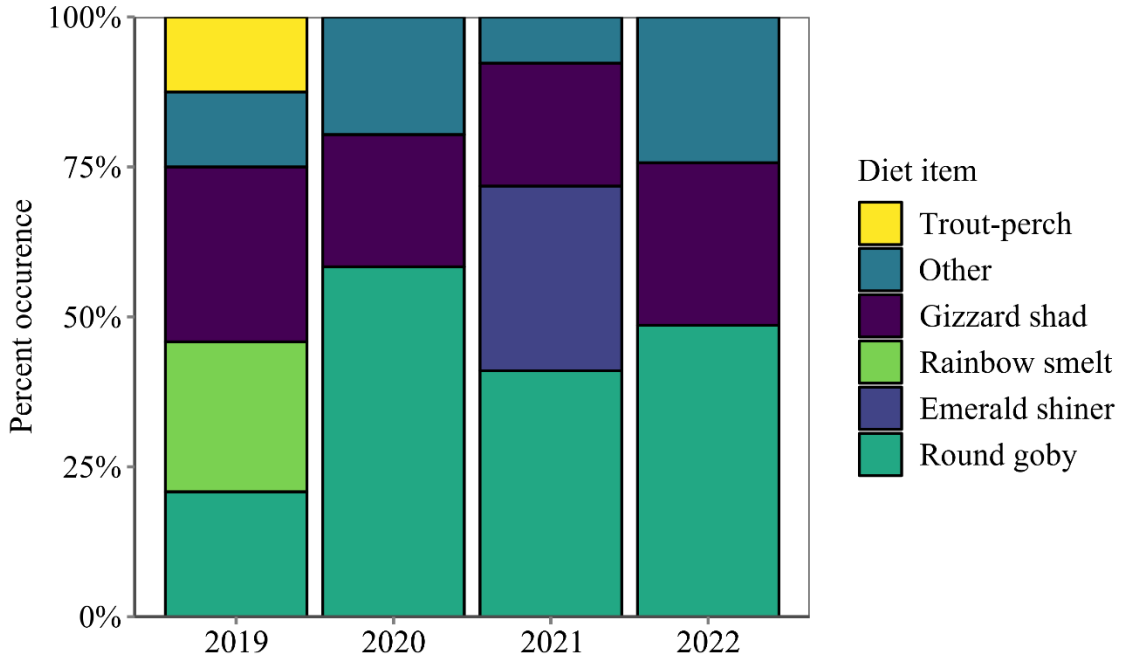

Figure 4.10. Percent occurrence of prey species in largemouth bass diets (excluding empty stomachs and unidentified gut contents). These data come from summertime electrofishing surveys. Largemouth bass diets in Lake Erie are highly variable; “Other” includes sunfishes, crayfish, White Perch, and other prey items.

Forage Fishes

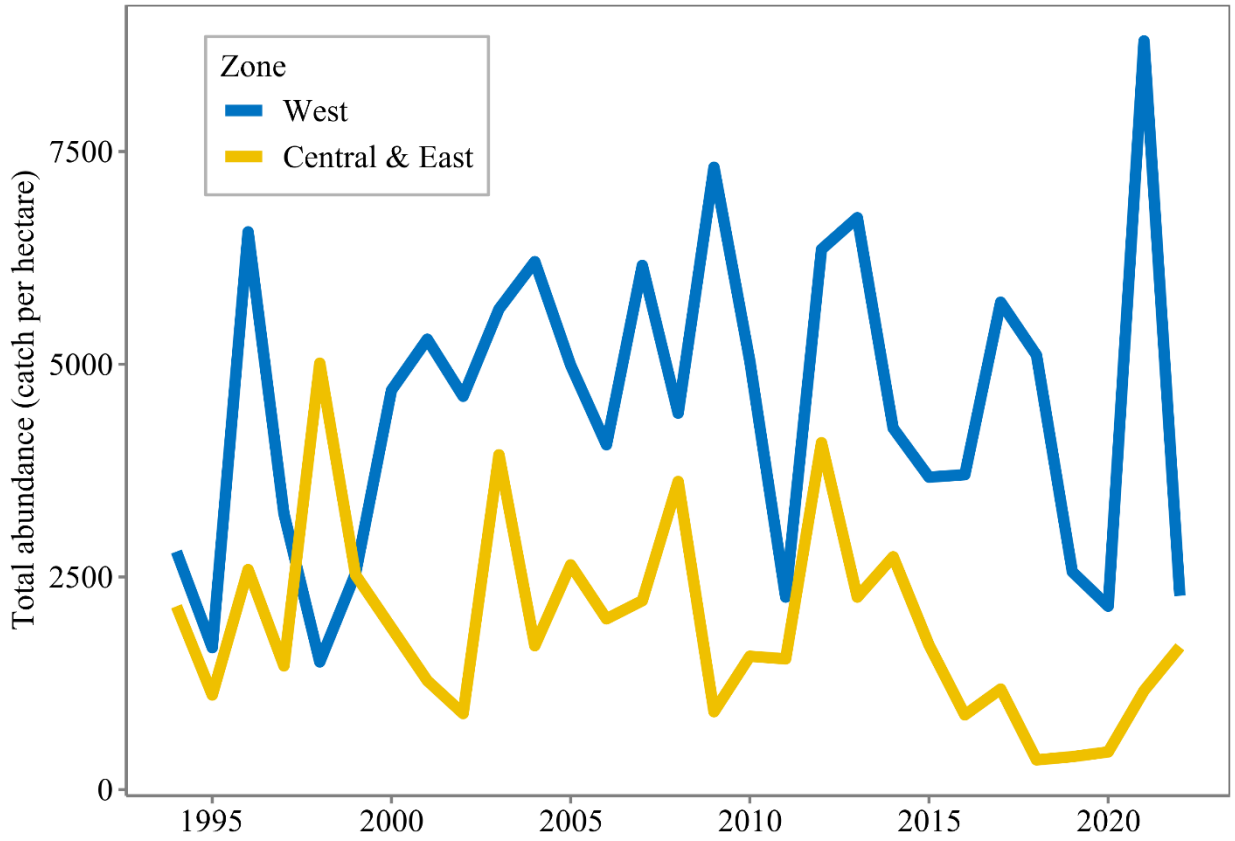

Figure 5.1. Total catch (fish per hectare) of forage fishes over time from the West, Central, and East Zone bottom trawl surveys (Central and East zones combined, in yellow). Forage fishes include any fish that would fit into an adult walleye mouth (roughly between 2–7 inches) and include emerald shiner, gizzard shad, white perch, rainbow smelt, and other species (listed in Figure 5.2).

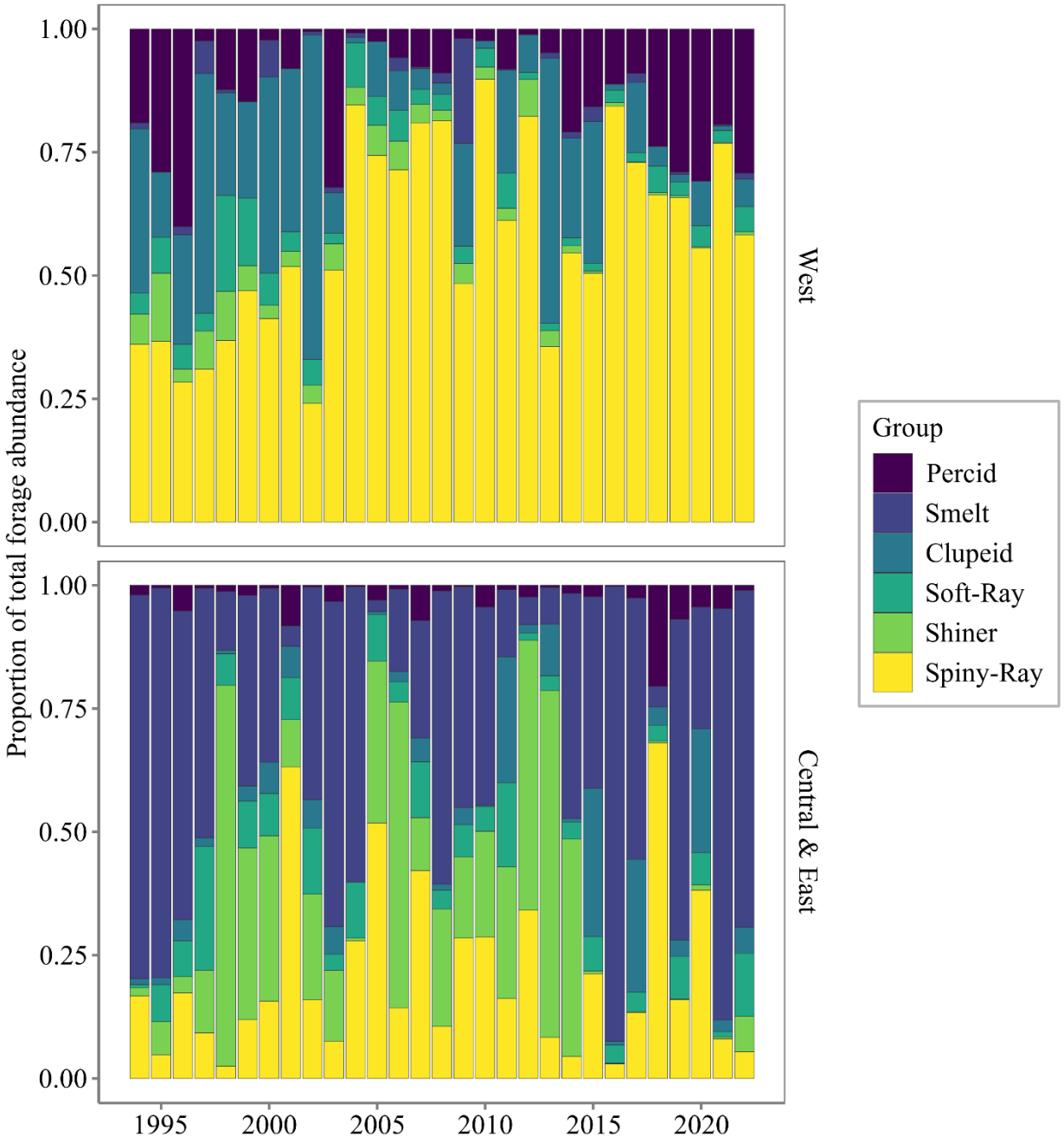

Figure 5.2. Proportion of total forage (percent) for various fish groups over time from the western (top) and central basin (bottom; Central and East Zones) trawl surveys. Western basin indices are from the August interagency survey conducted by both ODNR and OMNRF, while central basin indices are from the ODNR fall trawl survey. White Perch make up the majority of the West Zone forage populations (yellow), while rainbow smelt make up a greater proportion of central basin forage populations (blue).

Environmental

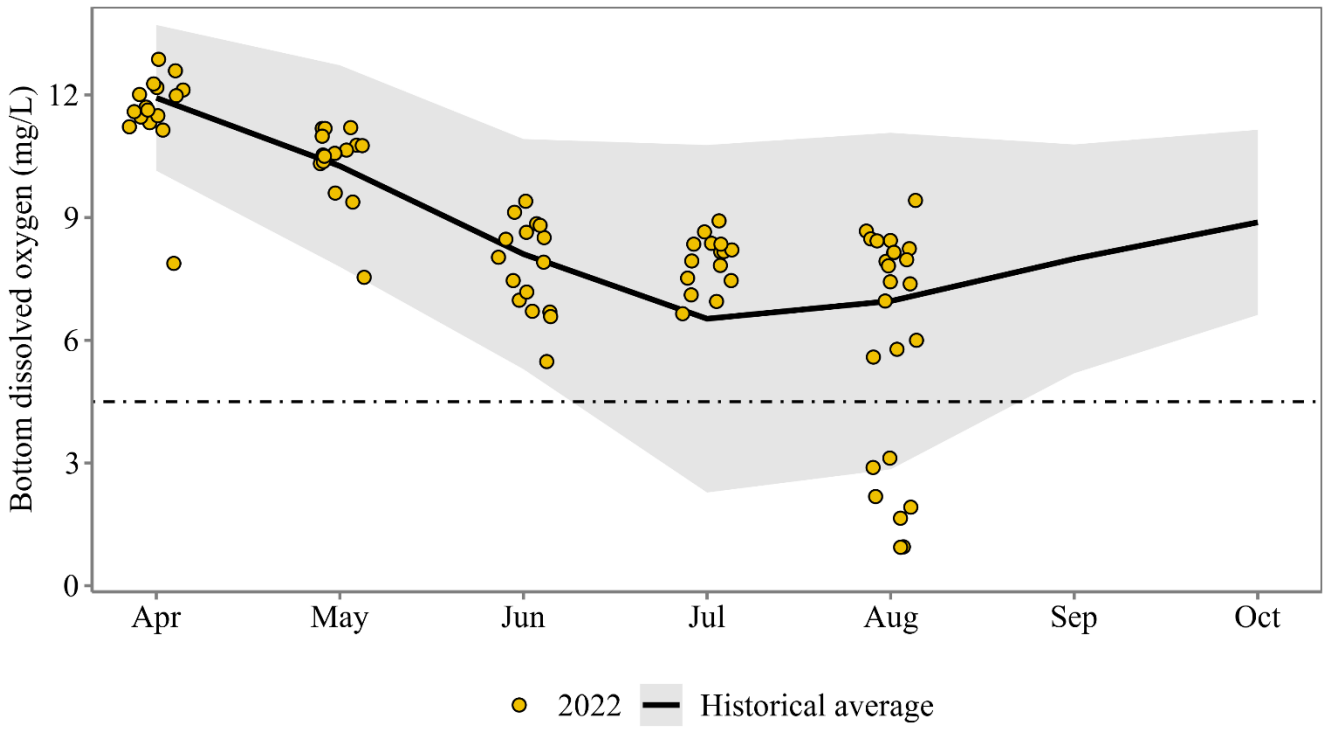

Figure 6.1. West Zone lake bottom dissolved oxygen measurements by month in 2022 (orange points) compared to the ten-year average (black line) and 95% range (grey area). Fish behavior, including feeding, tends to be impacted when dissolved oxygen is below ~ 4.5 mg/L (dashed line), which is typically prevalent in August.

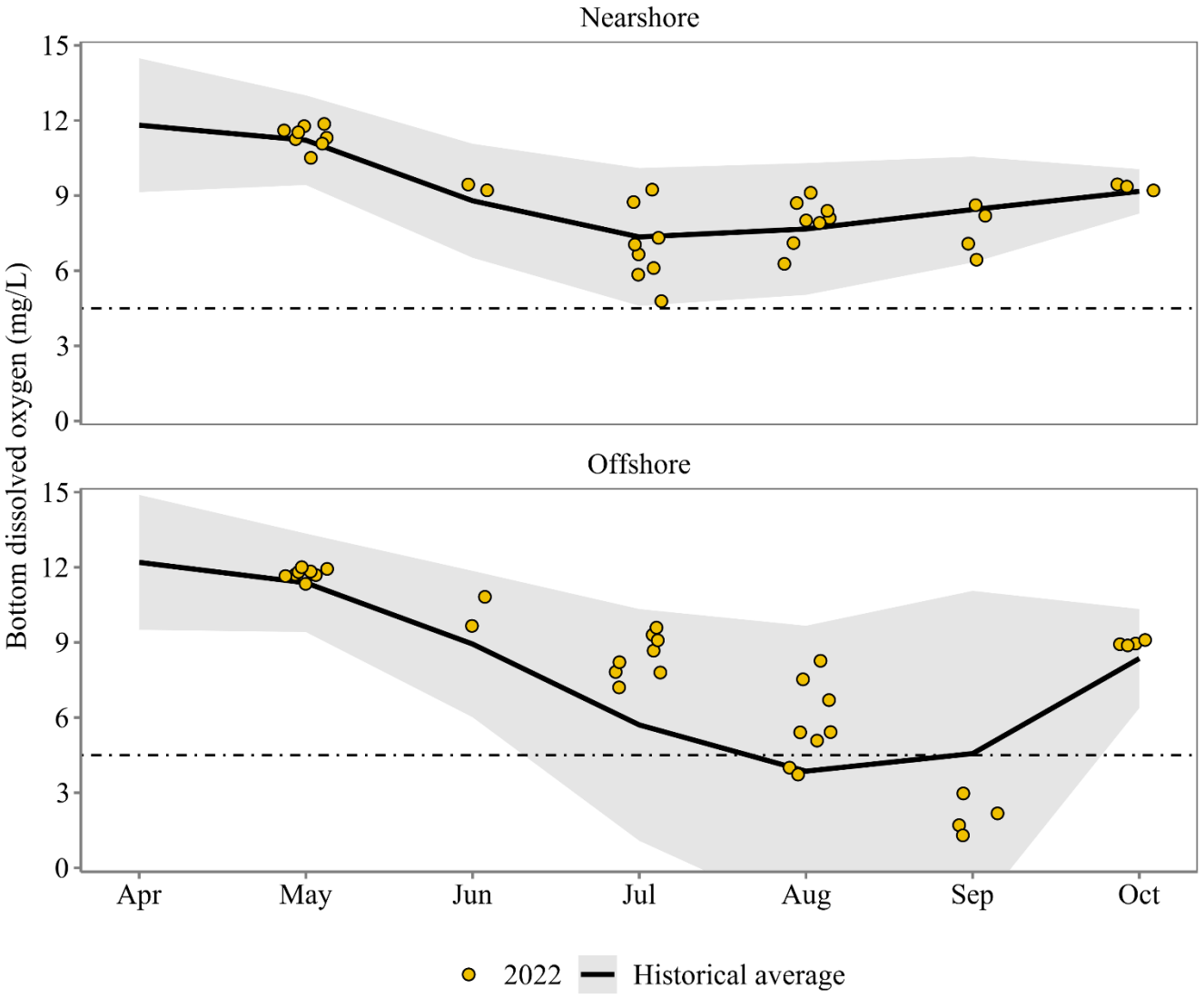

Figure 6.2. Central and East Zone lake bottom dissolved oxygen measurements by month in 2022 (orange points) compared to the ten-year average (black line) and 95% range (grey area). Offshore areas (bottom) tend to be more affected by low oxygen than do nearshore areas (top). Fish behavior, including feeding, tends to be impacted when dissolved oxygen is below ~ 4.5 mg/L (dashed line), which is typically prevalent in August.

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 (before 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:

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