

Dynamics of Lake Erie Walleye and Yellow Perch Populations and Fisheries

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Background

Walleye and Yellow Perch are the most valuable fishery resources in the lower Great Lakes, where they are targeted extensively by recreational anglers in the United States as well as recreational anglers and commercial fishers in the Canadian Province of Ontario (Photo 1). The spawning success of Walleye and Yellow Perch is extremely variable and greatly influences their abundance, growth, and mortality, which in turn can contribute to the success of those who fish for these species. The Fisheries Division conducts annual surveys of Lake Erie Walleye and Yellow Perch populations (also known as stocks) and fisheries through a multi-agency agreement coordinated by the international Great Lakes Fishery Commission (GLFC) (Photo 2). The information generated from this survey is shared with our partner fisheries agencies in Ohio, Pennsylvania, New York, and Ontario. The data are used to improve understanding of fish population dynamics, estimate Walleye and Yellow Perch fish abundance, and directly drive the determination of harvest quotas and fishing regulations for these recreationally and commercially important fisheries.



Photo 1. Angler caught walleye from Lake Erie.



Photo 2. Yellow Perch collected during Fisheries Division's annual Lake Erie surveys.

What are some of the current results?

Results from the annual fall Walleye gill-net survey show that the 2014 Walleye net catch (also known as Catch-Per-Effort or CPE) of 71 fish/net lift was 63% higher than 2013 and is the 4th highest on record for 2005–2014. Catch rates for the 2013 year class were the 4th highest yearling CPE observed from 2005 to 2014. However, both the total and yearling Walleye CPE from the 2014 gill-net survey catch were below the average for the entire 1978-2014 time series. Processing of data and age structures from the fall 2015 gill-net survey is underway.

In the 2014 recreational fishery, 3- and 5-year-old fish from the 2009–2011 year classes accounted for the largest portion (54%) of the Walleye recreational harvest, with a notable contribution (15%) from the strong 2003 year class. The average length of harvested Walleye observed in the Michigan sport creel during 2014 (21 inches) was larger than 2013 (19 inches). For Yellow Perch, the 2009 and 2010 year classes were dominant in 2014, accounting for 68% of

the total harvest. The average length of Yellow Perch harvested by Michigan sport anglers during 2014 was 10 inches, again larger than the 2013 average length of 9 inches. Angler survey data and age structures collected from the 2015 recreational fishery are currently being processed.

Data from the August 2015 trawl survey suggest that the abundance of young-of-year Walleye from the 2015 year class was higher than the 2014 year class at Michigan's Western Basin trawl sites, but lower than other Lake Erie sites surveyed by our partner agencies. Michigan's average catch rate of age-0 Walleye (2 fish/acre) for 2015 was near the 10th percentile of fall catch rates observed in similar Western Basin trawl surveys completed by the Ontario Ministry of Natural Resources and the Ohio Department of Natural Resources. In contrast, young-of-year Yellow Perch catch rates in 2015 (149 fish/acre) were relatively higher, approaching the 70th percentile of the same Ontario-Ohio data set. White Perch were the most abundant species in the catch (40%) at Michigan's 2015 Western Basin trawl sites, followed by Mimic Shiner (27%), Yellow Perch (19%), Round Goby (6%), Freshwater Drum (3%), and Channel Catfish (1%). Spottail Shiner, Trout Perch, Logperch, Walleye, White Bass, Gizzard Shad, Rainbow Smelt, White Sucker, Quillback, Shorthead Redhorse, and Smallmouth Bass accounted for the remaining 4% of the total catch.

Where can I find the details?

Survey data from Michigan, Ohio, Pennsylvania, New York, and Ontario are reported annually in proceedings of the GLFC Lake Erie Committee's Walleye and Yellow Perch task groups, which are available online by visiting <http://www.glfc.org/lakecom/lec/lehome.php>. The Fisheries Division's Lake St. Clair Fisheries Research Station also publishes an annual report describing the status of the important Walleye and Yellow Perch fisheries in Michigan's waters of Lake Erie. This report is available on the web by visiting http://www.michigan.gov/dnr/0,4570,7-153-10364_52259_10951---,00.html and clicking on "Lake St. Clair". Additional information is available at http://www.michigan.gov/dnr/0,4570,7-153-10364_52259_19056-333302--,00.html.

What does this project do for fisheries managers and anglers?

Fisheries managers use the information from this project to set fishing regulations, such as minimum size limits and daily bag limits, which specify the size and number of fish that an angler can harvest in one day. Walleye regulations for Michigan's waters of Lake Erie are updated each April and can be found along with the rules for Yellow Perch and other species by clicking "Rules & Regs" on the Michigan Department of Natural Resources' Fisheries Division website at <http://www.michigan.gov/fishing>.