

# Status of Yellow Perch in Lake Michigan 2016 – 2017



[Wisconsin DNR biologist Pradeep Hirethota with a nice Lake Michigan perch. This report is published in memory of Pradeep who passed away in December 2017. He was a fixture of the Lake Michigan Yellow Perch Task Group for many years and will be greatly missed.]

REPORT TO THE LAKE MICHIGAN COMMITTEE  
Sault Ste Marie, Ontario  
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**Table of Contents**

	<u>Page</u>
List of Graphs	3
Contact List	5
Status of Yellow Perch in Lake Michigan	6
Adult Relative Abundance	6
Population Age Structure	10
Recruitment	13
2018 Yellow Perch Regulations and Harvest Trends	17
Meetings and other Yellow Perch-Related Happenings	18
Appendix	19

## List of Graphs

Figure Page

### Adult Relative Abundance

1. Adult yellow perch gill net CPUE and percent female from Illinois waters of Lake Michigan, 1976 to 2017 (ILDNR) 7
2. Adult yellow perch gill net CPUE and percent female from Wisconsin waters of Lake Michigan, 1986 to 2017 (WDNR) 7
3. Adult yellow perch trawl CPUE from Wisconsin waters of Green Bay, Lake Michigan, 1978 to 2017 (WDNR) 8
4. Adult yellow perch gill net CPUE and percent female from Michigan waters of Bays de Noc, Lake Michigan, 1989 to 2017 (MDNR) 8
5. Adult yellow perch gill net CPUE and percent females from Michigan waters of Lake Michigan, 1996 to 2017 (MDNR) 9
6. Standard graded mesh (51, 64, 76-mm stretched mesh) gill net CPUE of adult yellow perch from Illinois waters of Lake Michigan, 1984 to 2017 9

### Age Structure

7. Yellow perch age structure from gill net assessment in Illinois waters of Lake Michigan, 2017 (ILDNR) 10
8. Yellow perch age structure from commercial harvest monitoring in Wisconsin waters of Green Bay, Lake Michigan, 2017 (WDNR) 11
9. Yellow perch age structure from gill net assessment in Michigan waters of Bays de Noc, Lake Michigan, 2016 (MDNR) 11
10. Yellow perch age structure from gill net assessment in Michigan waters of Lake Michigan, 2016 (MDNR) 12

**List of Graphs (continued)**

<b><u>Figure</u></b>		<b><u>Page</u></b>
	<b><u>Recruitment</u></b>	
11.	Density of age-0 yellow perch, lakewide, 1973 to 2017 (USGS)	13
12.	Age-0 yellow perch trawl CPUE from Indiana waters of Lake Michigan, 1983 to 2017 (BSU)	14
13.	Age-0 yellow perch seine CPUE from Illinois waters of Lake Michigan, 1978 to 2017 (ILDNR)	14
14.	Age-0 yellow perch seine CPUE from Wisconsin waters of Lake Michigan, 1989 to 2017 (WDNR)	15
15.	Age-0 yellow perch trawl CPUE from Wisconsin waters of Green Bay, Lake Michigan, 1978 to 2017 (WDNR)	15
16.	Age-0 yellow perch trawl CPUE from Michigan waters of Bays de Noc, Lake Michigan, 1989 to 2017 (MDNR)	16
17.	Age-0 yellow perch trawl CPUE from Michigan waters of Lake Michigan, 1996 to 2017 (MDNR)	16
	<b><u>Lakewide Fisheries and Harvest</u></b>	
18.	Lake Michigan harvest (lakewide) of yellow perch by commercial and recreational fisheries, 1985-2017.	17

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This report was prepared from information provided by the following contributors. Questions regarding data from a specific area of Lake Michigan, or concerning a specific aspect of Lake Michigan yellow perch research, should be directed to the contributor of that information (see Appendix 1 for a map of lake areas).

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## **Status of Yellow Perch in Lake Michigan**

Yellow perch assessment activity is occurring throughout the lake, with numerous agency and university personnel sampling perch utilizing various gear types in different seasons. Selected parts of this information are presented here, in three sections. The first section covers the relative abundance of adult (age 1 and older) yellow perch. The second section examines the most recent age structure data available for different parts of the lake. The final section consists of estimates (or indices) of juvenile yellow perch recruitment: most of these data come from collections of age-0 yellow perch. Coordinated regulation of yellow perch harvest has been an important part of perch management since the early 1990s. Current commercial and recreational regulations for all Lake Michigan jurisdictions are included as a final section of this status report, along with data showing trends in yellow perch harvest over time.

Since its formation in 1994, the Lake Michigan Yellow Perch Task Group has generally produced an annual status report. Exceptions to the annual reporting cycle occurred in 2012 (report covering 2010 and 2011 activities), 2015 (2012-2014 activities), and 2018 (current year report covers 2016 and 2017 activities). In 2014, ongoing and additional yellow perch-related work and research activities were incorporated within the responsibilities of the existing Lake Michigan Technical Committee (LMTC) Inshore Fish Working Group. The current (2018) report marks the 19<sup>th</sup> report and 24<sup>th</sup> year of reporting by this group.

### **Adult Relative Abundance**

The data assembled were collected with either gill nets or bottom trawls (Figures 1 to 6). Generally, this information shows continuing low levels of adult yellow perch abundance in Lake Michigan for the past four to five years. For example, gill net catches are well below 100 fish per net night in all reported assessments. Data from common gear types (graded-mesh gill net) fished in all jurisdictions are presented in Figure 6; these index data show that current abundance remains well below the historically observed abundance of the late 1980s and early 1990s (Note: only standardized data from the Illinois DNR assessment was ready in time for publication in this report).

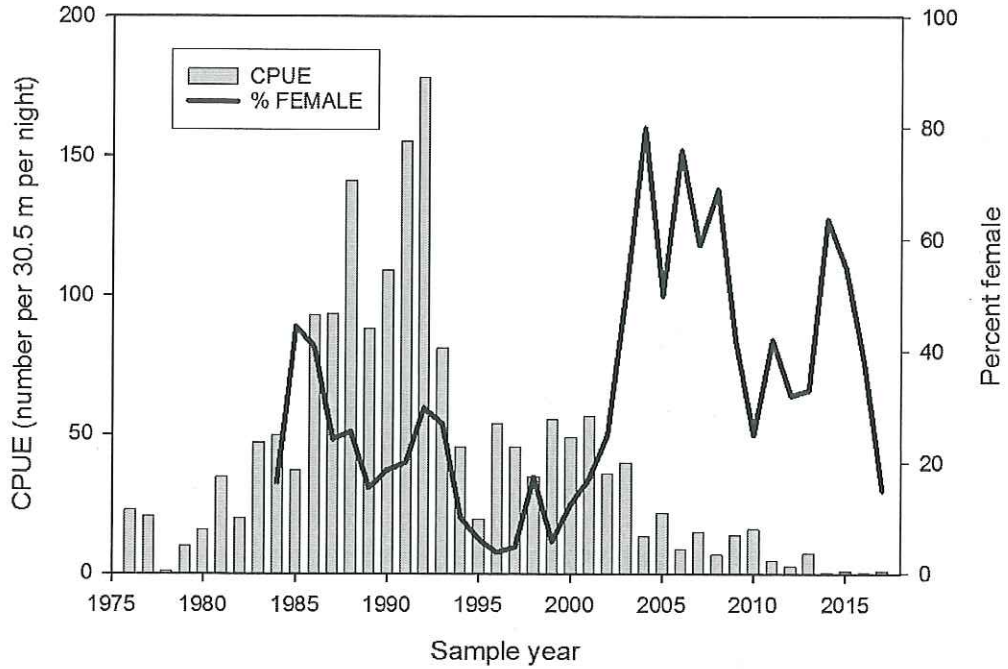


Figure 1. Adult yellow perch relative abundance and percent female in the Illinois waters of Lake Michigan. (ILDNR; data from spring gill net assessment, Chicago and Lake Bluff, IL, 1976 – 2017.)

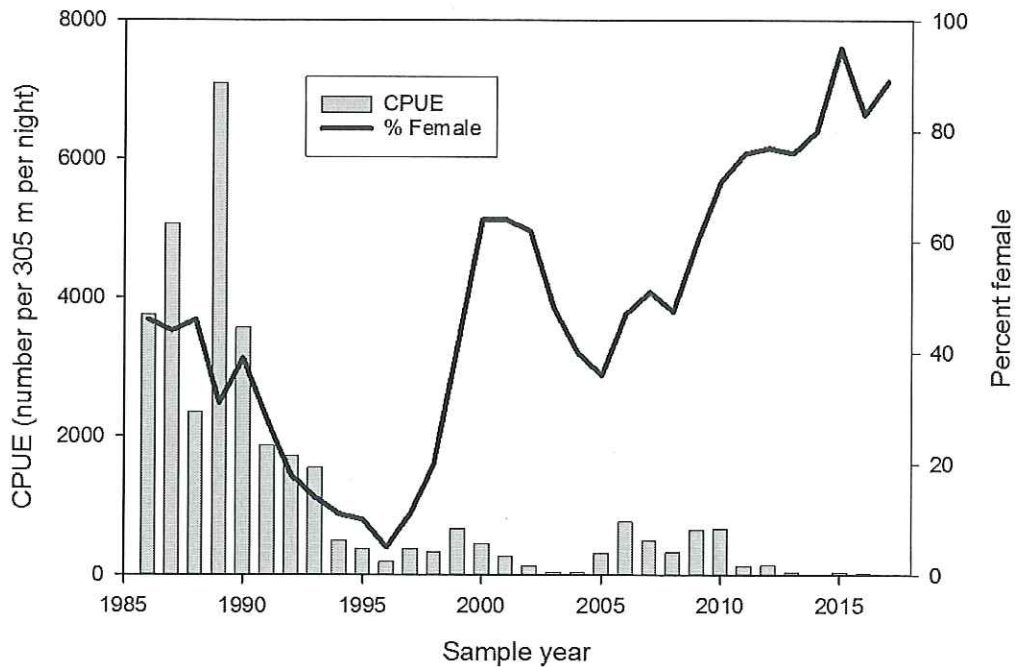


Figure 2. Adult yellow perch relative abundance and percent female in the Wisconsin waters of Lake Michigan. (WDNR; data from winter gill net assessment, Milwaukee, WI, 1986 – 2017.)



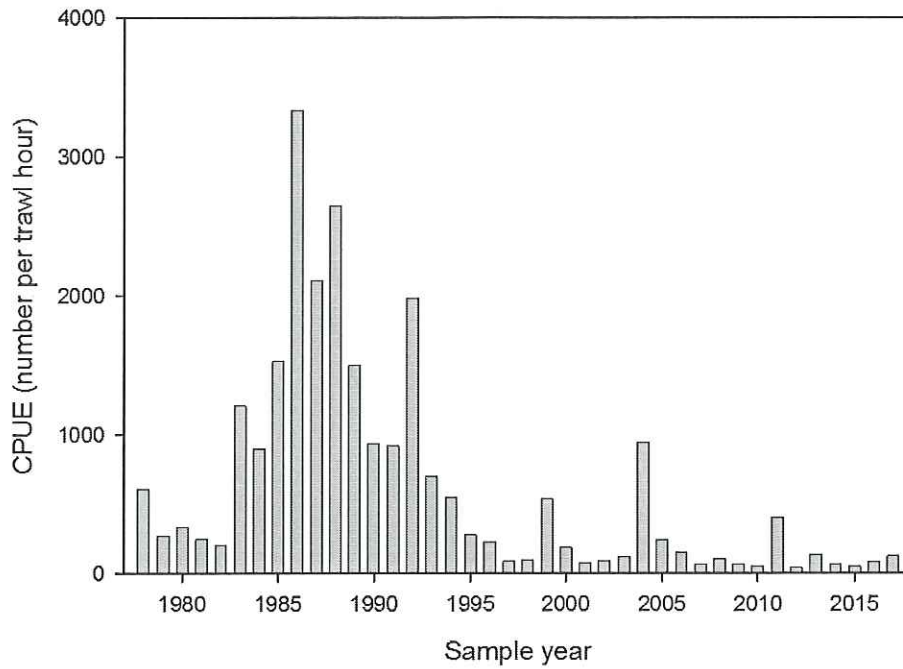


Figure 3. Adult yellow perch relative abundance in the Wisconsin waters of Green Bay. (WDNR; data from summer trawl assessment, Green Bay, WI, 1978 – 2017.)

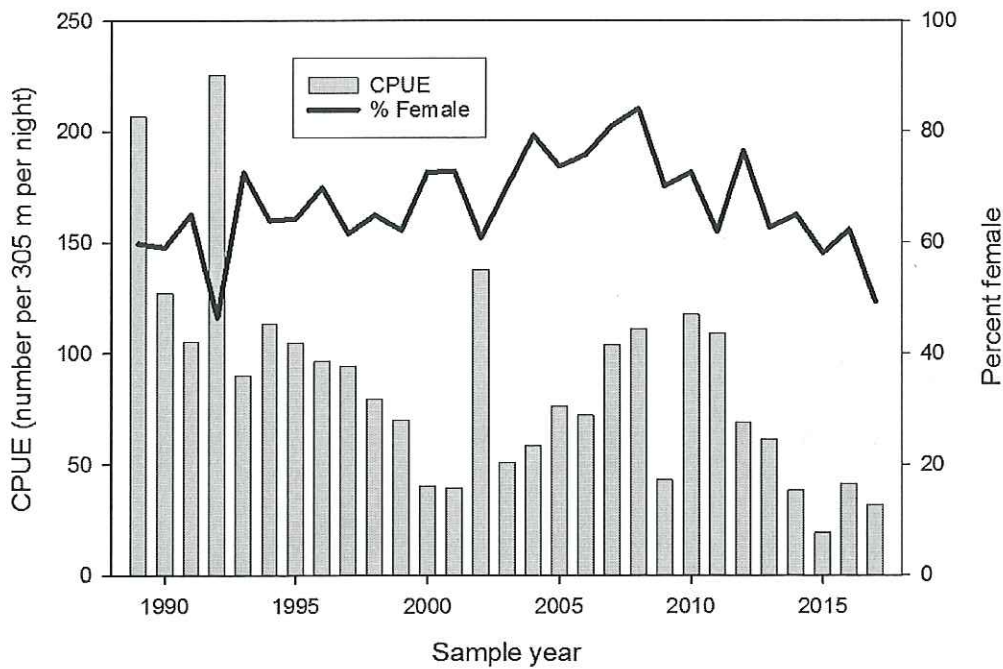


Figure 4. Adult yellow perch gill net catch-per-unit-effort and percent female in the catch in Bays de Noc. (MDNR; data from August to October, 1989 – 2017.)

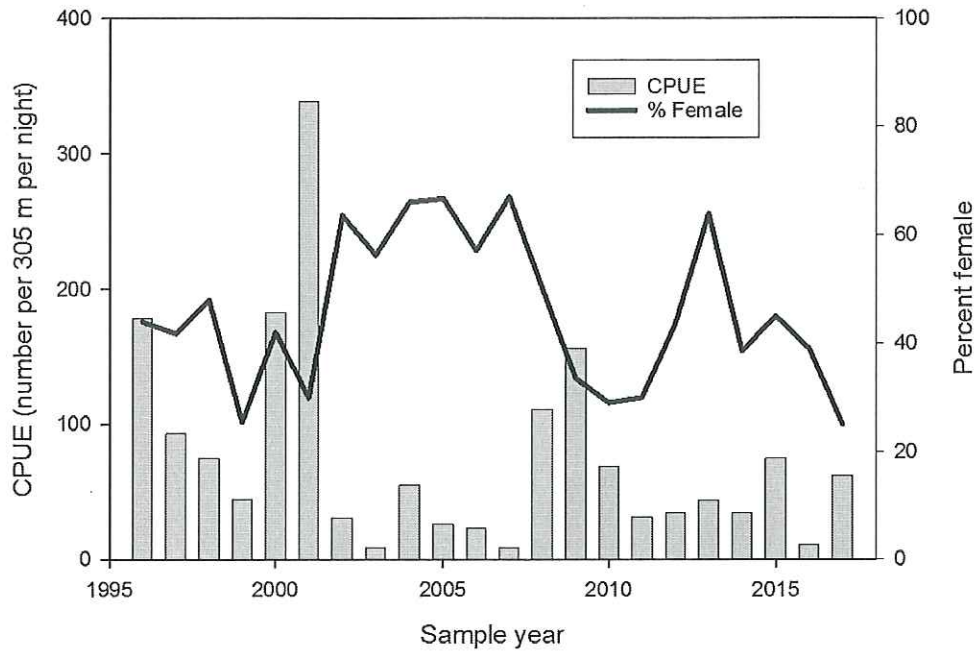


Figure 5. Adult yellow perch gill net catch-per-unit-effort and percent female in the catch at four southern Lake Michigan ports (Grand Haven, Saugatuck, South Haven, and St. Joseph, MI). (MDNR; data from April-June, 1996 – 2017.)

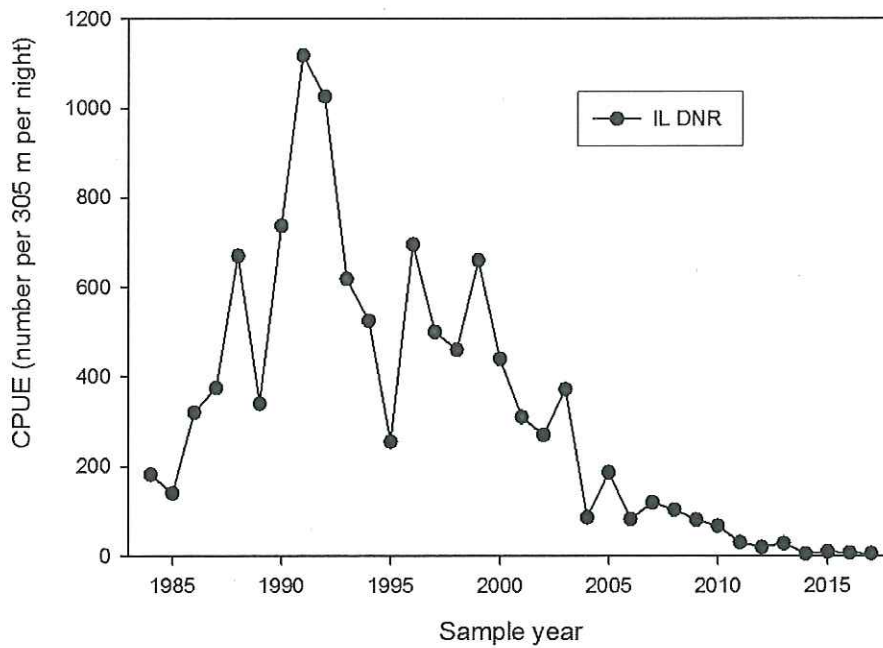


Figure 6. Yellow perch CPE (number of fish per 305 m) in graded mesh gill net consisting of equal length panels of 51-mm, 64-mm, and 76-mm stretched mesh, 1984-2017. (Data from ILDNR)

### Population Age Structure

The yellow perch adult population age structure was determined by evaluating otoliths or spines (see figures for agency-specific information). The 2015 year class comprised a significant part (50-80%; Figures 7 and 8) of catches in Illinois, and in Wisconsin waters of Green Bay. Older fish were predominant in catches from Michigan waters, with greater than 50% of fish captured in 2016 from the 2010 and 2012 year classes, combined (Figures 9-10). In western Lake Michigan (WDNR, Milwaukee), samples sizes from 2016 and 2017 collections were too low to adequately assess year class strength.

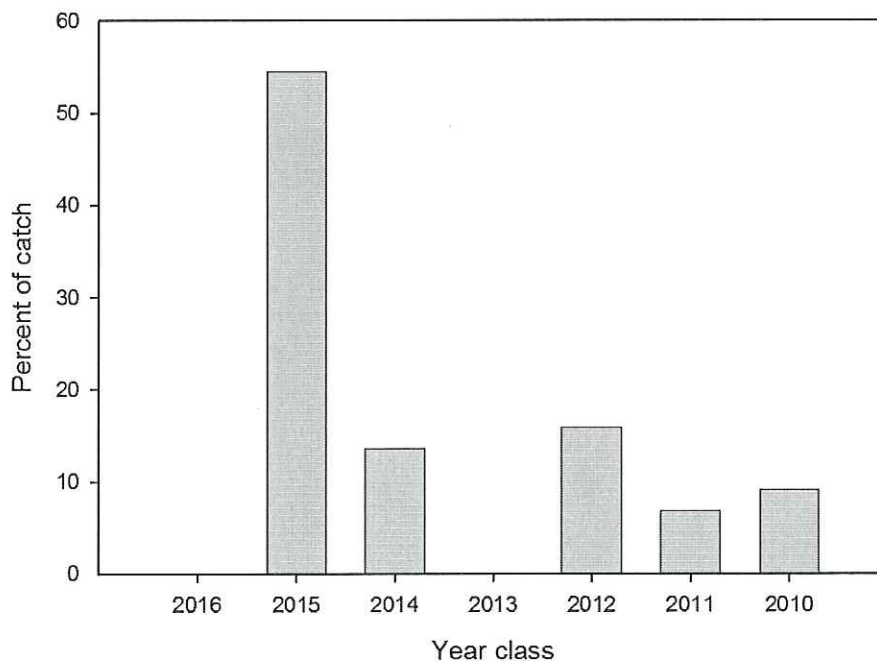


Figure 7. Yellow perch age structure from the Illinois waters of Lake Michigan. (ILDNR; data from spring gill net assessment, Chicago and Lake Bluff, IL, 2017. Ages determined using otoliths.)

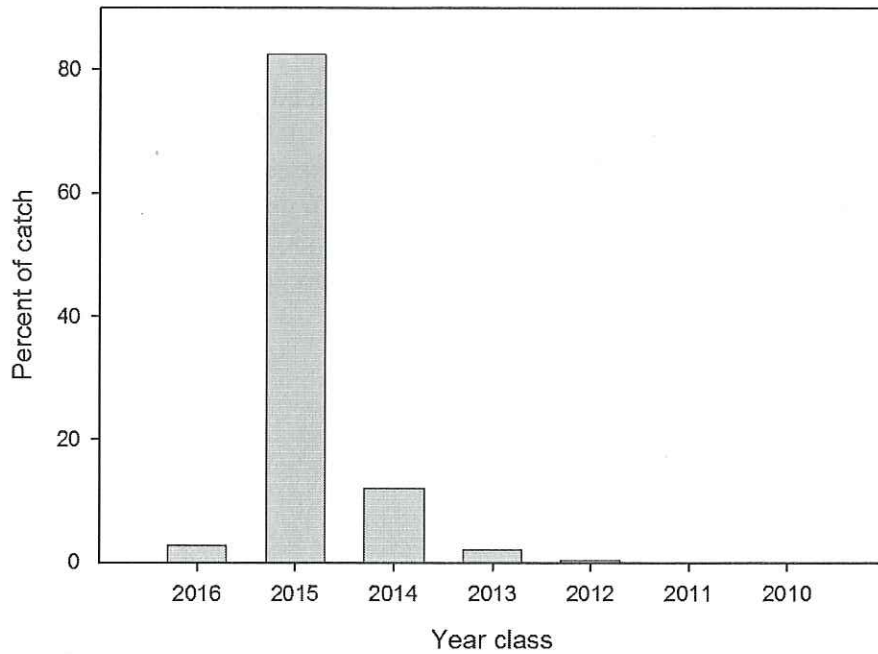


Figure 8. Yellow perch age structure from the Wisconsin waters of Green Bay. (WDNR; data from commercial harvest – all gear types, Green Bay, WI – 2017. Ages determined using spines.)

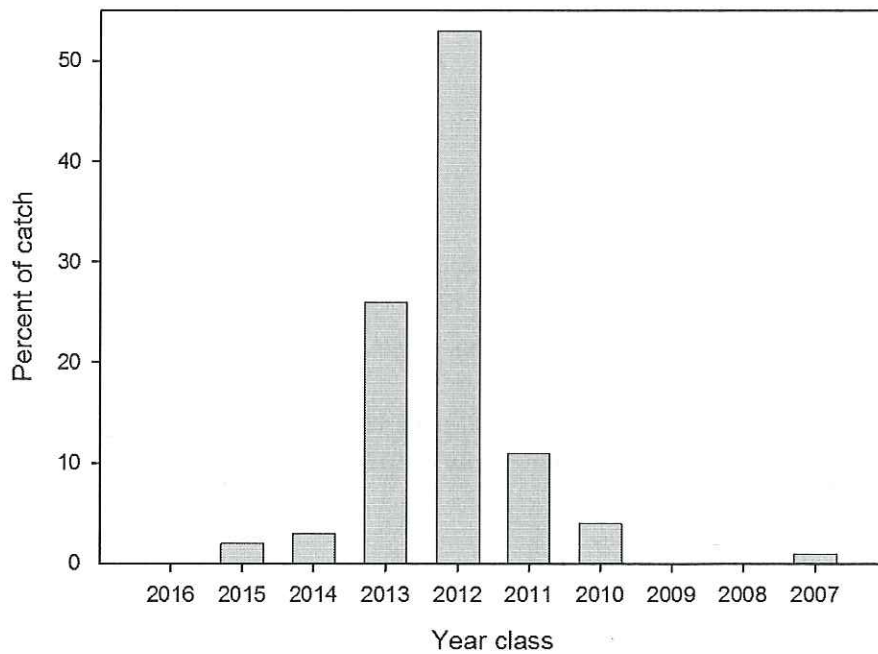


Figure 9. Yellow perch age structure from the Michigan waters of Lake Michigan. (MDNR data from August – October gill net assessment, Bays de Noc, MI – 2016. Age determined using spines.)

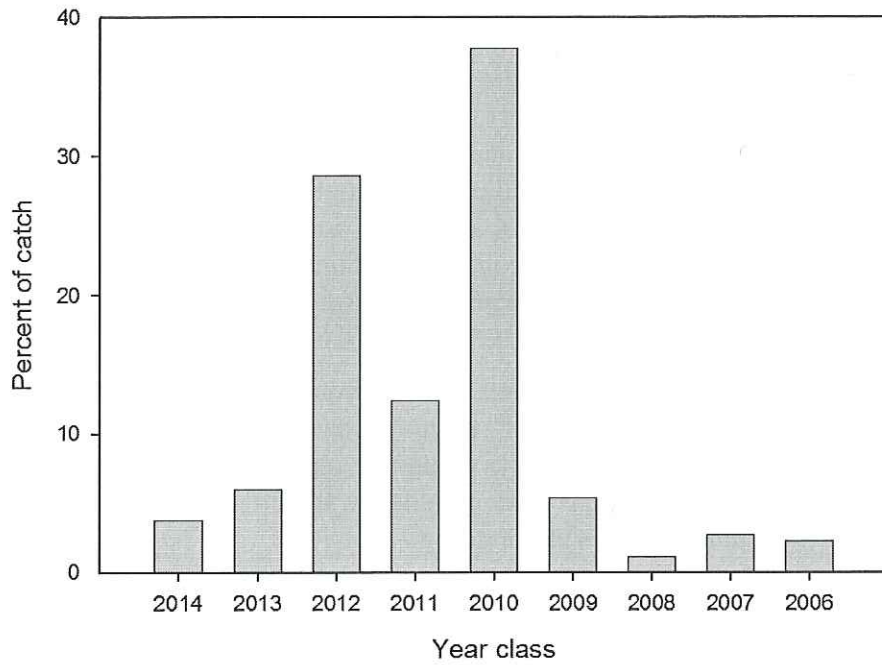


Figure 10. Yellow perch age structure from the Michigan waters of Lake Michigan. (MDNR data from spring gill net assessment, combined three southern Lake Michigan ports – Grand Haven, Saugatuck, and South Haven, MI – 2016. Age determined using spines.)

## Recruitment

Having a reliable indicator of future inputs to an adult population is vital to understanding the dynamics of the fish population and helping predict changes in abundance. An early indicator of recruitment is most beneficial to managers. In Lake Michigan, indicators of yellow perch recruitment have traditionally been collected using bottom trawls or beach seines. Data collected using these traditional gears indicated minimal production of young-of-year yellow perch occurred in all areas of Lake Michigan in 2016 and 2017. Recent observations of lack of production of YOY yellow perch have been consistent around the lake; indices of YOY yellow perch production have been at low levels in nearly all jurisdictions since 2011 (with a couple of exceptions – Indiana and Illinois in 2015 – noted in the 2016 report).

The YPTG agreed to implement a lakewide summer “micromesh” gill net assessment (beginning in summer 2007) to standardize assessment of young-of-year yellow perch production, especially in areas where standard trawl and seine surveys cannot be implemented. Preliminary evaluation of five years of data from this assessment were included in the 2012 report; this survey is continuing, and additional data analyses are ongoing.

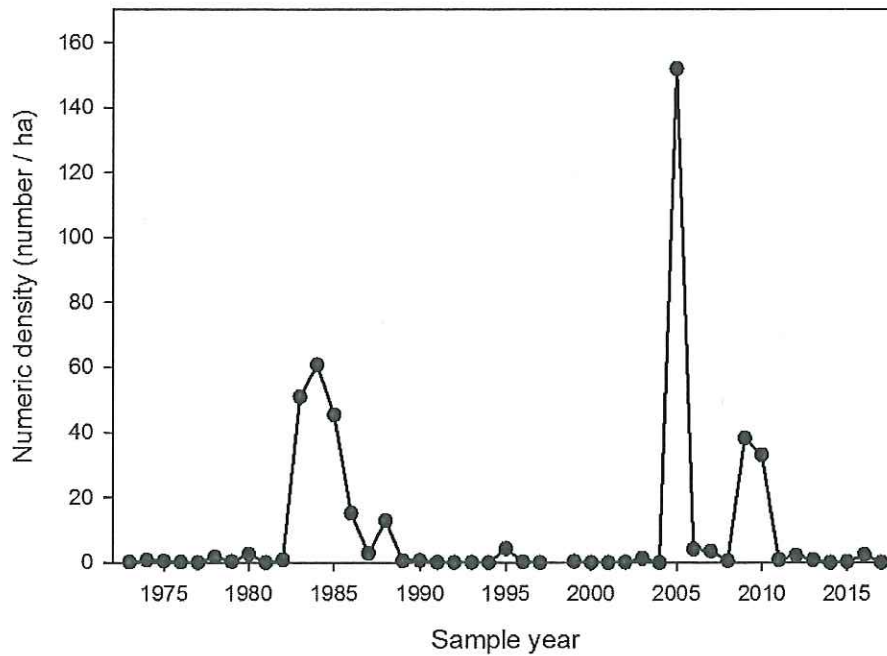


Figure 11. Density of age-0 yellow perch, lakewide. (USGS; data from fall bottom trawl assessments, 1973 – 2017.)

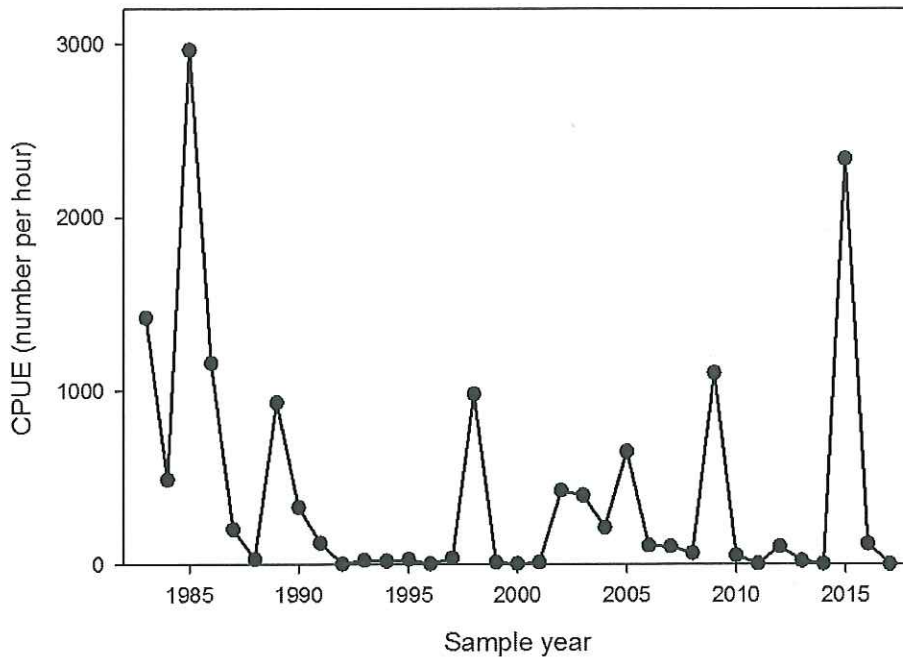


Figure 12. CPUE of YOY yellow perch from the Indiana waters of Lake Michigan. (BSU; data from summer trawl assessments, 1983 – 2017.)

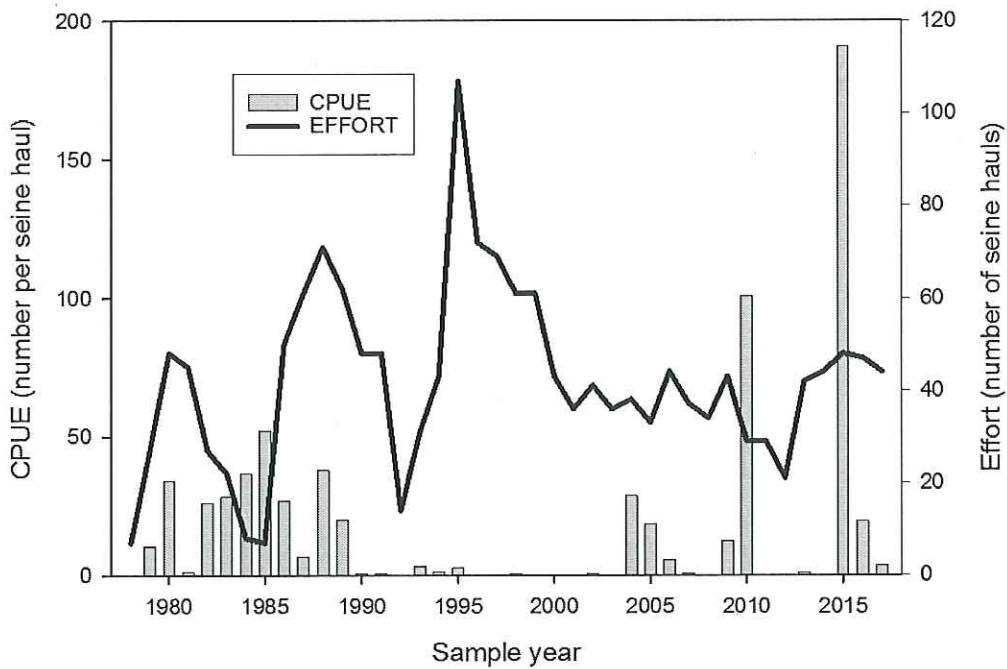


Figure 13. CPUE of YOY yellow perch from the Illinois waters of Lake Michigan. (ILDNR; data from summer beach seining along the Illinois shoreline, 1978 – 2017.)

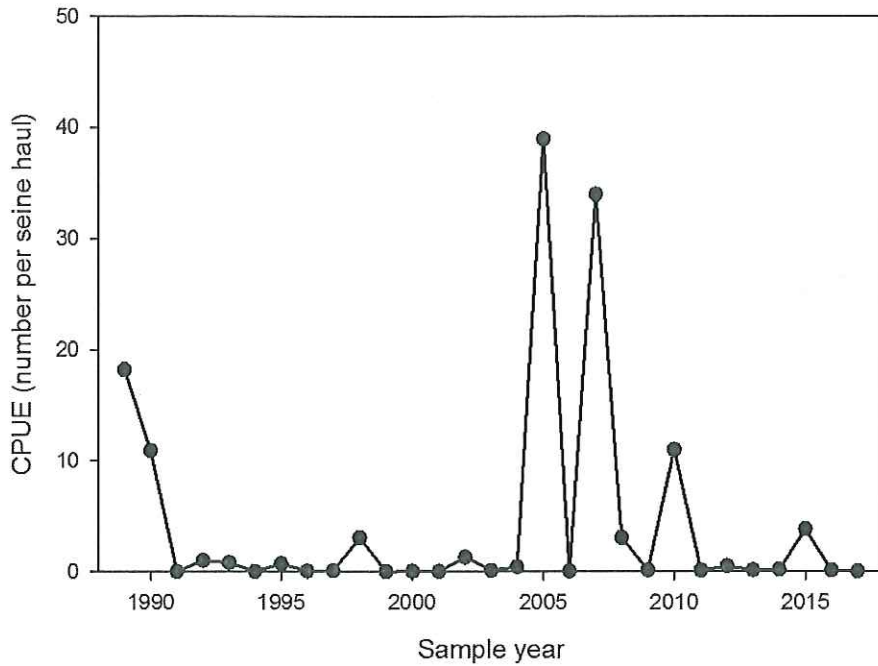


Figure 14. CPUE of age-0 yellow perch from the Wisconsin waters of Lake Michigan. (WDNR; data from summer beach seine assessments along the southern Wisconsin shoreline, 1989 – 2017.)

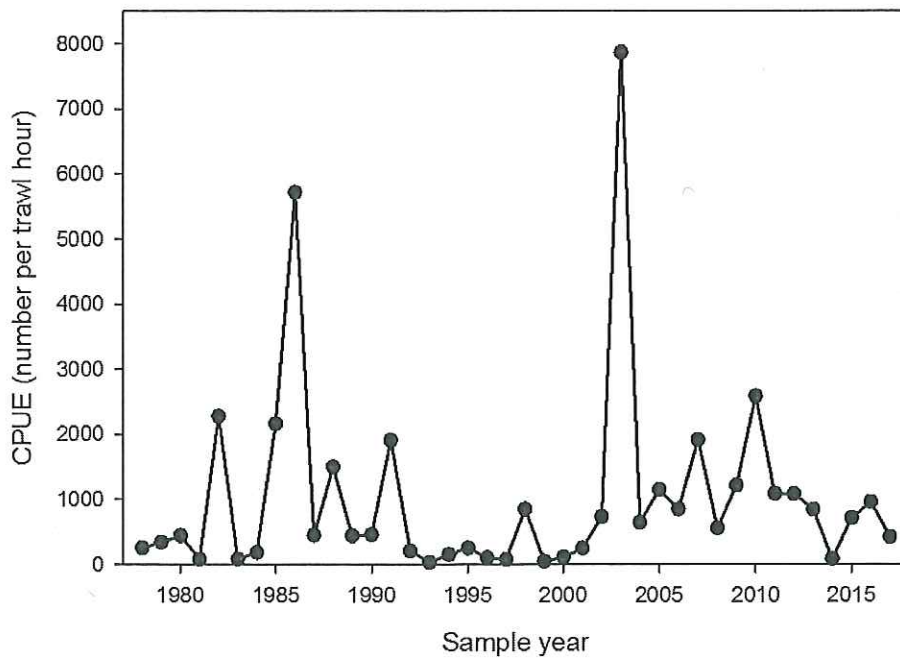


Figure 15. CPUE of age-0 yellow perch from the Wisconsin waters of Green Bay. (WDNR; data from summer trawl assessments, 1978 – 2017.)



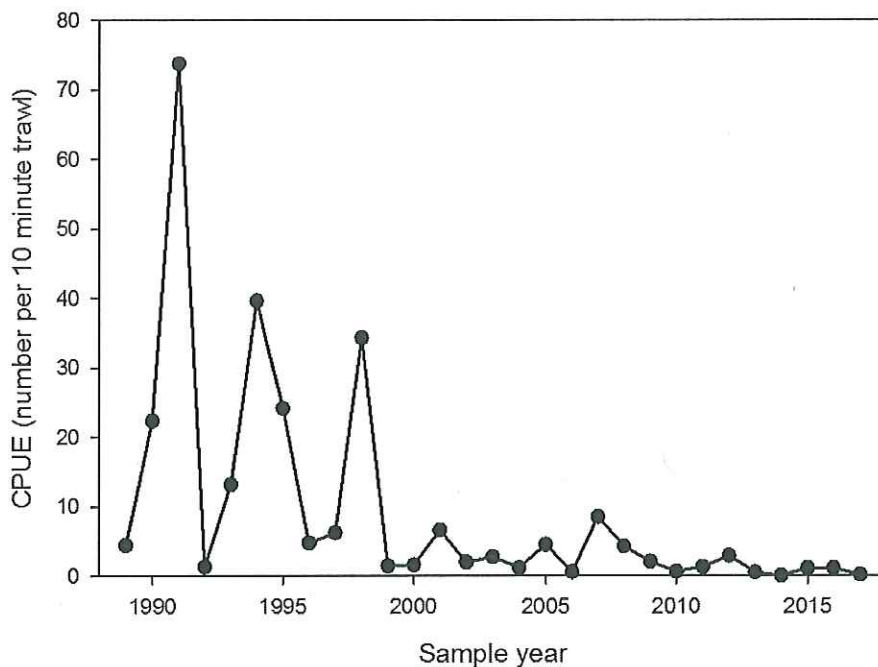


Figure 16. CPUE of age-0 yellow perch in Bays de Noc, Lake Michigan. (MDNR; summer bottom trawl data, 1989 - 2017.)

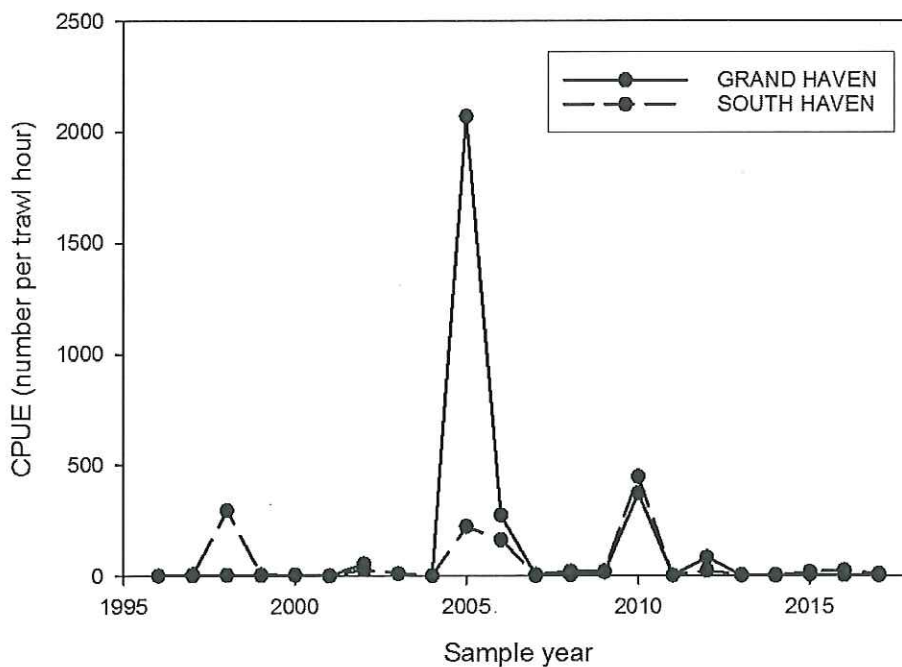


Figure 17. CPUE of age-0 yellow perch in the Michigan waters of Lake Michigan. (MDNR; late summer bottom trawl data from Grand Haven and South Haven, 1996 - 2017. Grand Haven was not sampled in 2003.)

## 2018 Yellow Perch Regulations and Harvest Trends

### Sportfishing regulations:

- Illinois
  - May 1 through June 15; closed to sportfishing for yellow perch
  - Daily bag limit 15 fish
- Indiana
  - No closed season for yellow perch
  - Daily bag limit 15 fish
- Michigan
  - No closed season for yellow perch
  - Daily bag limit; 35 fish (south of the 45<sup>th</sup> parallel) / 50 fish (north of 45<sup>th</sup> parallel and Grand Traverse Bays)
- Wisconsin (Lake Michigan)
  - May 1 through June 15; closed to sportfishing for yellow perch
  - Daily bag limit 5 fish
- Wisconsin (Green Bay)
  - March 16 through May 19; closed to sportfishing for yellow perch
  - Daily bag limit 15 fish

### Commercial regulations:

- Illinois perch fishery remained closed
- Indiana perch fishery remained closed
- Michigan does not allow a commercial harvest (outside of 1836 Treaty waters)
- Wisconsin perch fishery remained closed (outside of Green Bay, where quota for 2018 is 100,000 pounds)

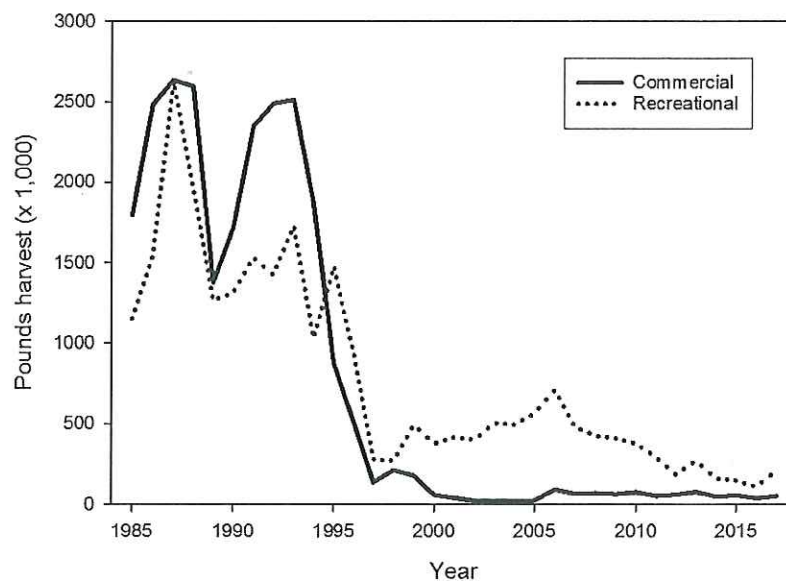


Figure 18. Lake Michigan harvest (lakewide) of yellow perch by commercial and recreational fisheries, 1985-2017. (All jurisdictions; data from Lake Michigan Committee lakewide extractions database, B. Breidert.)

**Meetings and Other Yellow Perch-Related Happenings in the Lake Michigan Basin, 2016-2017**

- Outside of the regular summer and winter LMTC meetings (and coordination of this report), no additional meetings of the LMTC Inshore Fish Working Group were convened during 2016-2017.

Appendix 1. Lake Michigan statistical districts.

