Summary Report: 2012, Mississippi River Pool 8 Fall Walleye and Sauger Young-of-the-Year Assessment

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Objective: To summarize fall electro fishing of young-of-the-year walleye and sauger in Pool 8

INTRODUCTION

Walleye and sauger are highly sought after recreational fish of the Upper Mississippi River. Both species provide recreational fishing opportunities and a food source. Although generally good, angler success is variable, as walleye and sauger populations naturally fluctuate.

Previous assessments have shown walleye and sauger young-of-year (YOY) recruitment can significantly vary from year to year. Fluctuations are due to biotic and abiotic factors during critical life stages. These limiting factors determine year class strength.

During the 1983, electro fishing index stations were established on the Mississippi River to assess fall YOY abundance. The index stations are sampled annually. This report summarizes results from 2012 and compares them to results from previous years.

METHODS

The location of the six sampling stations in the tailwater of Lock and Dam 7 are given in Figure 1. The stations were sampled during the night of November 1, 2012.

The stations were sampled with a direct current electro fishing boat generating about 250 volts at 16 amps, pulsed at 80 cycles per second at a 20% duty cycle. The sampling crew consisted of one dipnetter and one operator. Each index station was electro fished with a single downstream timed run. The dipnetter attempted to collect all walleye and sauger less than 12 inches in total length. All fish were measured to the nearest millimeter and catch per unit effort (CPUE) was determined for each station. The average CPUE was calculated by dividing the total number of fish by the total time for all six stations combined. The criteria used for determining YOY were individuals a maximum of 9.0 inches for walleye and 7.9 inches for sauger. These lengths were determined through examination of the 2012 length frequency distributions.

RESULTS

Mean water temperature was 7.2 ºC (45 ºF). The Lock and Dam 7 tailwater elevation was 631.48 feet, while the discharge was 16000 cubic feet per second.

During 2012, YOY CPUE for walleye ranged from 13.9 to 65.0 per hour (average = 40) (Table 1), while sauger CPUE ranged from 0 to 81.7 per hour (average = 33.48 (Table 1).

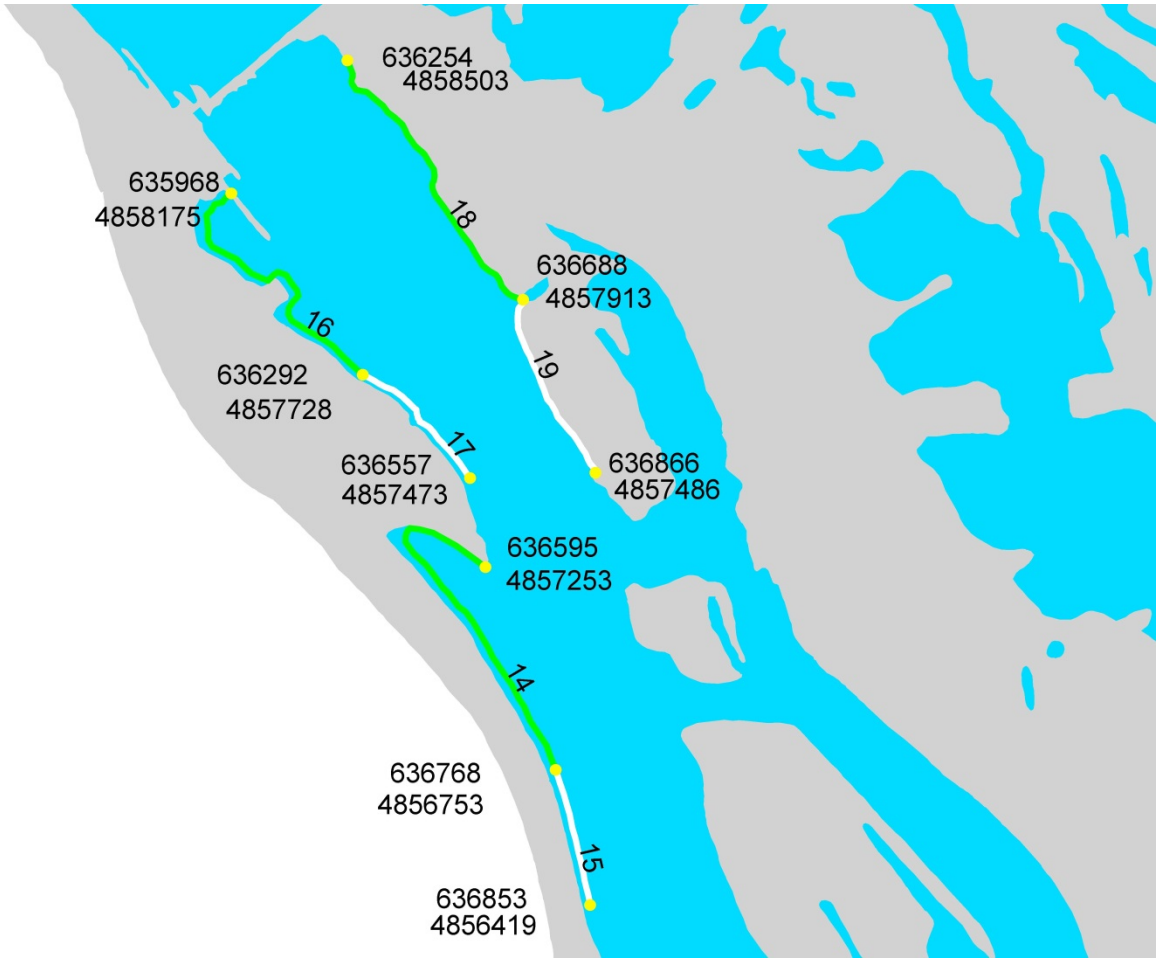
Over the past 30 years, both species have shown high variability in recruitment. Average walleye CPUE has varied from 2.9 fish/h in 1993 to 596.7 fish/h in 2001. Similarly, average sauger CPUE has varied from 1.8 fish/h in 1999 to 400.1 fish/h in 1992 (Figure 2). The long-term (1983-2012) index average calculated from pooled data was 114.6 walleye/h and 85.85 sauger/h. During this year's survey, CPUE for both walleye and sauger were below the long-term average. In fact, all years since 2008 have been below the long-term average. There were no long-term trends seen in walleye or sauger YOY CPUE from 1983-2012.

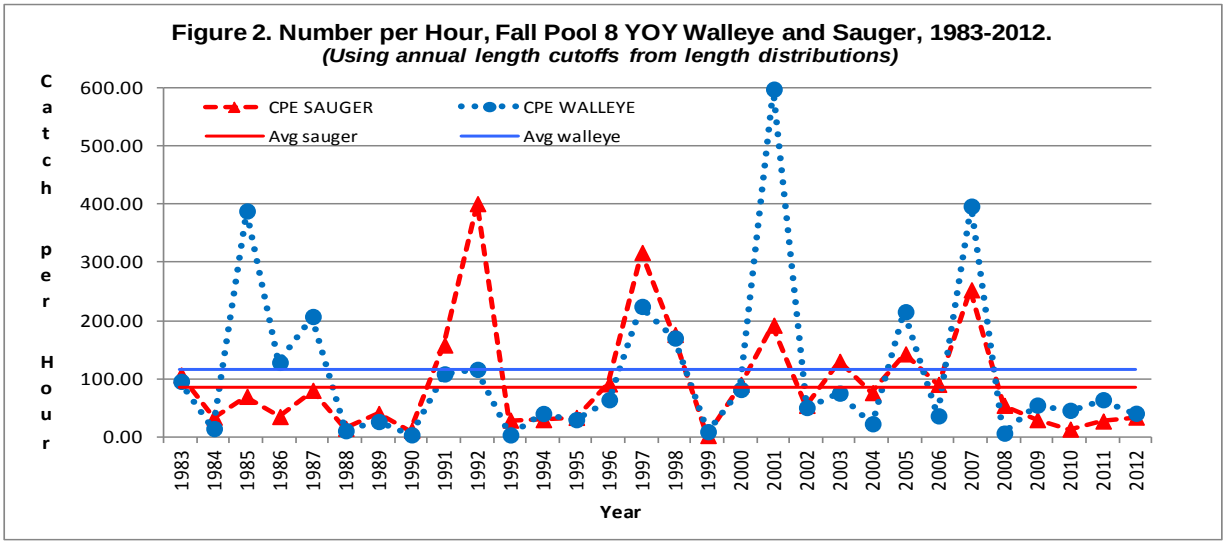
Length frequency distributions for walleye and sauger are given in Figure 3. During 2012, average total length of both YOY walleye and sauger were about the same as their long-term means. Length of 2012 YOY walleye ranged from 5.6 to 8.9 inches and had a mean of 7.4 inches (n = 92); while sauger length ranged from 5.2 to 7.7 inches and had a mean of 6.6 inches (n = 77). Over the past 28 years, walleye average annual lengths have varied from 6.7 to 8.0 inches (mean = 7.59) and 6.1 to 7.3 inches (mean = 6.6) for sauger (Figure 4). We found no long term trends in lengths of either species from 1983 through 2012 (figures 5 and 6).

Table 1. Catch per unit effort of walleye and sauger young-of-year (YOY) sampled at six stations in Pool 8 of the Mississippi River in November, 2012.

Station	Walleye YOY/h	Sauger YOY/h
14	58.3	81.7
15	65.0	25.0
16	13.9	23.1
17	18.4	0.0
18	45.0	15.0
19	28.0	16.0
AVERAGE	**40.00**	**33.48**

Figure 1. Location of Six Young-of-the-Year Walleye and Sauger Electro fishing runs downstream of Lock and Dam 7, in Navigation Pool 8 of the Mississippi River.





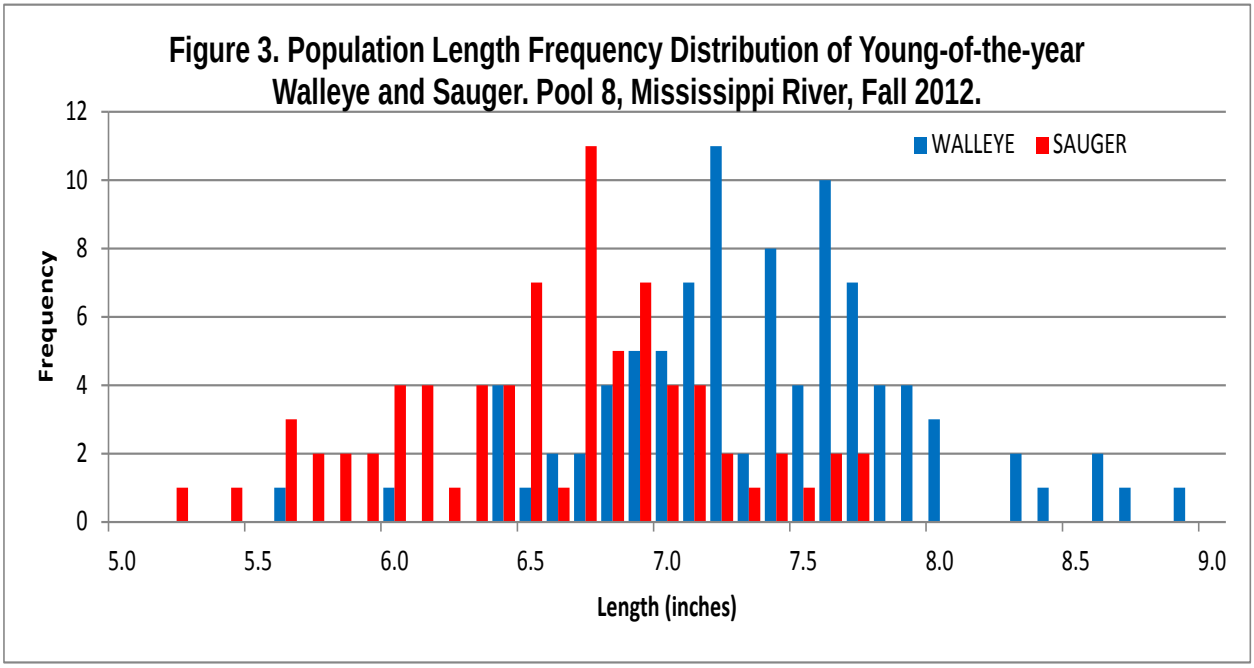


Figure 3. Population Length Frequency Distribution of Young-of-the-year Walleye and Sauger. Pool 8, Mississippi River, Fall 2012.
WALLEYE
SAUGER
Frequency
Length (inches)
0
2
4
6
8
10
12
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0

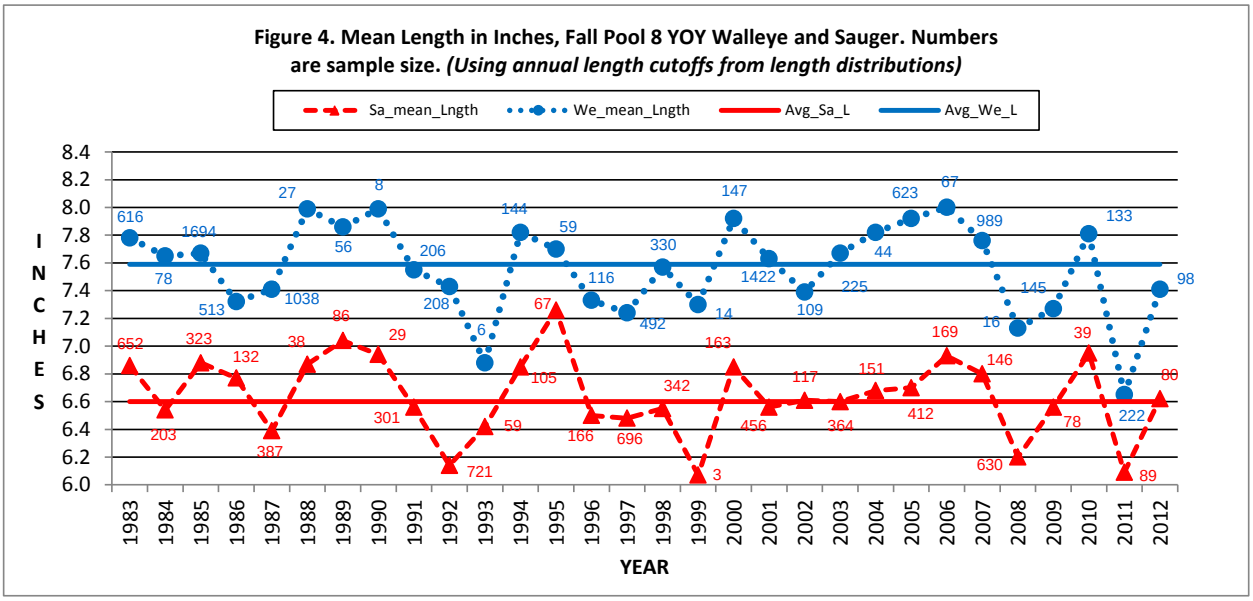


Figure 4. Mean Length in Inches, Fall Pool 8 YOY Walleye and Sauger. Numbers are sample size. (Using annual length cutoffs from length distributions)
Sa_mean_Lngth
We_mean_Lngth
Avg_Sa_L
Avg_We_L
INCHES
YEAR
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012

FIGURE 5. FALL YOY SAUGER LENGTH (INCHES) TREND FROM 1983-2012, MISSISSIPPI R., POOL 8 (P_{slope}=0.2301) (n=7204).

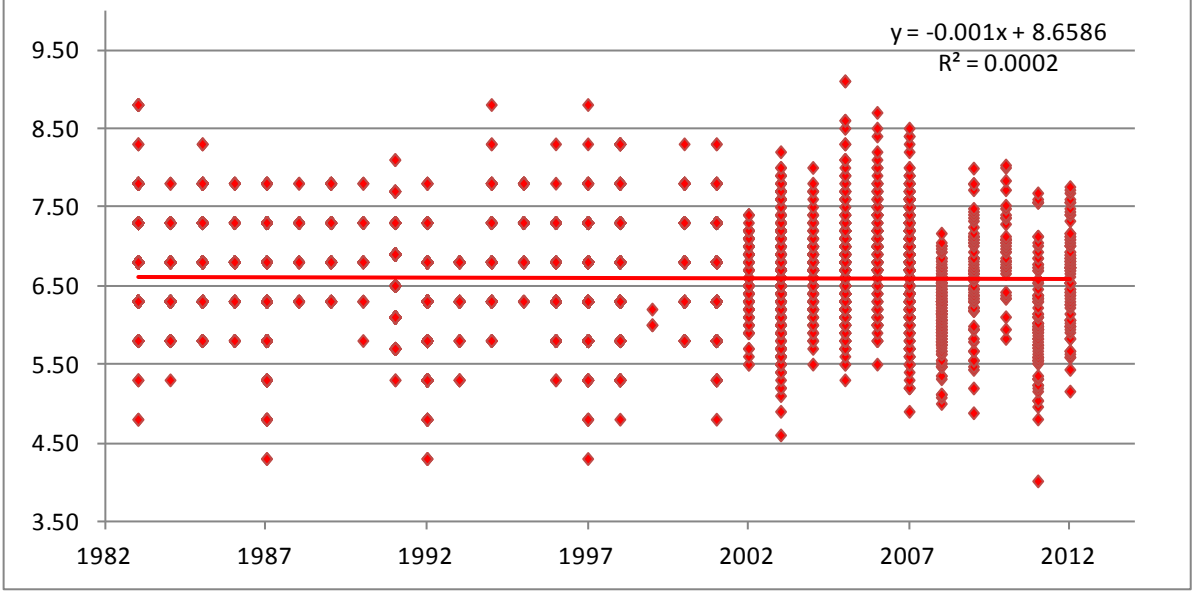


FIGURE 6. FALL YOY SAUGER LENGTH (INCHES) TREND FROM 1983-2012, MISSISSIPPI R., POOL 8 (P_{slope}=0.4080) (n=9845).