

Summary Report: 2010, Mississippi River Pool 8 Fall Walleye and Sauger Young-of-the-Year Assessment

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Objective: To summarize fall electrofishing 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 favorable, angler success is variable, as walleye and sauger populations 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 1980's, index sites were established on the Mississippi River. The index sites are sampled annually. This report summarizes results from 2010 and compares them to results from previous years.

METHODS

Six sampling sites in the tailwater of Lock and Dam 7 were previously established in Pool 8 (Figure 1). The sites were sampled during the night of November 16, 2010. Mean water temperature was 5.8 °C (42.4 °F). The Lock and Dam 7 tailwater elevation was 634.88 feet, while the discharge was 58800 cubic feet per second.

The sites were sampled with a direct current electrofishing boat generating about 360 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 site was electrofished with a single downstream timed run. The dipnetter attempted to collect all walleye and sauger. All fish were measured to the nearest millimeter and catch per unit effort (CPUE) was determined for each site. The average CPUE was calculated by dividing the total number of fish by the total time for all six sites combined. The criteria used for determining YOY were individuals a maximum of 9.0 inches for walleye and 8.6 inches for sauger.

RESULTS

During 2010, YOY CPUE for walleye ranged from 23.3 to 72.0 per hour (average = 45.08) (Table 1), while sauger CPUE ranged from 3.3 to 40.0 per hour (average = 18.03 (Table 1).

Over the past 28 years, both species have shown high variability in recruitment. Walleye CPUE has varied from 3.0 fish/h in 1990 to 583.7 fish/h in 2001. Similarly, sauger CPUE has varied from 10.8 fish/h in 1990 to 400.7 fish/h in 1992 (Figure 2). The long-term (1983-2010) index average calculated from pooled data was 116.5 walleye/h and 99.3 sauger/h. During this year's survey, CPUE for both walleye and sauger were below the long-term average.

During 2010, average total length of both YOY walleye and sauger were greater than their long-term means. Length of 2010 walleye YOY ranged from 6.4-8.9 inches and had a mean of 7.8 inches (n = 130); while sauger length ranged from 5.83-8.58 inches and had a mean of 7.35 inches (n = 52) (Figure 3). Over the past 28 years, walleye average annual lengths have varied from 4.52-9.0 inches (mean = 7.57) and 4.30-8.60 inches (mean = 6.73) for sauger (Figure 3).

Since the 2010 Lock and Dam 7 tailwater surface elevation and flow were quite high, I investigated the possible effect these may have had on YOY catch rates. The twenty-eight year mean tailwater elevation was 632.62 feet, 2.26 feet below the 2010 elevation. The twenty-eight year mean discharge was 32498 cubic feet per second, 26302 cubic feet per second below the 2010 discharge. Also, the water temperature was 2.7 °C colder than the long term mean.

Regressions of catch per hour by species and elevation, discharge and temperature found no significant correlation over the range of values observed (Figures 4-6). This suggests that these single environmental characteristics had little or no effect on catch per hour in the tailwater of Pool 8 over the last twenty-eight years. This suggests that high discharge or high elevations may not have affected the 2010 catch rates. Other factors, for example, adult stock abundance, elevation or discharge and temperature, or their dynamics in spring or other times of the year may have a stronger effect on YOY age class strength than fall sampling conditions.

Figure 1. Location of Six Young-of-the-Year Walleye and Sauger Electrofishing Runs downstream of Lock and Dam 7, in Navigation Pool 8 of the Mississippi River (2008 NAIP Photo).

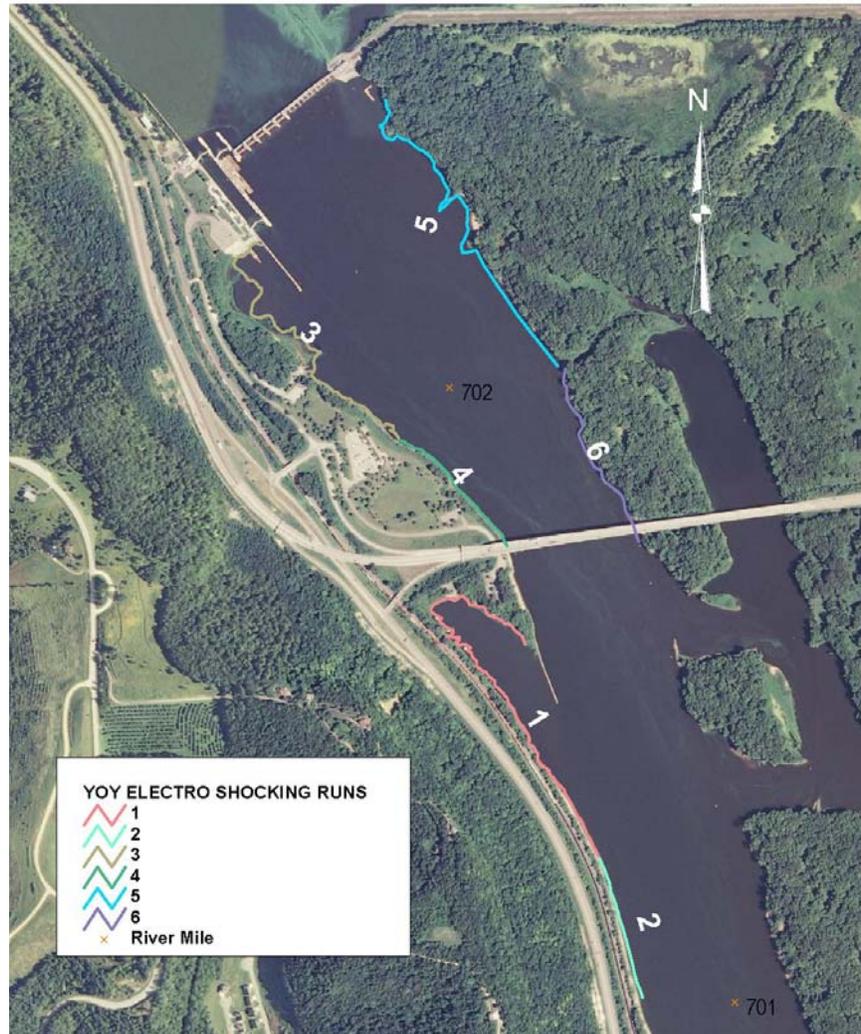


Table 1. Catch per unit effort of walleye and sauger young-of-year (YOY) sampled at six sites in Pool 8 of the Mississippi River in November, 2010.

Site	Walleye YOY/h	Sauger YOY/h
1	45.0	20.8
2	72.0	40.0
3	38.8	33.5
4	23.3	3.3
5	54.5	3.6
6	40.0	5.7
AVERAGE	45.08	18.03

