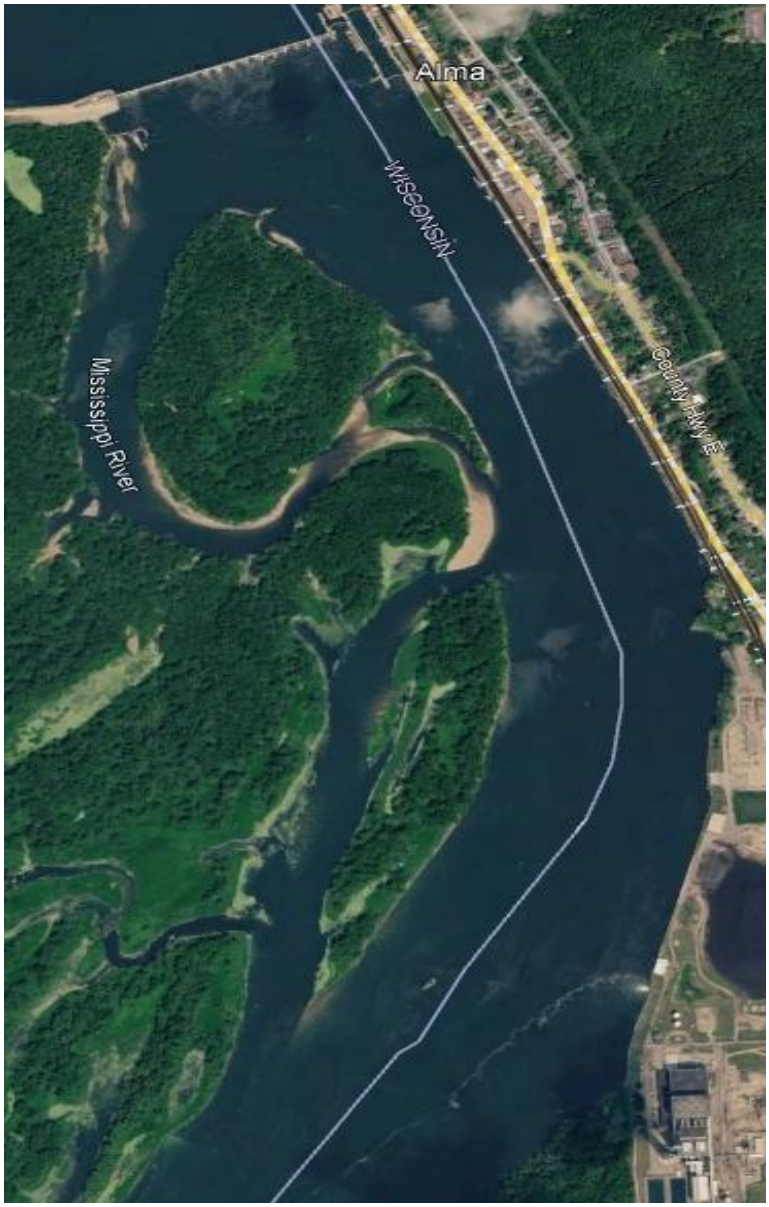
WISCONSIN DEPARTMENT of NATURAL RESOURCES

Walleye and Sauger Recruitment Assessment, Pool 5, Mississippi River

Buffalo County, November 2024



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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 vary significantly from year to year. Fluctuations are due to biotic and abiotic factors during critical life stages. These limiting factors determine year class strength.

Methods

Eleven sampling stations were previously established in Pool 5. Ten of the eleven were sampled November 14, 2024; the remaining station was not sampled due to angler presence. Stations 1-4, which are contiguous along a railroad track, were sampled as one station. Stations 7 and 8 were also sampled as one station. Water temperature averaged 48 degrees F. The tailwater elevation was 660.03 feet, while the discharge through Lock and Dam 4 was approximately 10,600 cfs.

The stations were sampled with a direct current electrofishing boat, providing 12 amps pulsed at 80 cycles per second. All YOY were measured to the nearest tenth-inch. Electrofishing efforts were recorded and catch per unit effort (CPUE) was determined for each station.

Results

Young-of-year saugers were sampled at each station, while YOY walleyes were sampled at three of the six stations. Catch per unit effort for walleyes ranged from 0 to 10 per hour (average = 4; Table 1), while sauger CPUE ranged from 4 to 83 per hour (mean = 34; Table 1). Length of walleye YOY ranged from 6.6-9.4 inches and mean length was 7.8 inches (n = 9; Table 2), while sauger length ranged from 5.6-8.9 inches and mean length was 7.7 inches (n = 54; Table 2).

Discussion

Over the past 44 years, both species have shown high variability in recruitment and length. Catch per unit effort for walleye YOY has ranged from 0 fish per hour in 1981 and 1993 to 260 fish per hour in 1997. Similarly, CPUE for sauger YOY ranged from 1 fish per hour in 1993 to 332 fish per hour in 1997 (Table 3). Average annual length over the past 44 years has ranged from 5.9-8.1 inches for walleyes and 5.5-8.0 inches for saugers (Table 3).

In previous surveys, walleyes and saugers mean CPUE was near 80 fish per hour. During this year's survey, walleye CPUE was well below , while sauger CPUE was below

the long term mean. In addition, mean length for walleyes and saugers were above the long-term average.

The data collected from the assessment has been used as an index of current YOY populations, as well as a predictor of future population size structures and fishing success. At a minimal cost, this project will continue to provide useful information about the walleye and sauger fishery in Pool 5 of the Mississippi River.

Table 1. Catch per unit effort of walleye and sauger young-of-year (YOY) sampled at ten stations in Pool 5 of the Mississippi River in November 2024.

STATION	WALLEYE per Hour	SAUGER per Hour
1-4	6	13
6	0	20
7-8	10	78
9	0	5
10	0	4
11	8	83

Table 2. Length and number of walleyes and saugers sampled at ten stations in Pool 5 of the Mississippi River in November 2024.

LENGTH (INCHES)	WALLEYE (N)	SAUGER (N)
5.0-5.9	0	2
6.0-6.9	3	5
7.0-7.9	2	26
8.0-8.9	3	21
9.0-9.9	1	0

Table 3. Mean catch per unit effort and mean length of walleye and sauger young-of-year (YOY) sampled at Stations 1-8 from 1980-2024 in Pool 5 of the Mississippi River. Numbers in parentheses equals sample size. The survey did not occur in 2019.

YEAR	WALLEYE YOY PER HOUR	SAUGER YOY PER HOUR	WALLEYE MEAN LENGTH	SAUGER MEAN LENGTH
1980	37	11	7.2 (73)	6.4 (82)
1981	0	53		8.0 (87)
1982	105	31	7.6 (459)	6.3 (270)
1983	47	64	7.6 (241)	6.7 (385)
1984	30	5	7.2 (182)	6.1 (75)
1985	115	11	7.5 (33)	6.1 (93)
1986	107	15	7.2 (267)	6.5 (83)
1987	134	37	7.1 (258)	6.2 (139)
1988	9	31	7.5 (18)	6.7 (49)
1989	14	24	7.0 (36)	6.4 (48)
1990	7	28	7.8 (11)	6.3 (88)
1991	63	47	7.1 (81)	6.2 (92)
1992	131	115	7.2 (203)	6.0 (193)
1993	0	1	5.9 (2)	5.6 (16)
1994	63	29	6.7 (65)	6.0 (60)
1995	43	14	7.5 (79)	6.8 (77)
1996	150	301	7.3 (258)	6.1 (447)
1997	260	332	6.9 (237)	6.1 (303)
1998	144	167	7.9 (149)	6.7 (212)
1999	40	112	7.7 (24)	7.2 (115)
2000	46	82	7.8 (53)	6.6 (90)
2001	143	138	8.0 (269)	6.4 (183)
2002	133	179	7.2 (120)	6.4 (134)
2003	69	168	7.4 (63)	5.9 (131)
2004	28	248	7.7 (37)	6.4 (281)
2005	121	84	8.0 (111)	6.8 (129)
2006	117	47	8.1 (107)	7.2 (39)
2007	123	59	7.6 (199)	6.4 (135)
2008	9	14	7.4 (22)	6.5 (17)
2009	103	37	6.8 (139)	5.6 (39)
2010	84	10	7.7 (90)	7.1 (13)
2011	53	59	6.5 (79)	5.5 (77)
2012	50	15	7.2 (40)	6.5 (18)
2013	30	45	7.1 (38)	5.9 (71)
2014	138	26	6.9 (247)	5.9 (45)
2015	133	33	7.1 (299)	6.2 (62)
2016	37	32	7.6 (53)	6.7 (60)
2017	93	19	7.6 (186)	6.7 (65)
2018	161	38	7.2 (317)	6.5 (93)
2020	51	61	6.3 (116)	5.8 (80)
2021	32	5	7.2 (101)	6.9 (13)
2022	26	9	7.4 (56)	6.4 (14)
2023	96	99	6.6 (193)	5.5 (157)
2024	5	37	7.8 (9)	7.7 (24)

Note: Stations 1-8 have been sampled most years and were used to generate catch per unit effort. Fish captured at all stations were used to generate mean lengths.