

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
Potter Flowage Fisheries Survey Report 2023-
2024, Jackson County, WI

Waterbody Code: 1722000



Photo Credit: Kaitie Duhm



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Introduction

The Wisconsin Department of Natural Resources (DNR) performed a fisheries community assessment on Potter Flowage in 2023 and 2024. The goals of this assessment were to analyze abundances and size structures, calculate walleye & muskellunge population estimates and evaluate stocking success. The assessment was performed over two years because muskellunge population estimates consist of a marking year and recapture year. The spring of 2024 sampling was extremely challenging. A record early ice out occurred in early March however subsequent water temperatures and water levels were extremely variable throughout the spring which likely effected the 2024 muskellunge sample even though considerable effort was made to sample the fishery. The 2023 sample likely represents the fishery better than the 2024 sample because of this.

Potter Flowage is a 255 acre impoundment located in east-central Jackson County. The flowage impounds Morrison, Hawkins, and McKenna Creeks. The current dam on the impoundment was built in 1947 with the primary purpose of regulating water for cranberry culture. Potter Flowage is classified as a stained/dark water drainage lake with a mean depth of 7 feet and maximum depth of 24 feet. There are two public boat landings and a county park with a campground on the flowage. One boat landing is located on the west side of the flowage off Larb Lane, the other boat landing is located at Merlin Lambert County Park off McKenna Road. The fluctuating water levels and numerous submerged stumps and logs can make navigation difficult at times.

The fishery primarily consists of muskellunge, largemouth bass, northern pike, walleye, black crappie, yellow perch, bluegill, pumpkinseed, black and yellow bullhead. Large fingerling muskellunge (> 10 inches) are stocked every other year at a rate of 1 fish per acre to supplement any potential natural reproduction. However, a 4-year period occurred from 2018-2021 when muskellunge stocking was paused due to hatchery production shortfalls. Large fingerling walleye (> 6 inches) were stocked from 2014 to 2022 during even years at approximately 5 fish per acre. Small fingerling (>3 inches) largemouth bass were stocked on an annual basis since 2010 but was discontinued in 2022. (Appendix Table 1). All other fish species are supported by natural reproduction.

FISHING REGULATIONS

The standard statewide fishing regulations apply to all species.

SURVEY EFFORT

Sampling in 2023 consisted of early spring fyke netting (SN1), mid spring fyke netting (SN2) and mid spring boat eletrofishing (SE2) fisheries surveys following DNR lake sampling protocols. The SN1 and SN2 surveys were conducted 4/9/23 – 4/24/23. This

survey period started as an SN1 walleye population estimate and switched to an SN2 muskellunge population estimate marking phase as water temperatures increased. The SE2 survey was performed on 5/17/23. The water chemistry of Potter Flowage makes for poor conductivity and electrofishing is relatively ineffective, which led to poor catch rates during the SE2 survey. Fyke nets were used during the SN1 and SN2 surveys, boat electrofishing was used during the SE2 survey.

Sampling in 2024 consisted of a SN2 muskellunge population estimate recapture survey which was performed over two sampling periods 3/11/24 – 3/15/24 and 4/8/24 – 4/17/24. Two sampling periods were utilized due to an early ice out and unpredictable spring weather conditions resulting in variable water temperatures and fluctuating water levels. Fyke nets were used for this survey.

Methods

All gamefish were measured to the nearest 0.1 inch, sexed when possible and counted. All panfish were measured to the nearest 0.1 inch and counted. Rough fish were identified to species and counted. Adult walleye were defined as sexable walleye and unknowns ≥ 15 inches and were marked with a left ventral fin clip. Juvenile walleye were defined as unknown sex walleye < 15 inches and were marked with a top caudal fin clip. Adult northern pike were defined as sexable northern pike and unknowns ≥ 12 inches and were marked with a left ventral fin clip. Adult largemouth bass were defined as sexable largemouth bass and unknowns ≥ 8 inches and were marked with a left ventral fin clip. Juvenile largemouth bass were defined as unknown sex largemouth bass and largemouth bass < 8 inches and were marked with a top caudal fin clip. All muskellunge were tagged with a Passive Integrated Transponder (PIT) tag and FLOY tag.

Results and Discussion

MUSKELLUNGE

A total of 41 muskellunge were handled in 2023 and ranged in size from 11.5 to 42.4 inches (Figure 1). Males ranged in size from 25.2 to 38.0 inches, females ranged from 32.9 to 41.5 inches and unknowns ranged from 11.5 to 42.4 inches. Sampling in 2024 was less successful. DNR staff handled 11 muskellunge including one recapture from 2023. The recaptured fish was a 36.9 inch male and grew 0.8 inches from the previous year. The size range of new (unmarked) muskellunge handled in 2024 ranged from 32.0 to 43.7 inches. Males ranged in size from 36.3 to 36.9 inches, females ranged from 38.4 to 40.7 inches and unknowns ranged from 32.0 to 43.7 inches. In 2023 the muskellunge catch per unit effort (CPUE) was 0.42 fish/net night which is above the 95th percentile for this lake class. In 2024 the CPUEs for the first and second sampling periods were 0.15 fish/net night and 0.1 fish/net night, respectively. Both 2024 CPUEs were below the 50th percentile with the 2nd CPUE being below the 10th percentile for this lake class. As mentioned earlier, the low catch rates in 2024 were likely due to

the early ice out and erratic weather conditions which caused fluctuations in water level and water temperature throughout the survey.

Considering only one muskellunge that was previously marked in 2023 was recaptured during the 2024 survey and therefore a population estimate could not be calculated due to the lack of sufficient recaptures. Although no population estimate could be calculated survey results from 2023 suggest that the muskellunge population in Potter Flowage is doing well and maintains a moderate density through potential natural reproduction and supplemental stocking. Muskellunge aging data from this survey will be used to assess natural reproduction and stocking contribution.

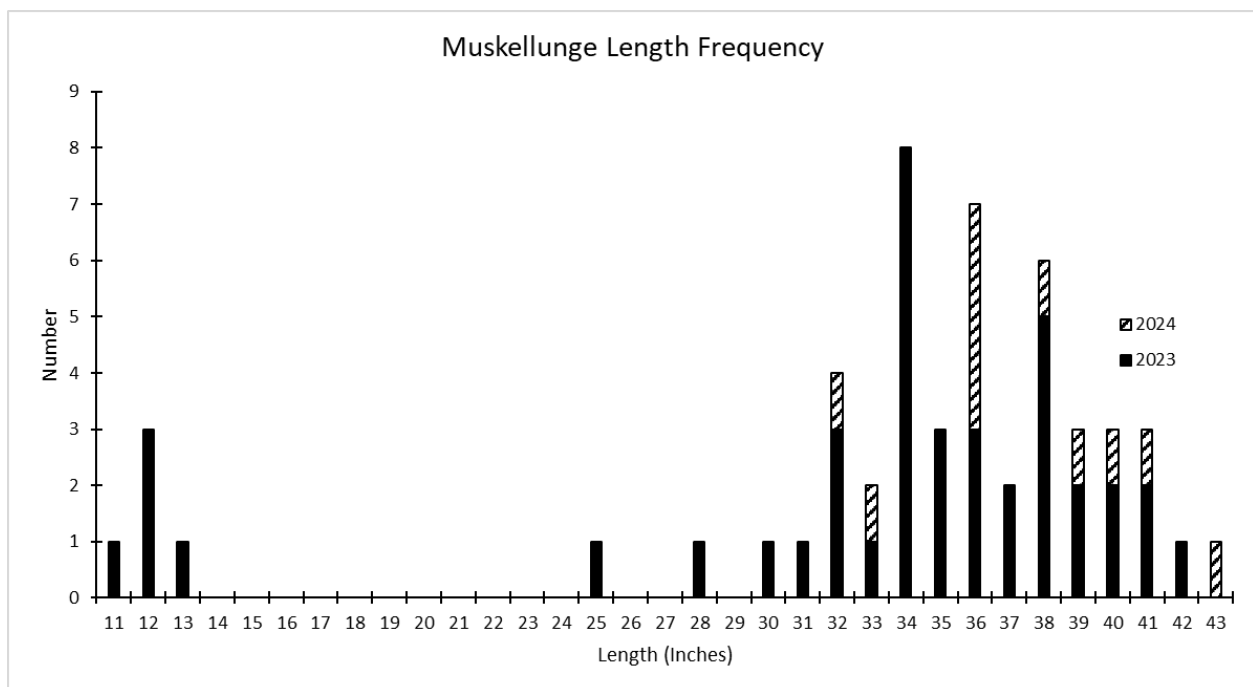


Figure 1. Length frequency of muskellunge sampled during the 2023 & 2024 fisheries assessment of Potter Flowage.

LARGEMOUTH BASS

A total of 153 adult and 13 juvenile largemouth bass were sampled throughout the entire survey (Figure 2). 155 largemouth bass were sampled during 2023 ranging in length from 5.8 to 21.2 inches. Only 11 were sampled in 2024 and ranged from 5.3 to 20.4 inches. 43.8 percent of the adults sampled were over 15 inches with 7.7 percent of the adults over 20 inches. The mean length of adults was 15 inches.

The 2023 SE2 survey was designed to assess the largemouth bass population but the survey results were poor due to the lack of water conductivity and abundance could not be estimated. Only 9 of the 166 largemouth bass sampled between 2023 and 2024 were collected by electrofishing, all others were collected by fyke netting. Fyke nets are not a preferred method for sampling largemouth bass and typically do not

effectively sample the population. However, results of the 2023 fyke net sampling suggest a strong largemouth bass population with multiple year classes and trophy potential. Largemouth bass stocking was stopped after the 2022 stocking event due to lack of availability and future monitoring of the population will occur to assess if any negative or positive impacts to the population that may be present.

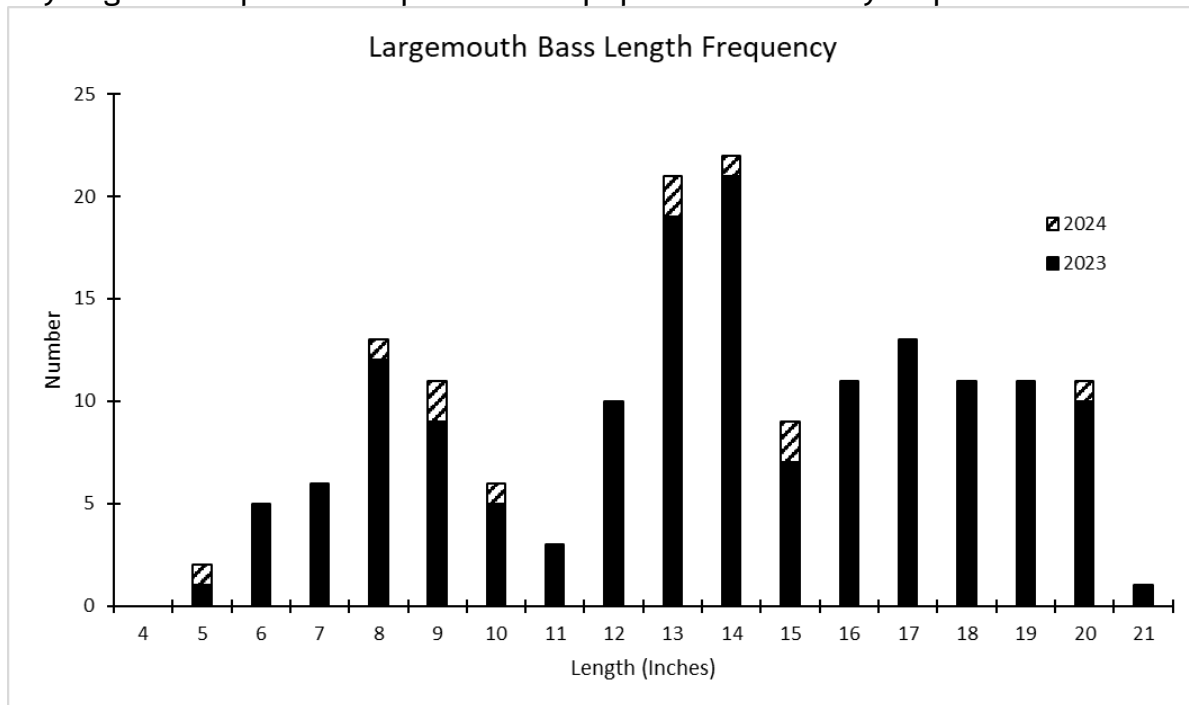


Figure 2. Length frequency of largemouth bass sampled during the 2023 & 2024 fisheries assessment of Potter Flowage.

WALLEYE

Walleye catch throughout the entire survey was low and a population estimate could not be calculated. A total of 23 walleye were sampled during the entire survey (Figure 3). 12 walleye were collected in 2023 ranging from 6.0 to 28.1 inches and 11 walleye were collected in 2024 ranging from 11.1 to 27.0 inches. Walleye abundance in Potter Flowage is low.

Walleye stocking began in 2014 and one of the main goals of this fishery assessment was to evaluate stocking success and create a fishery of at least 1.5 adults per acre. Results suggest that stocking success was low but a few walleye that did recruit to the fishery experienced favorable growth and some reached rather large sizes. Walleye stocking has been discontinued due to the lack of walleye recruitment to the fishery and not meeting the 1.5 adult walleye per acre management goal that was documented by this survey.

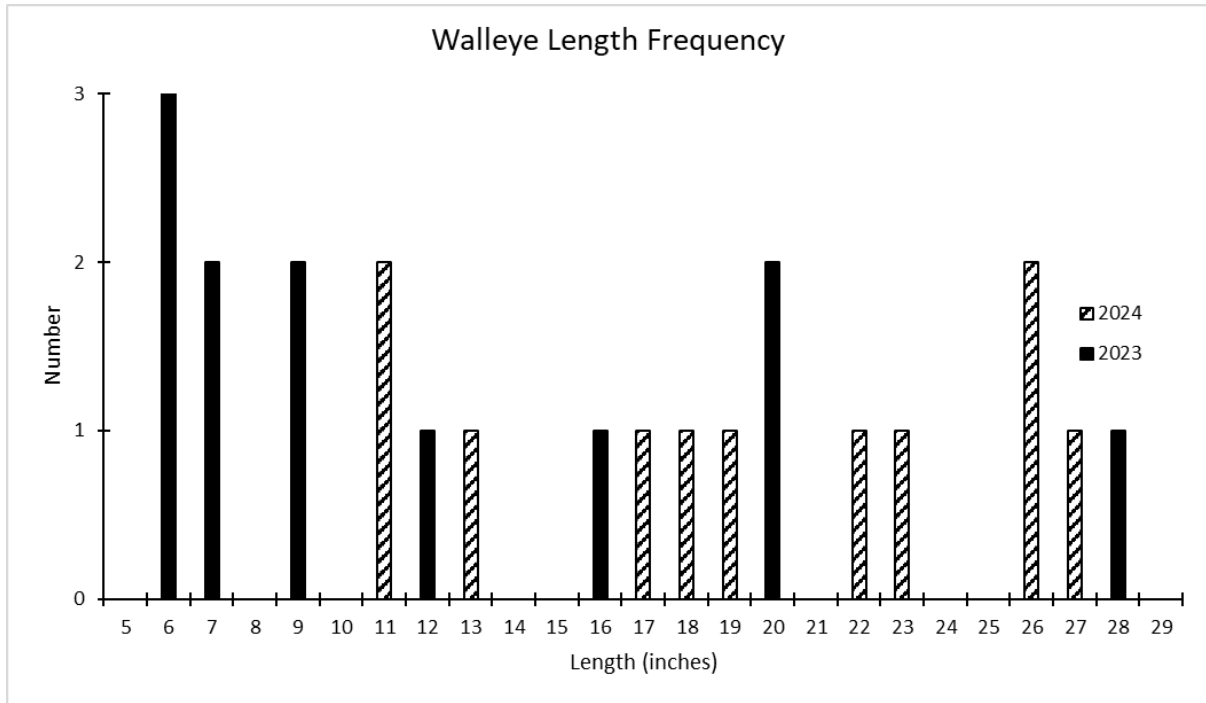


Figure 3. Length frequency of walleye sampled during the 2023 & 2024 fisheries assessment of Potter Flowage.

NORTHERN PIKE

Only 13 northern pike were sampled with all of them being in 2023 (Figure 4). No northern pike were captured in 2024. The size range was 24.8 to 35.8 inches with an average of 29.9 inches. Northern pike abundance is low which is to be expected due to the interspecific competition they have with muskellunge in the system.

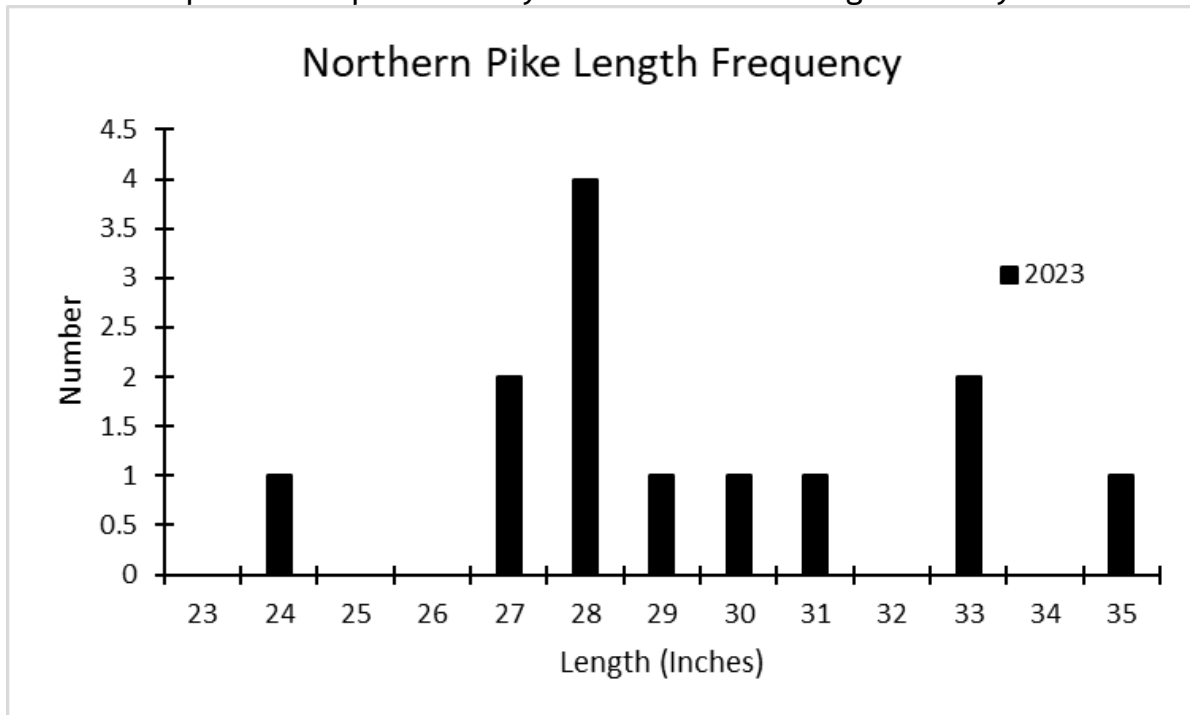


Figure 4. Length frequency of northern pike sampled during the 2023 fisheries assessment of Potter Flowage.

BLUEGILL

A total of 1,932 bluegill were sampled during the entire survey with 889 sampled in 2023 and 1043 sampled in 2024 (Figure 5). Bluegill ranged in size from 1.6 to 7.8 inches with 10.7% measuring 7 inches or greater. Bluegill abundance was high but size structure was relatively small. Many of the largemouth bass sampled throughout the survey had bluegills sticking out of their mouths and full stomachs. Anglers can expect plenty of action but will have to be patient to find “keepers”.

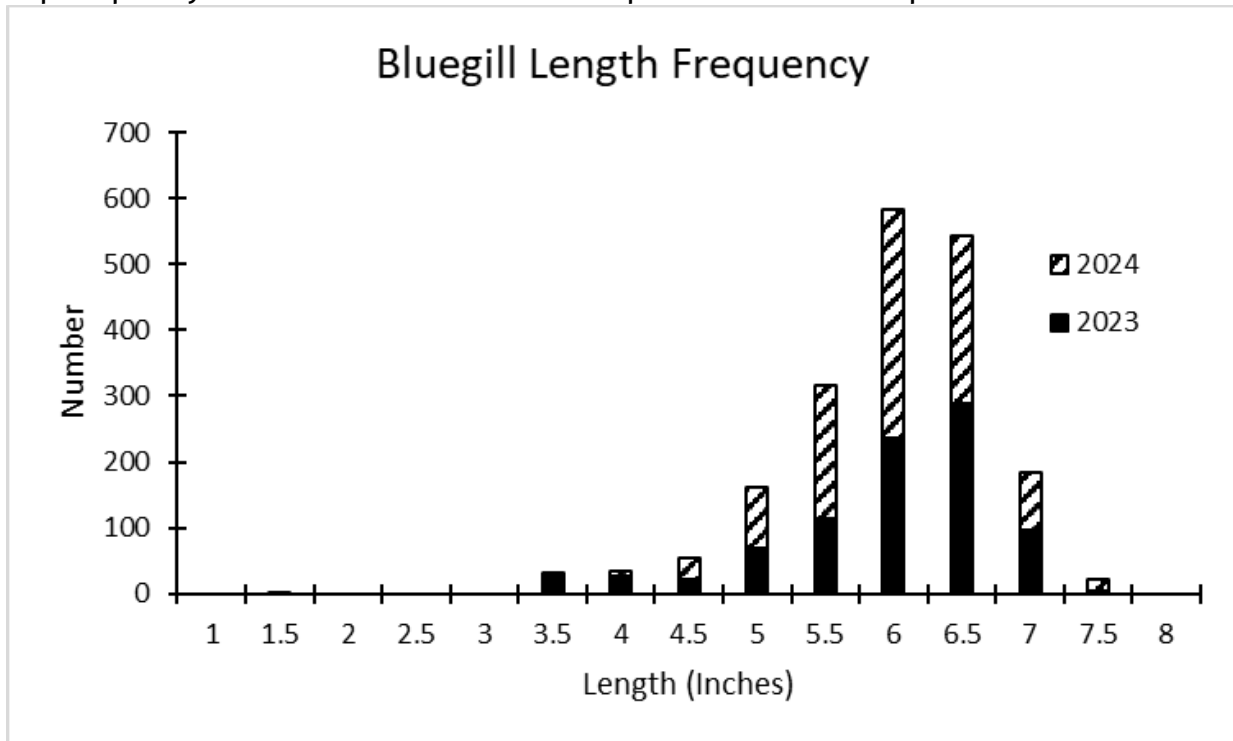


Figure 5. Length frequency of bluegill sampled during the 2023 & 2024 fisheries assessment of Potter Flowage.

BLACK CRAPPIE

Black crappie abundance was moderate with a relatively small size structure. A total of 618 fish were sampled throughout the survey with 172 sampled in 2023 and 446 sampled in 2024 (Figure 6). Size ranged from 4.9 to 11.7 inches with 9.1% measuring 8 inches or longer.

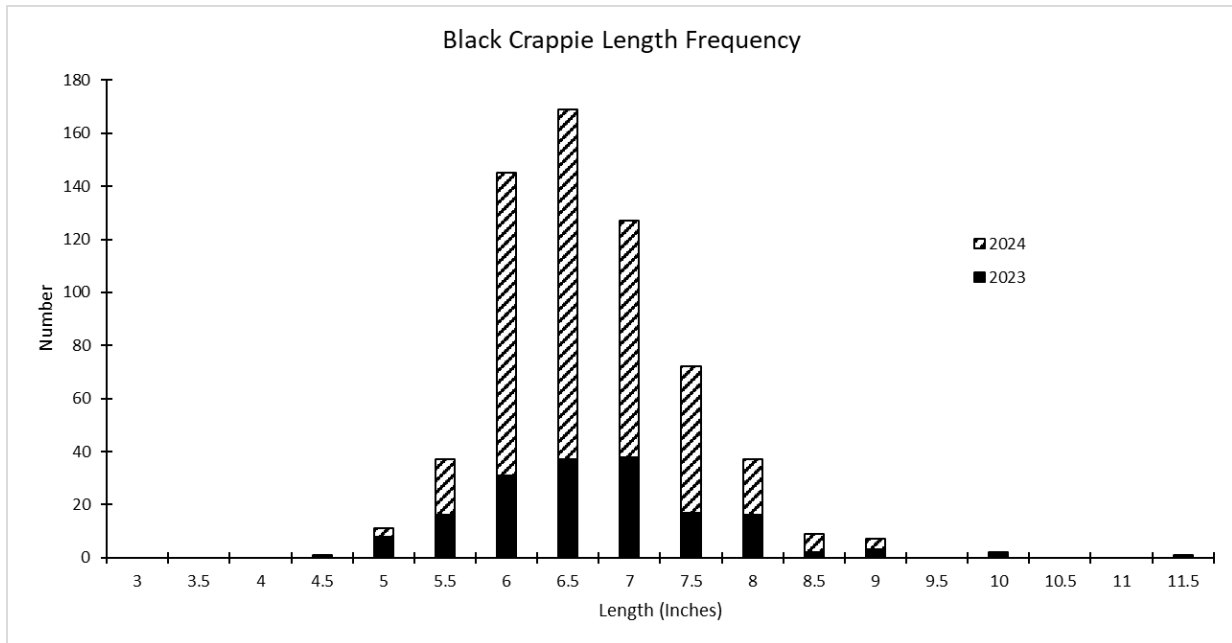


Figure 6. Length frequency of black crappie sampled during the 2023 & 2024 fisheries assessment of Potter Flowage.

PUMPKINSEED

Pumpkinseed abundance was low with a small size structure. 107 pumpkinseed were sampled throughout the survey (Figure 7) ranging in size from 3.2 to 7.4 inches with 42.1% measuring 6 inches or longer.

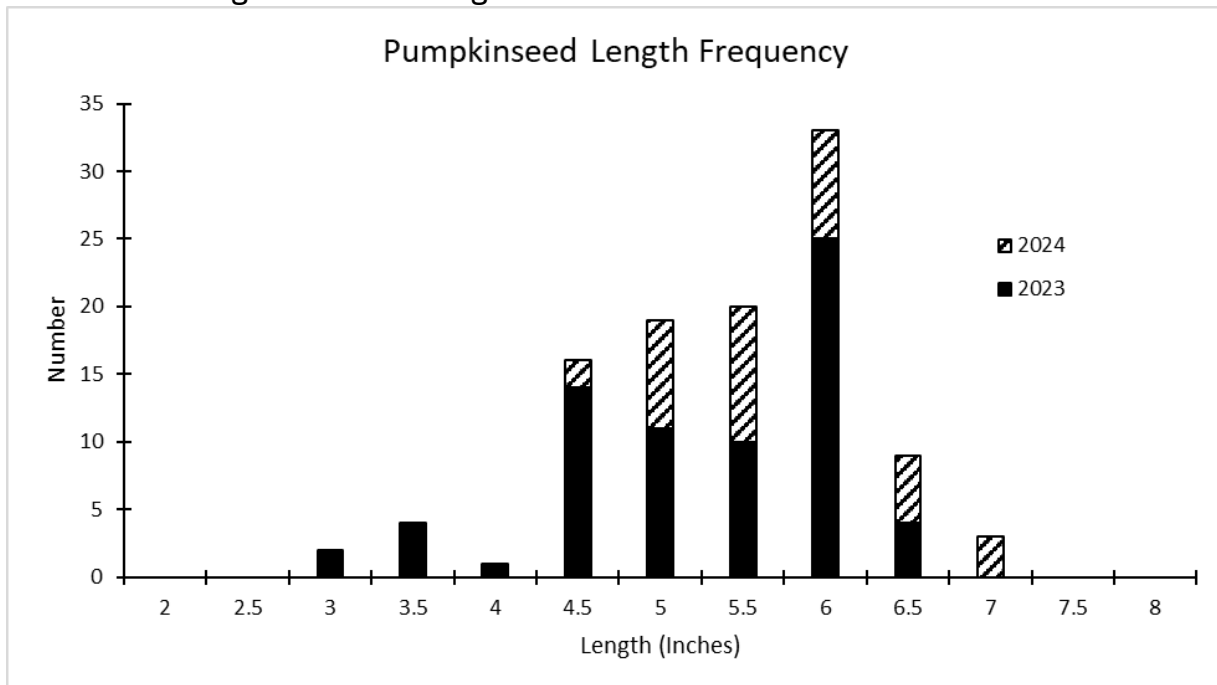


Figure 7. Length frequency of pumpkinseed sampled during the 2023 & 2024 fisheries assessment of Potter Flowage.

YELLOW PERCH

Yellow perch abundance was low with a small size structure. Only 44 yellow perch were sampled (Figure 8). The size range was 5.2 to 8.7 inches with 20.5% measuring 7 inches or longer.

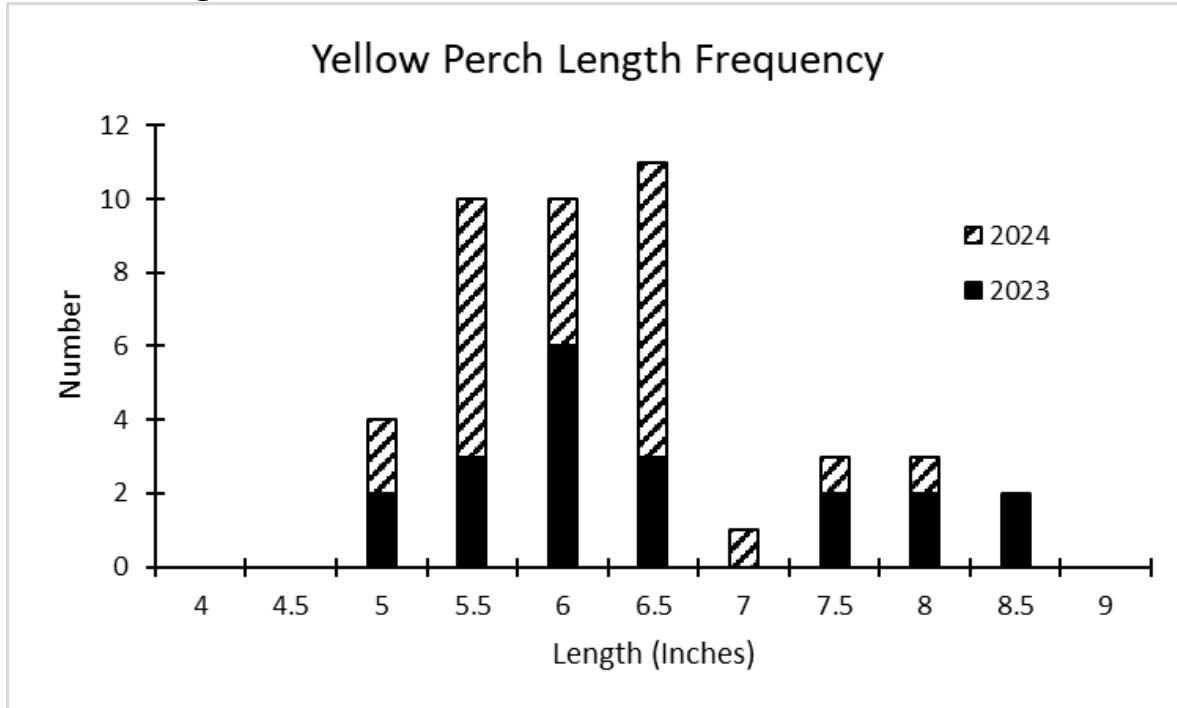


Figure 8. Length frequency of yellow perch sampled during the 2023 & 2024 fisheries assessment of Potter Flowage.

Fishery Summary

Potter Flowage has healthy and robust population of muskellunge and largemouth bass. The muskellunge fishery is considered an “action” type fishery and gives anglers a good chance at catching a fish. Anglers looking to pursue largemouth bass have plenty of diverse structure to fish and stand the potential of landing some quality fish. The panfish community as a whole has high abundance but the small size structure is likely due to density dependent growth. Anglers may have to be patient when looking for “keeper” sized panfish. The large fingerling walleye stocking efforts were unable to create an adult density of 1.5 fish per acre and will be discontinued but a few fish will remain until they phase out of the fishery due to angler or natural mortality.

Recommendations

1. Continue to manage muskellunge and largemouth bass as the priority gamefish species.
2. Continue muskellunge stocking every other year at a rate of 1 fish per acre.
3. Monitor the largemouth bass population to assess the impact of discontinued stocking.

Acknowledgements

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Appendix Table 1. Fish stocking history of Potter Flowage.

YEAR	SPECIES	AGE CLASS	NUMBER STOCKED	AVERAGE LENGTH (IN)
1972	MUSKELLUNGE	FINGERLING	250	11
1973	LARGEMOUTH BASS	FINGERLING	342	3
1973	MUSKELLUNGE	FINGERLING	400	9
1974	LARGEMOUTH BASS	FINGERLING	67880	3
1974	NORTHERN PIKE X MUSKELLUNGE	FINGERLING	375	11
1975	MUSKELLUNGE	FINGERLING	41	13
1976	MUSKELLUNGE	FINGERLING	400	11
1977	LARGEMOUTH BASS	FINGERLING	2000	3
1977	MUSKELLUNGE	FINGERLING	400	9
1978	LARGEMOUTH BASS	FINGERLING	2000	3
1978	MUSKELLUNGE	FINGERLING	400	11
1979	MUSKELLUNGE	FINGERLING	400	9
1980	MUSKELLUNGE	FINGERLING	400	9
1981	MUSKELLUNGE	FINGERLING	200	9
1981	NORTHERN PIKE X MUSKELLUNGE	FINGERLING	175	8
1982	MUSKELLUNGE	FINGERLING	700	7
1982	NORTHERN PIKE	YEARLING	173	
1983	NORTHERN PIKE	FINGERLING	1010	9
1984	NORTHERN PIKE	ADULT	665	25
1984	MUSKELLUNGE	FINGERLING	700	10.5
1985	NORTHERN PIKE	FINGERLING	900	7
1985	MUSKELLUNGE	FINGERLING	400	10
1986	NORTHERN PIKE	ADULT	811	24
1986	MUSKELLUNGE	FINGERLING	835	12
1986	NORTHERN PIKE	FINGERLING	2184	9
1987	NORTHERN PIKE	FINGERLING	360	9
1987	NORTHERN PIKE X MUSKELLUNGE	FINGERLING	2625	11
1987	NORTHERN PIKE	FINGERLING	2700	9
1988	MUSKELLUNGE	FINGERLING	770	11
1988	LARGEMOUTH BASS	FINGERLING	120156	2.5
1989	LARGEMOUTH BASS	FINGERLING	25000	3
1990	MUSKELLUNGE	FINGERLING	695	8
1991	LARGEMOUTH BASS	FINGERLING	12000	3
1992	MUSKELLUNGE	FINGERLING	695	8.5

1994	NORTHERN PIKE	ADULT (FIELD TRANSFER)	148	24
1995	LARGEMOUTH BASS	FINGERLING	33144	3.1
1996	LARGEMOUTH BASS	FINGERLING	27400	2.3
1999	LARGEMOUTH BASS	LARGE FINGERLING	28223	4.2
1999	LARGEMOUTH BASS	SMALL FINGERLING	25000	2.3
2000	MUSKELLUNGE	LARGE FINGERLING	695	8.7
2000	LARGEMOUTH BASS	LARGE FINGERLING	17400	2.6
2001	MUSKELLUNGE	LARGE FINGERLING	695	10.6
2003	MUSKELLUNGE	LARGE FINGERLING	695	10.5
2004	MUSKELLUNGE	LARGE FINGERLING	701	9.1
2005	MUSKELLUNGE	LARGE FINGERLING	548	8
2007	MUSKELLUNGE	LARGE FINGERLING	463	12.4
2009	MUSKELLUNGE	LARGE FINGERLING	801	10.7
2010	LARGEMOUTH BASS	LARGE FINGERLING	9275	3.3
2011	LARGEMOUTH BASS	LARGE FINGERLING	8700	3
2011	MUSKELLUNGE	LARGE FINGERLING	695	9.7
2012	LARGEMOUTH BASS	LARGE FINGERLING	700	1.9
2013	LARGEMOUTH BASS	LARGE FINGERLING	8324	4
2013	MUSKELLUNGE	LARGE FINGERLING	383	11.3
2014	LARGEMOUTH BASS	LARGE FINGERLING	3648	3.2
2014	WALLEYE	LARGE FINGERLING	1275	6.5
2015	LARGEMOUTH BASS	LARGE FINGERLING	17400	1.9
2015	MUSKELLUNGE	LARGE FINGERLING	695	11.8
2016	WALLEYE	LARGE FINGERLING	1275	7.3
2016	LARGEMOUTH BASS	LARGE FINGERLING	26100	2.2
2017	LARGEMOUTH BASS	LARGE FINGERLING	30685	2.1
2017	MUSKELLUNGE	LARGE FINGERLING	282	11.2
2018	WALLEYE	LARGE FINGERLING	1527	5.9
2018	LARGEMOUTH BASS	LARGE FINGERLING	21878	2.2
2019	LARGEMOUTH BASS	LARGE FINGERLING	6380	2.7
2020	WALLEYE	LARGE FINGERLING	1655	6.7
2020	LARGEMOUTH BASS	LARGE FINGERLING	10265	2.3
2021	LARGEMOUTH BASS	LARGE FINGERLING	22620	2.8
2022	MUSKELLUNGE	LARGE FINGERLING	255	11.9
2022	WALLEYE	LARGE FINGERLING	1654	7.6
2022	LARGEMOUTH BASS	LARGE FINGERLING	19065	2.7
2024	MUSKELLUNGE	LARGE FINGERLING	254	13.3