WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Fishery Survey Report for Poskin Lake, Barron County, Wisconsin 2024

WATERBODY IDENTIFICATION CODE: 2098000

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2025

Table of Contents

Executive Summary

Poskin Lake was surveyed during 2024 to determine the abundance and population demographics (size and age structure, growth and recruitment) of walleye as part of the Treaty assessment protocol for lakes within the Ceded Territory. In addition, the abundance and population demographics were assessed for other sport fish. The adult walleye population during 2024 was estimated to be 2.6 fish/acre (95% CI = 1.2 – 4.0 fish/acre), which increased since the 2010 survey. Walleye size structure remained similar to 2010 but growth rates decreased. The walleye management objective is to maintain the adult density to ≥ 1.5 fish/acre by continuing to stock large fingerling (6-8 inches) walleye in alternate years. The population density of northern pike remains low to moderate with good size structure, growth rates and fish condition. Poskin Lake has a quality largemouth bass population with moderate abundance, good size structure, above average growth rates and excellent fish condition. The current fishing regulations for northern pike and largemouth bass will be maintained, and no additional management actions are recommended at this time. The bluegill population remained similar to 2010 with high density, average size structure and below average growth rates. Bluegill exceeding 8 inches were not observed during the survey, but this does not appear to be from over-exploitation. Thus, restrictive regulations were not considered at this time. The current harvest regulations for panfish will be maintained and anglers are encouraged to harvest bluegill. Too few black crappies were collected during the SE2 survey to adequately characterize the population. Future fishery surveys should index black crappie population metrics during the SN1 survey. Poskin Lake offers anglers quality harvest opportunities for panfish and supports robust and stable populations of walleye, largemouth bass and northern pike.

Introduction

Poskin Lake is a 154-acre drainage lake located in central Barron County, Wisconsin. The lake has a maximum depth of 30 feet and a mean depth of 16 feet. Poskin Lake has relatively steep sloping shorelines and bottom substrates primarily composed of sand, gravel and muck. The Vermillion River, a small warm-water stream, runs through Poskin Lake. The first Wisconsin Department of Natural Resources (DNR) walleye population estimate survey occurred during 2010 where a low-density adult walleye population (0.7 adults/acre) was present.

The DNR surveyed Poskin Lake to assess the status of the fishery during 2024 with early spring fyke netting (SN1), early spring (SE1) and late spring (SE2) night electrofishing and fall night electrofishing. A mark-recapture survey was completed to estimate the adult density of walleye. We assessed catch rates of largemouth bass, northern pike, bluegill and other panfish species to estimate relative abundance. We characterized population demographics, size structure and growth for all species when possible. Recent management efforts have focused on walleye stocking.

LAKE CHARACTERISTICS

Poskin Lake is a fertile, eutrophic system classified as a complex-warm-dark lake (Rypel et al. 2019). There is one public boat landing located along the western shoreline off 15 ½ Avenue. More information on water quality and invasive species can be found at the DNR lake page for Poskin Lake.

STOCKING HISTORY

Poskin Lake was occasionally stocked with largemouth bass fingerlings from 1934 to 1961 and no stocking occurred from 1962 to 1983. Walleye were first stocked into Poskin Lake during 1984 and were consistently stocked through 2023 and included small and large fingerlings (Appendix Table 1). Walleye were present in Poskin Lake prior to 1984, however, these fish likely originated from the Vermillion River. An increasing adult walleye population with moderate abundance was present during the 1994 and 2000 surveys which was presumably from stocking, but natural recruitment likely contributed to the population as evident by adult year classes in non-stocked years (Cornelius 1995, Cornelius 2001).

FISHING REGULATIONS

All fish species follow statewide or Ceded Territory regulations.

Methods

FIELD SAMPLING

Poskin Lake was sampled during 2024, following the DNR's comprehensive treaty assessment protocol (Cichosz 2021) to estimate adult walleye abundance. Descriptions of standard DNR survey types, gear used, target water temperatures and

target species are listed in Appendix Table 2. The SN1 survey occurred April 5 – 10, 2024 and all walleye and northern pike were measured (total length), weighed, sexed and given a mark indicating capture. Catch-per-unit effort (CPUE) was estimated as catch per net-night and length-weight data were used to estimate size structure indices, growth and condition. Adult walleye (≥ 15 inches or sexable) were marked with a fin clip and juvenile walleye < 15 inches were marked with a different fin clip. A single recapture event occurred the night of April 26, 2022, via boat electrofishing.

The SE2 survey was conducted on May 28, 2024, to assess largemouth bass and panfish populations. The SE2 survey consisted of 0.5-mile index stations where all gamefish and panfish were captured and 1.5-mile gamefish stations where all gamefish were collected. There were two index stations and two gamefish stations completed on Poskin Lake. All fish were measured, but weights and aging structures were collected from five fish per 0.5-in length group for age and growth analysis. The CPUE (index of relative abundance) was estimated as catch per mile.

A fall night electrofishing survey was conducted on September 26, 2024 to assess the year class strength of age-0 and age-1 walleye. The entire shoreline was sampled and walleyes < 12 inches were collected. The CPUE (catch per mile) of age-0 and age-1 walleye was compared to previous fall evaluations.

Lake Class Standards were calculated by comparing Poskin Lake CPUEs to the other 196 complex-warm-dark lakes in Wisconsin (Rypel et al. 2019). When data were available, CPUE indices were also compared to past surveys and county (Barron and Polk counties) averages.

Walleye and largemouth bass were aged with dorsal spines, black crappie and bluegill with otoliths and northern pike with pelvic fin rays. All spines and fin rays were cut with a Dremel tool and aged under a microscope by a single interpreter. Otoliths were transverse thin-sectioned and aged under a microscope. When data were available, mean length at age was compared to previous surveys, county averages and the median length at age for similar complex-cool-dark lakes (Rypel 2019).

Size structure was assessed using proportional size distribution (PSD) indices (Neumann et al. 2013). The PSD value for a species is the number of fish of a specified length and longer divided by the number of fish of stock length or longer, the result was multiplied by 100. Fish condition was assessed by estimating the relative weight (W_r) of each fish, or the actual weight of a fish divided by its standard weight (Wege and Anderson 1978). The von Bertalanffy growth model (von Bertalanffy 1938) was fit using mean length at age data to assess growth of northern pike, largemouth bass and bluegill.

To assess walleye stocking survival, an age-length key was used to estimate the abundances of walleye in each year class, assuming no natural reproduction and all

fish were from stocked origin. Survival was estimated by dividing the population estimate for each age class by the total number of fish stocked for that year and multiplying it by 100. Cost per each stocked age-3, 5, 7, 9 and 11 adult was estimated by multiplying the number stocked by the cost per stocked large fingerling ($1.65) and dividing by the age-specific stocked population estimate. The cost per stocked large fingerling was based on 2024 minnow costs to raise a large fingerling walleye at the Gov. Thompson Hatchery (Jared Boucher, personal communication). The cost is a conservative estimate and does not consider the costs related to infrastructure, maintenance or staff wages. The survival rate of stocked large fingerlings to age 1 was estimated by dividing the density of age-1 walleye (fish/acre; Shaw and Sass 2020) by the density (fish/acre) of stocked large fingerlings the previous fall.

Results & Discussion

WALLEYE

The adult walleye population during 2024 was estimated to be 390 fish (95% confidence interval (CI) = 177 – 602 fish) or 2.6 fish/acre (95% CI = 1.2 – 4.0 fish/acre; coefficient of variation (CV) = 0.28). Adult walleye density was greater than other stocking-dependent lakes in Barron and Polk counties (1.4 ± 0.2 fish/acre; mean PE ± mean error; estimated using data from 55 PE surveys, across 26 lakes from 1995 to 2021) and increased since 2010 (0.7 adults/acre). The CPUE was 4.7 fish/net-night, which was slightly below the 75th percentile (5.8 fish/net-night) for complex-warm-dark Wisconsin lakes.

Walleyes collected during the SN1 survey ranged in length from 11.4 – 29.3 inches and the mean length of females and males was 21.8 inches and 15.3 inches, respectively (Figure 1). Walleye size structure was good with 60.2% of the population susceptible to harvest and PSD-15 from netting was 67 and PSD-20 was 27. Size structure remained similar to 2010 (Figure 2) and PSD index values indicated quality size structure that was well above the generally accepted range (PSD-15 = 30-60; Anderson and Weithman 1978) for balanced walleye populations. The male to female ratio was approximately 2:1.

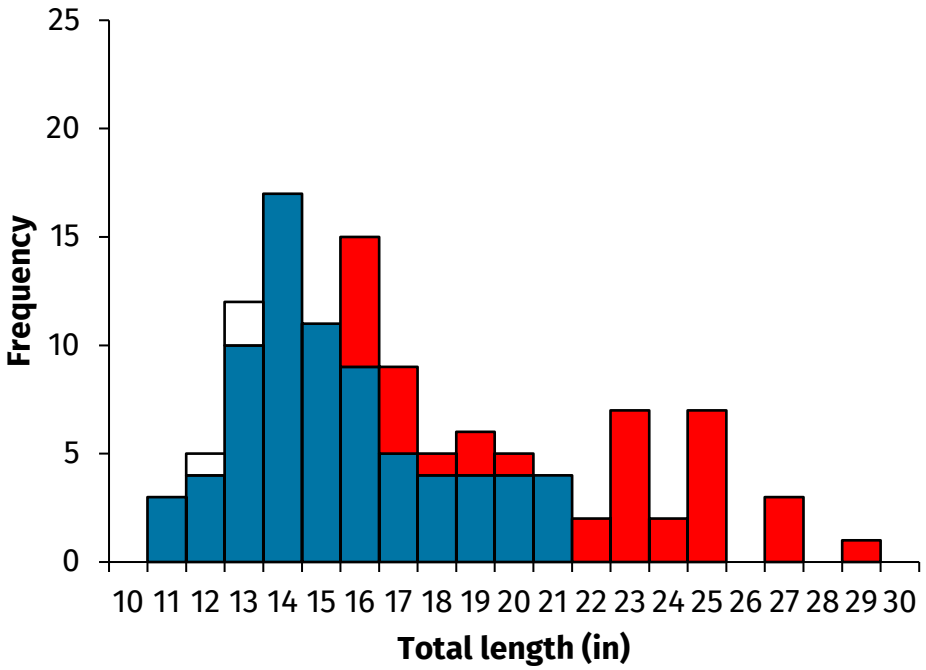

Figure 1. Length frequencies of male (blue), female (red) and unknown sex (white) walleye collected during the SN1 and SE1 surveys in Poskin Lake, Barron County, WI, 2024.

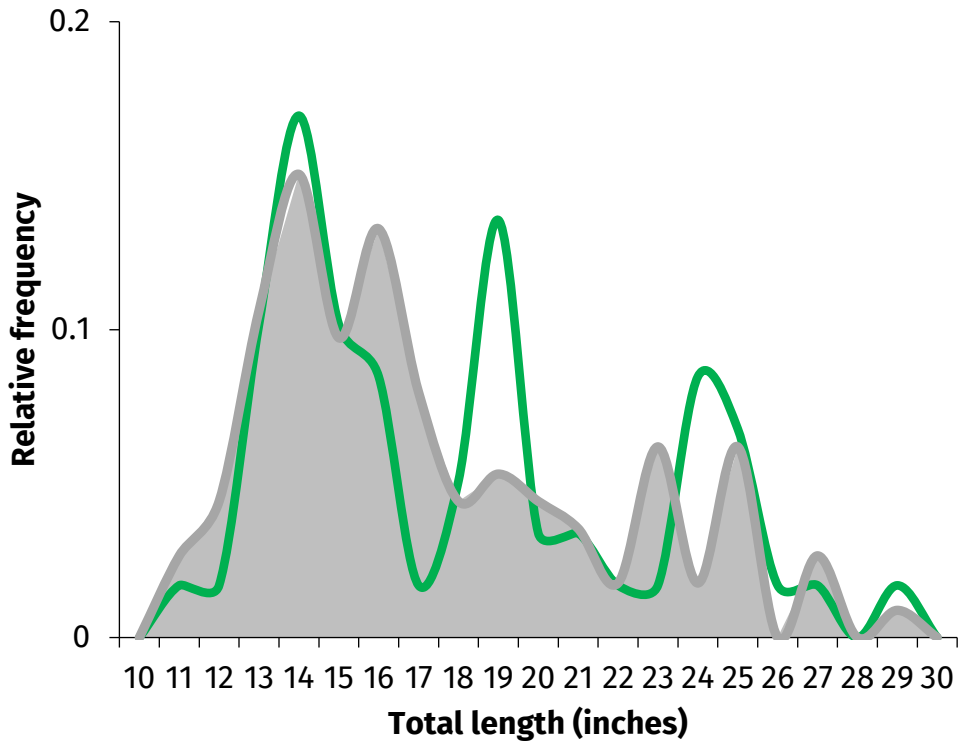

Figure 2. Walleye relative length frequencies during the 2010 (green) and 2024 (grey) SN1 and SE1 surveys in Poskin Lake, Barron County, WI.

The mean W_r was 93, which indicated fish condition was average, similar to 2010 (mean W_r = 95) and near the suggested range of 95 – 105 by Anderson (1980) for balanced fish populations.

Walleye growth rates declined temporally but remained average compared to nearby lakes and lakes of similar ecological characteristics. Walleye ages ranged from 2 to 14, while age-3 to age-5 fish composed 57.9% of the population. Female ages ranged from 5 to 14 and males from 2 to 13. Mean lengths at age during 2024 were lower than those observed during 2010 (average difference in mean length at age: -1.7 inches; ages 3, 4, 6, 8, 10) which could have been driven by density-dependence from higher adult densities or an increased male to female ratio during 2024. Mean lengths at age during 2024 were similar to complex-warm-dark Wisconsin lakes (average difference in mean length at age: -0.2 inches; ages 2 - 14) and the Barron and Polk counties average (average difference in mean length at age: -0.2 inches; ages 2 – 14; Figure 3) which indicated growth rates remain average. Longevity is an important parameter that provides insight into survival and population resiliency. Longevity of walleye during 2024 was good (maximum age of 14) and resembled 2010. The von Bertalanffy growth model could not be fit to the observed age-length data.

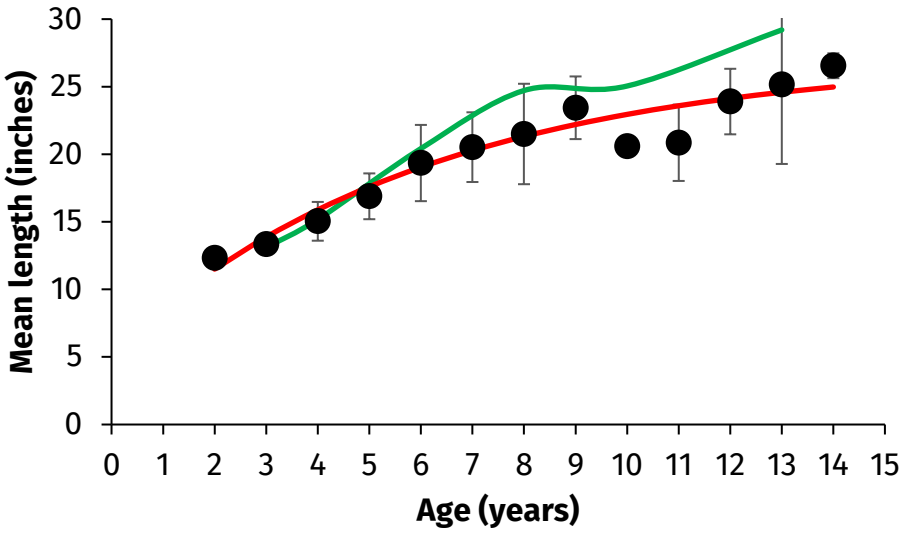

Figure 3. Walleye mean length-at-age (black circles) ± standard deviation from Poskin Lake during 2024. Median length-at-age estimates for similar complex-warm-dark Wisconsin Lakes are modelled by the red line and mean length-at-age estimates during 2010 represented by the green line. The mean length-at-age estimates for Barron and Polk counties were similar to the Lake Class standards and not represented in the plot.

Stocking survival of large fingerling walleye to age 3 was 3.5% and the cost per age-3 fish was estimated at $47.49. Age-3 walleyes were below harvestable size on average (13.4 inches) and were not fully mature; therefore, age-3 walleye may have been underrepresented in this survey. The survival rate was likely higher and the cost per recruit lower than estimated for age-3 fish. Survival to age 5 was 6.2% with the cost

per age-5 fish estimated at $26.79. Age-5 fish were fully mature and susceptible to survey methods. Survival of walleye to age-5 in Poskin Lake resembled other recent estimates (survival to ages 4 or 5) of popular stocked walleye populations in Barron and Polk counties (ranged from 0.2 – 10.9%; indexed using 13 lakes during 2013 – 2021). Survival of walleye to age 7, 9 and 11 was estimated at 1.0%, 1.6% and 0.6%, respectively. The cost per recruit to ages 7 – 11 ranged from $101.33 – $294.36. Recruitment of stocked fish to the adult population was average with moderate survival of stocked large fingerling year classes. Walleye ages 12 -14 were present and represented either natural recruits or recruits from the 2010 and 2012 stocked year classes (both small and large fingerlings stocked). Age-2, 4, 6, 8, 10 and 13 fish would have corresponded with non-stocked years and composed 19.2% of the adult population and represent natural recruits (Figure 4). Years in which large fingerlings were not stocked generally yielded weaker year classes, but nonetheless suggested natural recruitment remained constant through time. Because of this, it is likely natural recruits were also present within stocked year classes which would have positively biased survival estimates and negatively biased cost-per-recruit estimates. As suggested during previous surveys, Poskin Lake remains a mixed-recruitment fishery with consistent natural recruitment and moderate survival of stocked large fingerlings contributing to a moderate density adult walleye population.

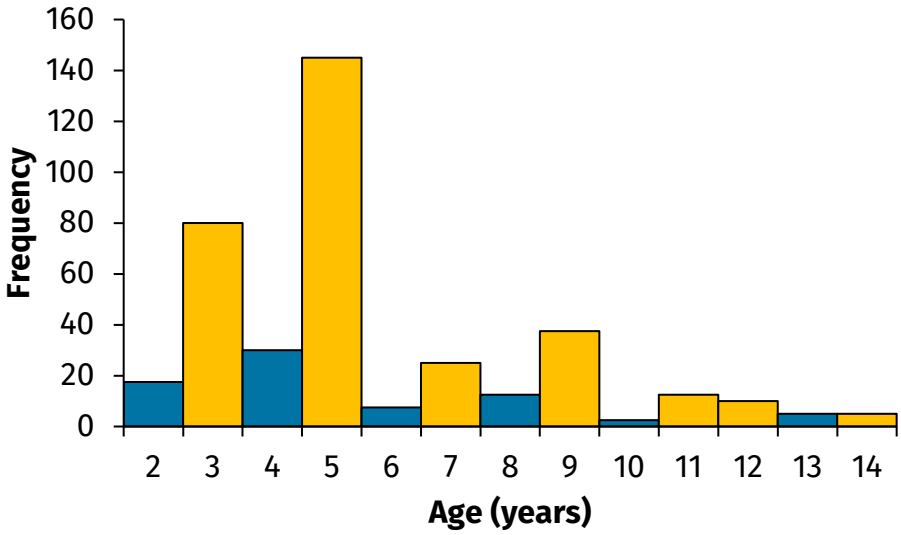

Figure 4. Estimated age structure of walleye (from SN1, SE1 and SE2 surveys) based on the 2024 population estimate in Poskin Lake. Yellow bars represent stocked year classes and blue bars represent non-stocked year classes.

One age-0 walleye was collected during the 2024 fall electrofishing survey. Age-0 fish collected during fall electrofishing surveys (during non-stocked years) represent natural recruitment, which has been consistently low through time (0.0 – 0.3 fish/mile; indexed during the 2005, 2022 and 2024 surveys). Catch rates of age-0 walleye have remained low since initiation of extended growth stocking and significant contributions of natural recruitment have not been observed during

previous surveys. There were 16 age-1 walleyes collected during 2024 with a CPUE of 5.2 fish/mile. Age-1 walleye ranged from 7.6 – 10.7 inches and would have likely corresponded with the fall 2023 stocking. Survival of large fingerlings stocked during 2023 to age 1 was 13.9%. Survival of stocked large fingerlings to age 1 has been moderate (13.5% ± 0.4%; mean ± SD; 2022 – 2024) and lower than mean survival rates observed for other stocking-dependent systems in Barron and Polk counties (17.5% ± 2.5%; mean survival ± mean error; estimated using data from 64 FE surveys that corresponded with a large fingerling stocking the previous year, across 19 lakes). The survival rates of stocked large fingerlings in Poskin Lake have generally been low to moderate, which is typical in mixed-recruitment fisheries where stocking occurs alongside natural recruitment. Over the past decade, large fingerling stocking has proven effective in boosting the adult walleye population. However, due to consistently low natural recruitment, as observed in previous surveys, ongoing stocking is essential to maintain a viable, fishable walleye population in the lake. The Poskin Lake walleye fishery remains stocking dependent to sustain a quality adult fishery and large fingerling stockings will be maintained at approximately 10 fish/acre. The goal of large fingerling stocking will be to maintain an adult density of ≥ 1.5 fish/acre. The year class strength of natural recruits and survival rates of stocked large fingerlings will be assessed every other year during years in which large fingerlings are not stocked.

Poskin Lake supports a moderate density adult walleye population that has increased over 3x since large fingerling stocking began in 2012. Size structure remained moderate, despite decreases in growth rates. Creel survey information was not available for Poskin Lake, but it is likely that targeted angling effort is at least moderate. The walleye fishery should be managed as a mixed-recruitment fishery to sustain adequate adult densities (≥ 1.5 adults/acre; Donofrio et al. 2022) that will continue to provide angling opportunities for the public. The current walleye harvest regulation (15-inch minimum length limit (MLL), fish between 20-24 inches may not be kept, 3 fish daily bag limit with only 1 fish > 24 in allowed) will be maintained as this regulation is conservative in managing harvest, promotes greater population size structure and reproductive potential by protecting larger fish, but also allows some harvest opportunity. More liberal harvest regulations were not considered at this time, but if management objectives are not met in future surveys, then alternate management actions may be considered.

NORTHERN PIKE

Poskin Lake supports a low to moderate density northern pike population with good size structure and growth. Thirty-five northern pike were sampled during the SN1 survey and the CPUE was 1.4 fish/net-night. Northern pike CPUE was near the 50th percentile (1.7 fish/net-night) for similar complex-warm-dark Wisconsin lakes and lower than 2010 (3.8 fish/net-night). Northern pike lengths ranged from 11.3 – 35.0 inches with an average length (sexes pooled) of 22.8 inches, which was similar to the 90th percentile for similar complex-warm-dark Wisconsin Lakes (Figure 5). The

average length for males and females was 20.8 inches and 26.7 inches, respectively. The PSD-21 was 58 and remained similar to 2010 (PSD-21 = 48). The PSD-28 was 19 and PSD-34 was 6. These PSD index values indicated good size structure and were above the range proposed by Anderson and Weithman (1978) for balanced northern pike populations (PSD-21 = 30-60).

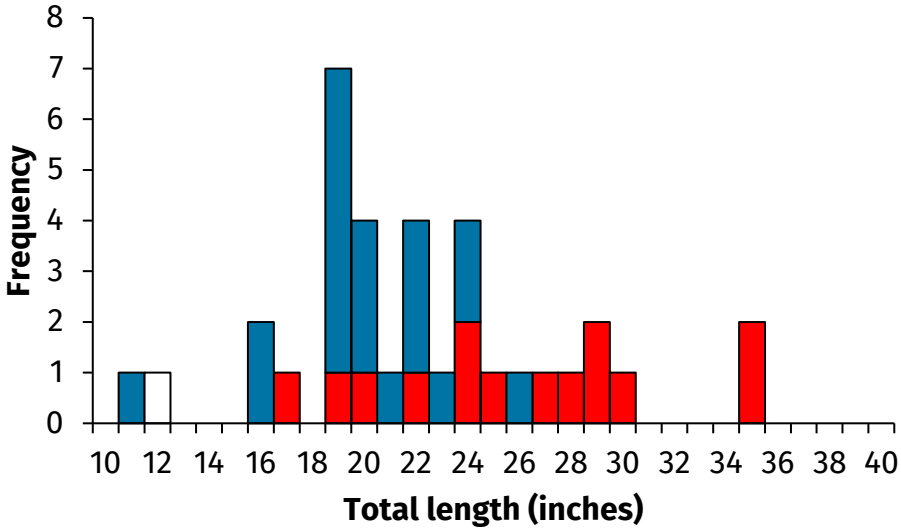

Figure 5. Length frequencies of male (blue), female (red) and unknown sex (white) northern pike collected during the SN1 and SE1 surveys in Poskin Lake, Barron County, WI, 2024.

Northern pike ages ranged from 2 to 11, where females ranged from 3 to 11 and males from 2 to 8. Mean lengths at age were similar to estimates for Barron and Polk counties (average difference in length at age: -0.2 inches; ages 3 - 6) and the median length at age for similar complex-warm-dark Wisconsin lakes (average difference in length at age: -0.5 inches; ages 3 – 6; Figure 6). The predicted theoretical maximum length using von Bertalanffy growth models was 35.7 inches with k and t_0 estimated to be 0.2 and -0.1, respectively. Collectively, this suggests growth of northern pike was average and remained similar to 2010. The Mean Wr was 92, which indicated fish were in average condition and remained similar to 2010 (Wr = 85). The ratio of males to females was approximately 1.5:1. A quality northern pike population was present that likely supports a quality recreational fishery with good harvest opportunities and potential for memorable size fish. Northern pike will continue to be managed with a no MLL and 5 fish daily bag limit.

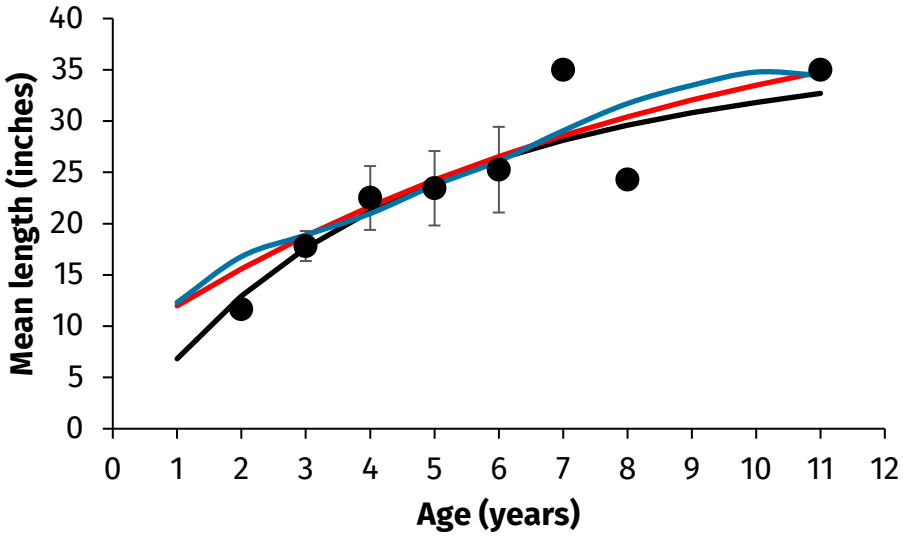

Figure 6. Northern pike mean length-at-age (black circles) ± standard deviation from Poskin Lake during 2024. The von Bertalanffy growth model is represented by the black line. Median length-at-age estimates for similar complex-warm-dark Wisconsin Lakes and mean length-at-age estimates for Barron and Polk counties are represented by the red and blue lines, respectively.

LARGEMOUTH BASS

There were 55 largemouth bass collected during the SE2 survey with a CPUE of 19.1 fish/mile, which remained similar to 2010 (26.0 fish/mile) and resembled the 50th percentile (17.4 fish/mile) for similar complex-warm-dark Wisconsin lakes. The CPUE of largemouth bass ≥ 14 inches was 11.1 fish/mile which also remained similar to 2010 (10.3 fish/mile).

Largemouth bass ranged in length from 6.1 – 19.3 inches with a mean length of 13.6 inches, which resembled the 99th percentile (13.6 inches) for similar complex-warm-dark Wisconsin lakes (Figure 7). The PSD-12 was 90 and PSD-14 was 64, which indicated a good size structure within the generally accepted values for balanced largemouth bass populations (PSD-12 = 40 – 70; Gabelhouse 1984). Size structure indices improved since 2010 (PSD-12 = 75 and PSD-14 = 40) which was driven by greater numbers of fish ≥ 14 inches and fewer fish between 7 – 9 inches sampled during 2024 compared to 2010 (Figure 7).

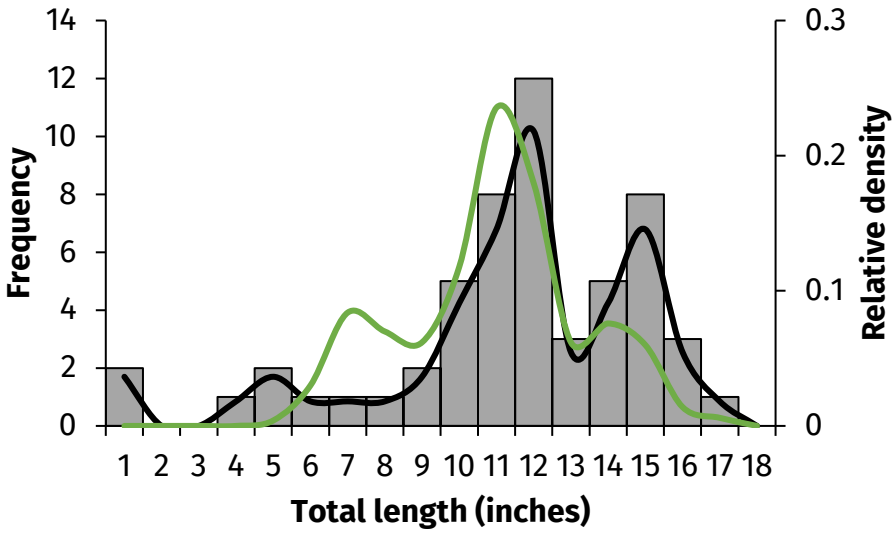

Figure 7. Length frequency of largemouth bass from Poskin Lake during the 2024 SN1 survey. Lines represent relative density curves depicting length frequencies during 2024 (black lines) and 2010 (green line).

Largemouth bass had moderate to fast growth rates. Mean length at age was greater than 2010 (average difference in mean length at age estimates: +2.7 inches), the median length at age standard for similar complex-warm-dark Wisconsin lakes (average difference in length at age estimates: +2.1 inches) and the Barron and Polk counties mean estimates (average difference in mean length at age estimates: +2.8 inches; ages 2 – 7; Figure 8). Due to low sample sizes of older fish, all comparisons used fish ages 3 – 6. Despite indications of fast growth up to age 6, growth after age 7 was similar to 2010, the Barron and Polk counties mean and Lake Class standards and thus population growth is presumed to be moderate to fast. The predicted theoretical maximum length using von Bertalanffy growth models was 22.0 inches with k and t_0 estimated to be 0.20 and -0.71, respectively. The mean W_r was 114 which remained similar to 2010 (W_r = 104) and indicated largemouth bass had excellent body condition (Bennett 1970).

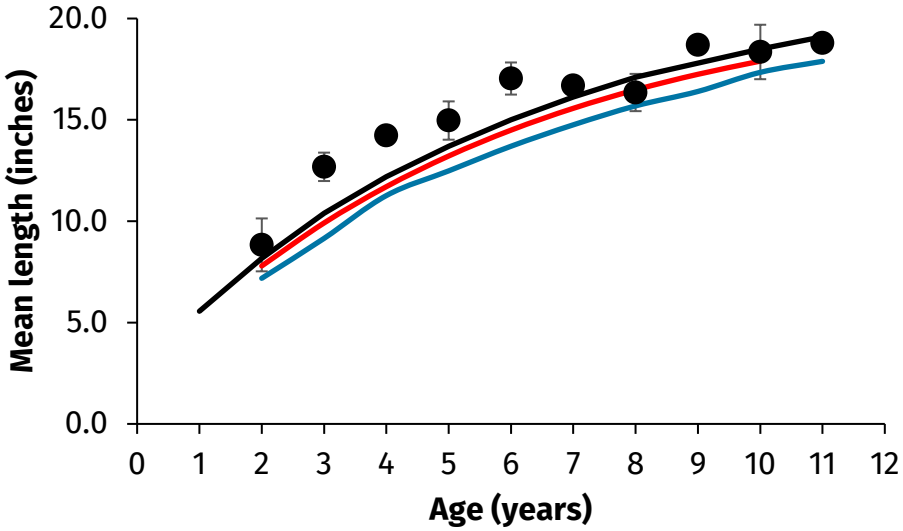

Figure 8. Largemouth bass mean length-at-age (black circles) ± standard deviation from Poskin Lake during 2024. The von Bertalanffy growth model is represented by the black line. Median length-at-age estimates for similar complex-warm-dark Wisconsin Lakes and mean length-at-age estimates for Barron and Polk counties are represented by the red and blue lines, respectively. Mean length-at-age estimates during 2010 were similar to the Lake Class Standards and not represented in the plot.

Poskin Lake supports a high-quality largemouth bass population characterized by moderate abundance, high size structure, moderate growth rates and excellent body condition. Since 2010, the largemouth bass population remained stable, though there has been an increase in the number of harvestable-sized fish (≥ 14 inches). As a result, the proportion of the population susceptible to harvest rose from 39.7% in 2010 to 58.2% in 2024. The recreational fishery continues to be largely catch-and-release, which should sustain the lake's reputation for producing large bass. The current bass-bluegill fishery is balanced and stable, providing both quality panfish harvest opportunities and the potential for trophy bass catches (see Figure 9). Given that the current harvest regulations (14-inch minimum length limit, 5 fish daily bag limit) are conservative, they should continue to support a healthy largemouth bass population with high size structure.

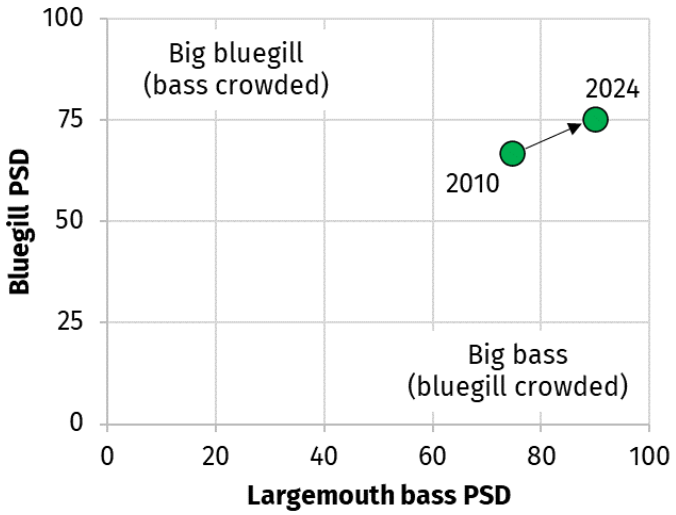

Figure 9. Bluegill PSD versus largemouth bass PSD indexed from the SE2 surveys during 2010 and 2024 in Poskin Lake.

BLUEGILL

Poskin Lake supports a moderate to high density bluegill population that remained stable since 2010. A total of 214 bluegill were collected during the SE2 survey. Bluegill CPUE was 214.0 fish/mile, which was between the 75th and 90th percentiles (195.9 – 295.1 fish/mile) for similar complex-warm-dark Wisconsin lakes and remained similar to 2010 (241.0 fish/mile) and was well above the mean bluegill CPUE for lakes in Barron and Polk counties (54.0 ± 4.7 fish/mile; ± SE). The CPUE of quality size (≥ 6 inches) fish was 158.0 fish/mile (73.8% of catch) which also resembled 2010 (157 fish/mile; Gabelhouse 1984). The CPUE of preferred size (≥ 8 inches) fish was 0 fish/mile during both 2024 and 2010 surveys.

Lengths ranged from 2.9 – 7.8 inches with an average length of 6.0 inches (Figure 10). The mean length was near the 99th percentile (6.1 inches) for similar complex-warm-dark Wisconsin lakes. The PSD-6 was 75 which was above the generally accepted range for balanced bluegill populations (PSD-6 = 20-60; Anderson 1985). However, the PSD-8 was 0, which was below the range suggested by Anderson (1985; PSD-8 = 5-20). Collectively, this represented a bluegill population with average size structure that remained stable since 2010 (Figure 10).

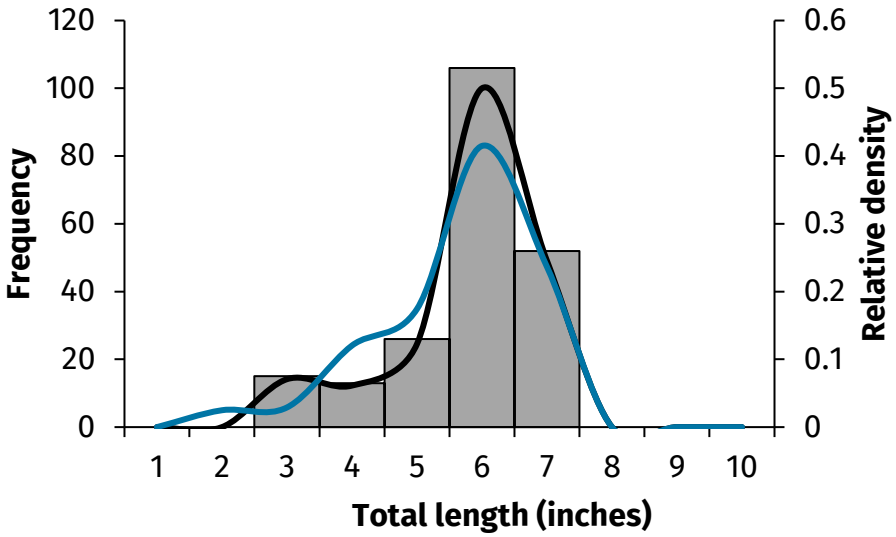

Figure 10. Length frequency of bluegill from Poskin Lake during the 2024 SE2 survey. Lines represent relative density curves depicting length frequencies during 2024 (black lines) and 2010 (blue line).

Bluegill had below average growth rates. Mean length at age was lower than median length at age estimates for similar complex-warm-dark Wisconsin lakes (average difference in length at age estimates: -0.7 inches; ages 2 – 9; Figure 11) and the average for Barron and Polk counties (average difference in mean length at age estimates: -0.4 inches; ages 2 – 9). Bluegill in Poskin Lake exhibited sufficient growth through age 6, but beyond that point, growth rates declined compared to established growth standards. The predicted theoretical maximum length using von Bertalanffy growth models was 7.8 inches with k and t_0 estimated to be 0.4 and 0.9, respectively.

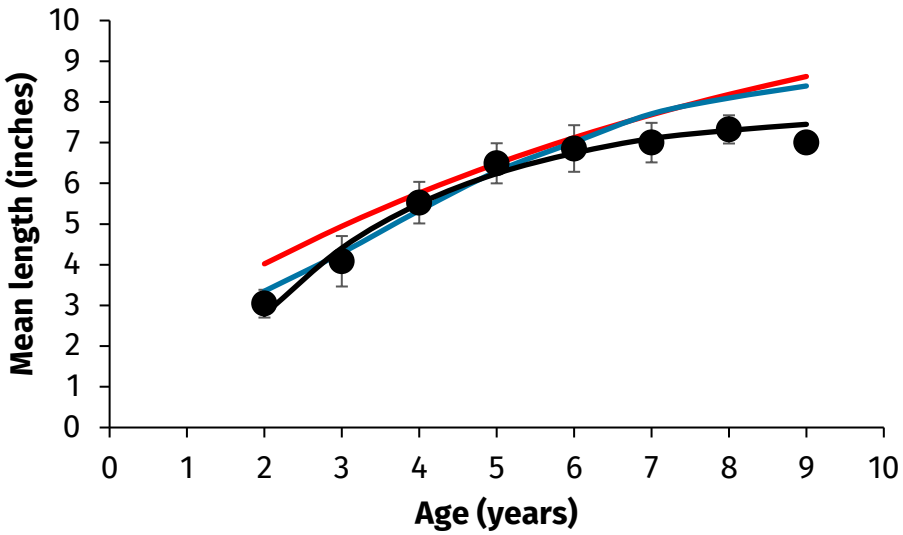

Figure 11. Bluegill mean length-at-age (black circles) ± standard deviation from Poskin Lake during 2024. The von Bertalanffy growth model is represented by the black line. Median length-at-age estimates for similar complex-warm-dark Wisconsin Lakes and mean length-at-age estimates for Barron and Polk counties are represented by the red and blue lines, respectively.

The adult population was composed of seven age classes that ranged from age 3 to 9. Age-3 – 7 fish composed 83.5% of the population whereas older age classes composed 13.2% of the population (Figure 12). The adult population was well distributed with sustained annual recruitment, evident by the breadth of adult age classes present. Longevity was limited as no fish surpassed age 9.

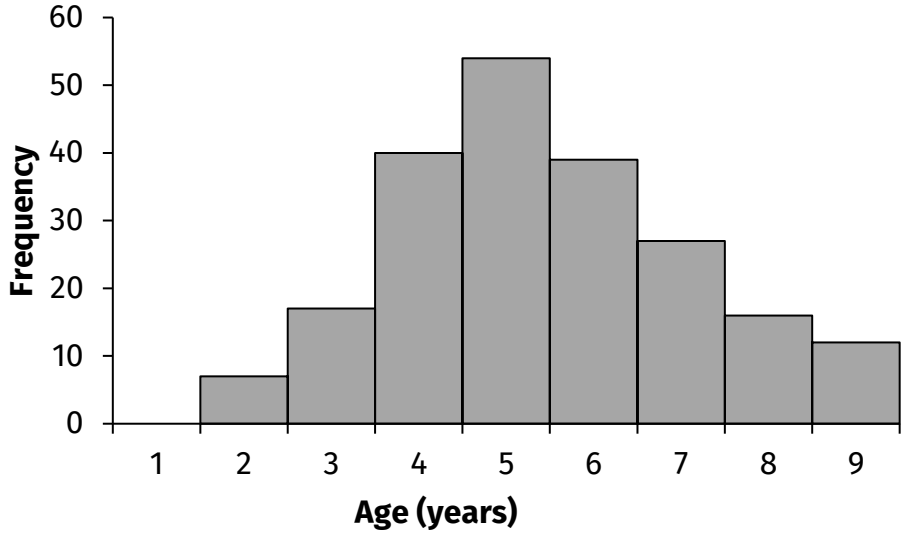

Figure 12. Age structure of bluegill in Poskin Lake during the 2024 SE2 survey (grey bars).

A moderate to high density bluegill population was present in Poskin Lake with average size structure and slow growth rates. Fish greater than 8 inches were not observed during the survey, which may be influenced by environmental factors such as limited forage resources, competition or habitat availability for adults or factors such as over-exploitation. While creel data were unavailable to assess angler exploitation, the slow growth rates of adults suggests that that over-exploitation is unlikely. Instead, environmental factors such limited food resources or high competition (or other density dependence factors) appeared to be stunting growth, resulting in few, if any, fish exceeding 8 inches.

The current population does not satisfy the benchmark criteria set forth by the DNR Panfish Team for lakes having a size structure problem due to angler harvest (mean length < 6 inches and mean length at age-3 ≥ 4.2 inches). Thus, the current harvest regulations for panfish will be maintained and no additional management actions are required at this time. Rather, anglers are encouraged to harvest bluegill, which could help reduce the population density in Poskin Lake. This management strategy, if sustained through consistent harvest efforts, may alleviate overcrowding, providing more resources for the remaining fish. The result could be a healthier, more balanced population with enhanced growth potential, benefiting both the ecosystem and recreational fishing opportunities.

BLACK CRAPPIE

Poskin Lake supports a moderate to high density black crappie population that remained temporally stable since 2010. A total of 33 black crappie were collected during the SE2 survey. Black crappie CPUE was 33 fish/mile which was greater than the mean black crappie CPUE for lakes in Barron and Polk counties (9.6 ± 1.9 fish/mile; ± SE) and remained stable since 2010 (42 fish/mile). The CPUE of quality size (≥ 8 inches) fish was 27.0 fish/mile (81.8% of catch) which also resembled 2010 (30 fish/mile; Gabelhouse 1984). The CPUE of preferred size (≥ 8 inches) fish was 27 fish/mile, which remained similar to 2010 (30 fish/mile).
Lengths ranged from 3.1 – 9.8 inches with an average length of 7.9 inches (Figure 13). The mean length was near the 95th percentile (7.7 inches) for similar complex-warm-dark Wisconsin lakes. The PSD-8 was 87 which improved since 2010 (PSD-8 = 71). Fish greater than 10 inches were not observed during the SE2 survey but were during the SN1 survey. Fish ranged from age 5 – 11 but further analysis of growth was not possible due to low sample size (n = 23).

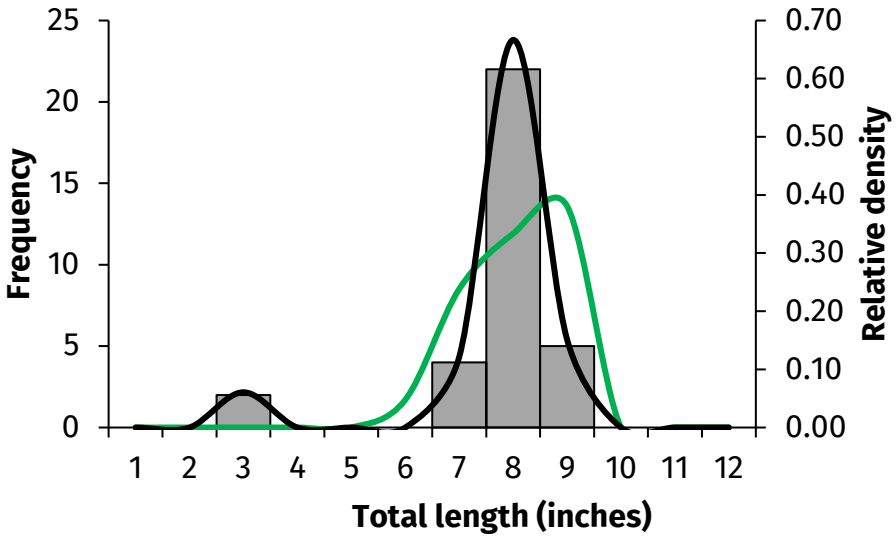

Figure 13. Length frequency of black crappie from Poskin Lake during the 2024 SE2 survey. Lines represent relative density curves depicting length frequencies during 2024 (black lines) and 2010 (green line).

Few black crappies were collected during the 2024 SE2 survey which prevented meaningful characterization of the current population. Despite this, it remains likely the current population has remained stable since 2010 and contributes to the overall fishery in Poskin Lake. The SE2 surveys are often inadequate at characterizing black crappie populations and typically underrepresent relative abundances, the largest size classes present and those targeted by the recreational fishery. Future fishery surveys should index black crappie population metrics during the SN1 survey.

OTHER PANFISH

Six yellow perch were sampled during the SE2 survey.

Management Recommendations

1. The adult walleye population should be maintained at a target density of ≥ 1.5 fish/acre by continuing to stock large fingerling walleyes in alternate years at a rate of 10 fish/acre. Stocking on an alternate year basis will enable us to continue fall electrofishing evaluations of natural reproduction and survival of stocked large fingerlings.
2. The Ceded Territory base walleye regulation (15-inch MLL, 20 – 24-inch protected slot, three fish daily bag limit with only one fish > 24 inches) will be maintained as this regulation is conservative in managing harvest.
3. Largemouth bass will continue to be managed with a 14-inch MLL and 5 fish daily bag limit. If warranted, otoliths could be collected during the next survey to improve estimates of age, growth and mortality.

4. Anglers are encouraged to increase harvest of bluegill, which could help reduce the population density and increase size structure.
5. No specific management actions regarding northern pike, black crappie and yellow perch are recommended at this time.
6. The next comprehensive fisheries survey should plan to index black crappie relative abundance during the SN1 survey as opposed to the SE2 survey. Otoliths should be collected from bluegill and black crappie during the next survey to maintain the current level of aging accuracy and precision.
7. Efforts to protect and maintain natural shorelines and nearshore walleye spawning habitat is encouraged where applicable. Inputs of coarse woody habitat is also encouraged but locations should be carefully considered as to not fragment walleye spawning habitat. The maintenance/restoration of vegetative buffers would be beneficial. This website healthylakeswi.com is a great resource to learn about this recommendation.
8. Invasive species monitoring and control programs should continue.

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Appendices

Appendix Table 1. Walleye stocking records for Poskin Lake, 2010 – 2023.

YEAR	SPECIES	AGE CLASS	NUMBER STOCKED	AVG. LENGTH (IN.)
2010	Walleye	Small Fingerling	5,250	1.7
2010	Walleye	Large Fingerling	400	7.0
2012	Walleye	Small Fingerling	5,292	1.7
2012	Walleye	Large Fingerling	350	6.0
2013	Walleye	Large Fingerling	2,230	6.2
2015	Walleye	Large Fingerling	2,303	7.4
2017	Walleye	Large Fingerling	2,491	4.0
2019	Walleye	Large Fingerling	2,354	6.0
2021	Walleye	Large Fingerling	2,303	6.5
2023	Walleye	Large Fingerling	2,303	6.7

Appendix Table 2. Survey types, gear used, target water temperature and target species.

SURVEY TYPE	GEAR USED	TARGET WATER TEMPERATURE (°F)	TARGET SPECIES
Spring Netting 1 (SN1)	Fyke Net	~45	Walleye, Northern Pike
Spring Electrofishing 1 (SE1)	Boat Electrofishing	45-50	Walleye
Spring Netting 2 (SN2)	Fyke Net	50-55	Muskellunge, Black Crappie, Yellow Perch
Spring Electrofishing 2 (SE2)	Boat Electrofishing	55-70	Largemouth Bass, Smallmouth Bass, Bluegill and Other Panfish, Non-game Species
Spring Netting 3 (SN3)	Fyke Net	65-80	Bluegill, Black Crappie
Fall Electrofishing (FE)	Boat Electrofishing	50-60	Juvenile Walleye, Muskellunge