WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2024 Willow Flowage Fisheries Survey Report

Waterbody Code: 1528300

Photo Credit: Lakeland Aerial

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Introduction

The Willow Flowage is an impoundment of the Tomahawk and Willow Rivers in western Oneida County, Wisconsin. The Wisconsin Valley Improvement Company completed initial construction a concrete dam in 1927 creating the Willow Flowage. The dam remains today as modern upgrades and repairs has been made throughout the years. Water conditions are fair within the Willow Flowage supporting aquatic life, wildlife, recreation, public health and welfare. A fish consumption advisory is in place because of mercury levels found in their tissue (DNR 2024). Banded mystery snail (2013), Chinese mystery snail (2006), Eurasian water milfoil (2006) and rusty crayfish (1986) are invasive species that are established in the Willow Flowage. Additional information on the Willow Flowage of Lakes can be found at the Wisconsin Department of Natural Resources' (DNR) Lake Page.

The Willow Flowage is complex-cool-dark lake with a shared fishery utilized by the public and tribal members (Rypel et al. 2019). Anglers can access the 6,392-acre flowage, when at full pool, from one of the seven public ramps across the system (Figure 1). An estimated 55,927 people recreated on the Willow Flowage during the open water season in 2014 and 49,488 people in 2021 (unpublished data; S. Blado Wisconsin Valley Improvement Company). Panfish and walleye are commonly targeted during the spring and winter (Tobias 2009). Angling effort on the Willow Flowage was 3.6 hours per acre below the Oneida county average in 2008-09 with an estimated of 22,463 black crappie, 16,528 bluegill, 205 largemouth bass, 3,870 northern pike, 387 smallmouth bass, 9,582 walleye and 10,185 yellow perch harvested (Tobias 2009). An average of 3.7 fishing tournaments targeting bass, panfish or walleye have been hosted on the Willow Flowage annually since 2008 (unpublished data; N. Lederman). Tribal members also utilize the Willow Flowage fishery harvesting an average of 584 ± 95 walleye in the spring (unpublished data; T. Cichosz).

The Wisconsin DNR collaboratively monitors the fishery of the Willow Flowage with the Bad River Band of Lake Superior Chippewa, Great Lakes Indian Fish and Wildlife Commission (GLIFWC), United States Fish and Wildlife Service and the Wisconsin Valley Improvement Company. Assessments have focused on species of recreational value and understanding the effects reservoir operational changes have had on them (Table 1). Findings from assessments have resulted in management actions such as changes in stocking strategies (Table 2). Citizens routinely express concerns with the angling pressure and potential of overharvest within the Willow Flowage (unpublished data; J. Kubisiak). An advisory question was submitted to the conservation congress advisory in 2023 requesting a reduction in the bag limit of panfish (resolution 640623). The lack of recent data creates challenges for informing the need of such a restriction.

The objectives of the 2024 fishery survey on the Willow Flowage survey were to

1. assess the status of the fish community
2. evaluate the need for a panfish regulation change
3. update fisheries management recommendations

Table 1. Fish surveys from 1950-2024 on the Willow Flowage Oneida County, Wisconsin.

YEAR	TYPE	Agency	GEAR	TARGET SPECIES	SURVEY PURPOSE
1950	SN 1	DNR	fyke net	walleye/northern pike	relative abundance
1987	FE	DNR	boom shocker	juvenile gamefish	recruitment monitoring
1988	SN 1	DNR	fyke net	walleye	mark-recapture census
	SE 2	DNR	boom shocker	walleye	population estimate
	FE	DNR	boom shocker	juvenile gamefish	recruitment monitoring
1992	SN 3	WVIC	fyke net	panfish	relative abundance
1993	SN 3	WVIC	fyke net	panfish	relative abundance
1994	SN 1	DNR	fyke net	walleye	mark-recapture census
	SE 2	DNR	boom shocker	walleye	population estimate
	SN 3	WVIC	fyke net	panfish	relative abundance
	FE	DNR	boom shocker	juvenile gamefish	recruitment monitoring
1995	SN 3	WVIC	fyke net	panfish	relative abundance
1996	SN 3	WVIC	fyke net	panfish	relative abundance
1997	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
1999	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2000	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2001	SN 3	WVIC	fyke net	panfish	relative abundance
	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2002	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2003	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2004	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2005	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2008	SN 1	DNR	fyke net	walleye	mark-recapture census
	SN 2	DNR	fyke net	muskellunge	relative abundance
	SE 1	DNR	boom shocker	walleye	population estimate
	Creel	DNR	survey	all	effort and harvest
	FE	DNR	boom shocker	juvenile gamefish	recruitment monitoring
2010	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2011	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2012	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2013	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2014	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2016	SE 1	DNR	boom shocker	walleye	relative abundance
	SE 2	DNR	boom shocker	bass/panfish	relative abundance
	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2017	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2019	FE	GLIFWC	boom shocker	juvenile gamefish	recruitment monitoring
2024	SN 3	DNR	Fyke net	panfish	relative abundance
	SE 2	DNR	boom shocker	bass/panfish	relative abundance

Table 2. Fish stockings from 1975-2024 in the Willow Flowage, Oneida County, Wisconsin.

Year	Species	Age Class	Number of Fish Stocked	Source Type
1975	walleye	fry	500,000	DNR
1976	walleye	fry	200,000	DNR
1994	walleye	fry	60,000	DNR
1995	muskellunge	fry	10,000	DNR
2004	muskellunge	large fingerling	2,500	DNR
2006	muskellunge	large fingerling	625	DNR
2008	muskellunge	large fingerling	1,610	DNR
2010	muskellunge	large fingerling	1,617	DNR
2014	muskellunge	large fingerling	788	DNR
2018	muskellunge	large fingerling	1,682	DNR
2022	muskellunge	large fingerling	1,051	DNR

Methods

A fishery survey focused on bass and panfish was conducted on the Willow Flowage during 2024. Late spring electrofishing for bass and panfish (SE2) and late spring netting (SN 3) occurred throughout the Willow Flowage (Figure 1). Sampling provided a description of the status of bass and panfish, size structure of select species, relative abundance of panfish species, and the growth, mortality and recruitment trends of black crappies and bluegills.

SURVEY EFFORT

Spring fyke netting (SN 3) was conducted using standard 4-foot framed fyke nets. Fourteen nets were set on May 6, 2024 and fished until May 10, 2024. Nets were set in varying habitats (i.e., substrate and vegetation) and water depths targeting spawning adult fish (Figure 1). Nets were checked once every 24 hours.

Late spring electrofishing (SE 2) was conducted throughout the Willow Flowage on May 29, 2024 (Figure 1). Boats sampling during SE 2 runs used AC power, two probes each with 3 droppers and two dippers with nets having 0.375-inch bar mesh netting. Six half-mile transects targeting all species were randomly selected and six 1.5-mile transects targeting gamefish were randomly selected throughout the Willow Flowage.

Captured gamefish and panfish during all sampling were measured to the nearest 0.1 inch. Otoliths were extracted from five black crappies and five bluegills within every half-inch increment allowing age and growth estimation (Simonson et al. 2013). Counts were recorded for all other species.

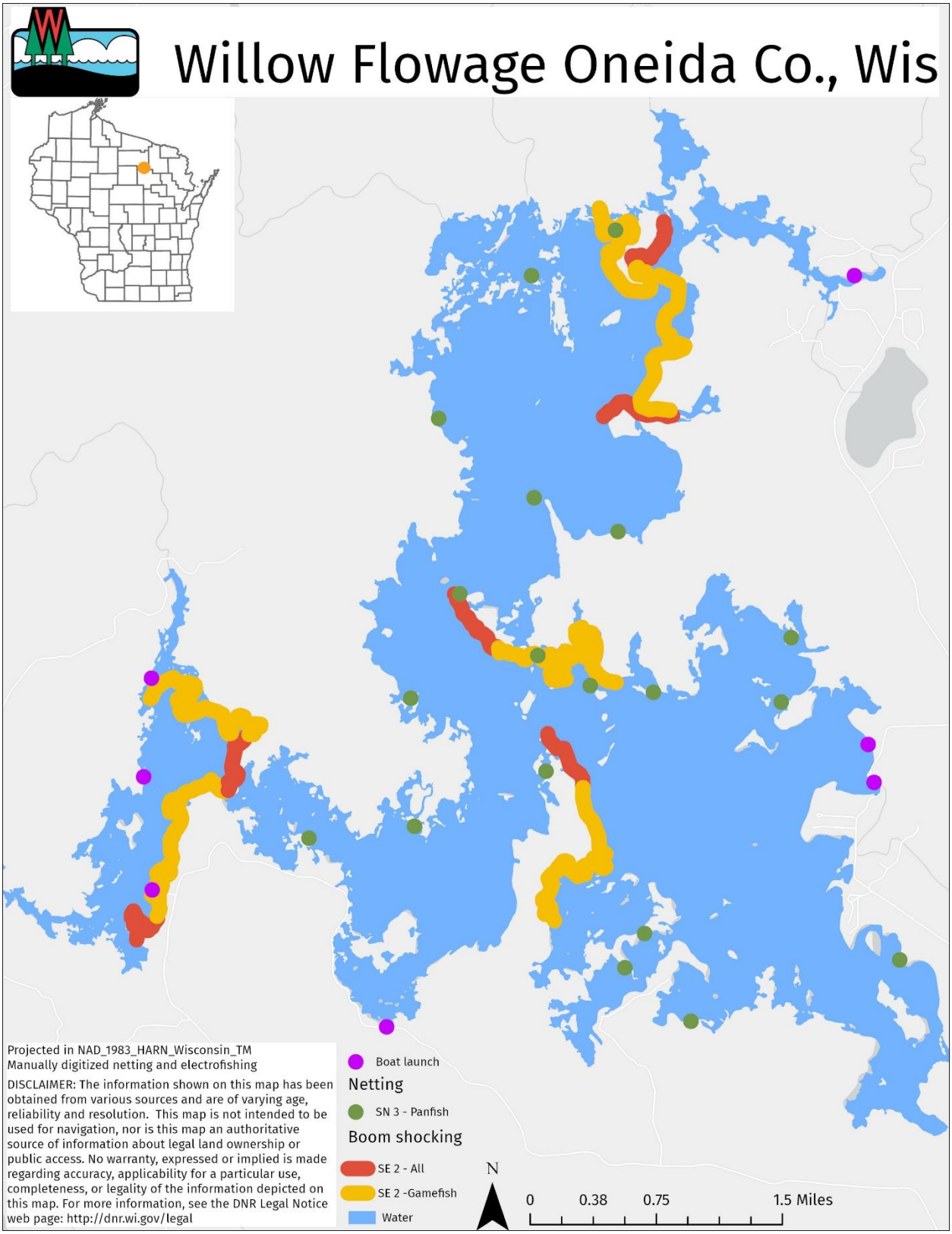

Figure 1. Sampling locations of the capture gears used during the 2024 Willow Flowage survey in Oneida County, Wisconsin.

DATA ANALYSIS

Relative abundance was used as an index of population size for fish within the Willow Flowage. Bluegill, pumpkinseed and rock bass relative abundance was indexed as the number of individuals per shoreline mile during SE 2 runs collecting all fish. Largemouth bass, northern pike, smallmouth bass and walleye relative abundance was indexed as the number of individuals per shoreline mile during SE 2 runs collecting all fish or gamefish. Black crappie and yellow perch relative abundance were indexed as the number of individuals per net night during SN 3 surveys.

Size structure of fishes were described using length frequencies, descriptive statistics and proportional size distribution (PSD; Gabelhouse 1984). Quality-sized fish are 36% of the world-record length and preferred-sized fish are 45% of the world-record length representing fish lengths anglers likely enjoy catching (Table 3). The PSD value for a species was calculated as the number of fish of a quality length and longer divided by the number of stock length fish or longer and multiplied by 100. The mean, minimum and maximum length of each fish species was calculated during each sampling year and compared through time.

Table 3. Proportional size distribution lengths of select fish species in the Willow Flowage, Oneida County, Wisconsin.

SPECIES	STOCK SIZE (IN)	QUALITY SIZE (IN)	PREFERED SIZE (IN)
Black crappie	5	8	10
Bluegill	3	6	8
Largemouth bass	8	12	15
Muskellunge	20	30	38
Northern pike	14	21	28
Pumpkinseed	3	6	8
Rock bass	4	7	9
Smallmouth bass	7	11	14
Walleye	10	15	20
Yellow perch	5	8	10

Growth was quantified by assigning ages to collected black crappie and bluegill otoliths. Age was assigned to each unaged fish that was measured using an age-length key. Age-length keys were created from the proportion of each age within each inch length group for each species (Isermann and Knight 2005). Mean length at age was then calculated using the entire sample from assigned ages. Predicated mean maximum length was calculated using Von Bertalanffy's growth equation of:

$$l_t = L_\infty(1 - e^{-K(t-t_0)})$$

Growth equations were completed by pooling sexes for each year because of data limitations. Growth equations were calculated for each year data were available.

Mortality was estimated from a catch curve. A weighted regression using the natural log of catch at age was determined (Miranda and Bettoli 2007) for black crappie and bluegill.

Relative abundance indices, mean length and growth were compared to other complex-cool-dark lakes within the Wisconsin lake systems (Rypel et al. 2019), other Oneida county lakes and prior surveys completed within the Willow Flowage when appropriate.

Results

BLACK CRAPPIE

A total of 714 black crappie (42 electrofishing, 672 netting) were captured while surveying the Willow Flowage. Black crappie catch rate was 13.4 per net night during netting and 9.3 per mile during electrofishing in the Willow Flowage. Black crappie catch per mile was in the 54th percentile statewide and around the 75th percentile per net night for complex-cool-dark lakes. Black crappie catch rate has increased through time during electrofishing and fyke netting (Figure 2).

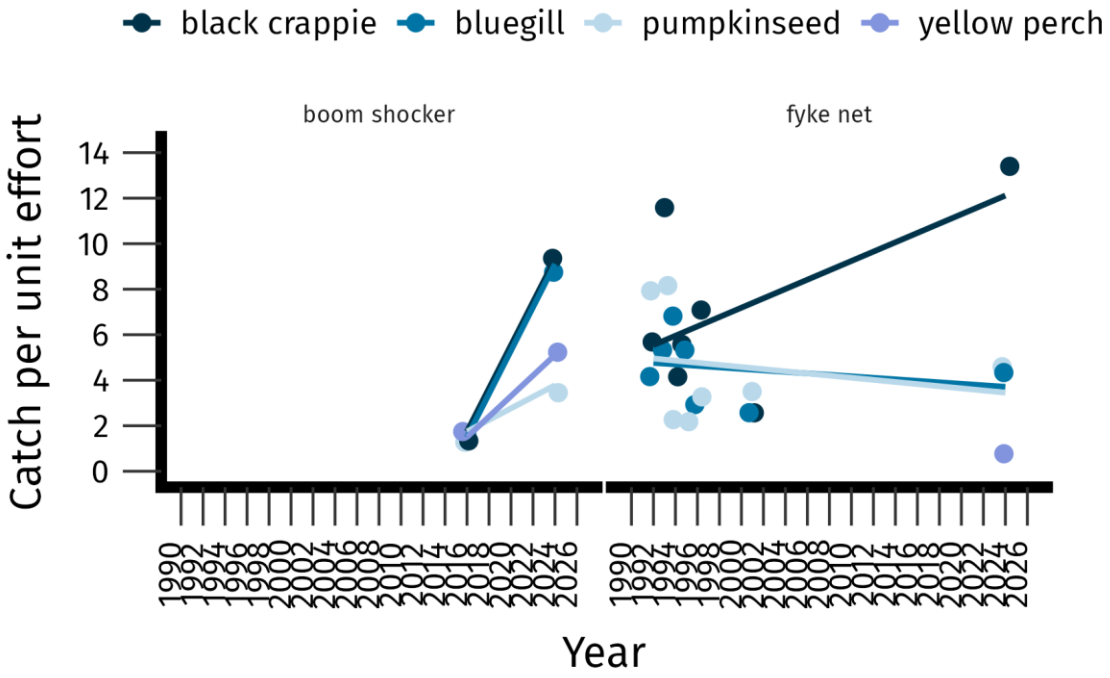

Figure 2. Catch rate of black crappie, bluegill, pumpkinseed and yellow perch across surveys within the Willow Flowage for electrofishing (left; catch per mile) and netting (right; catch per net night). Each species is a unique color.

Measured black crappie lengths varied between 2.9 to 14.8 inches with a mean length of 10.0 inches (Figure 3). Mean length of black crappie was above the 99th percentile for complex – cool – dark systems. Proportional size distribution of black crappie has been variable through time but typically comprised of mostly individuals larger than eight inches (Figure 4).

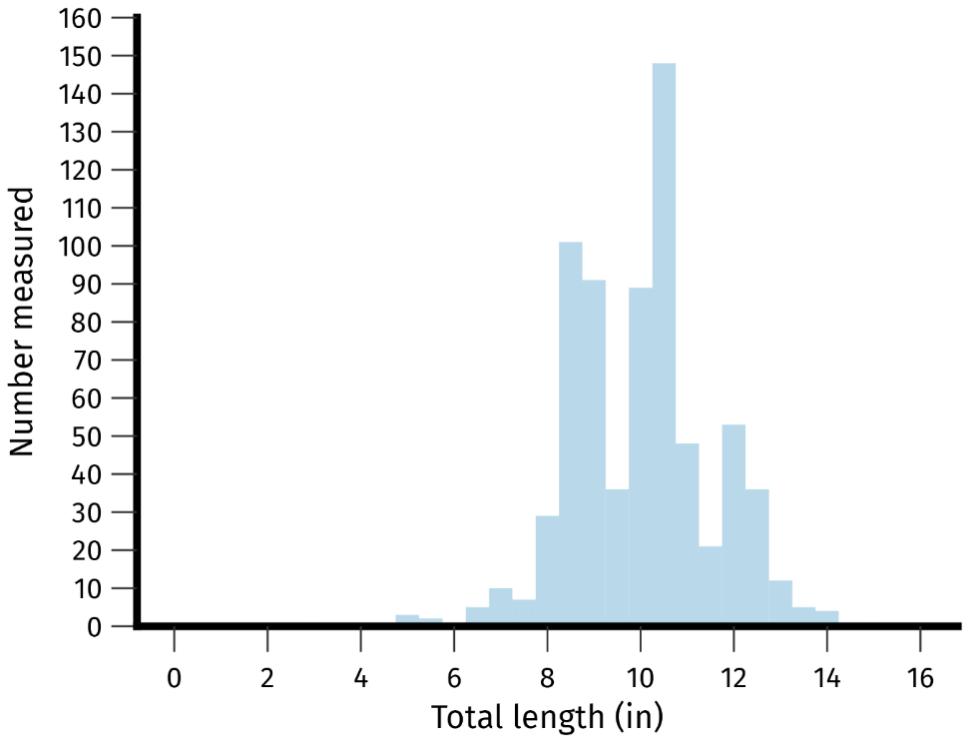

Figure 3. Length frequency of measured black crappie in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 0.5 inch.

Otoliths were collected from 59 black crappies between 7.1 inches and 14.1 inches within the Willow Flowage. Assigned black crappie ages represented eight unique year classes between 3 and 12-years-old. Relatively consistent recruitment across years appears to be occurring with no missing year classes for ages classes fully recruited to the sampling gears. Age-3 and age-4 cohorts cumulatively represented 72% of the population, age-5 and age-6 cohorts cumulatively represented 19% of the fishery and ages-7, -8, -9 and -12 cohorts made up the remaining 9%. Mean length at age remained larger than other complex-cool-dark lakes as it had in the past. The predicated theoretical mean maximum length from the von Bertalanffy growth model for black crappies was 13.1 inches (95% confidence interval; 12.8 – 13.5 inches) placing that in the 1st percentile among complex-cool-dark lakes. The Brody growth coefficient from the von Bertalanffy growth model for black crappies was 0.40 (95% confidence interval; 0.34 – 0.46 inches) placing it above the 100th percentile for among complex-cool-dark lakes. Catch curve analysis indicated an annual mortality rate of 48% (95% confidence interval; 35.4 – 57.4).

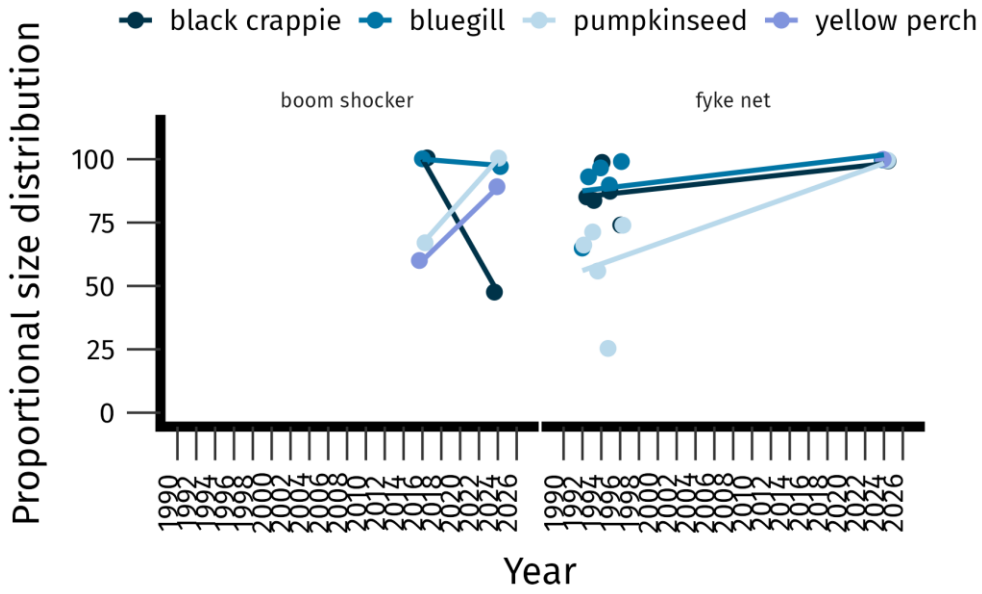

Figure 4. Proportional size distribution of quality length fish from select species captured across surveys during electrofishing (left) and netting (right) within the Willow Flowage Oneida County, Wisconsin.

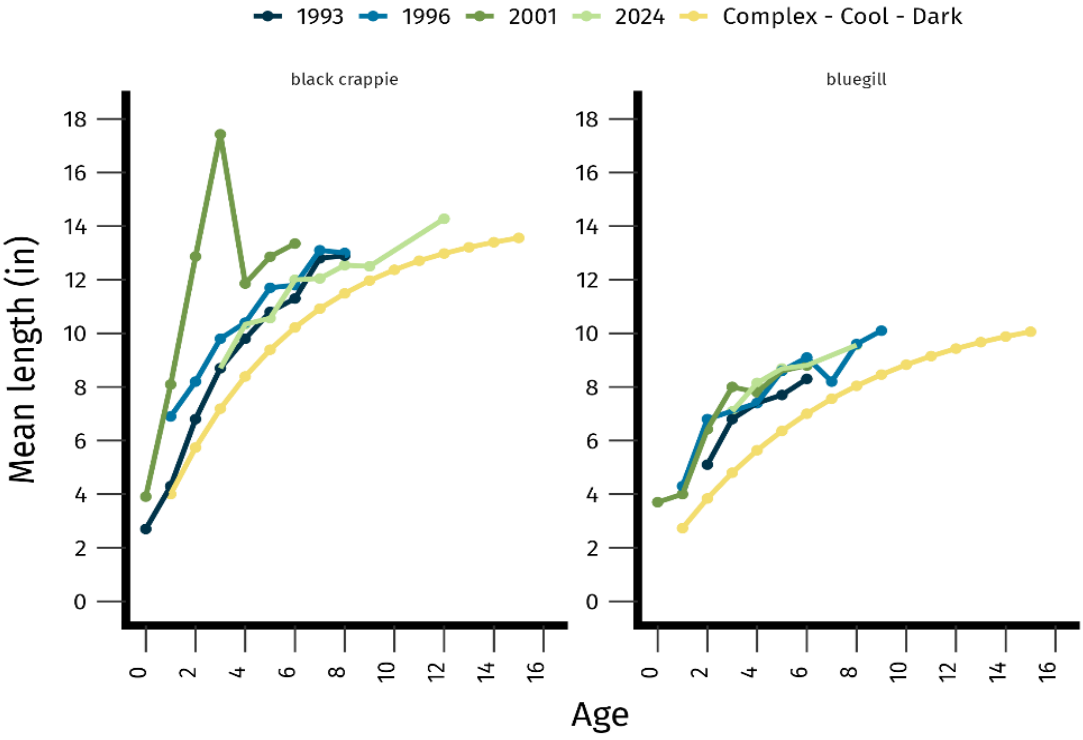

Figure 5. Mean total length at estimated age of black crappie (left) and bluegill (right) within the Willow Flowage, Oneida County, Wisconsin. Fish were assigned ages by otoliths in 2024 and scales during 1993, 1996 and 2001. Length of individuals with an unknown age were assigned an age with a species and year specific age-length key. Mean length at age for each year and median length at age for complex-cool-dark lake class are represented by unique colors.

BLUEGILL

A total of 253 bluegill (41 electrofishing, 212 netting) were captured while surveying the Willow Flowage. Bluegill catch rate was 4.3 per net night during netting and 9.1 per mile during electrofishing. Bluegill catch per mile was in the 11th percentile statewide and below the 10th percentile per net night for complex-cool-dark lakes. Bluegill catch rate has been increasing through time during electrofishing and fyke netting (Figure 2).

Lengths of measured bluegill varied between 5.3 to 10.3 inches with a mean length of 7.0 (Figure 6). Bluegill mean length was above the 99th percentile for complex-cool-dark systems. Proportional size distribution of bluegill has been variable through time but typically comprised of mostly individuals larger than six inches (Figure 4).

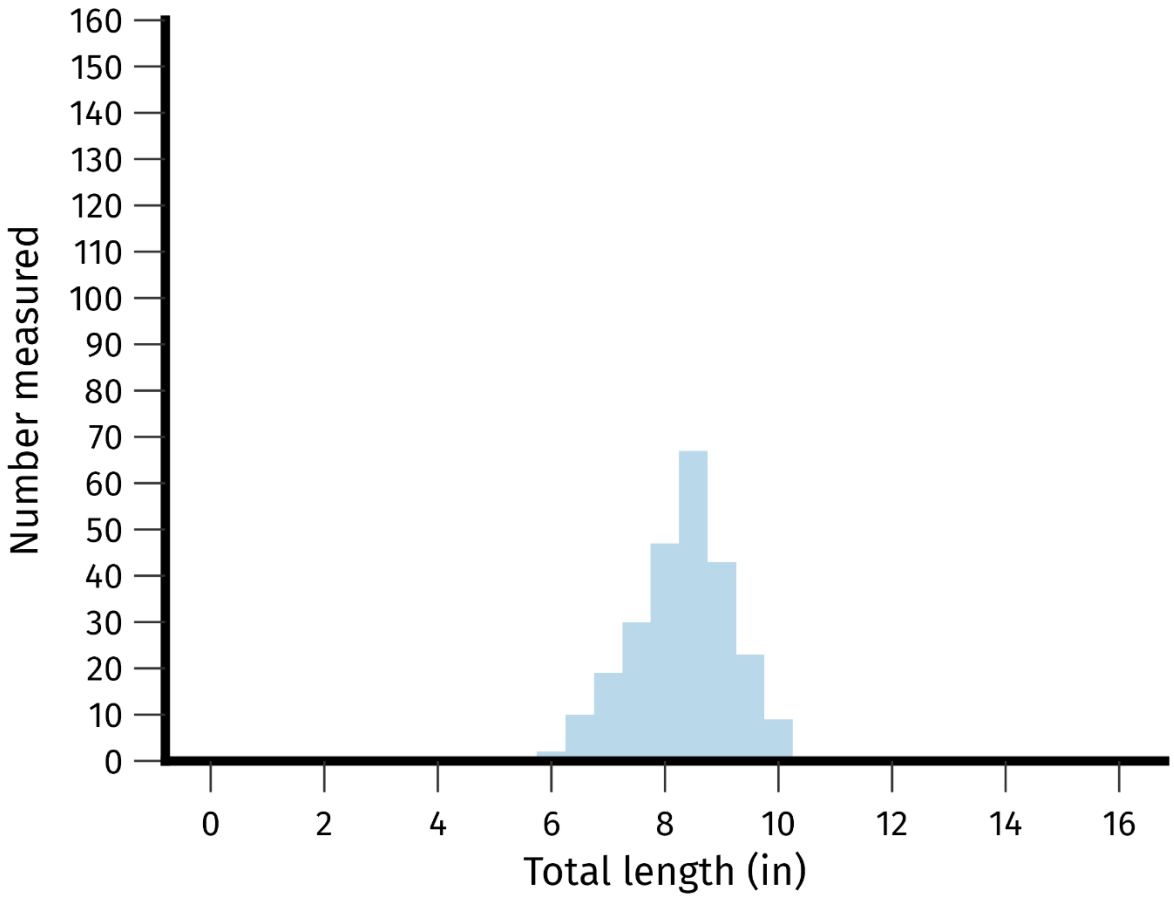

Figure 6. Length frequency of measured bluegills in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 0.5 inch.

Otoliths were collected from 36 bluegills between 5.3 inches to 9.8 inches within the Willow Flowage. Assigned bluegill ages represented five unique year classes between 3-years-old and 8-years-old. Relatively consistent recruitment has been occurring

with age-7 being the only missing age class for those recruited to the sampling gears used. The age-4 and age-5 cohorts cumulatively represented 55% of the population, age-3 cohort represented 22% of the fishery and age-6 and age-8 cohorts made up the remaining 22%. Mean length at age remained larger than other complex – cool – dark lakes as it had in the past (Figure 6). The predicated theoretical mean maximum length from the von Bertalanffy growth model for bluegills was 9.5 inches (95% confidence interval; 9.2 – 9.7) and within the zero percentile among complex-cool-dark lakes. The Brody growth coefficient from the von Bertalanffy growth model for bluegills was 0.56 (95% confidence interval; 0.42 – 0.69 inches) placing it above the 100th percentile among complex-cool-dark lakes. Catch curve analysis indicated an annual mortality rate of 40% (95% confidence interval; -53.7 – 76.9).

BOWFIN

A total of 54 bowfin (six electrofishing, 48 netting) were captured while surveying the Willow Flowage. Bowfin catch rate was 0.96 per net night during netting and 1.33 per mile during electrofishing. Bowfin catch rate increased slightly from the 0.75 per mile observed during the 2016 survey. Lengths of measured bowfin varied between 20.7 to 30.0 inches with a mean length of 25.8 inches (Figure 7). Further size structure comparisons should be avoided due to limited sample size (< 75 individuals; Miranda 2007) and data limitation of comparison to other complex-cool-dark lakes.

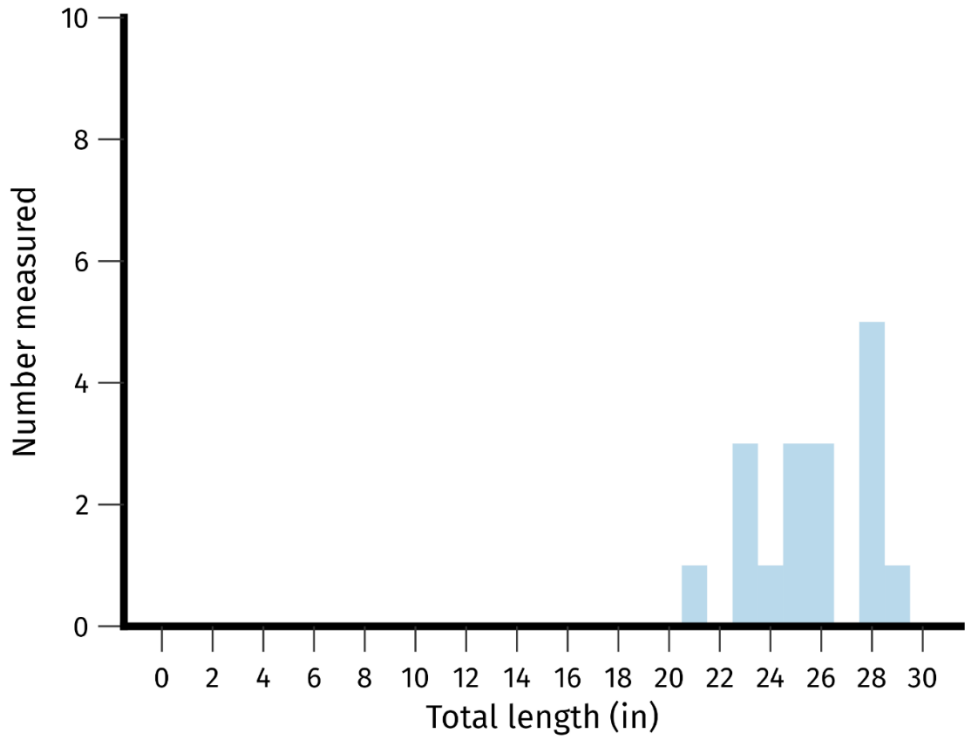

Figure 7. Length frequency of measured bowfin in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 1.0 inch.

NORTHERN PIKE

A total of 166 northern pike (44 electrofishing, 122 netting) were captured while surveying the Willow Flowage. Northern pike catch rate was 2.44 per net night during netting and 3.67 per mile during electrofishing. Catch per net night of northern pike was around the 50th percentile for complex-cool-dark lakes and 50th percentile per mile among lakes in Oneida County. Northern pike catch rate increased slightly from the 2.87 per mile observed during the 2016 survey. Lengths of measured northern pike varied between 11.5 to 26.5 inches with a mean length of 18.8 inches (Figure 8). Mean length of northern pike was slightly larger than the 50th percentile for complex-cool-dark lakes.

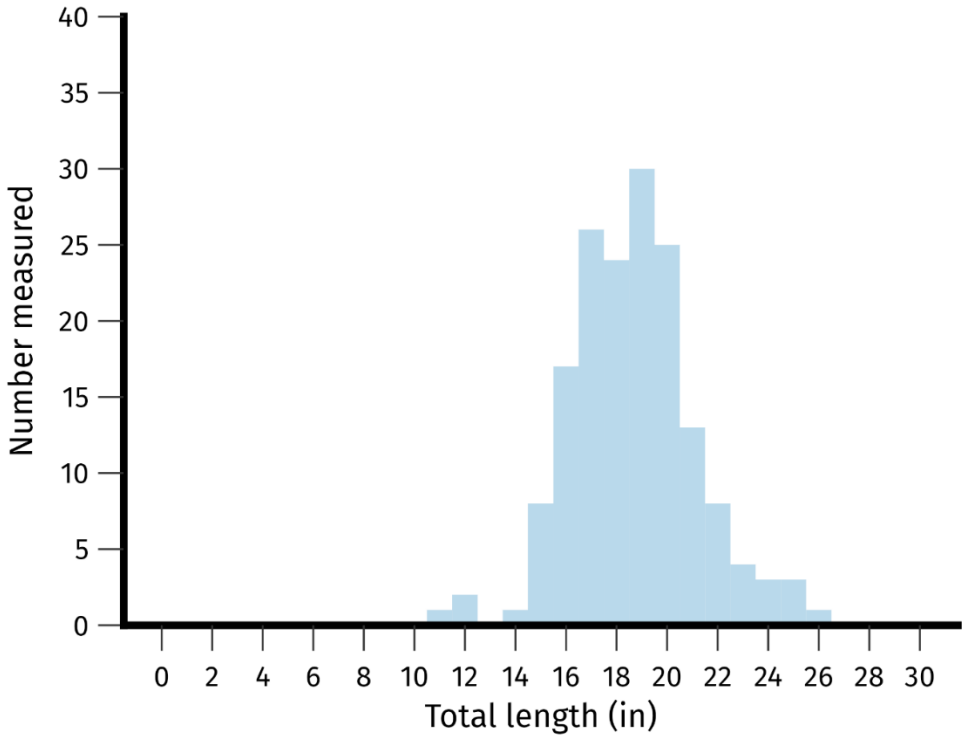

Figure 8. Length frequency of measured northern pike in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 1.0 inch.

PUMPKINSEED

A total of 234 pumpkinseeds (17 electrofishing, 217 netting) were captured while surveying the Willow Flowage. Pumpkinseed catch rate was 4.3 per net night during netting and 3.8 per mile during electrofishing. Pumpkinseed catch per mile was in the 11th percentile statewide and around the 25th percentile per mile for complex-cool-dark lakes. Pumpkinseed catch rate has been variable through time during electrofishing and fyke netting (Figure 2).

Lengths of measured pumpkinseed varied between 5.8 to 8.4 inches with a mean length of 7.6 inches (Figure 6). Mean length of pumpkinseed was above the 100th percentile for complex-cool-dark lakes. Proportional size distribution of

pumpkinseed has been variable through time but typically comprised of mostly individuals larger than six inches (Figure 4).

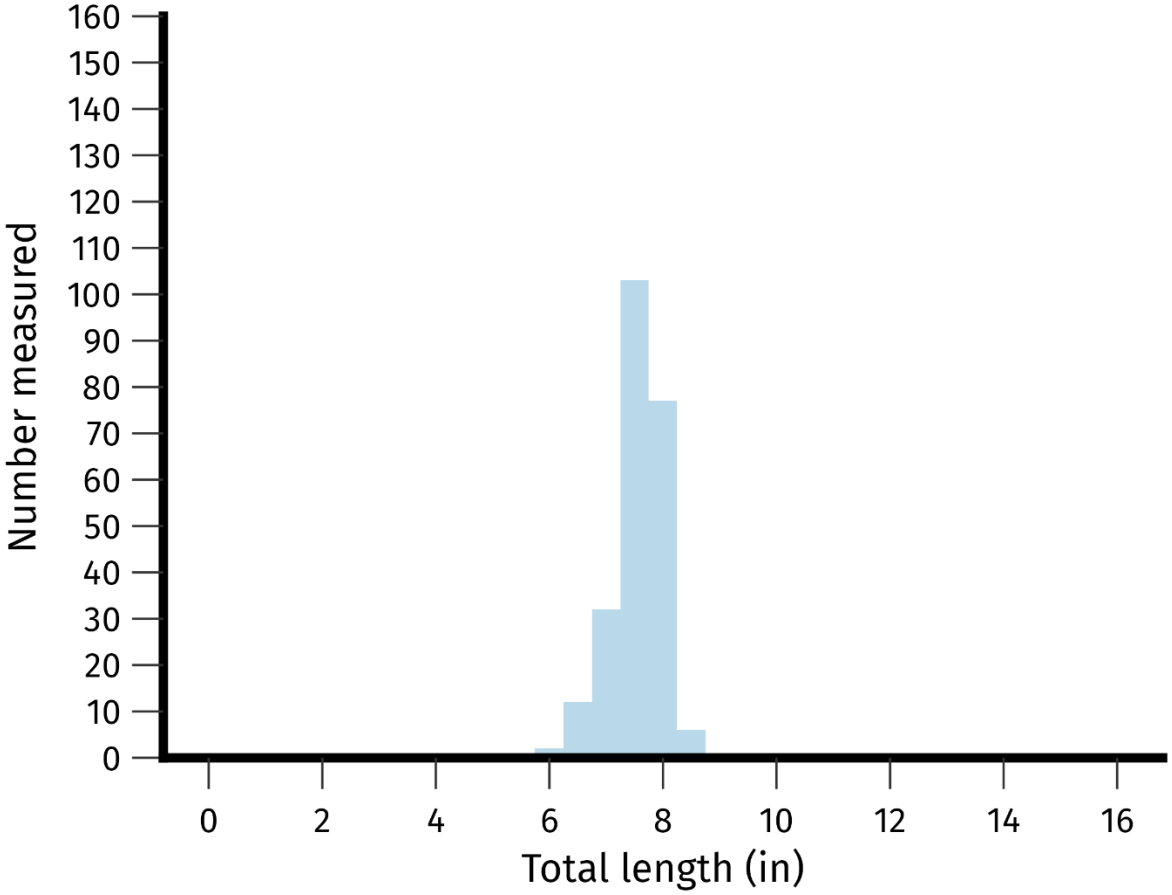

Figure 6. Length frequency of measured pumpkinseed in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 0.5 inch.

ROCK BASS

A total of 67 rock bass (13 electrofishing, 54 netting) were captured while surveying the Willow Flowage. Rock bass catch rate was 1.1 per net night during netting and 2.9 per mile during electrofishing. Catch per mile of rock bass in the Willow Flowage was around the 10th percentile compared to other complex-cool-dark lakes. Lengths of measured rock bass varied between 5.4 to 10.6 inches with a mean length of 8.0 inches (Figure 7). Mean length of rock bass was above the 95th percentile for complex-cool-dark lakes.

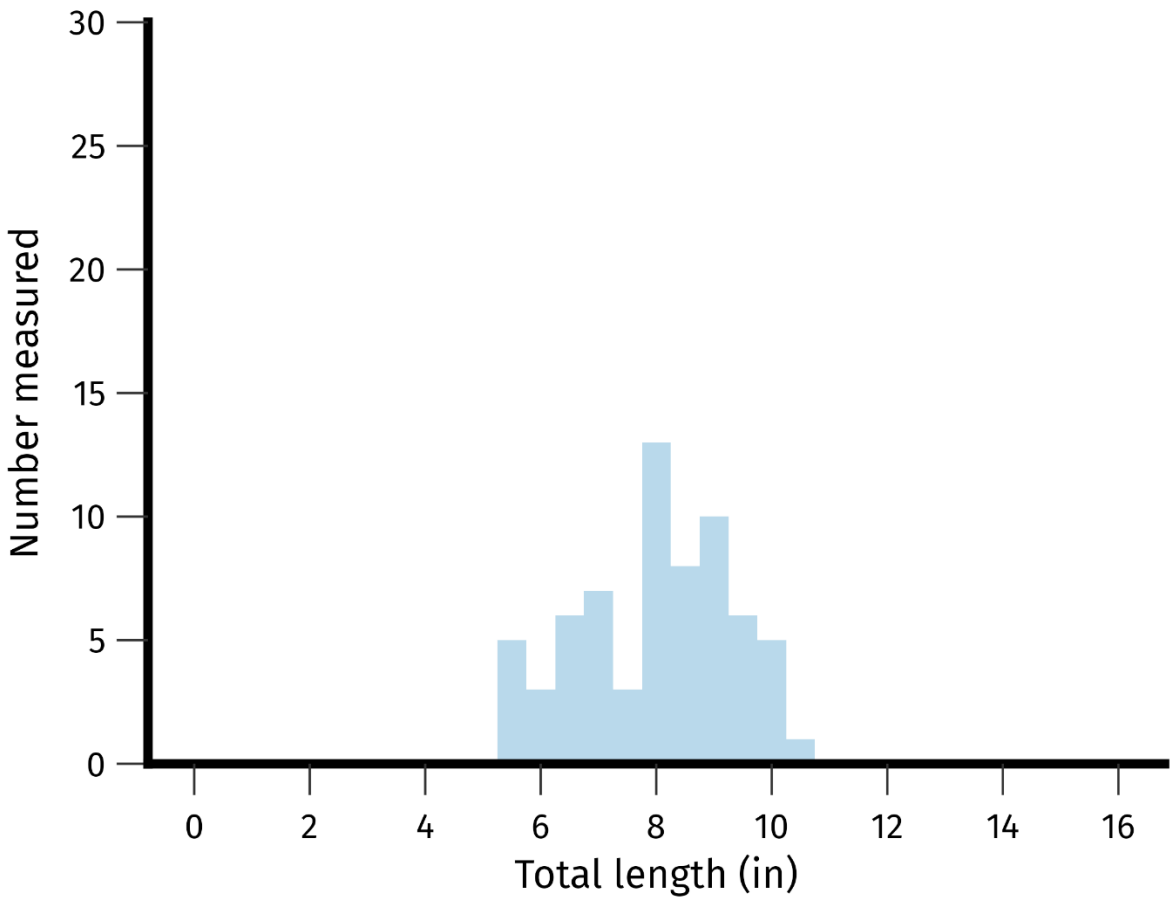

Figure 7. Length frequency of measured rock bass in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 0.5 inch.

SMALLMOUTH BASS

A total of 497 smallmouth bass (107 electrofishing, 390 netting) were captured while surveying the Willow Flowage. Smallmouth bass catch rate was 8.9 individuals per mile during electrofishing and 7.8 individuals per net night during netting in the Willow Flowage. Smallmouth bass catch per mile in the Willow Flowage was in the 83rd percentile statewide and above the 90th percentile per mile for complex-cool-dark lakes. Lengths of measured smallmouth bass varied between 6.7 to 21.0 inches with a mean length of 13.6 inches after excluding one entry error that reported a 1-inch individual (Figure 8). Mean length of smallmouth bass was around the 95th percentile for complex-cool-dark lakes.

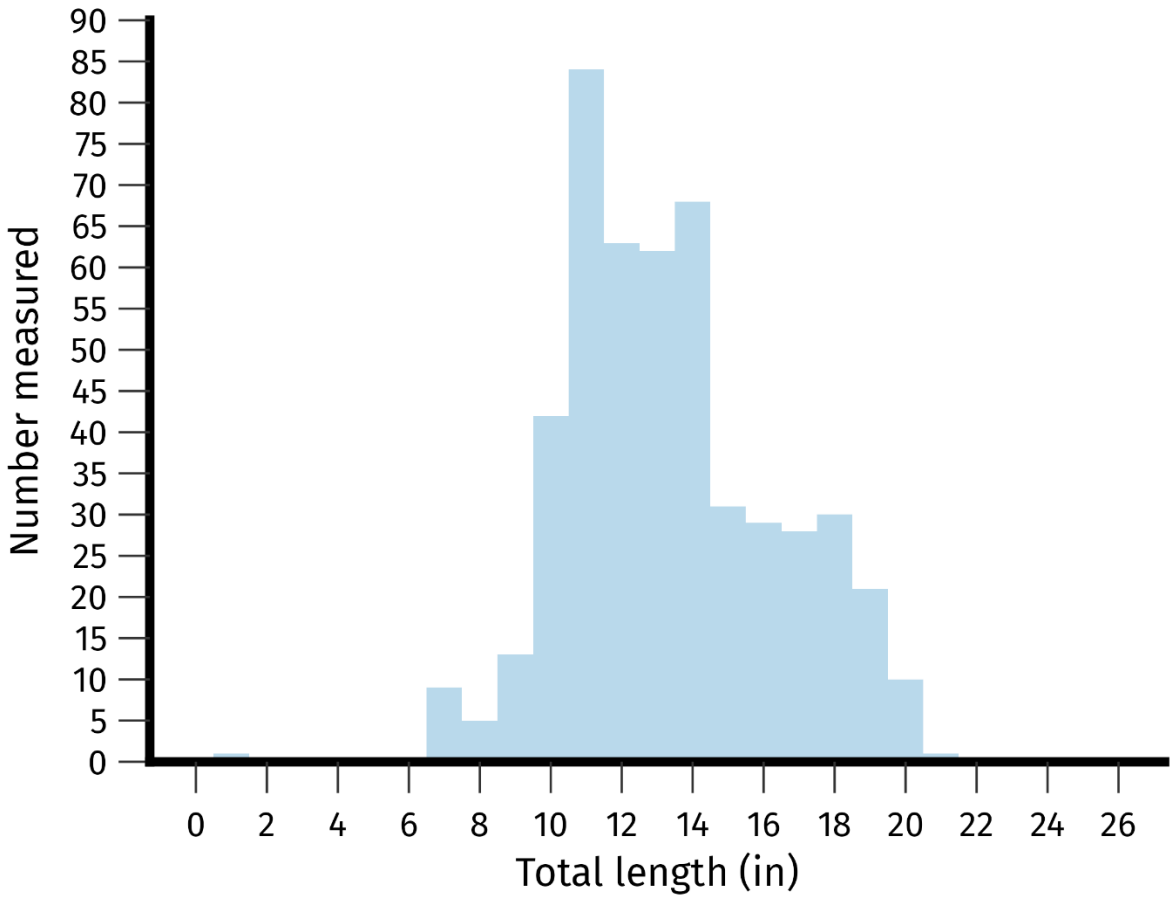

Figure 8. Length frequency of measured smallmouth bass in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 1.0 inch.

WALLEYE

A total of 229 walleye (88 electrofishing, 141 netting) were captured while surveying the Willow Flowage. Walleye catch rate was 2.8 per net night during netting and 7.3 per mile during electrofishing. Walleye catch per mile in the Willow Flowage was in the 33rd percentile statewide and below the 50th percentile per mile for complex-cool-dark lakes. Lengths of measured walleye varied between 3.8 to 23.6 inches with a mean of 14.7 inches (Figure 9). Mean length of walleye in the Willow Flowage was around the 50th percentile for complex-cool-dark lakes.

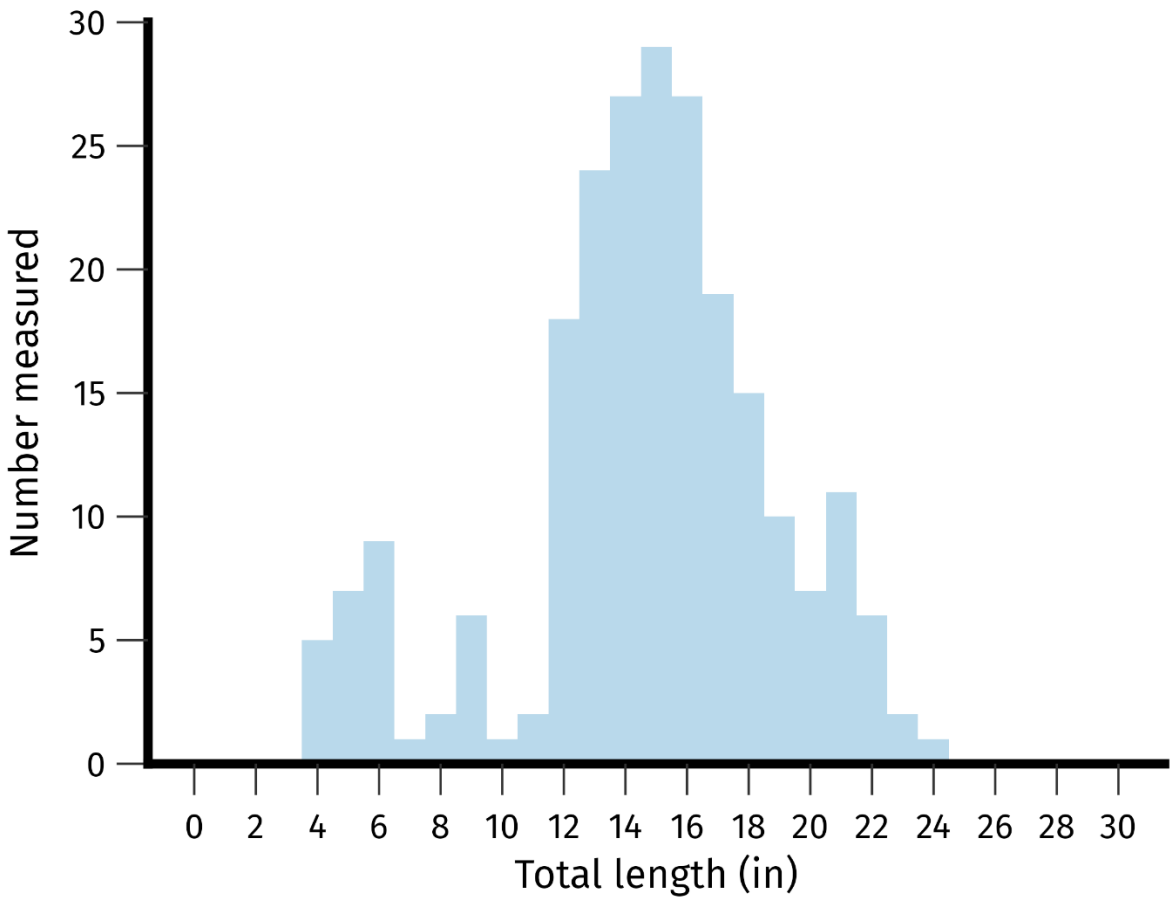

Figure 9. Length frequency of measured walleye in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 1.0 inch.

YELLOW BULLHEAD

A total of 2,770 yellow bullheads (33 electrofishing, 2,737 netting) were captured while surveying the Willow Flowage. Yellow bullhead catch rate was 54.7 per net night during netting and 7.3 per mile during electrofishing. Yellow bullhead catch per night in the Willow Flowage was above the 95th percentile for complex-cool-dark lakes. Lengths of measured yellow bullhead varied between 3.0 to 15.0 inches (Figure 10) with a mean length of 12.1 inches. Mean length of measured yellow bullheads in the Willow Flowage was above the 100th percentile for complex-cool-dark lakes.

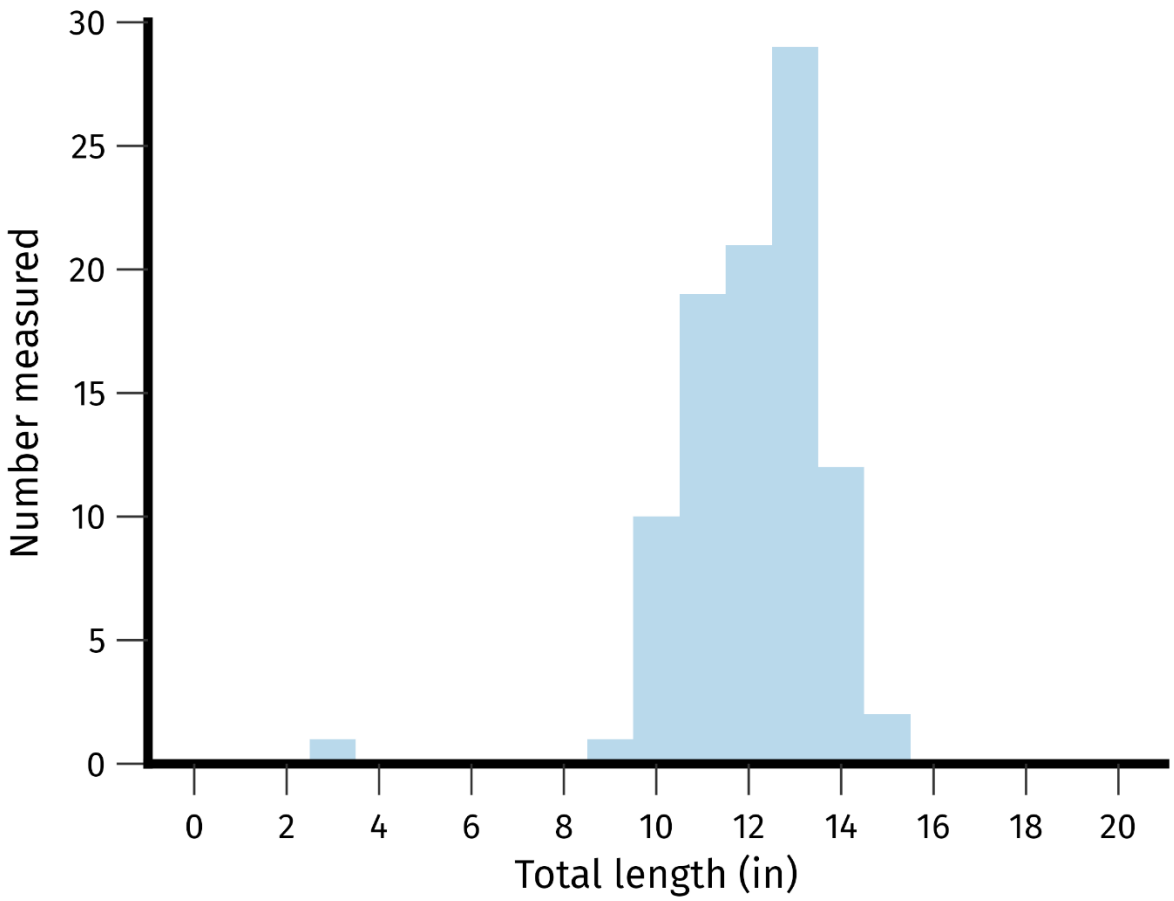

Figure 9. Length frequency of measured yellow bullhead in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 1.0 inch.

YELLOW PERCH

A total of 58 yellow perch (23 electrofishing, 35 netting) were captured while surveying the Willow Flowage. Yellow perch catch rate was 5.1 individuals per mile during electrofishing and 0.7 individuals per net night during netting. Yellow perch catch per night in the Willow Flowage was in the 35th percentile statewide and below the 1st percentile per net night for complex-cool-dark lakes. Lengths of measured yellow perch varied between 2.2 to 12.3 inches with a mean length of 8.6 inches (Figure 10). Further size structure comparisons should be avoided due to limited sample size (< 75 individuals; Miranda 2007).

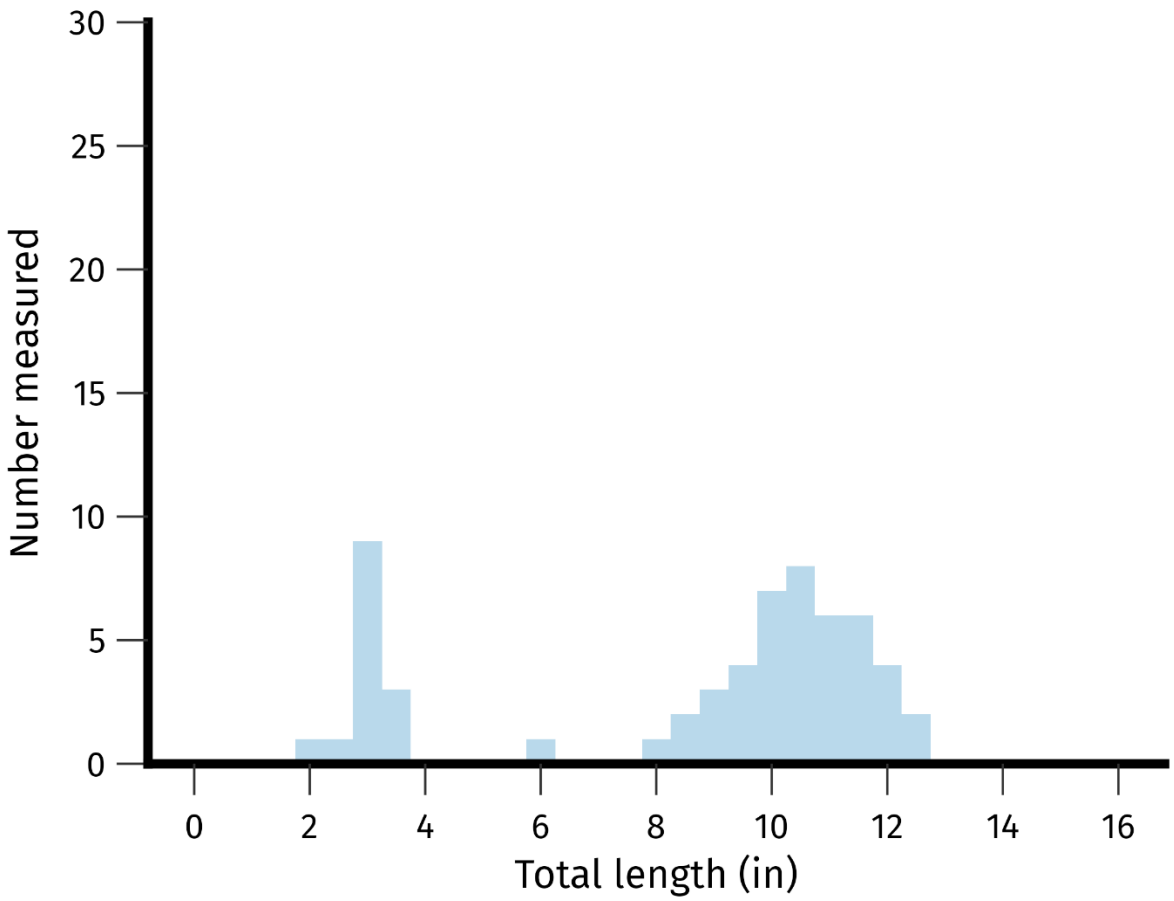

Figure 9. Length frequency of measured yellow perch in the Willow Flowage Oneida County, Wisconsin during the 2024 survey. Length bins are every 0.5 inch.

Other species

Other species captured when sampling the Willow Flowage included black bullhead (1), common shiner (3), golden shiner (1), greater redhorse (2), largemouth bass (4), muskellunge (1), pumpkinseed X bluegill hybrid (1), shorthead redhorse (9), silver redhorse (1) and white sucker (73).

Discussion

The Willow Flowage was found to have a mixed fishery with good numbers of desirable sized individuals. Most species appear to be having consistent recruitment capable of maintaining fishable populations providing diverse angling opportunities within the Willow Flowage. Quick growth of species within the Willow Flowage may facilitate higher levels of harvest compared to other systems.

Angling pressure and harvest of panfish has been (personal communication; J. Kubisiak) and continues to be a concern to anglers (unpublished data; N. Lederman).

Requests for reducing panfish bag limits in the Willow Flowage have occurred (resolution 640623) and a primary driver for the 2024 survey. Panfish species were found to exist in lower relative abundance in the Willow Flowage but possess fast growth. Fisheries with fast growth have been found to be less effected by harvest compared to fish population with slow growth (Jennings et al. 1999). Additionally, the estimated mortality rate of panfish was around what has been found in other Oneida County lakes (Pelican Lake; 51%; Kubisiak 2006; Gilmore Lake; 31% unpublished data; N. Lederman) and lower than what has been found throughout Columbia County (50-82%; Nye 2020). This may indicate that anglers may not be having as large of an impact as it may seem or any more than would be expected of an exploited fishery. Please note that relatively few mortality estimates have been generated for the various panfish species by managers within the Wisconsin DNR and these few previously reported rates may not portray the true mortality rate range of panfish and should be interpreted carefully. Protecting this desirable fishery by reducing the daily bag of panfish could sure ensure this fishery remains into the future and potentially increase the mean maximum length in the system (Rypel 2015; Jacobson 2005). However, systems with faster growth tend to have smaller maximum size compared to those systems with slower growth (Wong et al. 2021). If a daily bag reduction is pursued, impacts of such a change should be assessed 5 to 10 years following implementation ensuring the desirable growth and mortality of panfish still exists if relative abundance increases.

Walleye were not the primary target of this survey as sampling occurred after their spring spawning window. The number of walleye encountered can still provide some generalities about that fishery. Individuals across a diverse range of lengths of were captured. Cohorts of age classes could readily picked out from peaks in the length frequency likely indicating consistent walleye recruitment within the Willow Flowage. Using a hierarchical age-length key to assign ages to walleye collected during this study (Frater et al. 2024), the walleye fishery appears to have slightly slower than average growth for complex-cool-dark lakes with annual mortality rate of 40%. A healthy and self-sustaining walleye fishery appears to be present in the Willow Flowage.

Muskellunge have been regularly stocked into the Willow Flowage since 2004 (Table 2). One muskellunge was captured during the 2024 survey and could indicate poor survival of stocked muskellunge and little reproduction of them in the Willow Flowage. However, numerous reports of muskellunge congregating around the Cedar Falls area of the Willow Flowage in the spring occurs (personal communication; S. Blado Wisconsin Valley Improvement Company). This discrepancy between sampling results and reports may mean the effort in 2024 did not adequately describe that fishery. Since muskellunge were not the primary target of the 2024 sampling, some directed muskellunge sampling may provide a more representative description of the muskellunge population within the Willow Flowage and the success or need for stocking.

The Willow Flowage should continue to be managed as a mixed fishery for consumptive opportunities. The quick growth of panfish produces a desirable panfish fishery that might be masking the potential impacts of angler overharvest. A self-sustaining and healthy walleye fishery exists within the Willow Flowage allowing harvest opportunities as well. Yellow bullhead and bowfin are abundant and of desirable sizes providing anglers nontraditional opportunities that are not available in every lake within Oneida County. The success of muskellunge stocking within the Willow Flowage is unknown and requires further investigation.

Recommendations

1. Reduce the panfish daily bag limit to a 10 daily bag in hopes of increasing the mean maximum length and reduced harvest to ensure a panfish fishery with excellent age, growth and size structure is maintained.
2. Evaluate the success of muskellunge stocking with targeted effort to direct future stocking practices within the Willow Flowage.
3. Highlight the nontraditional angling opportunities present within the Willow Flowage.

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