WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2024 Fisheries Survey Report for Upper Clam Lake and Lower Clam Lake, Burnett County, WI

Waterbody Code 1884100

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Executive Summary

Upper and Lower Clam lakes were surveyed in 2024 to assess the status of the fisheries. We indexed the catch rates of northern pike, walleye, largemouth bass, smallmouth bass, channel catfish, common carp and panfish species. We assessed general population characteristics, size structure and growth of all species (except black crappie, pumpkinseed, channel catfish and common carp).

The northern pike population has declined but remains relatively abundant compared to similar lakes, with a catch rate of 13.3 fish/net-night. The average size of northern pike decreased over an inch from 2017. Northern pike are likely the most abundant gamefish in Clam Lake and no regulation changes are recommended.

The walleye population has declined in Clam Lake since it returned to the clear water and vegetated state and the population now has low abundance and high size structure. Average size has increased over 3 inches, which is likely due to lower walleye density and low recruitment. This change was not unexpected as walleye prefer turbid water and low vegetation abundance and Clam Lake's natural state does not favor walleye.

Largemouth and smallmouth bass remain at lower densities in the Clam Lake system. Both species are present in similar densities and sizes as 2017. The riverine ecosystem likely drives the bass densities in Clam Lake and reduces their abundance compared to other lakes in Burnett County.

Channel catfish remain at low densities with both small and large catfish collected. Channel catfish will likely remain present, though not abundant in Clam Lake. There are no changes recommended for this species.

Panfish species experienced the most noticeable changes since 2017. Bluegill abundance increased significantly but maintained high size structure. Pumpkinseed and black crappie also increased compared to past surveys. Only yellow perch declined in abundance, suggesting sunfish species are outcompeting yellow perch in Clam Lake. Given the current high abundance and average size, panfish do not meet the criteria for a reduced bag limit and would not likely benefit from a more restrictive regulation at this time. Clam Lake now offers great panfish angling opportunities, especially for bluegill. Panfish remain a popular option for anglers and help offset the loss of walleye in this fishery.

Common carp were at a low density compared to 2011. They had low catch rates in all sampling methods throughout the 2024 season. Low common carp abundance bodes well for the future of a stable ecosystem in Clam Lake. The clear water and vegetated state provides a more diverse ecosystem and healthy gamefish and panfish populations in Clam Lake.

Introduction

Upper and Lower Clam lakes were surveyed in 2024 to assess the status of the fishery. We indexed the catch rates of northern pike, walleye, largemouth bass, smallmouth bass, channel catfish, common carp and panfish species. We assessed general population characteristics, size structure and growth of all species (except channel catfish). Recent management activities have focused on rough fish removals, public outreach and education.

LAKE CHARACTERISTICS

Upper and Lower Clam lakes are fertile and shallow drainage lakes (Table 1). More information on water quality and invasive species can be found at the Wisconsin Department of Natural Resources (DNR) lake pages for Upper Clam Lake and Lower Clam Lake. For this report, the two lakes will be considered one waterbody and will be referred to as Clam Lake.

Table 1. Lake and watershed characteristics for Upper and Lower Clam Lake, Burnett County, WI.

	Upper Clam Lake	Lower Clam Lake
Size (ac)	1,253	337
Max depth (ft)	11	14
Mean depth (ft)	5	7
Watershed Area (ac)	197,504	197,504
Lake class	Complex-Warm-Dark	Complex-Riverine
Trophic Status	Eutrophic	Eutrophic

Clam Lake is considered eutrophic or highly productive based on water quality data (Peacher and Roesler 2014). These lakes have a high watershed to lake surface area ratio (116: 1) which increases the likelihood of a waterbody being eutrophic (Peacher and Roesler 2014).

There are numerous public boat landings for Clam Lake. Two public landings are located on Upper Clam Lake: at the end of Cumberland Point Rd. and the end of East Landing Rd. There is one public landing on Lower Clam Lake and is located off of Hwy 70. There are also many platted accesses.

STOCKING HISTORY

Clam Lake has only been stocked sparingly. It was stocked once with walleye fingerlings (1989) and twice with northern pike fry (1981 and 1984). Since 1989, all gamefish and panfish have been sustained by natural reproduction.

HISTORY OF CLAM LAKE COMMON CARP AND STABLE STATES

Prior to 2006, Clam Lake was known as a lake that supported dense and diverse aquatic plant communities (Cahow et al. 1997) including large stands of wild rice (Johnson and Havranek 2010). Aquatic vegetation often reached nuisance levels for

recreation, which led to mechanical and chemical controls in the 1960s through the early 2000s. After 2006, aquatic plant densities dropped dramatically. Wild rice beds experienced an 80% reduction between 2001 and 2010 (Johnson and Havranek 2010). Although common carp have long been present in Clam Lake, an abundant 2005 common carp year class caused the shift from the clear water and vegetated state to a turbid non-vegetated state (Roberts 2018). Permitted common carp removals started in 2011 and continued through 2017. Through these efforts, an estimated 656,378 lbs. of common carp were removed (Appendix Figure 1).

After the last carp removal in the winter of 2016-2017. Clam Lake experienced a dramatic shift back to the clear water and vegetated state in 2018. At present, Clam Lake wild rice beds are restored and support a harvestable wild rice stand once again. Also, dense aquatic vegetation has returned to most areas of Clam Lake. These changes suggest that common carp removals were successful and did return Clam Lake to the clear water and vegetated state.

FISHING REGULATIONS

Clam Lake fishing regulations have typically followed all statewide and regional fishing regulations. Lake sturgeon are also present in low densities in this lake, though there is no open season for lake sturgeon.

Methods

Clam Lake was surveyed in 2024 following the DNR Treaty assessment protocol (Cichosz 2025) to assess northern pike and walleye. After ice out, an early spring netting survey (SN1) was conducted from March 6 to 15. All fish were counted from a subset of nets on March 7 to 13. All northern pike, walleye and channel catfish were measured. A subset of panfish were measured on March 12 and 13. Early spring electrofishing (SE1) took place in the Clam River upstream of Clam Lake on April 10 and 11. This sampling targeted river-spawning walleye that reside in the lake.

A late spring electrofishing survey (SE2) was done May 29 to assess largemouth bass, smallmouth bass and panfish populations. This survey consisted of three 0.5-mile stations where all bass and panfish were collected, and three 1.5-mile stations where only bass were collected. A mini-fyke net survey occurred August 28 to assess the juvenile fish community. In addition to these surveys, a fall electrofishing survey (FE) was completed October 9 to assess the abundance of age-0 and age-1 walleye. Appendix Table 1 lists descriptions of standard DNR survey types, gear used and target water temperatures.

Lake Class standards catch per unit effort (CPUE) were calculated by comparing the Clam Lake CPUE of each species to CPUEs of other Complex-Warm-Dark lakes in Wisconsin (Rypel et al. 2019). When possible, CPUE was also compared to past surveys for Clam Lake.

Walleye, largemouth bass and smallmouth bass were aged with scales and dorsal spines. Bluegill were aged with scales only. Spines were cross-sectioned and aged under a microscope. Mean length at age was compared to other Complex-Warm-Dark Wisconsin lakes and the Northwest Wisconsin averages for walleye. Size structure was assessed using proportional size distribution (PSD) indices (Neumann et al. 2013). The PSD value of a species is the number of fish of a specified length or longer divided by the number of fish stock length or longer, the result multiplied by 100 (Appendix Table 2).

Results

NORTHERN PIKE

A total of 439 northern pike were collected in Clam Lake during the SN1 survey (Figure 1). They ranged in length from 9.0 to 34.5 inches. The netting CPUE was 13.3 fish/net-night, which was lower than 2017 (33.2 fish/net-night). This catch rate was above the 95th percentile (11.4 fish/net-night) for northern pike in Complex-Warm-Dark Lakes in Wisconsin. Mean length of male and female northern pike was 17.4 inches and 21.9 inches, respectively. The mean length of northern pike collected was 17.4 inches (Figure 1), a decrease from 2017 (18.6 inches). Juvenile pike made up a significant portion of the sample with 29% being under 14 inches. Northern pike PSD was 30 and PSD-28 was 2, both similar to previous surveys.

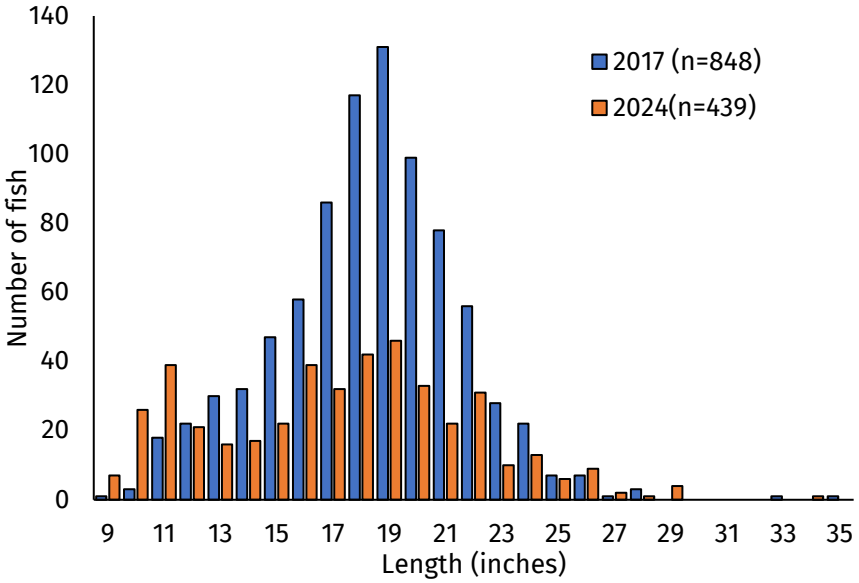

Figure 1. Length frequency of northern pike collected in Clam Lake, Burnett County, WI during the 2017 and 2024 SN1 surveys.

WALLEYE

A total of 118 walleye were collected during SN1 and SE1 surveys. They ranged in length from 8.0 to 28.0 inches (Figure 2). Walleye averaged 19.9 inches, compared to

16.4 inches in 2017. The netting catch rate was low at 0.2 fish/net-night and similar to 2017 (0.3 fish/net-night). The electrofishing catch rate was 55.0 fish/mile in the Clam River upstream of Clam Lake, an increase from 2017 (42.6 fish/mile). PSD was high at 99, an increase from 2017 (72). Based on adult walleye aging, 79% of the walleye sample was from the 2011-2017 year classes. A population estimate was not calculated due to low sample size. There were no age-0 walleye collected during the fall electrofishing survey in Upper and Lower Clam Lake, so the catch rate was 0 fish/mile, which was less than the catch rates from 2010 – 2017 (Figure 3). There was one age-1 walleye collected which resulted in a catch rate of 0.3 fish/mile.

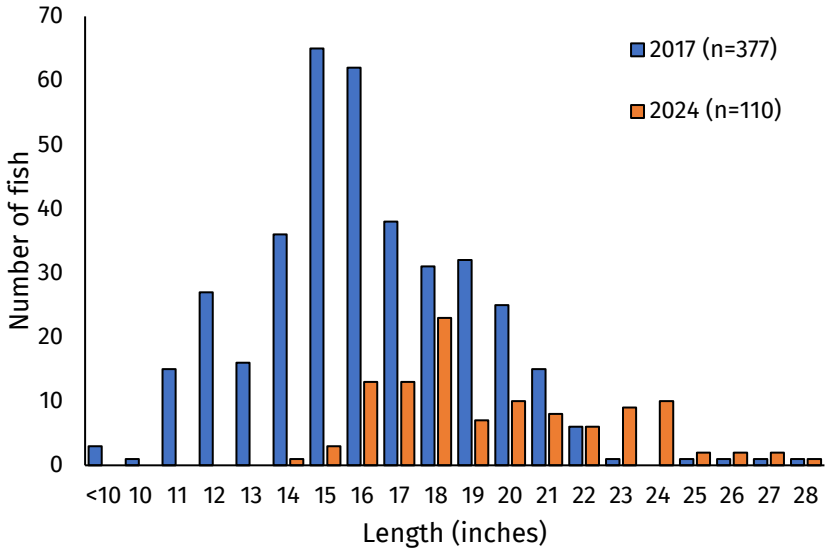

Figure 2. Length frequency of walleye collected in Clam Lake and Clam River, Burnett County, WI during the 2017 and 2024 SN1 and SE1 surveys.

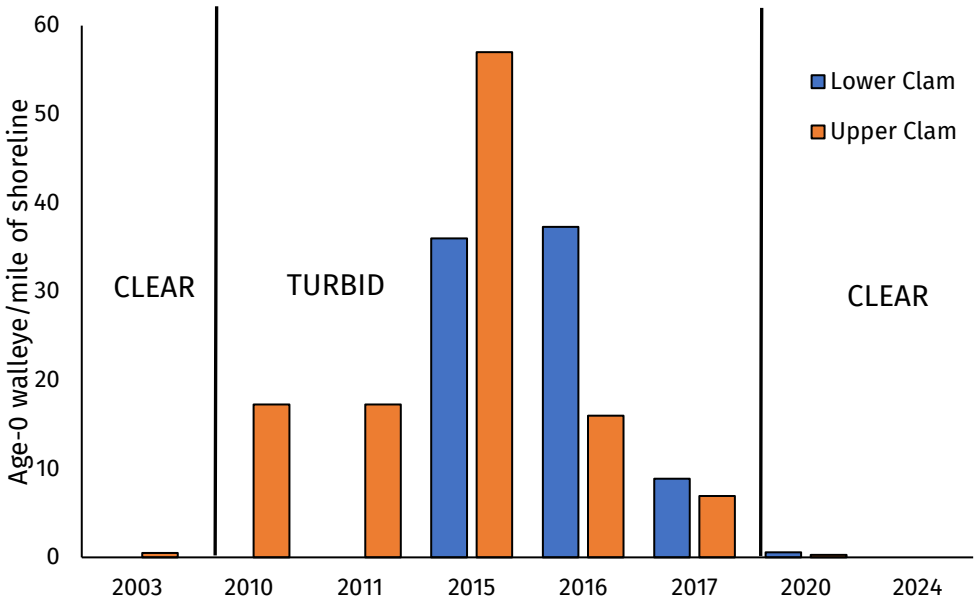

Figure 3. Catch of age-0 walleye/mile of shoreline for Upper and Lower Clam Lake, Burnett County, WI. Only Upper Clam Lake was surveyed in 2003, 2010 and 2011.

LARGEMOUTH AND SMALLMOUTH BASS

Fifty-six largemouth bass were collected in Clam Lake during the late spring SE2 survey for a catch rate of 9.3 fish/mile. This catch rate increased from 2017 (2.2 fish/mile) and was between the 25th (3.2 fish/mile) and the 50th (17.4 fish/mile) for Complex-Warm-Dark lakes in Wisconsin. Largemouth bass averaged 14.0 inches, which was similar to 2017 (14.2 inches) and above the 99th percentile (13.6 inches) for Complex-Warm-Dark lakes in Wisconsin. Largemouth bass ranged from 8.0 to 18.0 inches (Figure 4). PSD was not calculated due to low sample size. Largemouth bass grew above the lake class average for all ages. Growth was also faster than what was observed in 2017.

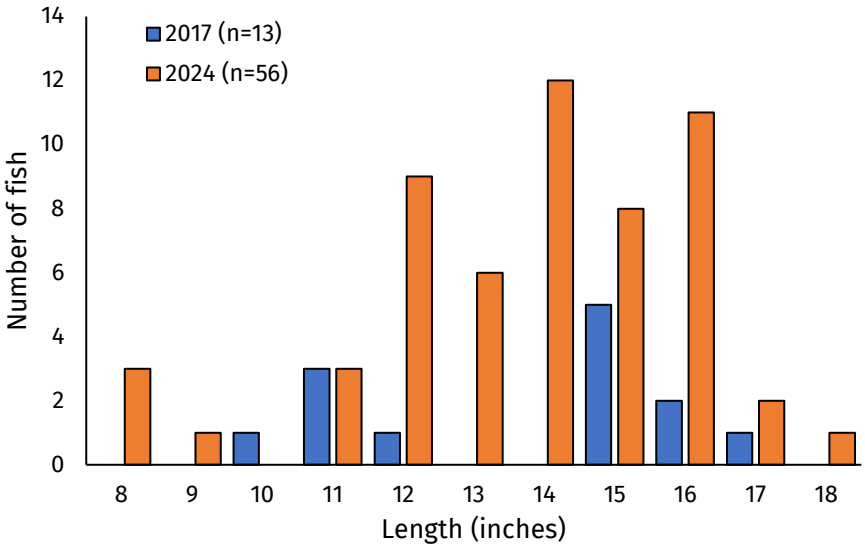

Figure 4. Length frequency of largemouth bass collected in Clam Lake, Burnett County, WI during the 2017 and 2024 SE2 surveys.

Eight smallmouth bass were collected in Clam Lake during the SE2 survey for a catch rate of 1.3 fish/mile. This catch rate decreased from 2017 (3.2 fish/mile) and was slightly above the 50th percentile (0.86 fish/mile) for Complex-Warm-Dark lakes in Wisconsin. Smallmouth bass averaged 14.8 inches, which increased since 2017 (12.0 inches) and was above the 99th percentile (12.7 inches) for Complex-Warm-Dark lakes. Smallmouth bass ranged from 11.7 to 18.8 inches (Figure 5). PSD was not calculated due to low sample sizes.

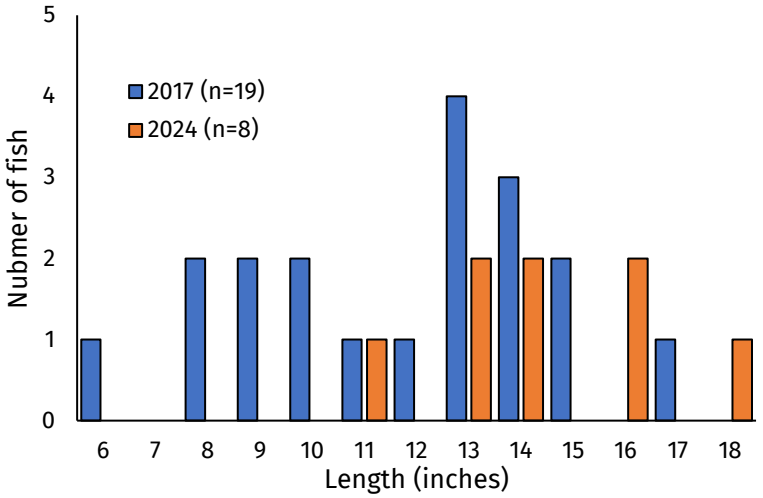

Figure 5. Length frequency of smallmouth bass collected in Clam Lake, Burnett County, WI during the 2017 and 2024 SE2 surveys.

CHANNEL CATFISH

Nine channel catfish were collected during the SE2 survey for a catch rate of 1.5 fish/mile. This was a slight decrease from 2017 (2.7 fish/mile). Nine channel catfish

were also collected in fyke nets for a catch rate of 0.27 fish/net-night. Channel catfish ranged from 17.5 to 30.8 inches (Figure 6). PSD was not calculated due to low sample size.

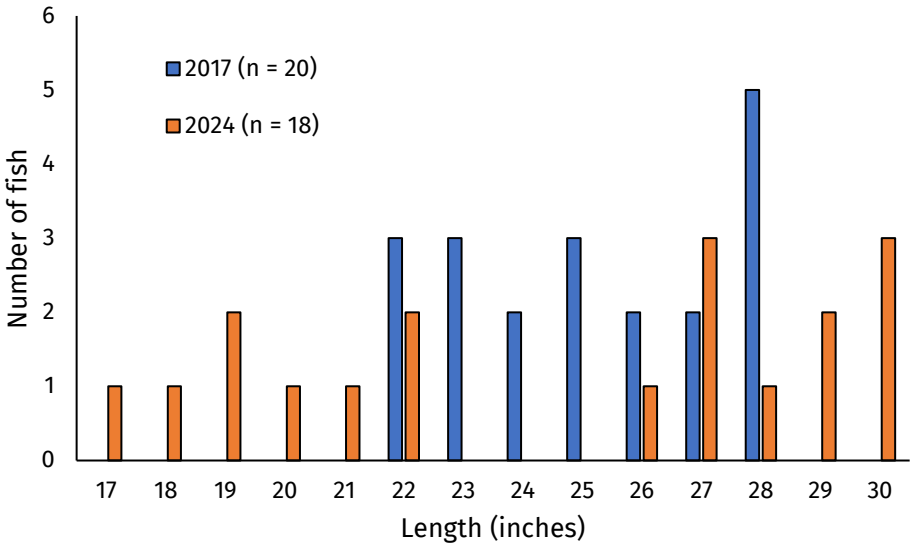

Figure 6. Length frequency of channel catfish collected in Clam Lake, Burnett County, WI during the 2017 and 2024 SN1 and SE2 surveys.

BLUEGILL

A total of 414 bluegills were collected during the SE2 survey and 226 were subsampled during the SN1 survey. The netting CPUE was 224.0 fish/net-night, which was a substantial increase from 2017 (38.4 fish/net-night). The electrofishing CPUE also greatly increased from 91.3 fish/mile (2017) to 276.0 fish/mile (2024). The 2024 electrofishing CPUE was between the 75th (196.0 fish/mile) and 90th percentiles (295.1 fish/mile) for Complex-Warm-Dark lakes. Bluegill ranged in length from 1.7 to 9.1 inches (Figure 7). Average length was 6.1 inches, which was greater than 2017 (5.6 inches) but lower than 2011 (7.2 inches). This average length met the 99th percentile (6.1 inches) for Complex-Warm-Dark lakes. PSD and PSD-7 were 60 and 18, respectively. Both increased from 2017 (PSD=19; PSD-7=3). Bluegill grew at or near average for Complex-Warm-Dark lakes until age 6, then bluegill grew up to 0.7 inches above the lake class average. Most age classes were present at higher levels in 2024 compared to a dominant age-2 year class in 2017 (Figure 8).

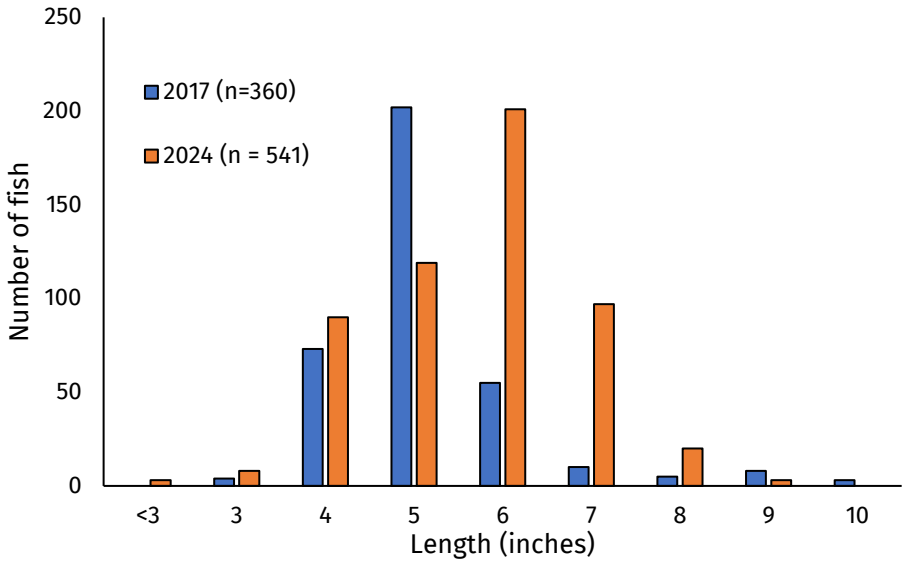

Figure 7. Length frequency of bluegill collected in Clam Lake, Burnett County, WI during the 2017 and 2024 SN1 and SE2 surveys.

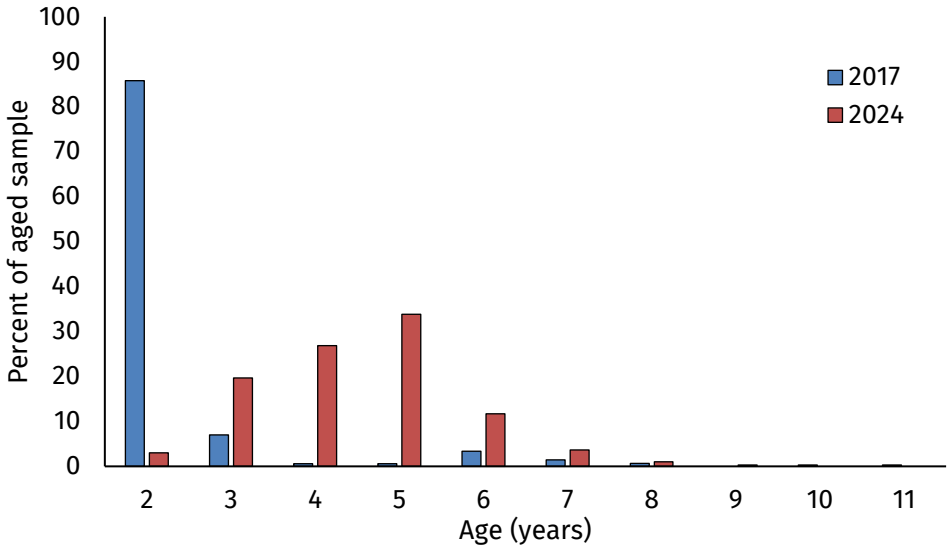

Figure 8. Percentage of bluegill per age collected in Clam Lake, Burnett County, WI in the 2017 and 2024 SN1 and SE2 surveys.

BLACK CRAPPIE

A total of 26 black crappies were collected in the SE2 survey and 201 black crappies were subsampled during the SN1 survey (Figure 9). The netting CPUE was 97.0 fish/net-night, which was much greater than 2017 (12.8 fish/net-night). The netting CPUE was above the 99th percentile (88.0 fish/net-night) for Complex-Warm-Dark lakes. The electrofishing CPUE (17.3 fish/mile) was similar to 2017 (12.0 fish/mile). The average length was 7.3 inches, which was the same as 2017 and was above the 90th percentile (6.9 inches) for Complex-Warm-Dark lakes. PSD was 39 and PSD-10 was 7. PSD increased from 2017 (26), while PSD-10 decreased from 2017 (15).

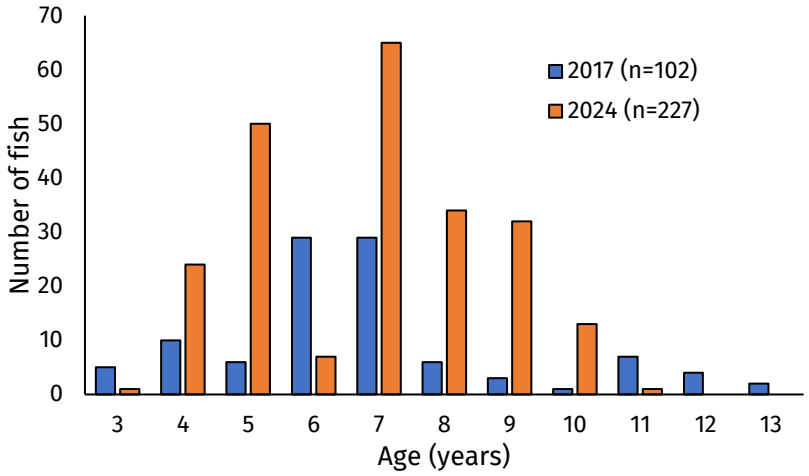

Figure 9. Length frequency of black crappie collected in Clam Lake, Burnett County, WI during the 2017 and 2024 SN1 and SE2 surveys.

YELLOW PERCH

A total of 84 yellow perch were collected during the SE2 survey and 14 yellow perch were subsampled during the SN1 survey. The netting CPUE was 2.4 fish/net-night, a decrease from 2017 (6.2 fish/net-night). This CPUE was between the 25th (1.0 fish/net-night) and 50th (3.2 fish/net-night) percentiles for Complex-Warm-Dark lakes. The electrofishing CPUE was 56.0 fish/mile, which decreased from 2017 (92.7 fish/mile). Average size was 4.0 inches, a decrease from 2017 (5.3 inches; Figure 10).

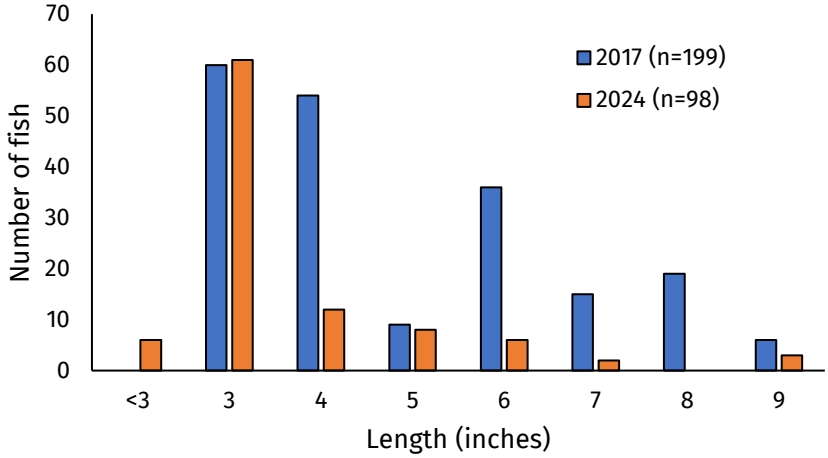

Figure 10. Length frequency of yellow perch collected in Clam Lake, Burnett County, WI during the 2017 and 2024 SN1 and SE2 surveys.

PUMPKINSEED

A total of 27 pumpkinseeds were collected during the SE2 survey for a catch rate of 18.0 fish/mile, which increased from 0 fish/mile in 2017. The netting CPUE was much higher at 69.3 fish/net-night during the SN1 survey compared to 0.9 fish/net-night in

2017. The average length was 6.7 inches. PSD was not calculated due to low sample size.

COMMON CARP

Six common carp (19.0 - 29.0 inches) were collected in the SN1 survey for a catch rate of 0.2 fish/net-night. This was similar to 2017 (0.1 fish/net-night) and much lower than 2011 (15.3 fish/net-night). Zero common carp (0 fish/mile) were observed during the SE2 survey, which was similar to 2017 (0.2 fish/mile) and much lower than 2011 (12.5 fish/mile). Nine common carp were observed during the fall electrofishing survey for a catch rate of 1.8 fish/mile. The average carp CPUE during fall surveys since 2015 is 2.4 fish/mile. Due to the lack of common carp collected, age and growth analyses were not completed.

FISH COMMUNITY

Catch rates of bluegill and pumpkinseed increased greatly during the SN1 survey compared to previous surveys (Figure 11). The CPUEs of all other species stayed the same or decreased since the last survey. Northern pike were the most abundant gamefish sampled in fyke nets.

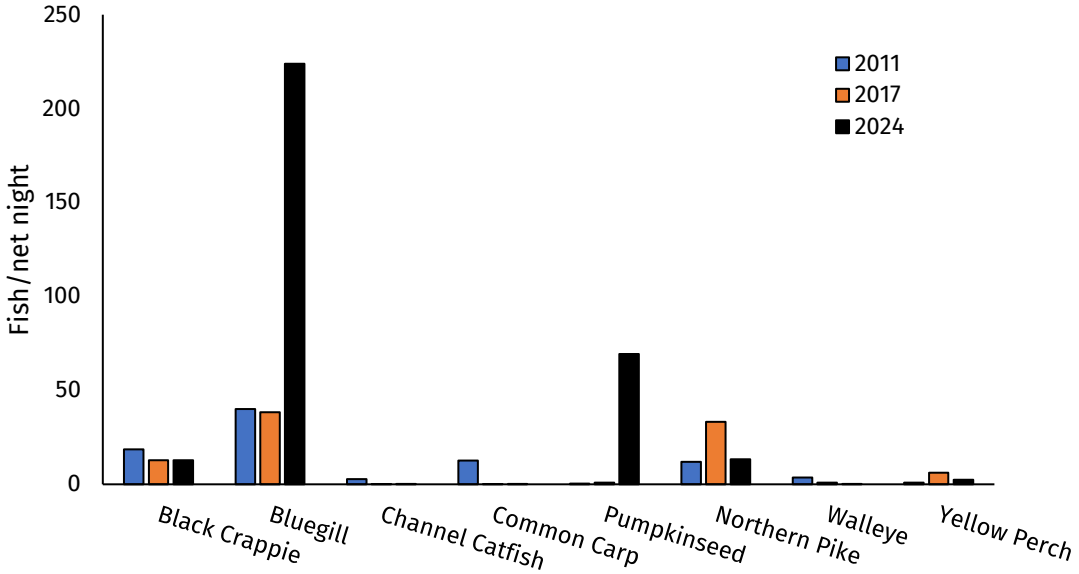

Figure 11. Fish per net-night captured in Clam Lake, Burnett County, WI during the 2011, 2017 and 2024 SN1 surveys.

Catch of juvenile fish during mini-fyke net surveys had a lot of year-to-year variability (Table 2). In general, the CPUE of juvenile common carp, black crappie and yellow perch decreased after Clam Lake returned to a clear water and vegetated state following intensive carp removals. Whereas the CPUE for juvenile pumpkinseeds increased and bluegills have had a sporadic up and down pattern. Juvenile largemouth bass remained fairly consistent in almost every survey since 1995.

Table 2. Catch per net-night of juvenile fish collected from Clam Lake, Burnett County, WI. Black lines show distinction between clear state and turbid state (2011-2017).

	BLACK CRAPPIE	BLUEGILL	PUMPKINSEED	COMMON CARP	LARGEMOUTH BASS	YELLOW PERCH
1995	41.0	898.0	2.0	0	20.5	83.3
2003	280.4	26.0	2.75	0.1	6.9	15.1
2011	32.3	506.2	0	0	20.3	11
2012	57.6	1122	0.2	0.8	8.8	1.2
2014	13.7	0.5	0	0	1.3	641.2
2015	14.0	1641.8	0	3.2	1.8	23
2017	19.5	39.8	0	33.2	9.3	0.3
2018	1.2	483.0	11.7	0.0	4.8	2.7
2021	0.3	89.5	2.0	0.0	5.0	5.2
2022	23.5	699.8	12.0	0.0	8.7	2.8
2023	19.3	64.2	3.3	0.0	4.0	16.5
2024	26.7	119.8	9.7	0.0	8.7	10.8

Discussion

Since the previous survey in 2017, Clam Lake has undergone some dramatic ecosystem changes. The shift back to the clear water and vegetated state has led to dramatic increases in aquatic vegetation and wild rice. Those changes in the aquatic plant community have in-turn impacted the fish community. This discussion looks at those changes with each fish species we investigated.

NORTHERN PIKE

The northern pike population remains abundant, though CPUE decreased since 2017. The average size of northern pike collected also decreased by over an inch. Northern pike are the most abundant gamefish present in Clam Lake. It is possible that the early ice out (and sampling) impacted the number of fish captured as sampling began March 6th vs. March 28th in 2017. However, the high number of juvenile northern pike also suggests this population remains healthy with substantial recruitment occurring. The high relative abundance of northern pike is likely a strong indicator that aquatic vegetation remains abundant as northern pike need aquatic vegetation for spawning. Overall, this population seems to be healthy and doesn't require any management activities.

WALLEYE

The walleye population declined since 2011 and 2017. Walleye natural reproduction has been virtually nonexistent since Clam Lake returned to the clear water and vegetated state. In addition, the average size of spawning adult walleye increased by over 3 inches. A larger average size usually suggests a lower population similar to

other stocked waterbodies in Washburn and Burnett counties (Roberts 2019). Due to timing and low sample size, we were unable to get enough fish for a population estimate. We did observe a higher electrofishing catch rate in the Clam River in 2024 compared to 2017, but that was likely due to our limited sampling timeframe (2 days in 2024 vs 4 days in 2017) which may have inflated our catch rate. The return to a clear-water state does not favor walleye, which are a low-light species that prefer turbid or dark waters (Bozek et al. 2011). However, there is not a scenario where walleye, panfish and wild rice are abundant simultaneously for this system. A low adult walleye population represents Clam Lake in its natural state. Therefore, managing for a higher density walleye population in Clam Lake is not realistic when the lake is in its natural clear water and vegetated state. As discussed in Roberts (2018), a natural state for Clam Lake is more beneficial for the overall ecosystem (Appendix Table 3). Unfortunately, that means walleye will remain at lower densities.

LARGEMOUTH AND SMALLMOUTH BASS

Largemouth bass relative abundance increased slightly from 2017, however, the catch rate was almost identical to 2011. Similar to other riverine systems in the area, largemouth bass may not thrive like they do in clear water seepage lakes (Roberts 2024). This appears to be the condition in Clam Lake, where they are present but the population did not respond dramatically to the clear or turbid state like other gamefish and panfish species. The higher amount of aquatic vegetation also tends to create low density higher size structure largemouth bass populations as seen in Spooner Lake (Roberts 2023).

Smallmouth bass remain a low-density species in Clam Lake. Their presence is tied to the Clam River and they likely migrate in and out of the lakes as conditions change throughout the season. For these reasons, regulations are unlikely to impact both bass species in this system.

CHANNEL CATFISH

Channel catfish remain the lowest density gamefish in Clam Lake. Their numbers appear to have decreased slightly since 2017. However, we collected more young fish in 2024 than in 2017, which suggests natural reproduction is occurring in the system. Fisheries surveys that occurred before the common carp population increased dramatically found only a few channel catfish, so time will tell if their population drops as the lake stays in the clear water vegetated state. The channel catfish population provides a unique angling opportunity for a species that is uncommon in Burnett County.

PANFISH

Bluegills are now more abundant than they have been since 2003. The abundance has increased dramatically since common carp removals shifted Clam Lake back to the clear water and vegetated state. In 2017, Clam Lake was dominated by age-2 bluegill. In 2024, there were multiple year classes present with age 3 to age 6 being the most

abundant. The presence of multiple year classes indicates that bluegill have stable recruitment and survival, which is likely due to the current clear water and vegetated state following the common carp removals from 2011 to 2017 (Appendix Figure 1). With more aquatic vegetation in the lake, bluegill are likely surviving better. Barring a large recruitment event by carp, which should be held in check by juvenile panfish (Bajer et al. 2012), the bluegill population should continue to stabilize after years of being suppressed by an over-abundant common carp population. Given the current high abundance and average size, the bluegill population does not meet the criteria for a reduced bag limit and would not likely benefit the population at this time. With walleye abundance declining, abundant bluegill will provide a good harvest opportunity for Clam Lake anglers, similar to how it was historically.

Black crappie relative abundance seemed to increase since 2017 based on early spring netting data. Crappie abundance does not seem to be tied as greatly to the clear water vs. turbid state. However, black crappie tend to favor clearer water compared to white crappie (Becker 1983). Crappie populations also experience quasi-cycles driven by strong year classes and environmental factors (Allen and Miranda 2001). In conclusion, black crappie may be increasing because of the ecosystem shift but it may also be driven by strong year classes.

Yellow perch have declined since the last survey in 2017. At the same time, pumpkinseeds have shown large increases in adult and juvenile fish. Which is likely from increased aquatic vegetation in Clam Lake as pumpkinseeds readily use aquatic vegetation for habitat (Becker 1983). Bluegill, black crappie and largemouth bass are also known to displace yellow perch and walleye in Northwest Wisconsin (Wendel 2013). This appears to be the scenario occurring currently in Clam Lake as it has shifted back to the clear water and vegetated state.

COMMON CARP

Common carp remain at lower densities in Clam Lake. The large-scale removals have successfully flipped the lake from a turbid non-vegetated state to the clear water and vegetated state (Appendix Figure 1). During this survey, the Clam Lake ecosystem was similar to the state it was in prior to the common carp population explosion that occurred in 2005. The population level of common carp in Clam Lake has significant implications for the Clam Lake ecosystem in terms of water clarity, aquatic vegetation and wild rice, with many fish species responding differently to the different states (Appendix Table 3. – Taken from Roberts (2018)). It is unknown if common carp will reach higher abundances again in the future and if that would trigger another shift to back to the turbid non-vegetated state. However, the current clear water and vegetated state may be stable as a large 2017 common carp year class was collected during the 2017 mini-fyke net survey, but those fish appeared to have had low survival and did not recruit to adult age classes. These juvenile common carp were likely kept in check by the abundant northern pike population in Clam Lake. Weber and Brown (2011) found that juvenile carp are selected over yellow perch in lab studies with bass,

walleye and northern pike. This study also found common carp were more easily captured than other prey options studied.

Management Recommendations

1. Continue to work with the Clam Lake Protection and Rehabilitation District, St. Croix Tribe, anglers and resorts to guide fisheries and ecosystem management of Clam Lake.
2. Northern pike remain at a higher density and have a smaller average size. The current regulation is best for this abundant species.
3. Walleye have declined due to ecosystem changes in Clam Lake. A lower population reflects the natural state of walleye in the lake. The current regulation adequately protects the adults that remain in the lake.
4. Both largemouth and smallmouth bass are at low densities in Clam Lake. Similar to many other species, the habitat and ecosystem dynamics likely control the bass populations.
5. The bluegill population has continued to improve since 2017. The abundance and average size remain high. Given the good growth and excellent catch rates, a lower bag limit is not suggested for this species.
6. Black crappie relative abundance increased since 2017. The average size of crappie remained the same, which suggested the population is likely being driven by year class strength and environmental changes in the lake. No management actions are necessary.
7. Yellow perch densities have decreased since 2017. This may be a function of the clear water and vegetated state and competition with bluegill. Like crappie, yellow perch abundance is driven by good year classes, so a regulation change is unlikely to benefit this species.
8. Channel catfish appear to be a low density. The statewide regulation adequately protects this species.
9. Adult common carp appear to be low densities. Common carp continue to have the potential to disrupt the normal ecosystem functions of Clam Lake and alter its habitat. Monitoring by WDNR and the St. Croix Tribe should continue.
10. Efforts to increase habitat complexity in Clam Lake should be strongly encouraged. Input of coarse woody habitat, protection of aquatic vegetation and maintenance or restoration of a vegetative buffer zone are all examples of work needed in many areas of Clam Lake.
11. Exotic species monitoring and control programs should continue. Efforts to keep aquatic invasive species out of a waterbody are much more effective than controlling these species once they are established.

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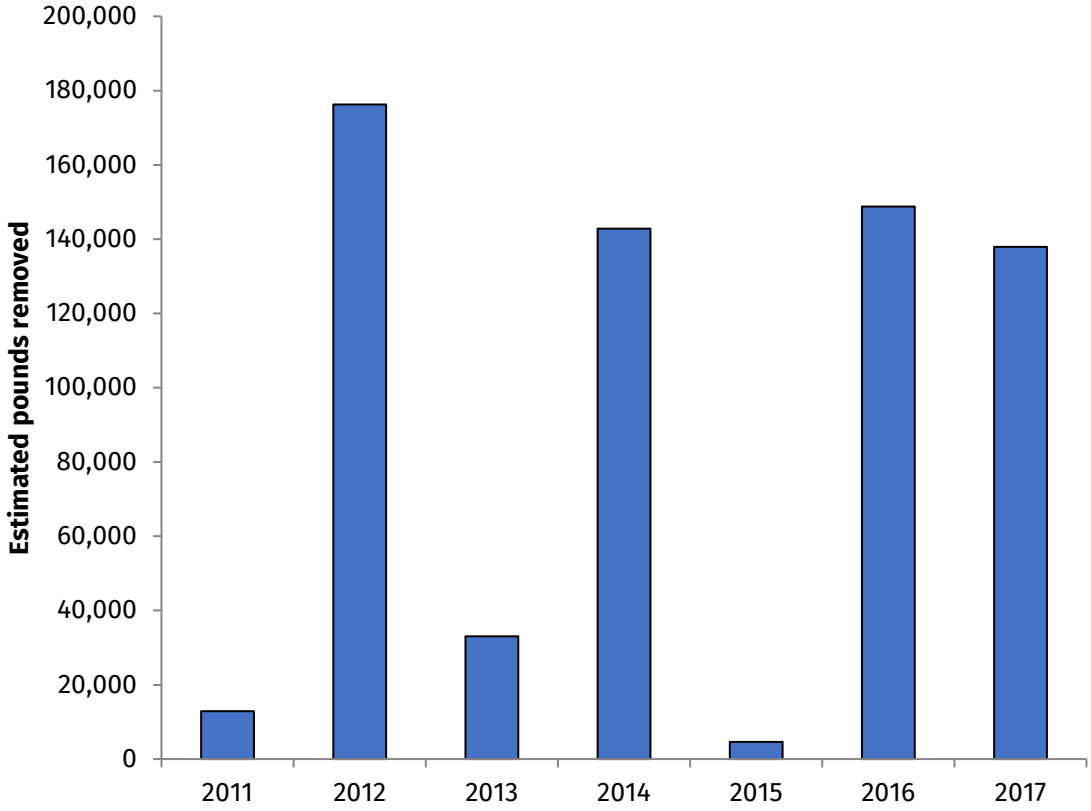
Appendix



Appendix Figure 1. Estimated pounds of common carp removed from Clam Lake, Burnett County, WI from 2011 – 2017.

Appendix Table 1. 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 and Muskellunge

Appendix Table 2. Proportional size distribution values.

Species	Stock Size (in)	Quality Size (in)	Preferred Size (in)
Black Crappie	5	8	10
Bluegill	3	6	8
Largemouth Bass	8	12	15
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

Appendix Table 3. Observed differences between turbid and clear states for Clam Lake, Burnett County, WI based on fisheries data and past research.

Lake State	Abundant Fish Species	Carp Abundance	Aquatic Vegetation Density	Wild Rice Density	Waterfowl Density
Turbid	Walleye, Channel Catfish, Yellow Perch	High	Low	Low	Low
Clear	Bluegill, Pumpkinseed, Northern Pike, Largemouth Bass	Low	High	High	High