



2024 LATE SPRING SURVEY REPORT

WATER: ARBUTUS LAKE

COUNTY: FOREST

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INTRODUCTION AND SURVEY OBJECTIVES

The Wisconsin Department of Natural Resources conducted a late spring fyke net and electrofishing survey of Arbutus Lake, Forest County, to analyze the health of its fishery. This survey is designed to assess the summer spawning panfish populations (bluegill, pumpkinseed and rock bass) as well as the bass populations. The pages that follow will detail the current state of the fishery, as well as any changes since the previous assessment. Arbutus Lake is located approximately 12 miles South of Crandon, with boat access to Arbutus Lake off of County Hwy DD.

Acres: 163 Shoreline Miles: 2.5 Maximum Depth (feet): 28
Lake Type: Seepage Lake Class: Complex-Cool-Clear Public Access: Boat Landing
Regulations: No Special Regulations

WISCONSIN DNR CONTACT INFO.

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Summary of all surveys conducted during 2024

SURVEY INFORMATION

Species	Survey Date(s)	Gear Used	Effort	Water Temp. (°F)
Bluegill, Pumpkinseed, Rock Bass	5/28-5/30/2024	Fyke Net	8 Net-Nights	64
Largemouth Bass	6/5/2024	Boomshocker	2.5 Miles	67

FISH METRIC DESCRIPTIONS

Population estimate (PE) is estimated by marking a portion of the population, then capturing another sample of fish and using the ratio of new fish : previously marked fish to estimate the number of fish that are in the population.

Catch per unit effort (CPUE) is the number of fish per mile (electrofishing) or per net-night (netting), and is used to index abundance when we are unable to get a population estimate.

Relative stock density (RSD) is an index used to describe size structure of fish populations. It is calculated by dividing the number of fish larger than a certain length by the number of stock size fish for a given species. Stock size is a length set for each species, and is used to offset potential large year classes of juvenile fish

Length frequency distribution (LFD) is a graphical representation of the number of fish captured by inch group. Smaller fish (or younger age classes) may not always be represented in the length frequency due to different habitat usage or sampling gear limitations.

Mean length at age is used to index growth. Structures are taken from a subsample of fish captured, these structures can be used to estimate the age of that particular fish. The mean length at each age is then used to characterize growth of the entire population.

SURVEY METHODS

- Surveys are designed to evaluate each species when they are particularly vulnerable to our gear.
- Standard fyke nets and electrofishing gear is used to capture fish.
- Data is collected from the target species of each survey to gather population metrics.
- Fish metrics are compared to previous surveys of this water and the mean/median values for waters in this "area" (Florence and Forest Counties).
- Data collected is used to monitor the fishery, determine if stocking is necessary, evaluate fishing regulations, and determine how to improve the fishery.

GEAR USED DURING THIS SURVEY

- **Fyke Nets** are set in areas where we anticipate fish to congregate. Fish traveling along the shoreline will be met by a "lead" which is similar to a fence. The lead directs the fish toward the trap end of the net, fish travel through a series of funnels and eventually become trapped. Fish are then removed from the net and placed in holding tanks to gather data before being returned to the lake.
- **Boomshocker** is a specially designed boat that creates an electric current in the water immediately in front of the boat. The boat is driven along the shoreline and shallow areas of the lake, when the boat encounters fish they are momentarily stunned. Once the fish is stunned they can be netted out of the lake and placed in a holding tank. After data is collected the fish are returned to the lake.



Photo Credit: Wisconsin DNR



Photo Credit: Wisconsin DNR



Arbutus Lake



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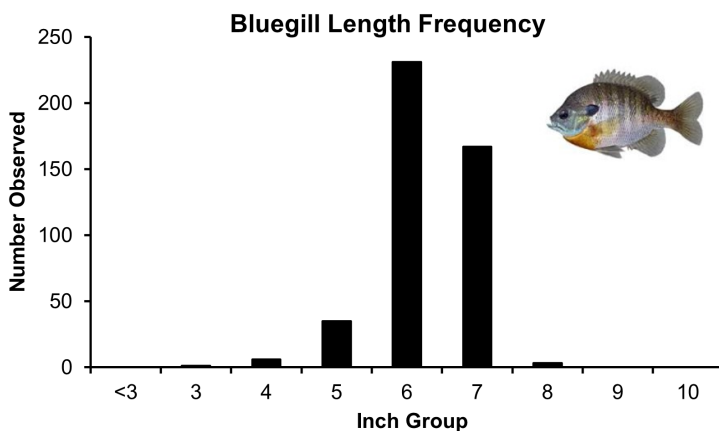
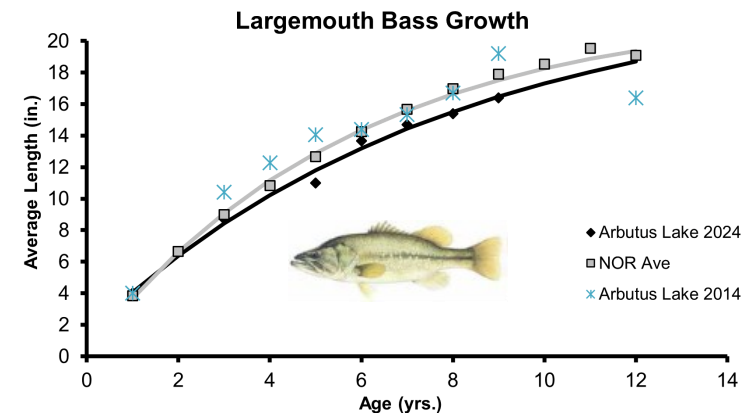
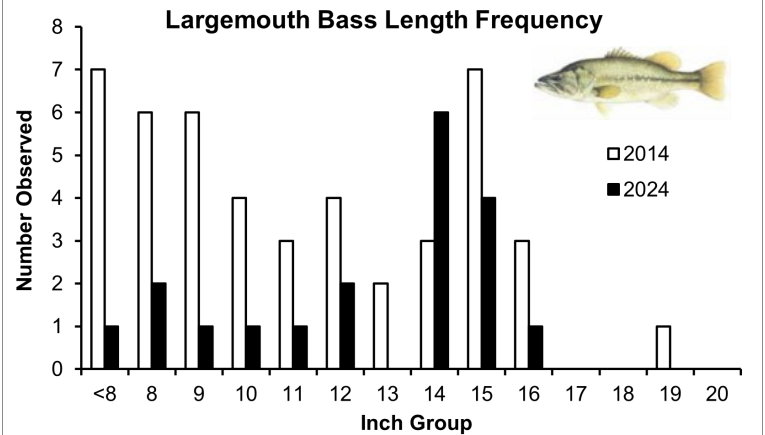
LARGEMOUTH BASS

An electrofishing survey was conducted on the night of 6/5/2024 to assess the largemouth bass population in Arbutus Lake. The survey was conducted along the entire 2.5 mile shoreline and all bass observed were netted. Largemouth bass relative abundance during this survey was 7.2 adults/mile. Largemouth bass relative abundance has decreased since 2014 when their relative abundance was 15.1 adults/mile. Largemouth bass relative abundance is considered low as the current relative abundance falls well below the area average of 17.0 adults/mile. Total largemouth bass relative abundance of 7.6 fish/mile is greater than the statewide median for this lake type (6.86 fish/mile).

Every largemouth bass captured during this year's survey was measured to assess size structure. After removing fish less than 8 inches for analysis, 72.2% of the largemouth bass captured during this survey were ≥ 12 inches, while 5.6% were ≥ 16 inches. Size structure is relatively similar to 2014 when 51.3% and 10.3% were ≥ 12 and 16 inches, respectively. The largemouth bass population in Arbutus Lake has low size structure, as the area averages 69.5% and 19.8% ≥ 12 and 16 inches, respectively. A length frequency figure comparing the 2024 and 2014 surveys can be seen to the right.

Largemouth bass relative abundance may be higher than what was observed, as the survey was made difficult by significantly reduced water clarity due to storms preceding the survey and an abundance of Eurasian Watermilfoil, an invasive plant species now present in the lake. The thick vegetation made boat mobility extremely difficult and likely contained fish which were not visible to the survey crew. A more abundant largemouth bass population would be expected given the lower than average size structure.

Age structures were taken from all largemouth bass collected during the 2024 electrofishing survey to conduct age and growth analysis. Largemouth bass in Arbutus Lake displayed growth rates slower than the Northern Wisconsin Regional average, as seen to the right. The 2014 averages can be seen as well. Largemouth bass length-at-age was lower in 2024 than it was in 2014. The oldest fish aged from the 2024 survey was age-9.



BLUEGILL

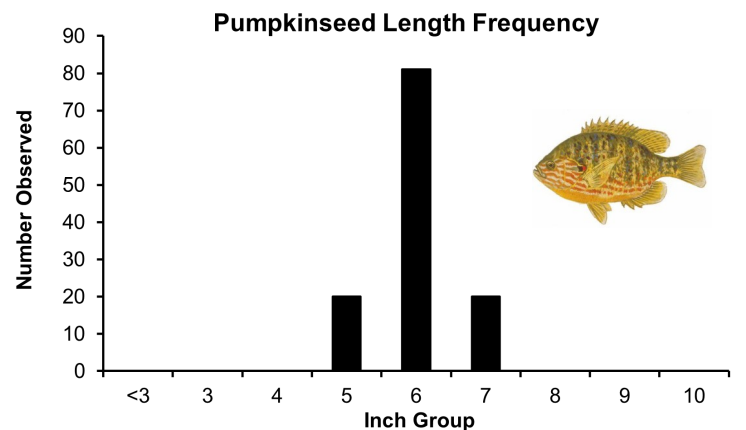
A late spring fyke net survey was conducted from 5/28-5/30/2024 to assess the summer spawning panfish populations. During this survey, a total of 1,011 bluegill were captured for a relative abundance of 126.4 bluegill/net-night. Bluegill relative abundance has increased from 92.3 bluegill/net-night when last assessed in 2016. Arbutus Lake is considered to have an abundant bluegill population, as bluegill relative abundance is nearly double the area average of 65.6 bluegill/net-night.

All bluegill caught on 5/29/2024 and a random sample from 5/30/2025 were measured to assess the size structure of the population. After removing fish less than 3 inches for analysis, 90.5% were ≥ 6 inches, while only 0.7% were ≥ 8 inches. Size structure has decreased since 2016 when 98.0% were ≥ 6 inches and 13.4% were ≥ 8 inches. The Arbutus Lake bluegill population is considered to be of moderate size structure. The area averages for bluegill size structure are 61.6% ≥ 6 inches and 9.4% ≥ 8 inches.

PUMPKINSEED

A total of 121 pumpkinseed were captured during the 2024 survey for a relative abundance of 15.1 fish/net-night. Pumpkinseed relative abundance has increased since 2016 when they were captured at a rate of 4.17 fish/net-night.

Pumpkinseed size structure was high, as 83.5% of pumpkinseed caught were ≥ 6 inches. Pumpkinseed size structure has decreased since 2016 when 97.8% of pumpkinseed were ≥ 6 inches.





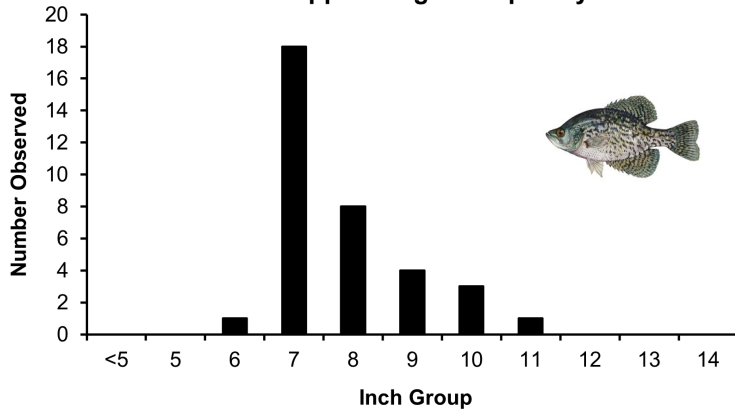
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Black Crappie Length Frequency



BLACK CRAPPIE

Black crappie relative abundance during the late spring fyke net survey was 4.4 fish/net-night. Relative abundance was similar to 2016 (4.8 fish/net-night). However, this survey is not designed to properly assess black crappie. An early spring fyke net survey would need to be conducted to accurately assess black crappie abundance.

Of the black crappie caught, 45.7% were ≥ 8 inches, while 11.4% were ≥ 10 inches. Overall size structure has increased since 2016 when 94.9% of the black crappie caught were ≥ 8 inches and 3.4% were ≥ 10 inches. Despite the recent increase, black crappie size structure is still below the area average of 62.4% and 19.9% ≥ 8 and 10 inches, respectively.

PANFISH ABUNDANCE AND SIZE STRUCTURE

Species	CPUE (catch/net-night)	RSD6	RSD7	RSD8	RSD9	RSD10	RSD11	RSD12	RSD13
Bluegill	126.38	90.5	38.4	0.7	0.0				
Pumpkinseed	15.13	83.5	16.5	0.0					
Rock Bass	1.25	100	90.0	30.0	10.0	0.0			
Black Crappie	4.38	100	97.1	45.7	22.9	11.4	2.9	0.0	
Bluegill x PKS Hybrid	1.63	—							
Bullhead (All spp.)	46.25	—							

OTHER SPECIES

During this survey, three fish species were captured that were not detailed in this summary. The list of these species (with catch/net-night listed in parenthesis) is as follows: northern pike (1.0), walleye (0.1), and yellow perch (0.3).

SURVEY NOTES

- The public launch to Arbutus Lake is rather primitive and parking is limited, but it seems to provide adequate angler access at this time.
- This survey indicated a panfish population that provides good angling opportunity. Size structure is declining as overall abundance increases however, so anglers may have to work through some smaller fish to find fish of the desired size.
- The largemouth bass abundance is likely higher than what was noted in this survey, however it likely has decreased since the previous survey which would correspond with the increase in panfish abundance. Largemouth bass should still provide a good angling opportunity.
- Although this survey is not designed to properly assess the black crappie population, this survey indicates that they also may provide a quality angling opportunity. The black crappie population in Arbutus Lake is likely very cyclic, and anglers may find that numbers greatly reduce after a period of high abundance of desirable fish.
- Bullhead abundance is relatively high, and this is something that will continue to be monitored in the future.
- This is the first panfish assessment since 2016, and the first gamefish assessment since 2014.
- Arbutus Lake was stocked privately with walleye in 2018 and 2013, and was stocked privately with yellow perch in 2017 and 2013. Neither of these species seem to be in high abundance currently, although they are present. Arbutus Lake is not currently managed for walleye.
- The current statewide regulations are appropriate for this water.
- Arbutus Lake is on an 8 year sampling rotation. The next survey is scheduled for 2032.