



WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2021 Electrofishing Summary Report Graham Lake, Waupaca County 279300

Introduction And Objectives

In 2021, the Wisconsin Department of Natural Resources (DNR) conducted a one night electrofishing survey of Graham Lake in order to provide insight and direction for the future fisheries management of this water body. The primary sampling objectives of this survey were to characterize species composition, relative abundance and size structure. The following report is a brief summary of that survey including the general status of the fish populations and future management options for Graham Lake.

DNR Contact

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Lake Information

Acres: 54
Max. Depth: 32 feet
Shoreline Miles: 1.2 miles
Public Access: 1 boat landing
Lake Class: Simple - Warm - Dark

Regulations

Statewide default regulations; 15 panfish may be kept, but only five of any one species

Survey Method

- Graham Lake was sampled according to Spring Electrofishing II (SEII) protocols as outlined in DNR Fisheries Monitoring Protocols. The primary objective for the SEII survey is to count and measure bass and panfish. Other species may be sampled but are considered by-catch as part of this survey.
- Boom shockers were used to electrofish 2.0 miles of shoreline. Gamefish were collected and measured throughout. Panfish were collected and counted along 2.0 miles as well.

SURVEY INFORMATION

Site Location	Survey Dates	Water Temperature (°F)	Target Species	Total Miles Shocked	Number of Stations	Gear	Number of Netters
Graham Lake	05/17/202	69.7	All	2.0	3	Boomshocker	2

Metric Descriptions

- Catch per unit effort (CPUE) is an index used to measure fish population relative abundance**, which simply refers to the number of fish captured per unit of distance or time. For netting surveys, we typically quantify CPUE by the number and size of fish per net night. For electrofishing, we quantify CPUE as the number caught per mile of water electrofished. CPUE indexes are compared to statewide data by percentiles and within lake trends. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.
- Proportional Stock Density (PSD) is an index used to describe the size structure of fish populations.** It is calculated by dividing the number of quality size fish by the number of stock size fish for a given species. PSD values between 40 - 60 generally describe a balanced fish population.
- Length frequency distribution (LFD) is a graphical representation of the number or percentage of fish captured by half-inch or one-inch size intervals.** 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 age at length is an index used to assess fish growth.** Calcified structures (e.g., otoliths, spines or scales) are collected from a specified length bin of interest (e.g., 7.0-7.5 inches for bluegill). Mean age is compared to statewide data by percentile, with growth characterized by the following benchmarks: slow (<33rd percentile), moderate (33rd to 66th percentile) and fast (>66th percentile).

RELATIVE ABUNDANCE - CATCH PER UNIT EFFORT (CPUE)

Species	Total Number Captured	CPUE Total (number per mile)	Statewide Percentile	Overall Abundance Rating	Length Index	Length Index CPUE	Length Index Statewide Percentile	Length Index Abundance Rating
bluegill	85	42.5	32nd	Low	>7.0 inches	15.5	71st	Moderate - High
pumpkinseed	14	7.0	48th	Moderate	>7.0 inches	1.0	63rd	Moderate
largemouth bass	62	31.0	74th	Moderate - High	>14.0 inches	1.0	27th	Low
yellow perch	15	7.5	44th	Moderate	>8.0 inches	0	-	Low



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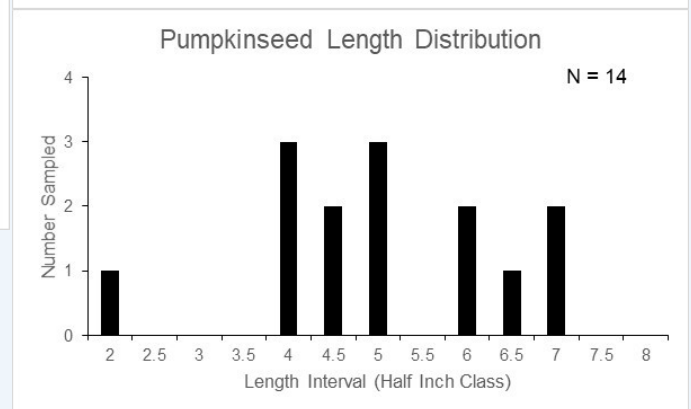
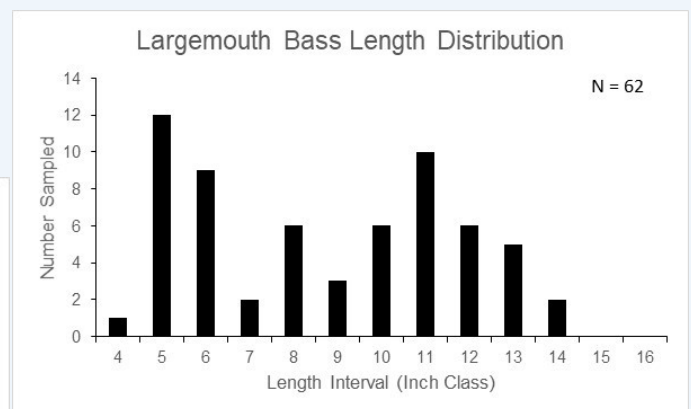
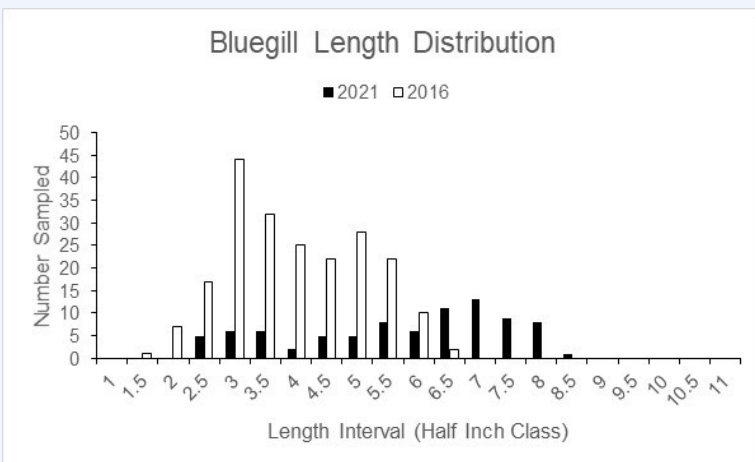
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SIZE STRUCTURE METRICS

Species	Total	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
bluegill	85	6.0	2.6 - 8.7	3.0 and 6.0	80	48	60	80th	Moderate - High
largemouth bass	62	9.2	4.7 - 14.4	8.0 and 12.0	38	13	34	16th	Low
pumpkinseed	14	5.3	2.2 - 7.5	3.0 and 6.0	38	13	34	54th	Moderate
yellow perch	15	5.5	4.4 - 7.3	5.0 and 8.0	11	0	0	-	Low

GROWTH METRICS

Species	Total	Length Bin	Mean Age	Age Range	Percentile Rank	Growth Rating
2015 - Bluegill	11	5.5 - 6.4	5.5	5 - 7	24th	Moderate - Slow
2015 - Bluegill	10	6.5 - 7.4	6.5	5 - 8	17th	Slow
2021 - Bluegill	4	5.5 - 6.4	5.3	5 - 6	27th	Slow
2021 - Bluegill	6	6.5 - 7.4	5.8	5 - 6	33rd	Slow





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Full Summary

Bluegill

Bluegill were the dominant panfish species captured in our survey. Densities of bluegills were low but size structure had improved since 2015, with a PSD value of 80 and 15.5 bluegill >7.0-inches per of mile of electrofishing. Bluegill growth rates in Graham Lake were slow to moderate and have improved since the 2015 survey. Since the regulation change in 2016 the average size of bluegill has increased 1.8 inches. The catch per mile has decreased to one fourth of what was captured in 2015. Predator densities should be maintained at current levels to prevent bluegills from becoming overabundant and stunting. The lower bag limit on bluegill in Graham Lake appears to be having a positive impact on the fishery. Growth of bluegills is slow in Graham Lake, but will be reevaluated in 5 years to see if the new regulation has the fishery trending in the right direction.

Largemouth Bass

Largemouth bass densities were moderate to high with a PSD value of 34, which indicates poor size structure when compared to other lakes throughout Wisconsin. Only 1.0 largemouth bass >14.0-inches were captured per mile of electrofishing, which is ranked 27th when compared to other lakes throughout Wisconsin. In the future, age and growth analysis needs to be completed to determine how to proceed with the regulations for Graham Lake. Abundant forage is available for largemouth bass including various bullhead species, suckers, and panfish.

Pumpkinseed

Densities of pumpkinseeds were moderate and size structure was average, with 1.0 per mile >7.0 inches captured. Pumpkinseed in Graham Lake had a PSD value of 38 which ranks 54th when compared to other lakes statewide.

Yellow Perch

Yellow perch densities in Graham Lake are at moderate levels with sampling of 7.5 yellow perch per mile of electrofishing, which ranks in the 44th percentile statewide. However, size structure of yellow perch in Graham Lake is low with no fish over 8.0-inches captured in the surveys. Historically, there have been moderate densities of yellow perch and the size structure has been poor, with fish not being observed greater than 8.0-inches.

Other Species and Information

Other species sampled in lower abundance include black crappie (3), blacknose shiner (1), brook silverside (1), green sunfish (2), green sunfish x pumpkinseed (1), lake chubsucker (6), northern pike (1), rock bass (9), white sucker (5) and yellow bullhead (6). Graham Lake will be surveyed in 2026 as an evaluation to analyze the effects of the panfish regulations put in place in 2016. DNR should continue to work with the lake association and other groups to add fish sticks and woody debris to Graham Lake.