2015-2025 SPECIAL REGULATION ASSESSMENT SURVEY REPORT

WATER: SPREAD EAGLE CHAIN OF LAKES COUNTY: FLORENCE

INTRODUCTION AND SURVEY OBJECTIVES

The Wisconsin Department of Natural Resources conducted spring electrofishing surveys of the Spread Eagle Chain of Lakes, Florence County, to analyze the changes in the panfish community before and after a special regulation change. The Spread Eagle Chain of Lakes was chosen at random to receive a seasonal bag limit reduction to 15 fish per day, with no more than 5 of any one species, for panfish during the months of May and June. The bag limit then would return to the statewide regulation of 25 fish per day during the rest of the year. This regulation went into effect on 4/1/2016. This survey was designed to assess abundance, size structure, and growth of the summer spawning panfish in the chain of lakes, with an emphasis on the bluegill population; for specific survey details see the table below. The summary that follows will detail the current state of the panfish community, as well as the changes observed since 2015. The Spread Eagle Chain of Lakes is located between Florence, WI and Iron Mountain, MI, with boat access off of North Lake Road.

Acres: 548 Shoreline Miles: 14.8 Maximum Depth (feet): 75
Lake Type: Drainage Public Access: Boat Landing Lake Class: Complex - Cool - Clear
Regulations: ***Walleye***: 18"/ 3-bag ***Bass***: No Minimum Size (14-18" protected slot)/ 5-bag
Panfish: Seasonal 5/15 bag*
*Changing to a year-round 10 fish daily bag limit starting 4/1/2026

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Table 1. Summary of surveys conducted to evaluate the regulation change. **SURVEY INFORMATION**

Species	Survey Date(s)	Gear Used	Effort	Water Temp. (°F)
Bluegill, Pumpkinseed, Rock Bass	6/10/2015	Boomshocker	2.25 miles	69
Bluegill, Pumpkinseed, Rock Bass	6/7/2021	Boomshocker	2.25 miles	76
Bluegill, Pumpkinseed, Rock Bass	6/10/2025	Boomshocker	2.25 miles	65-66

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 to previously marked fish to estimate the number of fish 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 PE.

Relative stock density (RSD) is an index used to describe the 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.

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

- **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

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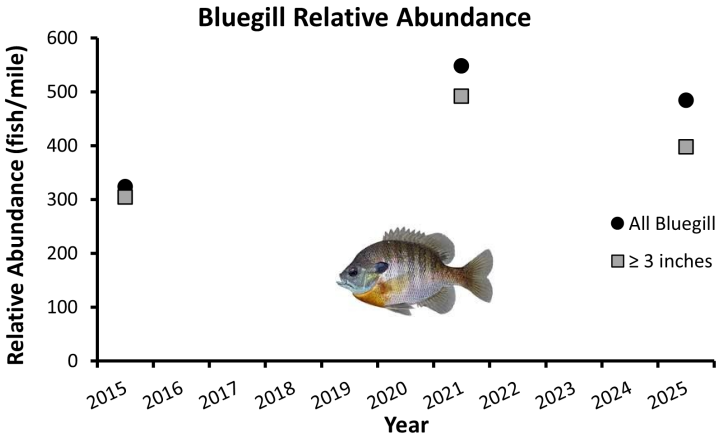
BACKGROUND INFORMATION

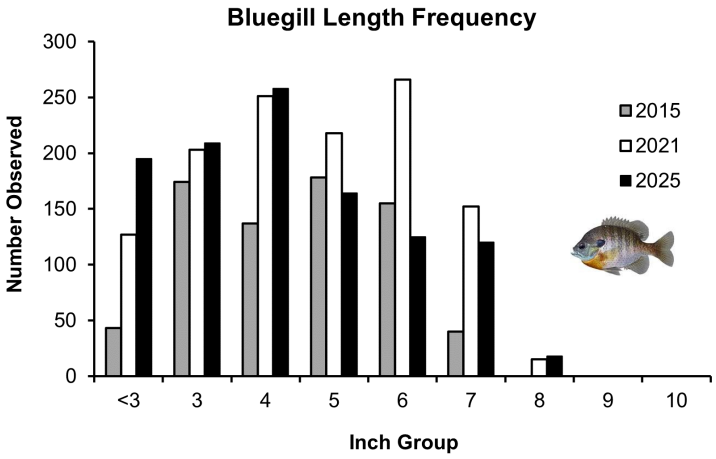
The Spread Eagle Chain of Lakes, via the comprehensive survey from 2011, was found to have poor size structure and average abundance of bluegill with above average growth. A more restrictive harvest regulation was recommended. The current management goal for panfish on the Spread Eagle Chain of Lakes is to improve poor size structure of bluegill. The chain was chosen at random to receive a seasonal bag restriction on panfish as a part of a statewide project, and had the panfish bag limit reduced during May and June to a 15 fish daily bag limit, with no more than 5 of any one species, while having the standard statewide 25 panfish/day across all other months. This special regulation went into effect on 4/1/2016. A baseline survey was conducted in 2015 to serve as the pre-change assessment of summer spawning panfish. Post-regulation change, electrofishing surveys were completed in 2021 and 2025 to assess changes in the panfish populations.

BLUEGILL

Pre-regulation change, an electrofishing survey was conducted on the night of 6/10/2015 to assess the bluegill population. During this survey bluegill relative abundance was 323.11 fish/mile. After the regulation change, electrofishing surveys were conducted on the nights of 6/7/2021 and 6/10/2025. Bluegill relative abundance was measured at 547.56 fish/mile in 2021 and 484.00 fish/mile in 2025.

An increase in bluegill abundance was expected, as bluegill are highly susceptible to harvest during May and June. This regulation change likely reduced harvest and improved spawning success. The regulation worked as intended regarding bluegill abundance.



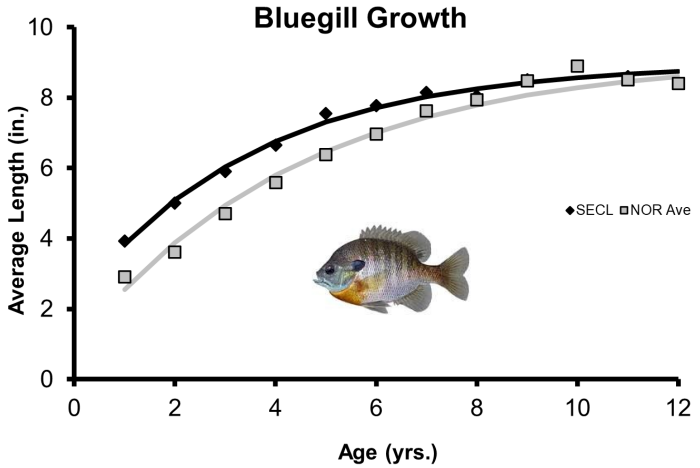


All bluegill captured were measured and those ≥ 3 inches were used to analyze the bluegill size structure in the Spread Eagle Chain of Lakes. Prior to the regulation change only 5.85% of the bluegill were ≥ 7 inches, and no fish were observed ≥ 8 inches. By 2021, size structure increased to 15.11% ≥ 7 inches and 1.36% ≥ 8 inches. Average length of bluegill caught in 2025 was 5.21 inches for fish included in analysis. Although this is a decline since 2021 (5.45 inches), it remains above the baseline mark of 5.12 inches in 2015. Bluegill size structure in the Spread Eagle Chain of Lakes remains below the area average.

BLUEGILL SIZE STRUCTURE - SECL, Florence County, 2015-2025

	2015	2021	2025	Area Avg.
RSD6	28.51	39.19	29.42	61.58
RSD7	5.85	15.11	15.44	31.11
RSD8	0.00	1.36	2.01	9.44
RSD9	0.00	0.00	0.00	2.60
RSD10	0.00	0.00	0.00	0.30

Bluegill age and growth was evaluated in 2023. Bluegill grew much faster than the Northern Region of Wisconsin average, as seen in the figure on the right. Some old fish were observed, with the oldest captured being age-11. These fast growth rates are the reason the Spread Eagle Chain of Lakes was selected for a restrictive regulation, and if we can get fish to live slightly longer we expect this chain to produce larger fish in the future.



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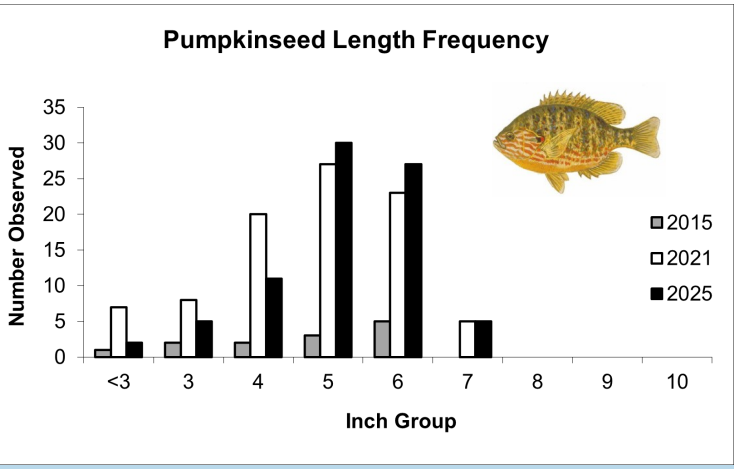
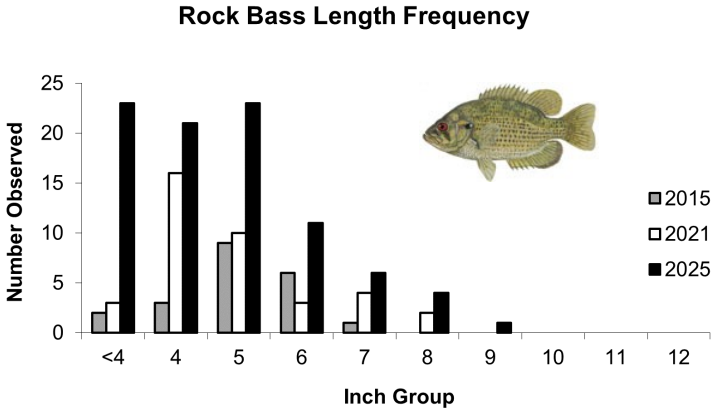
PUMPKINSEED

Although not a direct priority of the regulation change, pumpkinseed relative abundance and size structure were tracked. Pumpkinseed relative abundance has increased since the regulation change. In 2015, pumpkinseed relative abundance was 5.78 fish/mile. It peaked in 2021 at 40.00 fish/mile, and remained higher in 2025 at 35.56 fish/mile.

In 2015, 41.7% of pumpkinseed caught were ≥ 6 inches. Size structure decreased in 2021 to 33.7% and then increased to 41.0% in 2025. Additionally, no fish ≥ 7 inches were caught in 2015 while they were present in both surveys following the regulation change. Typically we see a decline in size structure with increased abundance, so this is a positive sign for how the regulation change may have affected the pumpkinseed population.





ROCK BASS

Like pumpkinseed, the rock bass population was not a priority with the regulation change, but they were collected along with bluegill and pumpkinseed during the surveys. Rock bass relative abundance was 9.33 fish/mile in 2015. Relative abundance increased following the regulation change to 16.89 fish/mile in 2021 and 40.00 fish/mile in 2025.

Like the other summer spawning panfish species, rock bass size structure increased with the more restrictive regulation. In 2015, only 5.3% of rock bass caught were ≥ 7 inches, which increased to 17.1% and 16.7% during 2025. Rock bass ≥ 9 inches were caught in 2025, and they were not observed in the other two surveys. The rock bass population has become more abundant and has improved size structure since the regulation change.

OTHER SPECIES

During the surveys evaluating the regulation change, 3 other species of fish were captured which were not detailed in this summary. None of these species were caught in high abundance. The table below shows the relative abundance (catch/mile) of these species across each survey. Species included in the table are black crappie (BC), yellow perch (YP), and bluegill x pumpkinseed hybrid (BG x PKS). It should be noted that this survey is not designed to properly assess black crappie or yellow perch.

RELATIVE ABUNDANCE (Catch/Mile) DURING ELECTROFISHING SURVEYS			
	BC	YP	BG x PKS
2015	0.89	1.33	0.00
2021	0.00	3.56	0.89
2025	0.89	0.89	1.78

ASSESSMENT OF THE REGULATION CHANGE

Since the pre-regulation change baseline assessment in 2015, bluegill abundance and size structure have improved substantially. The regulation change to the seasonal 5 of any one species/15 panfish bag has worked as intended. Size structure goals for 2028 set by the DNR appear to be making progress towards being achieved (RSD7 ≥ 26.5% and RSD9 > 0%). Despite improvements to the bluegill population, the Spread Eagle Chain of Lakes still has below average size structure. There is still room for improvement in this population.

Black crappie were a secondary priority of the regulation change. However, at the time of the regulation change, we did not believe a more restrictive regulation would have an impact on the black crappie population as it was not thought that anglers often harvested a limit of black crappie due to their low abundance. This survey was not designed to properly assess the black crappie population. Through other surveys on the chain of lakes, we have observed an increase in black crappie relative abundance and a decrease in size structure. The data suggests that this special regulation has not worked as intended. These changes, however, likely have less to do with the regulation change and more are a product of the cyclic nature of black crappie.

While not a direct priority with the regulation change, the rock bass and pumpkinseed populations have shown significant improvement, as seen in this summary. We hope the new regulation will continue the trend of improvement that we see now.

While many factors may influence panfish populations, no major changes were observed in habitat, water quality, or predator fish communities during the evaluation period.

With the experimental regulation ending in March 2026, a new, more restrictive regulation of a year-round 10 fish daily bag limit has been proposed, supported by the public, and approved to begin in April 2026. We feel that this new regulation will help the bluegill population reach the management goals in the targeted timeline and improve the overall panfish experience for anglers on the Spread Eagle Chain of Lakes. The panfish populations on the Spread Eagle Chain of Lakes will continue to be assessed in the future, with a comprehensive survey set to take place in 2031.