

2015-2024 PANFISH EVALUATION SURVEY REPORT

WATER: SILVER LAKE

COUNTY: FOREST

INTRODUCTION AND SURVEY OBJECTIVES

The Wisconsin Department of Natural Resources conducted spring electrofishing surveys of Silver Lake, Forest County, to analyze the changes in the panfish community between 2015 and 2024. Silver Lake was chosen as a reference system for a statewide panfish regulation study. The regulation on Silver Lake was not changed during this time. This survey was designed to assess abundance, size structure, and growth of the summer spawning panfish in the lake, with an emphasis on the bluegill; for specific survey details see the table below. The summary that follows will detail the current state of the summer spawning panfish populations, as well as the changes observed since 2015. Silver Lake is located approximately 1 mile west of Laona, WI with boat access off of West Silver Lake Road.

Acres: 320

Shoreline Miles: 3.8

Maximum Depth (feet): 20

Lake Type: Seepage

Public Access: Boat Landing

Lake Class: Complex - Cool - Clear

Regulations: Statewide Regulations

WISCONSIN DNR CONTACT INFO.

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Table 1. Summary of surveys conducted to evaluate panfish.

SURVEY INFORMATION

Species	Survey Date(s)	Gear Used	Effort	Water Temp. (°F)
Bluegill, Pumpkinseed, Rock Bass	6/16/2015	Boomshocker	2.00 miles	67
Bluegill, Pumpkinseed, Rock Bass	6/6/2019	Boomshocker	1.45 miles	71
Bluegill, Pumpkinseed, Rock Bass	6/5/2024	Boomshocker	1.99 miles	68

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.

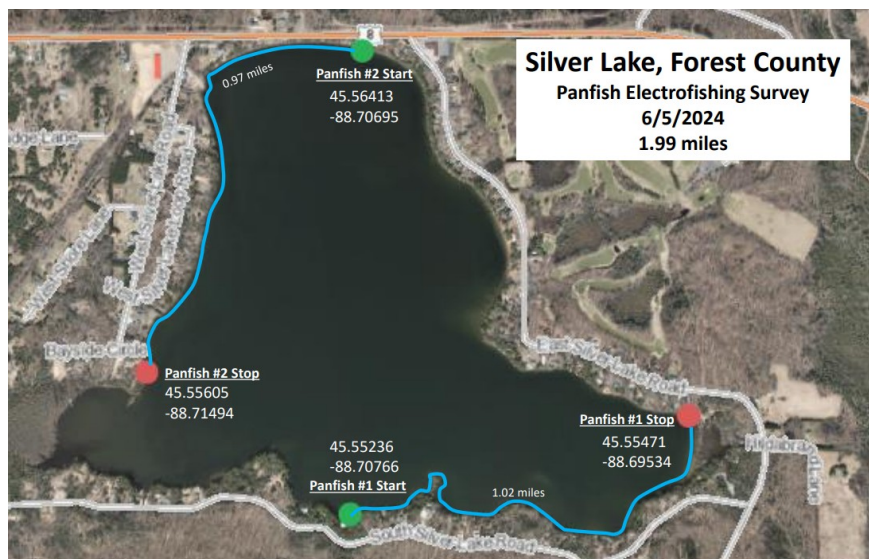
Catch per unit effort (CPUE) is the number of fish per mile (electrofishing) or per net -night (netting) and is used to index abundance when we are unable to get a PE.

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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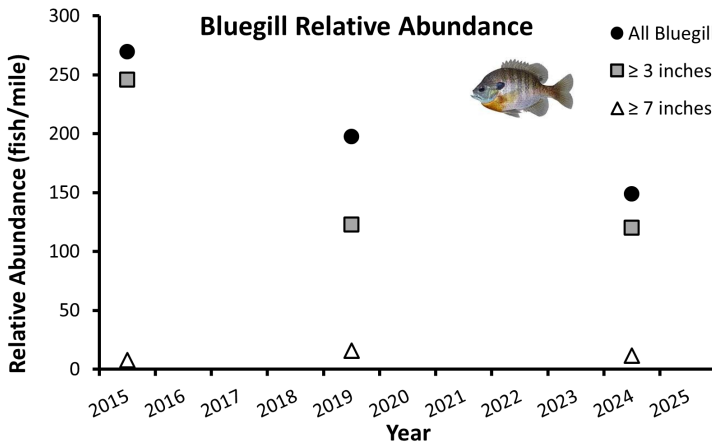
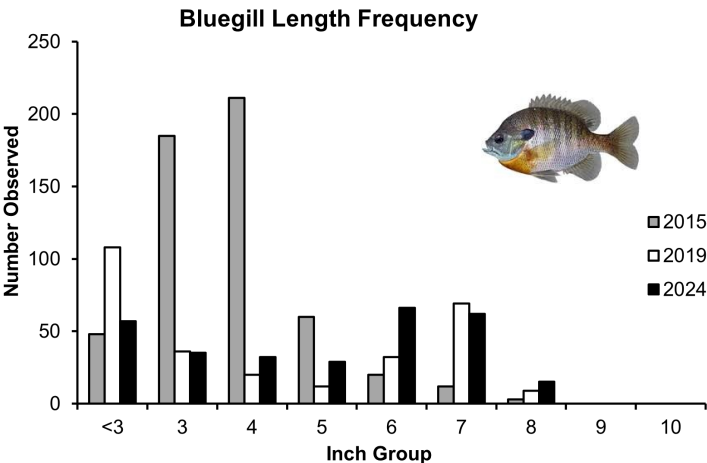
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BACKGROUND INFORMATION

Silver Lake, via a comprehensive survey from 2011, was found to have poor panfish size structure despite having above average growth rates. A more restrictive harvest regulation was recommended. The current management goal for the panfish in Silver Lake is to improve poor size structure of bluegill. The lake was chosen at random to be a reference system for a study in which lakes with these panfish conditions were given various experimental regulations to assess restrictive panfish regulations. Due to being a reference system, Silver Lake received no regulation change. Special regulations for other lakes in the study went into effect on 4/1/2016. A baseline electrofishing survey was conducted in 2015 to serve as the initial assessment, and subsequent surveys were conducted in 2021 and 2024 to determine if any changes occurred over this time.

BLUEGILL

An electrofishing survey was conducted on the night of 6/16/2015 on Silver Lake to assess the bluegill population. During this survey bluegill relative abundance was 269.50 fish/mile. Following the initial baseline survey, electrofishing surveys were conducted on the nights of 6/6/2019 and 6/5/2024. Bluegill relative abundance was 197.24 fish/mile in 2019 and 148.74 fish/mile in 2024. Bluegill relative abundance has been consistently decreasing since 2015, as seen to the right.



All bluegill captured were measured and those ≥ 3 inches were used to analyze the bluegill size structure in Silver Lake. Size structure has increased 2015, as seen in the table below. A greater proportion of quality size fish have been seen since the first assessment. During 2015, mean length of bluegill was 4.36 inches. Since the initial assessment, the mean length of bluegill steadily increased to 5.96 inches (2019) and 6.06 inches by 2024. Despite not receiving a regulation change, the Silver Lake bluegill population saw an increase in size structure and number of desirable fish.

BLUEGILL SIZE STRUCTURE - Silver Lake, Florence County, 2015-2024

	2015	2019	2024	Area Avg.
RSD6	7.13	61.80	59.83	61.58
RSD7	2.78	27.3	26.01	31.11
RSD8	0.61	5.06	6.28	9.44
RSD9	0.00	0.00	0.00	2.60
RSD10	0.00	0.00	0.00	0.30

OTHER SPECIES

During the surveys evaluating the regulation change, 6 other species of fish were captured which were not detailed in this summary. None of these species were caught in high abundance. The table to the below shows the relative abundance (catch/mile) of these species across each electrofishing survey. Species included in the table are black crappie (BC), yellow perch (YP), pumpkinseed (PKS), rock bass (RB), bluegill x pumpkinseed hybrid (BG x PKS), and bullhead (all species combined) (BH). 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	PKS	RB	BG x PKS	BH
2015	0.50	6.00	13.50	3.50	5.00	8.50
2019	2.07	16.55	20.00	22.76	2.07	5.52
2024	2.01	1.51	6.03	45.73	1.01	13.57

SURVEY NOTES

- The panfish station in 2019 was shortened due to time restraints.
- Bluegill abundance decreased during the assessment.
- The reduction in bluegill abundance could simply be the result of a major year class or two moving through the system.
- Bluegill size structure increased, which is expected with the decreased abundance.
- Silver Lake saw variance in the abundance of non-target panfish species over this time.
- Panfish populations are generally of a more desirable size structure now than they were during the initial assessment.
- Silver Lake is on an 8 year sampling rotation. The next survey is scheduled for 2027. This effort was a special assessment and not part of the regular rotation.
- Current statewide regulations are appropriate for the panfish populations in Silver Lake.