



WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2021 Comprehensive Summary Report School Section Lake, Waupaca County 283600

Introduction And Objectives

In 2021, the Wisconsin Department of Natural Resources (DNR) conducted a comprehensive fish survey of School Section Lake in order to provide insight and direction for the future fisheries management of this system. Comprehensive fish surveys include both spring fyke netting and spring electrofishing surveys. The primary sampling objectives of these surveys are to characterize species composition, relative abundance and size structure. The following report is a brief summary of the activities conducted, general status of fish populations and future management options for School Section Lake.

DNR Contact

Elliot Hoffman - Fisheries Technician
Advanced
647 Lakeland Rd.
Shawano, WI
Phone: 920-420-9581
Email: Elliot.hoffman@Wisconsin.gov

Lake Information

Combined Acres: 39
Max. Depth: 38
Shoreline Miles: 1.5
Public Access: 1 Boat Landing

Regulations

Statewide Default Regulations, 25 panfish may be kept but only 10 of any one species

SURVEY INFORMATION

| Site Location | Survey Dates | Water Temperature (°F) | Target Species | Gear | Number of Nets | Effort |
|---------------------|-----------------------|------------------------|----------------|-------------|----------------|---------------|
| School Section Lake | 4/26/2021 - 4/30/2021 | 48 - 56 | black crappie | Fyke Net | 3 | 12 net nights |
| School Section Lake | 5/18/2021 | 68 | All | Boomshocker | N/A | 1.54 miles |

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).

Survey Method

- School Section Lake was sampled according to spring netting III (SNIII) and spring electrofishing II (SEII) protocols as outlined in DNR Fisheries Monitoring Protocols. The primary objective of the spring netting III is to count and measure panfish, in this instance particularly black crappie. The primary objective of the spring electrofishing II survey is to count and measure adult largemouth bass, smallmouth bass and panfish. Other species of fish may be sampled during each survey, but are considered by-catch as part of that survey.
- Boom shockers were used to electrofish 1.54 miles of shoreline. Gamefish were collected and measured throughout, and panfish were collected and counted along 1.54 miles of shoreline.
- Fyke nets were deployed in areas of the lake that contained spawning habitat or were likely travel areas for black crappie. Aging structures (otoliths) were taken from a sample of bluegill and black crappie for age and growth analyses.

RELATIVE ABUNDANCE — CATCH PER UNIT EFFORT (CPUE)

| Species | Protocol | Total Number Captured | CPUE | Units | Statewide Percentile | Abundance Rating | Length Index | Length Index CPUE | Length Index Percentile | Length Index Abundance Rating |
|-----------------|--------------------------|-----------------------|-------|-----------|----------------------|------------------|--------------|-------------------|-------------------------|-------------------------------|
| bluegill | Spring Electrofishing II | 154 | 100.0 | fish/mile | 55th | Moderate | >7.0 inches | 1.3 | 25th | Low |
| pumpkinseed | Spring Electrofishing II | 32 | 20.8 | fish/mile | 76th | Moderate - High | >7.0 inches | 0 | - | Low |
| largemouth bass | Spring Electrofishing II | 22 | 14.3 | fish/mile | 50th | Moderate | >14.0 inches | 4.5 | 63rd | Moderate |
| yellow perch | Spring Electrofishing II | 6 | 3.9 | fish/mile | 27th | Low | >8.0 inches | 0 | - | Low |



Black Crappie

- Black crappie (*Pomoxis nigromaculatus*) are a common panfish species distributed widely across many Wisconsin waterbodies. Black crappie typically spawn in nearshore areas consisting of detritus, sand, mud or gravel substrate at approximately 58-68°F water temperatures. Electrofishing and fyke netting can be effective sampling gear for black crappie and therefore, results from both gears are presented for black crappie

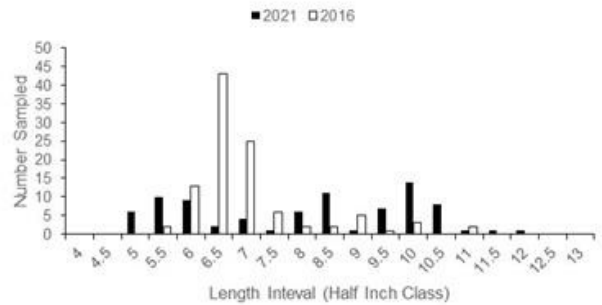
2021 SIZE STRUCTURE METRICS

| Year | Number Measured | Average Length (inches) | Length Range (inches) | Stock and Quality Size (inches) | Stock | Quality | PSD | Percentile Rank | Size Rating |
|------|-----------------|-------------------------|-----------------------|---------------------------------|-------|---------|-----|-----------------|-------------|
| 2016 | 104 | 7.2 | 5.6 - 11.4 | 5.0 and 8.0 | 104 | 15 | 14 | 10th | Low |
| 2021 | 82 | 8.3 | 5.2 - 12.6 | 5.0 and 8.0 | 82 | 50 | 61 | 50th | Moderate |

FYKE NETTING CPUE TRENDS (NUMBER PER NET NIGHT)

| 2021 Number Sampled | 2016 | 2021 | Historical Median | 2021 Statewide Percentile Rank | 2021 Abundance Rating |
|---------------------|------|------|-------------------|--------------------------------|-----------------------|
| 82 | 11.6 | 6.8 | 9.2 | 71st | Moderate - Fast |

Black Crappie Fyke Netting Length Distribution



GROWTH METRICS

| Species | Total | Length Bin | Mean Age | Age | Percentile | Growth |
|----------------------|-------|------------|----------|-------|------------|-----------|
| Black Crappie - 2016 | 8 | 8.5 - 9.4 | 3.0 | 3 | 100th | Very Fast |
| Black Crappie - 2016 | 4 | 9.5 - 10.4 | 3.0 | 3 | 100th | Very Fast |
| Black Crappie - 2021 | 5 | 7.5 - 8.4 | 3.2 | 3 - 4 | 79th | Fast |
| Black Crappie - 2021 | 10 | 9.5 - 10.4 | 4.9 | 4 - 5 | 69th | Fast |

Bluegill

- Bluegill (*Lepomis macrochirus*) are a very common panfish species distributed widely across many Wisconsin waterbodies. Bluegills typically spawn in nearshore areas consisting of sand, mud or gravel substrate at approximately 67-80°F water temperatures. Electrofishing is the standard sampling gear for bluegills, but fyke netting can show some information as well. When comparing bluegill populations to other waterbodies electrofishing data is to be used for our surveys.

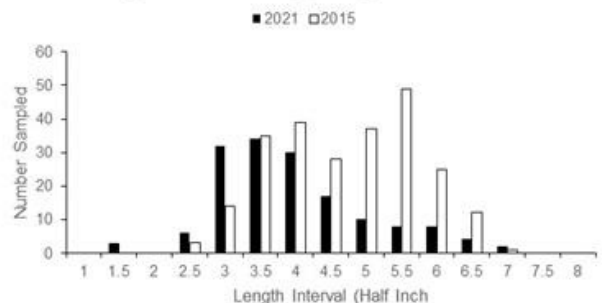
2021 SIZE STRUCTURE METRICS

| Year | Number Measured | Average Length (inches) | Length Range (inches) | Stock and Quality Size (inches) | Stock | Quality | PSD | Percentile Rank | Size Rating |
|------|-----------------|-------------------------|-----------------------|---------------------------------|-------|---------|-----|-----------------|-------------|
| 2015 | 243 | 5.0 | 2.6 - 7.4 | 3.0 and 6.0 | 240 | 38 | 16 | 23rd | Low |
| 2021 | 154 | 4.2 | 1.7 - 7.5 | 3.0 and 6.0 | 145 | 14 | 10 | 14th | Low |

2021 GROWTH METRICS

| Species | Total | Length Bin | Mean Age | Age Range | Percentile Rank | Growth Rating |
|-----------------|-------|------------|----------|-----------|-----------------|-----------------|
| Bluegill - 2015 | 8 | 5.5 - 6.4 | 4.0 | 4 | 68th | Moderate - Fast |
| Bluegill - 2015 | 10 | 6.5 - 7.4 | 4.5 | 4 - 6 | 74th | Moderate - Fast |
| Bluegill - 2021 | 4 | 5.5 - 6.4 | 3.5 | 3 - 4 | 75th | Moderate - Fast |
| Bluegill - 2021 | 5 | 6.5 - 7.4 | 4.0 | 3 - 5 | 83rd | Moderate - Fast |

Bluegill Electrofishing Length Distribution



ELECTROFISHING TRENDS CPUE (NUMBER PER MILE)

| CPUE by Year | | Historical Median |
|--------------|-------|-------------------|
| 2015 | 2021 | |
| 152.8 | 100.0 | 126.4 |



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Full Summary

- A total of 301 fish from 13 different species were captured in the electrofishing survey. The most frequently encountered and common species were bluegills (154), largemouth bass (22), pumpkinseeds (32), black crappie (37) and yellow bullhead (19). Other species sampled in lower abundance include black bullhead (9), central mudminnow (1), common carp (1), common shiner (3), northern pike(13), warmouth (3), white sucker (1) and yellow perch (6).
- A total of 488 fish from 9 different species were captured in the fyke netting survey. The most frequently encountered and common species were black bullhead (84), black crappie (82), yellow bullhead (286) and bluegills (23). Other species sampled in lower abundance while fyke netting include largemouth bass (3), northern pike (4), pumpkinseed (3), warmouth (1) and yellow perch (2). Common carp was the lone invasive species captured in these surveys.
- Largemouth bass were the dominant gamefish species captured in our survey. Largemouth bass were found in moderate densities, with a PSD of 63 and a moderate density of harvestable size fish, $4.5 \geq 14$ -inches captured per mile of electrofishing. Moderate numbers of smaller largemouth bass that should grow to sizes desired by anglers in the coming years were also captured.
- Seventeen northern pike were captured in the electrofishing and fyke netting surveys combined. However, fyke netting as soon as ice goes out is a more appropriate sampling gear and timeframe to assess the northern pike population.
- The main focus of this survey was to evaluate the impact of the panfish regulation put into place in 2016. Bluegills were the dominant panfish species captured in our survey, with 1.3 bluegill >7.0 -inches captured per mile of electrofishing, which ranks low when compared to other lakes in Wisconsin. The regulation change has resulted in a decreased average size and a lower PSD for bluegills. Catch per mile has declined slightly since the last electrofishing survey in 2015, but the lower numbers have resulted in faster growth.
- The black crappie fishery is a quality fishery. Densities were moderate as well as having a good size structure. Since the last fyke netting survey in 2016 the average size has increased by an inch, while the abundance levels have decreased by 50%.

Management Options

This survey was primarily intended to assess black crappie and bluegill populations. Other species are captured but different survey techniques are typically used to better assess their population metrics. Therefore, management recommendations are focused on panfish.

Black Crappie

- Black crappie were found at optimal levels in School Section Lake and provides a good fishing opportunity. The fluctuating year class strength has the potential to change some of the metrics, but growth should remain above average. Black crappie have the ability to reach 8.0-inches in 3 years, while growing to 10.0-inches in 4 to 5 years.

Panfish

- Bluegill size structure has declined following the regulation change. Bluegills were captured in low to moderate densities and exhibited poor size structure. These lower densities allow for faster growth rates and bluegills will reach harvestable size quickly.

Other Management Objectives

- Growth of bluegills and black crappie is fast in School Section Lake, but will be reevaluated in 5 years to see if the new regulation has the fishery trending in the right direction. The lower bag limit appears to be having some impact on the bluegill fishery but more time is needed to evaluate the regulation.
- Maintain predator densities at current levels to prevent bluegill from becoming overabundant and stunting.
- School Section Lake has a diverse aquatic plant community along with little shoreline development, which provides excellent habitat. The DNR should continue to work with the Lake association and other groups to add fish sticks and large woody habitat to School Section Lake.