



2015 Spring Electrofishing (SEII) Summary Report

Loon Lake (WBIC 323800)

Shawano County

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Introduction and Survey Objectives

In 2015, the Department of Natural Resources conducted a one night boomshocking survey of Loon Lake in order to provide insight and direction for the future fisheries management of this water body. Primary sampling objectives of this survey are to characterize species composition, relative abundance, and size structure. The following report is a brief summary of all activities conducted, general status of fish populations and future management options.

Acres: 327

Lake Type: Drainage

Regulations: Statewide Default Regulations

Shoreline Miles: 3.5

Public Access: 1 Boat Launch

Maximum Depth (feet): 22

WISCONSIN DNR CONTACT INFO.

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Survey Information

| Site location | Survey Date | Water Temp. (F) | Target Species | Total Miles Shocked | No. of Stations | Gear | Dippers |
|---------------|-------------|-----------------|----------------|---------------------|-----------------|-------------|---------|
| Loon Lake | 5/28/2015 | 69.1 | All | 5.0 | 3 | Boomshocker | 2 |

Survey Method

- Loon Lake was sampled according to spring electrofishing (SEII) protocols as outlined in the statewide lake assessment plan. The primary objective for this sampling period is to count and measure adult bass and panfish. Other gamefish may be sampled but are considered by -catch as part of this survey.
- The entire shoreline (including island) was sampled with a boomshocker. All fish captured were identified to species and measured for length. A subsample of fish were weighed and age structures collected for age and growth analysis.
- Fish metrics used to describe fish populations include proportional stock density, catch per effort, length frequency distribution, and mean age at length.



Fish Metric Descriptions

PSD, CPUE, LFD and Growth

Proportional Stock Density (PSD) is an index used to describe size structure of fish. It is calculated by dividing the number of quality size fish by the number of stock size fish for a given species. PSD values in the 30 to 50 percent range generally describe a balanced fish population.

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 lake surveys we typically quantify CPUE by the number and size of fish per mile of shoreline. CPUE indexes are compared to statewide data by percentiles. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.

Length frequency distribution (LFD) is a graphical representation of the percentage of fish captured by 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 gear sampling limitations.

Mean Age at Length is an index used to assess fish growth. Growth structures (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).

Size Structure Metrics

| Species | Total | Average Length (inches) | Length Range (inches) | Stock and Quality Size (inches) | Stock No | Quality No | PSD | Percentile Rank | Size Rating |
|-----------------|-------|-------------------------|-----------------------|---------------------------------|----------|------------|-----|-----------------|-------------|
| BLUEGILL | 141 | 4.9 | 2.1 - 8.1 | 3.0 and 6.0 | 133 | 28 | 21% | 29th | Low |
| BLACK CRAPPIE | 56 | 6.5 | 2.9 - 9.9 | 5.0 and 8.0 | 29 | 3 | 10% | 12th | Low |
| LARGEMOUTH BASS | 42 | 12.7 | 6.1 - 20.0 | 8.0 and 12.0 | 38 | 22 | 58% | 47th | Moderate |
| PUMPKINSEED | 51 | 5.4 | 2.8 - 6.9 | 3.0 and 6.0 | 50 | 10 | 20% | 32nd | Low |
| YELLOW PERCH | 23 | 5.0 | 4.1 - 6.1 | 5.0 and 8.0 | 8 | 0 | - | - | Low |

Abundance Metrics

| Species | CPUE Total (no per mile) | Percentile Rank | Overall Abundance Rating | Length Index | Length Index CPUE | Percentile Rank | Abundance Rating |
|-----------------|--------------------------|-----------------|--------------------------|--------------|-------------------|-----------------|------------------|
| BLUEGILL | 88.1 | 45th | Moderate | ≥ 7.0 | 1.9 | 2nd | Very Low |
| BLACK CRAPPIE | 18.8 | 75th | High | ≥ 8.0 | 1.9 | 35th | Moderate |
| PUMPKINSEED | 31.9 | 81st | High | ≥ 7.0 | 0.0 | - | Very Low |
| YELLOW PERCH | 14.4 | 58th | Moderate | ≥ 8.0 | 0.0 | - | Very Low |
| LARGEMOUTH BASS | 12.4 | 37th | Moderate - Low | ≥14.0 | 5.3 | 63rd | Moderate |

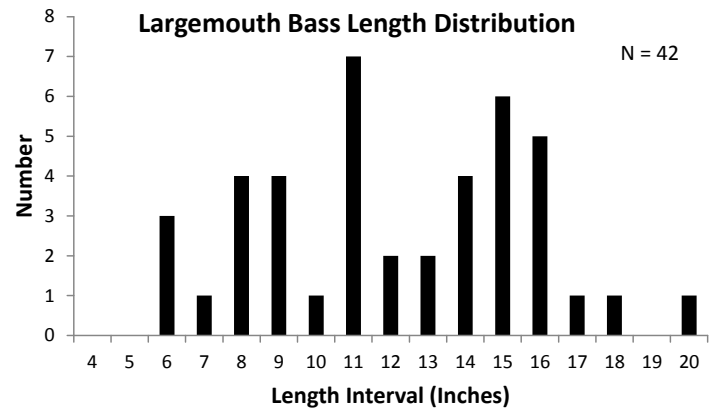
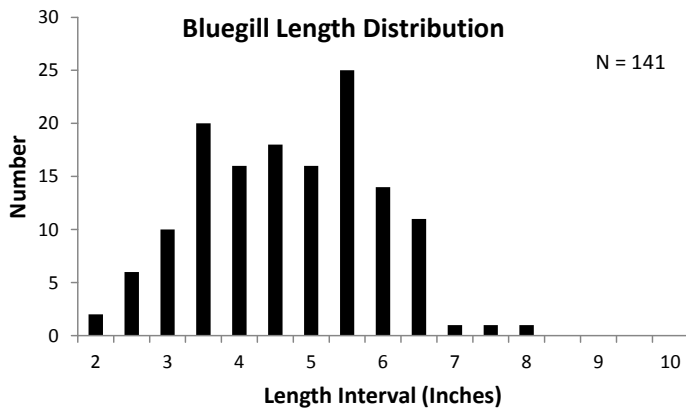


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| Stocking History | | | | |
|------------------|------|-------------------|-------------|----------------|
| Species | Year | Age | Mean Length | Number Stocked |
| WALLEYE | 2014 | LARGE FINGER-LING | 7.3 | 2342 |
| LARGEMOUTH BASS | 1998 | LARGE FINGER-LING | 5.0 | 900 |
| WALLEYE | 1975 | SMALL FINGER-LING | 5.0 | 15000 |

| Growth Metrics | | | | | | |
|-----------------|-----------|---------------------|------------------|-------------------|-----------------|---------------|
| Species | Total (N) | Length Bin (inches) | Mean Age (years) | Age Range (years) | Percentile Rank | Growth Rating |
| BLUEGILL | 5 | 6.0 | 6.5 | 5-8 | 4th | Very Slow |
| BLUEGILL | 6 | 7.0 | 8.2 | 7-10 | 2nd | Very Slow |
| LARGEMOUTH BASS | 4 | 12.0 | 3.5 | 3-4 | 91st | Fast |
| LARGEMOUTH BASS | 3 | 14.0 | 9.3 | 8-10 | 2nd | Slow |

Summary

- A total of 312 fish in 13 species were collected during our surveys. The most frequently encountered and common species were bluegill (141), largemouth bass (42), black crappie (56), pumpkinseed (51), and yellow perch (23).
- All fish captured were native species. One state listed special concern species, lake chubsucker, was found at moderate levels of abundance.
- Other species sampled in low abundance included brown bullhead (4), rockbass (1), white sucker (5), and yellow bullhead (3).
- Largemouth bass was the dominant gamefish captured in our survey. Size structure and abundance metrics were found at moderate levels. Largest bass sampled was 20.0 inches and 47% of catch were greater than 14.0 inches. Growth metrics indicated fast growth for quality size bass.
- One northern pike was sampled. Fyke netting would be the more appropriate sampling technique to assess this population.
- One 18.9 inch muskellunge was captured and several were observed. Muskellunge have never been stocked in Loon Lake and it is very likely the fish we observed are migrants from Shawano Lake via the outlet channel. Fyke netting would be the more appropriate sampling technique to assess this population.
- Three walleyes were captured and all were less than 8.0 inches. It is likely these fish are from the 2014 large fingerling stocking event.
- Panfish populations were mainly comprised of bluegill, black crappie, and yellow perch. Bluegill were found in moderate density and showed below average size structure with only 21% of our catch greater than 6.0 inches and 2% greater than 7.0 inches. Black crappie were found in high abundance and showed below average size with only 10% of our catch greater than 8.0 inches. Bluegill and black crappie growth was slow. Pumpkinseed and yellow perch were found at moderately high density but were comprised mainly of small fish (<6.0 inches).

Management Options

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

Largemouth Bass

- Management Objective: Maintain largemouth CPUE of > 14.0 inches bass at 5-10 per mile and PSD at 40-50%.
- Management Action: None at this time.

Panfish

- Panfish size structure was found at suboptimal levels. We recommend predator management to reduce density and improve growth rate.
- Management Objective: Increase bluegill electrofishing PSD (%>6.0 inches) to 30-40% and decrease relative abundance to improve growth.
- Management Action: Increase predator density to reduce panfish density and improve growth. Walleye stocking (large fingerling at 10/acre) has recently been initiated with the first stocking in 2014 and another planned for 2016. A biennial large fingerling northern pike quota (15/acre) is also recommended over the next 6 years.

Other Management Objectives:

- Currently, Loon Lake is on an 8 year sampling rotation with the next survey scheduled for 2023. We recommend next sampling date be moved up to 2019 or 2020. In addition to the standard SEII electrofishing survey we recommend adding a spring netting survey to assess adult walleye, northern pike, and muskellunge populations.