



2014 Spring Electrofishing (SEII) Summary Report

Shawano Lake (WBIC 322800)

Shawano County

Introduction and Survey Objectives

In 2014, the Department of Natural Resources conducted a one night boomshocking survey of Shawano 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: 6,178 Shoreline Miles: 16.5 Maximum Depth (feet): 42
 Lake Type: Drainage Public Access: 7 Public Landings

Regulations: Statewide Default Regulations

WISCONSIN DNR CONTACT INFO.

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A copy of this report can be found online at:
<http://dnr.wi.gov/topic/fishing/reports/>

Survey Information

Site location	Survey Date	Water Temp. (F)	Target Species	Total Miles Shocked	No. of Stations	Gear	Dippers
Shawano Lake	5/28/2014	71.0	All	8.0	8	2 Boomshockers	4

Survey Method

- Shawano 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.
- Eight miles of shoreline were sampled with a boomshocker. Four 2.0 mile transects were sampled with a 0.5 mile reach targeting all fish and a 1.5 mile reach targeting just gamefish. 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

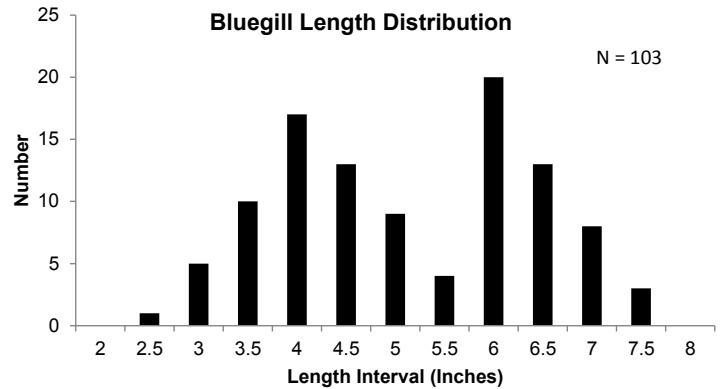
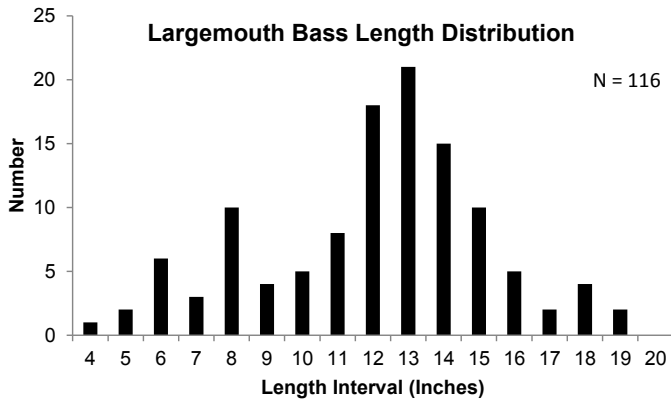
Species	Total	Average Length and Range (inches)	Stock and Quality Size (inches)	Stock No	Quality No	PSD	Percentile Rank	Size Rating
BLUEGILL	103	5.3 (3.0 - 7.6)	3.0 and 6.0	102	44	43%	61st	Moderate
LARGEMOUTH BASS	116	12.5 (4.8 - 19.9)	8.0 and 12.0	104	77	74%	72nd	High
PUMPKINSEED	41	6.3 (3.4 - 8.2)	3.0 and 6.0	41	32	78%	89th	High
NORTHERN PIKE	20	19.1 (9.3 - 27.7)	14.0 and 21.0	18	6	33%	40th	Moderate
WALLEYE	14	14.4 (11.2 - 19.9)	10.0 and 15.0	14	6	43%	51st	Moderate
MUSKELLUNGE	4	44.8 (37.7 - 47.8)	30.0 and 38.0	4	3	75%	78th	High
YELLOW PERCH	12	4.8 (3.9 - 5.8)	5.0 and 8.0	5	0	0%	-	Low

Abundance Metrics

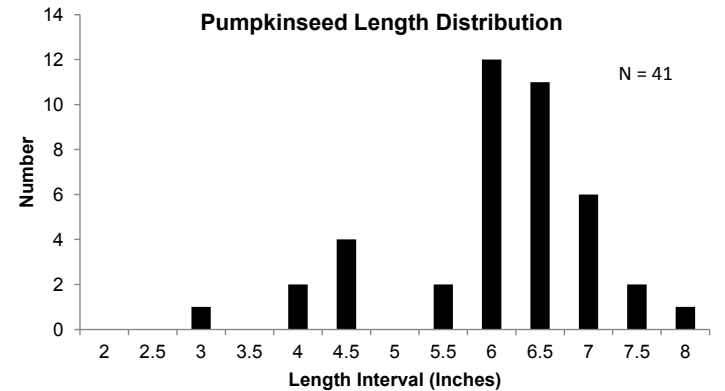
Species	CPUE Total (no per mile)	Percentile Rank	Overall Abundance Rating	Length Index	Length Index CPUE	Percentile Rank	Abundance Rating
BLUEGILL	51.5	32nd	Moderate	≥ 7.0	5.5	44th	Moderate
LARGEMOUTH BASS	13.3	39th	Moderate	≥ 14.0	4.8	60th	Moderate
PUMPKINSEED	20.5	71st	High	≥ 7.0	4.5	87th	High
NORTHERN PIKE	2.5	63rd	Moderate	≥ 26.0	0.25	71st	High
WALLEYE	1.8	29th	Low	≥ 18.0	0.1	34th	Low
MUSKELLUNGE	0.5	35th	Moderate	≥ 42.0	0.4	96th	High
YELLOW PERCH	6	34th	Moderate	≥ 8.0	0	-	Low

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Growth Metrics					
Species	Total	Length Bin	Mean Age and Range	Percentile Rank	Growth Rating
LARGEMOUTH	12	12.0 - 12.4	5.3 (4-6)	18th	Slow
BLUEGILL	7	6.0 - 6.4	7.3 (7-8)	<10	Slow
BLUEGILL	18	7.0 - 7.4	7.6 (7-9)	<10	Slow



Summary

- Largemouth bass were found at moderate levels for abundance and size structure when compared to statewide data. Growth metrics indicated slow growth.
- Bluegill populations showed moderate size structure and abundance when compared to statewide data but have declined from past lake surveys. Abundance and size metrics of pumpkinseed was particularly high. Growth metrics for bluegill indicated slow growth for quality sized fish and has decreased from the last survey.
- Although black crappie were not sampled in our electrofishing survey we did capture a significant sample during an earlier fyke net survey. Fyke net survey indicated high abundance with poor size, however, the poor size structure is likely due to a strong year class of 2 year old crappies. Based on current growth rate, this strong year class should reach harvestable size (>8.0 inches) in about 2-3 years.
- A small number of walleye, northern pike and muskellunge were captured during this survey. A larger sample of these species were captured during an earlier fyke net survey. Results from the netting survey indicate a low density walleye and muskellunge population with above average size structure. Northern pike were found at moderate relative abundance and size structure.
- Other species sampled in our survey include: bowfin, common carp, lake chubsucker, longnose gar, rockbass, and yellow bullhead.

Management Options

- Management Objective: *Maintain largemouth bass size and abundance metrics at current levels.*
- Bluegill relative abundance and growth metrics indicate moderate abundance with slow growth. These metrics are likely being influenced by the high density of aquatic plants and consequent impact on predator/prey interactions. Management of habitat and/or predators will likely be the best option to improve size structure. It will be important to support aquatic plant management efforts (especially as it relates to Eurasian watermilfoil and Curly-leaf pondweed control).
- Management Objective: *Increase bluegill electrofishing PSD (% >6.0 inches) to 50-60% and decrease relative abundance to promote better growth. Maintain pumpkinseed PSD at 50-70%.*

Abundance (CPUE) Trends				
Species	CPUE (no per mile)			
	Median	2006	2010	2014
BLUEGILL	-	134.7	81.5	51.5
LARGEMOUTH BASS	-	31.1	20.8	13.3
PUMPKINSEED	-	22.0	27.0	20.5
NORTHERN PIKE	-	2.2	0.6	2.5
WALLEYE	-	1.6	1.3	1.8
MUSKELLUNGE	-	0.4	0.6	0.5

Size Structure (PSD) Trends					
Species	Stock and Quality Size (inches)	Median	2006	2010	2014
BLUEGILL	3.0 and 6.0	-	33%	30%	43%
LARGEMOUTH BASS	8.0 and 12.0	-	87%	72%	74%
PUMPKINSEED	3.0 and 6.0	-	64%	57%	78%

Stocking History					
Species	Year	Source	Age	Mean Length	Number Stocked
WALLEYE	2014	Private- WFT	Fry	0.3	2,550,000
WALLEYE	2013	Private- WFT	Fry	0.3	500,062
WALLEYE	2013	DNR	Large Fingerling	7.2	22,308
MUSKELLUNGE	2013	DNR	Large Fingerling	9.7	2,000
WALLEYE	2012	Private- WFT	Fry	0.3	1,169,000
WALLEYE	2011	DNR	Large Fingerling	6.5	9,765