



WISCONSIN DEPARTMENT OF NATURAL RESOURCES

SEII Summary Report Spring Lake, Waushara County WBIC: 149000

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Introduction And Objectives

In 2022, the Wisconsin Department of Natural Resources (WDNR) conducted a one night electrofishing survey of the Spring Lake in order to provide insight and direction for the future fisheries management of this water body. Primary sampling objectives of this survey were to characterize species composition, relative abundance, and size structure. The following report is a brief summary of that survey including the general status of the fish populations and future management options for Spring Lake.

SURVEY INFORMATION

Site Location	Survey Dates	Water Temperature (°F)	Target Species	Gear
Spring Lake	05/18/2022	67	Bass and Panfish	Electroshocking

DNR Contact

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Lake Information

Acres: 50
Max. Depth: 37 ft
Shoreline Miles: 2.1+
Public Access: 2
Lake Class: Simple Two Story

Regulations:

Minimum length, Bag

Panfish: no minimum, 25 bag
Largemouth Bass: 14 inch, 5 bag
Northern Pike: 26 inch, 2 bag
Trout : no minimum, 3 bag

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.
- Total abundance is a metric that describes population size and is estimated by mark and recapture**. In our study, all captured (insert species) were given a partial caudal fin (i.e., tail fin) clip and released. Each time the nets were checked, all (insert species) were examined for a partial caudal fin clip. The number of previously captured individuals (i.e., fin clipped) was recorded, and proportions of marked individuals to unmarked individuals were used to estimate the total abundance of the (insert species) population.
- 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).
- Relative weight is an index used to assess the plumpness (i.e., condition) of fish**. It is calculated by comparing the observed weight of a fish to the standard weight (i.e., predicted average weight) of that fish, given its length. A relative weight of 93 means it has average plumpness/weight compared to other fish of the same length. Relative weights above 93 mean it is more plump than average.

Survey Method

Spring Lake was sampled according to spring electroshocking (SEII) protocols as outlined in DNR Fisheries Monitoring Protocols. The primary objective for these sampling periods is to count and measure adult bass and panfish. Other gamefish/panfish may be sampled but are considered by-catch as part of this survey. A boom shocker was used to electrofish 1.8 miles of shoreline. Gamefish were collected and measured throughout, and panfish were collected and counted along 1 mile. The survey was cut short because of bad thunderstorm that hit after shocking 0.3 miles of the last station. This survey ended up being shorter than the previous 2 surveys.

RELATIVE ABUNDANCE — CATCH PER UNIT EFFORT (CPUE)

Species	Total Number Captured	Average Length (Inches)	Length Range (inches)	CPUE/Mile	Statewide Percentile	Lake Class Percentile	Overall Abundance Rating
Bluegill	216	5.3	1.5 –8.1	216	82nd	82nd	High
Pumpkinseed	14	5.7	3.2 –7.5	14	66th	68th	Moderate
Yellow perch	16	5.4	4.2 –8.1	16	64th	-	Moderate
Largemouth bass	281	9.0	4 –20.2	156	99th	100th	High
Northern pike	5	20.4	12.3 –27.8	5	84th	-	High



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Spring Lake Bluegill

YEAR SIZE STRUCTURE METRICS

Total Number Measured	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
216	5.3	1.5 –8.1	3 and 6	195	62	32	49th	Moderate

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)

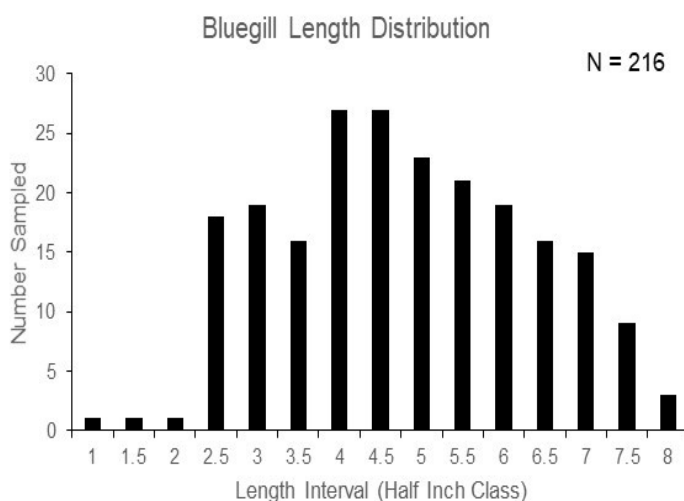
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
55	258	216	176	82nd	High

SIZE STRUCTURE (PSD) TRENDS

PSD by Year			Historical Median
2005	2013	2022	
15	32	32	26

AVERAGE BLUEGILL AGE AT 6 INCHES

Sex	Count	Average Age	Age Range	Lake Class-Rating	Regional Rating
Male	8	4.4	4 –6	Average	Average
Female	15	4.7	4 –6	Average	Average
All	23	4.6	4 –6	Average	Average



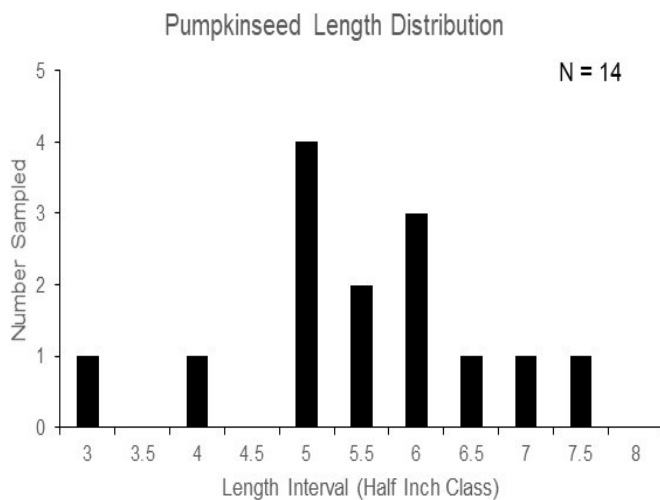
Spring Lake Pumpkinseed

YEAR SIZE STRUCTURE METRICS

Total Number Measured	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
14	5.7	3.2 –7.5	3 and 6	13	6	43	60th	Moderate

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)

2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
1	6	14	7	66th	Moderate





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Spring Lake Black Crappie

SIZE STRUCTURE METRICS			RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
Total Number Measured	Average Length (inches)	Length Range (inches)	2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
1	9.5	9.5	0	1	1	0.7	10th	Low

Spring Lake Yellow Perch

SIZE STRUCTURE METRICS			RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
Total Number Measured	Average Length (inches)	Length Range (inches)	2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
16	5.4	4.2 –8.1	6	8	16	10	64th	Moderate

Spring Lake Rock Bass

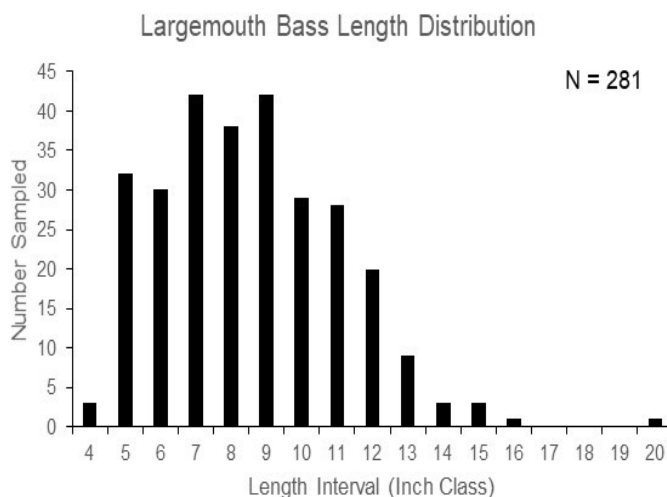
SIZE STRUCTURE METRICS			RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
Total Number Measured	Average Length (inches)	Length Range (inches)	2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
21	5.6	3.0 –8.8	13	32	21	22	84th	High

Spring Lake Largemouth Bass

YEAR SIZE STRUCTURE METRICS								
Total Number Measured	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
281	9.0	4.0 –20.2	8 and 12	174	37	21	7th	Low

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
54	62	156	91	99th	High

SIZE STRUCTURE (PSD) TRENDS			
PSD by Year			Historical Median
2005	2013	2022	
17	32	21	23



Spring Lake Northern Pike

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
2.9	2.4	2.8	11.1	84th	High

YEAR SIZE STRUCTURE METRICS		
Total Number	Average Length	Length Range
5	20.4	12.3 –27.8



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Summary

Bluegill

Abundance was down slightly since the 2013 survey and significantly higher than 2005. At 216 per mile it ranks in the 82nd percentile statewide. The size structure remained unchanged from survey in 2013 with PSD = 32, on the lower end of what we would like to see and ranks in the 49th percentile. Age structures show average growth with fish taking 4.6 years to reach 6 inches in length. An ideal management option would be to increase abundance to 300/mile and size structure to between PSD = 40-60.

Pumpkinseed

Abundance has increased 2 fold since 2013 from 6/mile to 14/mile ranking in the 66th percentile. Much better than the 2005 survey when only 1 per mile was found. The size structure is fair with PSD = 43 ranking at the 60th percentile. An ideal management option would be to maintain abundance around 15/ mile and increase size structure to more than PSD=50.

Largemouth Bass

At 156 per mile abundance has increased significantly when compared to the previous survey (62/mile) and is high ranking at the 100th percentile. Abundance has increased almost 3 fold since the 2005 survey when it was 54 per mile. The size structure of PSD = 21 was poor and down from survey in 2013 where PSD = 32. And size structure has been poor the last 2 surveys with the current size structure ranking is in the 7th percentile. Abundance needs to be reduced to near 50/mile which might serve to increase size structure to PSD $\geq$ 50. Increasing the numbers of preferred (15 inch) and memorable (20 inch) fish is desirable. Recommend a no minimum size be placed on bass for Spring Lake.

Northern Pike

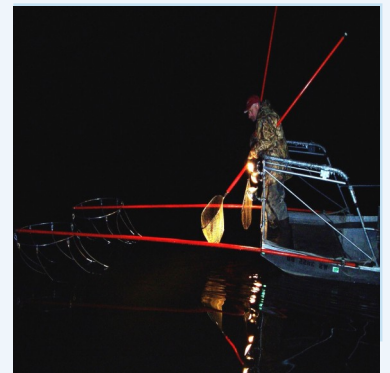
This type of survey is not meant to assess the northern pike population and generally provided limited information with only 5 fish captured. The survey did however provide consistent results, at 2.8/mile the abundance was similar to previous surveys, 2.9/mile in 2005 and 2.4/mile in 2013.

Other Species

These included yellow bullhead(3), bowfin(1), blackchin shiner(1), green sunfish(3), white suckers(6) and adult common carp(4).



Spring Lake



Shocking Boat Used

Photos by DNR

History

Spring Lake is a 40 acre clear water drainage lake with a maximum depth of 37 feet. The surrounding watershed is mostly agricultural use. In 1954 Spring Lake was first inspected by the Wisconsin Conservation Department and some local cooperators to determine its potential as a trout fishery. It was concluded that Spring Lake was suitable for trout, but it was also noted that carp were present. As of 1961 there was no public access to Spring Lake, but the town was anticipating purchase and development of public access in the near future. The first fish survey was a boomshocker run in 1961 during which some nice largemouth bass were sampled, but the rest of the fishery was unimpressive and consisted of very abundant small perch and small panfish. Seven northern pike were sampled up to 22 inches. The decision was made to manage Spring Lake as a Trout/Bass/Panfish lake. In 1963 a public access site was developed on the northeast end of Spring Lake and the first trout were stocked. Trout have been stocked annually ever since. In 1963 a fish grate was also installed in the outlet of Spring Lake to prevent the movement of carp into the lake from the Fox River. In May 1966 another boomshocker run was done to assess the fishery in Spring Lake. It was discovered that brown trout had a much better carryover rate than rainbows, with some fish being sampled that were stocked 19 months earlier. These fish had made it through two winters. The abundance of northern pike still had never been determined. In April of 1969 fyke nets were used to assess the spawning population of northern pike and only 11 northern were sampled from 11 - 26 inches. Through this work it was determined Spring Lake did not contain a large population of northern and the lake should continue to be managed as a trout lake. In 2005 another electrofishing survey was done with largemouth bass catch rates lower at 75/hour > 8 inches and size structure poorer with only 17% of fish > 12 inches. Bluegill catch rates were much lower at only 91/hour > 3 inches and size structure poorer also with only 15% of fish > 6inches.