WISCONSIN DEPARTMENT OF NATURAL RESOURCES

SEII Summary Report

West Branch Millpond, Waushara County

WBIC: 152200

Introduction And Objectives

In 2022, the Wisconsin Department of Natural Resources (DNR) conducted a one night electrofishing survey of the West Branch Millpond 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 West Branch Millpond.

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Lake Information

Acres: 60
Max. Depth: 29 ft
Shoreline Miles: 1.9
Public Access: 1
Lake Class: Simple Warm Clear

Regulations:
Minimum length, Bag

Panfish: no minimum, 25 bag
Largemouth Bass: 14 inch, 5 bag
Northern Pike: No size limit, 5 bag

SURVEY INFORMATION				
Site Location	**Survey Dates**	**Water Temperature (°F)**	**Target Species**	**Gear**
West Branch Millpond	05/17/2022	66	Bass and Panfish	Electroshocking

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

- West Branch Millpond 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.
- Boom shockers were used to electrofish 1.8 miles of shoreline. Gamefish were collected and measured throughout, and panfish were collected and counted along 1 mile.
- An attempt at a spring netting (SN1) was made with no success.

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	309	5.6	2.5 – 8.3	309	90th	84th	High
Pumpkinseed	63	6.2	3.8 – 8.7	63	95th	96th	High
Black crappie	7	9.0	8.5 –9.4	7	55th	-	Moderate
Largemouth bass	118	11.7	6.1 – 20.8	65.6	92nd	77th	High
Northern pike	11	18.4	13.7 – 25.5	6.1	90th	-	High

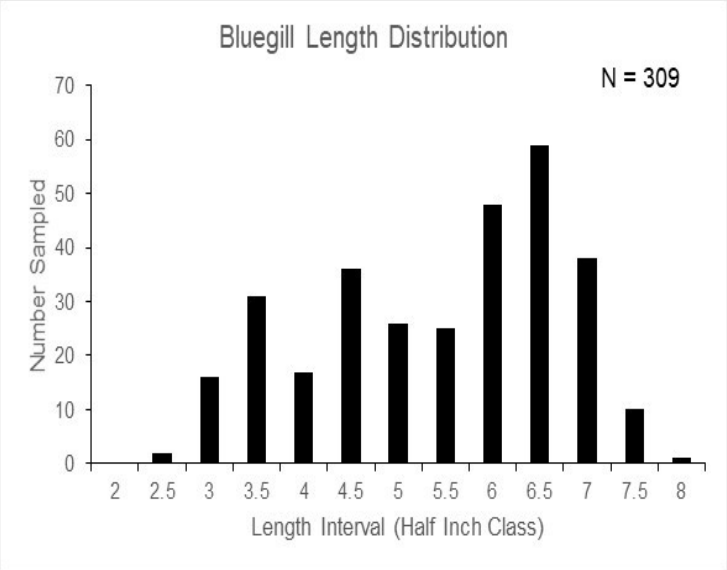
West Branch Millpond Lake Bluegill

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
309	5.6	2.5 – 8.3	3 and 6	307	156	51	71st	High

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
319	223	309	284	90th	High

SIZE STRUCTURE (PSD) TRENDS			
PSD by Year			Historical Median
2005	2013	2022	
37	22	51	37

AVERAGE BLUEGILL AGE AT 6 INCHES					
Sex	Count	Average Age	Age Range	Lake Class-Rating	Regional Rating
Male	11	6	6	Average	Below Avg
Female	6	6	6	Average	Below Avg
All	17	6	6	Average	Below Avg

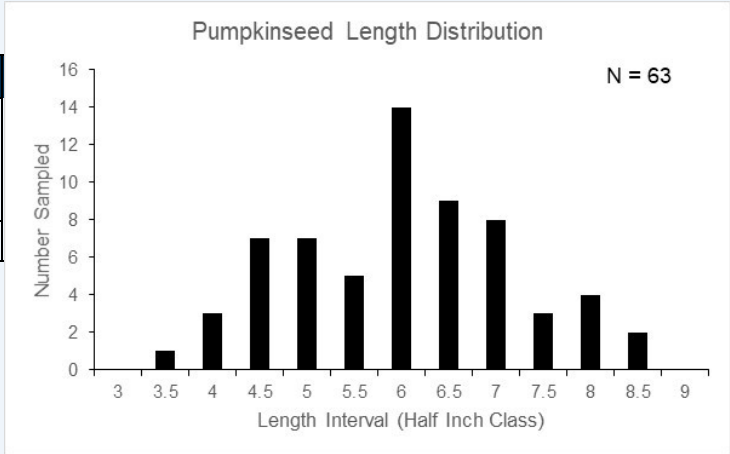


West Branch Millpond Lake Pumpkinseed

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
63	6.2	3.8 – 8.7	3 and 6	63	40	63	78th	High

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
1	20	63	28	83rd	High

SIZE STRUCTURE (PSD) TRENDS			
PSD by Year			Historical Median
2005	2013	2022	
Too Few Fish	Too Few Fish	63	63



West Branch Millpond Black Crappie

SIZE STRUCTURE METRICS		
Total Number Measured	Average Length (inches)	Length Range (inches)
7	9.0	8.5 – 9.4

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
2	1	7	3.33	55th	Moderate

West Branch Millpond Yellow Perch

SIZE STRUCTURE METRICS		
Total Number Measured	Average Length (inches)	Average Length in 2005 (inches)
1	4.2	5.8

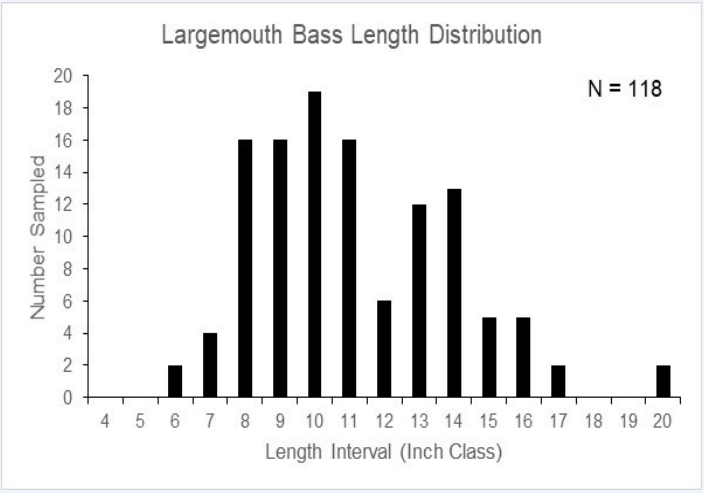
RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
30	1	1	10.7	8th	Low

West Branch Millpond 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
118	11.7	6.1 – 20.8	8 and 12	112	45	40	23rd	Low

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
21	50	66	45.7	92nd	High

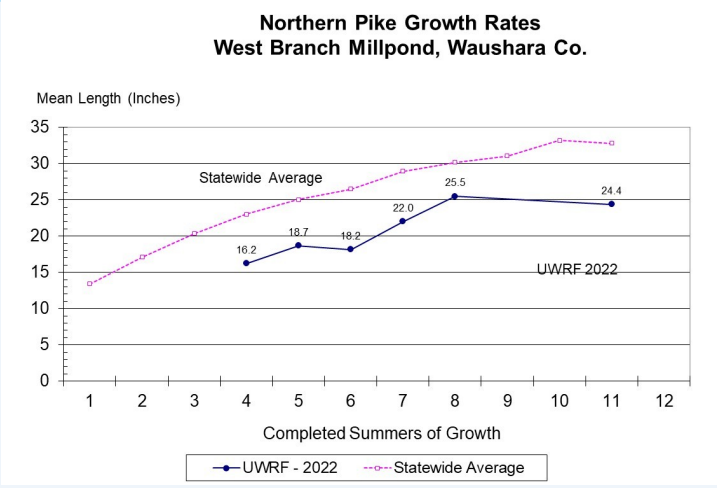
SIZE STRUCTURE (PSD) TRENDS			
PSD by Year			Historical Median
2005	2013	2022	
52	53	40	48.3



West Branch Millpond Lake Northern Pike

YEAR SIZE STRUCTURE METRICS		
Total Number	Average Length	Length Range
11	18.4	13.7 – 25.5

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
3.9	4.4	6.1	4.8	90th	High



Summary

One of the small northern pike we caught in our fyke nets.

Photo by DNR

Bluegill

Abundance has increased since the 2013 survey and was similar to 2005. At 309 per mile it ranks in the 90th percentile statewide. Size structure has increased by over 50% to PSD = 51% from 22% and ranks in the 71st percentile. Age structures show below average growth with fish taking 6 years to reach 6 inches in length. An ideal management option would be to maintain the abundance (300/mile) and size structure (PSD = 51) while seeing an increase in growth.

Pumpkinseed

Abundance has increased 3 fold since 2013 from 20/mile to 63/mile ranking in the 83rd percentile. Size structure is good with 63% of fish larger than 3 inches also larger than 6 inches.(78th percentile). An ideal management option would be to maintain abundance and size structure at or near current levels.

Largemouth Bass

Abundance of 66 per mile has increased slightly when compared to the previous survey (50/mile) and is at a good level for this area of the state (92nd percentile). Abundance has increased 3 fold from 2005 survey of 21 per mile. Size structure of PSD = 40 is somewhat poor and down from the 2 prior surveys where both PSD = 52.5. Current size structure ranking is in the 23rd percentile. An ideal management option would be to maintain abundance near 50/mile and increase the size structure PSD $\geq$ 50% and potentially produce a few more memorable (20 inch) largemouth bass.

Electrofishing boat used to

Photo by DNR

Northern Pike

While not the best survey method to assess northern pike we still captured 6.1/mile showing an increased abundance from 3.9/mile in 2005 and 4.4/mile in 2013. Small and over abundant northern pike has been a complaint from anglers and lake residents for years. In 2022 a spring netting (SN1) was attempted prior to and during ice out to assess the northern pike population but resulted in little applicable data. Age samples were obtained from both surveys and this data showed a slow growing population at the 25th percentile statewide. A proposal went to spring hearing in 2022 and as of 2023, the 26/2 size/bag limit for northern pike has now been removed in the White River System from the river and from Neshkoro Millpond, Lower White River Flowage, West Branch Millpond, and Wautoma Pond, including all tributaries.

History

The Upper White River Flowage is a 60 acre, 29 foot deep impoundment of the headwaters of the West Branch of the White River. It was managed as a two story fishery from 1955 to the late 1980's, with stockings of trout annually. Boomshocking surveys were done in 1960, 1966, 1972, 1980, 1988, 1998 and 2005. Net surveys were done in 1972, 1988, and 2005. The boomshocking run in 1960 found largemouth bass and trout to be the only gamefish. No bluegills were sampled, but pumpkinseeds were numerous. The survey in 1966 was done to assess carryover of trout. The first bluegills (3) were sampled in 1966 along with 122 largemouth bass from 5.5—17.9 inches. It was reported that Upper White River Flowage was providing some nice yellow perch fishing in the late 1960's so a netting survey was done in April 1972 to assess this fishery. There were 502 yellow perch sampled from 4.6—10.5 inches with a PSD_8 = 9. Bluegill numbers had exploded from 3 sampled in 1966 to 1,805 (38/net night) sampled in this survey. A shocking run was then done June of 1972 to assess the largemouth bass fishery. There were 163 (many more 6- 9 inch fish observed) sampled from 3.0 to 19.0 inches, with a PSD_{12} = 17 and RSD_{14} = 7. It was decided to continue to manage Upper White River Flowage as a two story fishery. No northern pike had ever been sampled until a boomshocking run in 1980 sampled 3 fish from 15 -17 inches. There were 69 largemouth bass sampled from 4 - 19 inches with PSD_{12} = 23 and RSD_{14} = 13. The netting survey in 1988 caught 113 northern pike (15 net/day) from 9.5 - 31.4 inches. The shocking run June 1988 showed a slight decline in largemouth bass numbers, 48 sampled from 6.5 - 18.9 inches. There were 352 bluegill sampled (4.1 - 7.8 inches) with a PSD_6 = 30 and only 5 yellow perch sampled. Northern pike seemed to be having a negative impact on the yellow perch fishery. With northern pike numbers on the rise and concerns for the genetic integrity of the trout in the West Branch proper, trout stocking was discontinued in the early 1990's. In 1990, 1991, and 1995 walleyes were stocked in the Upper White River Flowage. In April 1998 a boom shocker run sampled only one fish at 16.5 inches. The 1998 survey also showed a slight increase in largemouth bass 52 sampled. (103 /hr > 8 inches) from 2.8 - 19.7 inches. There were 176 bluegills sampled (704/hr >3 inches) with a PSD_6 = 35 and RSD_7 = 10. In 2005 a boom shocker run and a mini fyke net survey were done, which showed a decrease in largemouth bass 32 per hour over 8 inches from 3.2 - 20.7 inches. Only 7 or the northerrn pike were sampled ranging from 7.6 - 24.2 inches. There were 319 bluegills sampled (626/hour > 3 inches) which was a slight decrease from the previous survey.