



# WISCONSIN DEPARTMENT OF NATURAL RESOURCES

## SEII Summary Report

### Lower White River Flowage, Waushara County

WBIC: 161500

### Introduction And Objectives

In 2022, the Department of Natural Resources conducted a one night electrofishing survey of Lower White River Flowage 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 Lower White River Flowage.

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#### Lake Information

Acres: 125  
 Max. Depth: 22 ft  
 Shoreline Miles: 4.4+  
 Public Access: 1  
 Lake Class: Simple Riverine

#### Regulations:

**Minimum length, Bag**  
 Panfish: no minimum, 25 bag  
 Largemouth Bass: 14 inch, 5 bag  
 Northern Pike: 26 inch, 2 bag

SURVEY INFORMATION				
Site Location	Survey Dates	Water Temperature (°F)	Target Species	Gear
West Branch Millpond	05/18/2022	62	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

- Lower White River Flowage 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 3.5 miles of shoreline. Gamefish were collected and measured throughout, and panfish were collected and counted along 1 mile.

### 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	221	5.6	2.5 - 8.5	221	83rd	79th	High
Pumpkinseed	33	5.5	3.5 - 7.2	33	86th	75th	High
Black Crappie	6	7.7	7.2 - 8.2	6	50th	-	Moderate
Yellow Perch	6	7.5	6.2 - 8.4	6	37th	-	Low
Largemouth Bass	147	11.9	5.0 - 17.0	42	82nd	75th	High
Northern Pike	13	18.2	10.8 - 26.0	13	75th	-	High





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### Lower White River Flowage 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
6	7.7	7.2 - 8.2	1	0	6	2.3	50th	Moderate

### Lower White River Flowage Yellow Perch

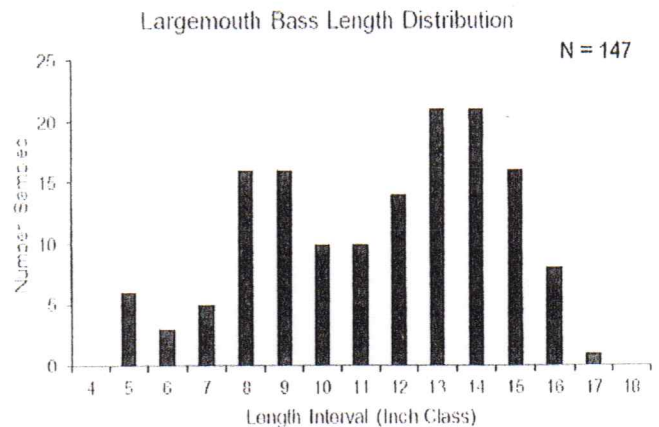
SIZE STRUCTURE METRICS			RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
Total Number Measured	Average Length (inches)	Length Range (inches)	2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
6	7.5	6.2 - 8.4	2	8	6	5.3	37th	Low

### Lower White River Flowage 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
147	11.9	5.0 - 17.0	8 and 12	133	81	61	53rd	Moderate

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
44.2	42.7	42	43	82nd	High

SIZE STRUCTURE (PSD) TRENDS			
PSD by Year			Historical Median
2005	2013	2022	
60	63	61	



### Lower White River Flowage Lake Northern Pike

YEAR SIZE STRUCTURE METRICS		
Total Number Measured	Average Length (inches)	Length Range (inches)
13	18.2	10.8 - 26.0

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
1.3	4.3	3.7	3.1	75th	High





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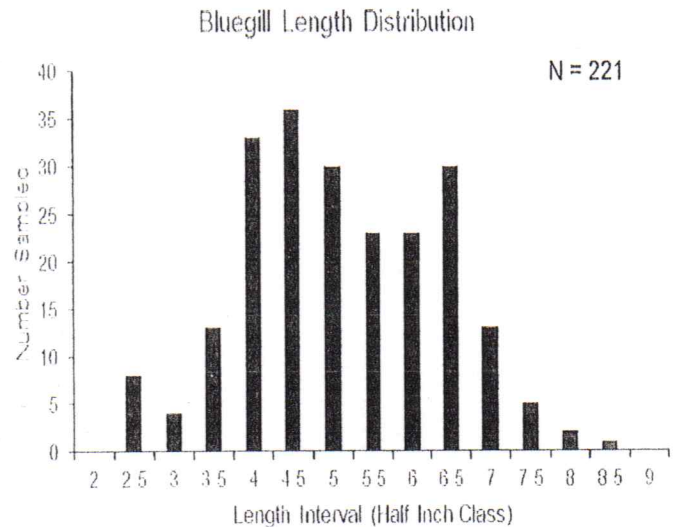
### Lower White River Flowage Bluegill

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
221	5.6	2.5 - 8.5	3 and 6	213	74	35	52nd	Moderate

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
330	138	221	230	83rd	High

SIZE STRUCTURE (PSD) TRENDS				
PSD by Year			Historical Median	
2005	2013	2022		
11	14	35		20

AVERAGE BLUEGILL AGE AT 6 INCHES					
Sex	Count	Average Age	Age Range	Lake Class-Rating	Regional Rating
Male	11	4.4	3 - 5	Average	Average
Female	8	5.0	5	Average	Average
All	19	4.6	3 - 5	Average	Average

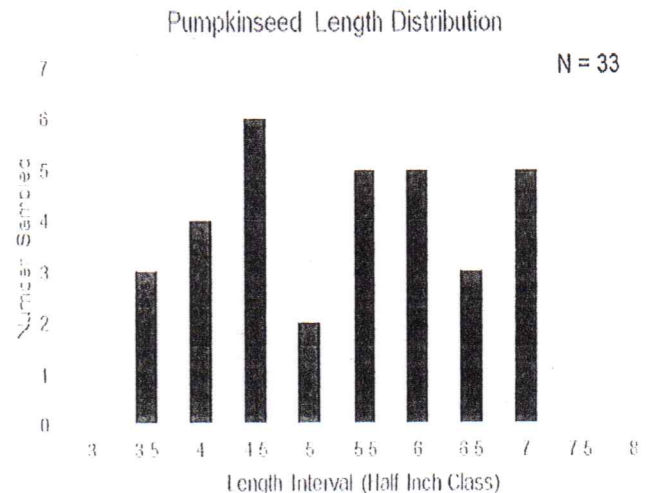


### Lower White River Flowage Pumpkinseed

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
33	5.5	3.5 - 7.2	3 and 6	33	13	39	55th	Moderate

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
20	7	33	20.0	86th	High

SIZE STRUCTURE (PSD) TRENDS				
PSD by Year			Historical Median	
2005	2013	2022		
No Lengths	Too Few Fish	39		39







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### Summary

#### Bluegill

- Abundance has increased since the 2013 survey and down from 2005. At 221 per mile it ranks in the 83rd percentile statewide.
- Size structure has increased by over 50% to PSD = 35% from 14% and ranks in the 52nd 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 maintain the abundance and increase size structure to PSD > 50. Growth rates are average compared to Lake Class and Regional ratings.

#### Pumpkinseed

- Abundance has increased significantly since 2013 from 7/mile to 33/mile ranking in the 86th percentile. There were 20 per mile found in 2005 survey.
- Size structure is fair with 39% of fish larger than 3 inches also larger than 6 inches (55th percentile).
- An ideal management option would be to maintain abundance and increase size structure to PSD=50.

#### Largemouth Bass

- Abundance of 42 per mile has remained unchanged over previous survey years (82nd percentile).
- Size structure of PSD = 61 is in the moderate level and unchanged over the last 2 surveys, ranking in the 61st percentile.
- An ideal management option would be to maintain or slightly increase abundance closer to 50/mile and maintain the size structure near PSD ≥ 60%. An increase in nearshore wood is always beneficial to the bass population.

#### Northern Pike

- This type of survey is not meant to assess the northern pike population, but at 3.7/mile. The high abundance is relatively unchanged over the years ranking in the 75th percentile.
- Small and over abundant Northern Pike has been a complaint from anglers on lakes in the area over the years. A question to remove the size limit on Northern Pike for the White River System from Neshkoro upstream will appear on the Spring Hearing the week of April 10th. This will include Neshkoro Millpond, Lower White River Flowage, West Branch Millpond, and Wautoma Pond, including all tributaries.

#### History

The Lower White River (Dahlke) Millpond was created in 1924 when Charles T. Dahlke and Frank L. Giese constructed a dam on the White River, for the purpose of generating power. The only access to the flowage was 2 private fee charge areas until public access was obtained in 1964. Fish surveys were done in 1960, 1967, 1994 and 2005. In August 1960 a shocking run was done to inventory the fishery. Largemouth bass, northern pike, and bluegill were the most abundant species sampled. Thirty five northern pike were sampled from 5.6 - 20 inches, 95 largemouth bass (4 - 17 inches) and 114 bluegills (2 - 8 inches). Six fyke nets were set during the spring of 1967 to assess the northern pike fishery. There was a total of 327 northern pike sampled (11 - 39.4 inches) with a PSD<sub>21</sub> = 30%. At this time Lower White River Flowage was a very popular warm water fishing area. Fishing activity was heaviest from middle of May to middle of June. Fishing activity was much reduced in July, August and September due to abundant aquatic vegetation. According to Mike Primising (1968) retired area fisheries biologist, "The main problems with this body of water is excessive weed growth, the build-up of silt that is of problem proportions in the upper half of the pond, and grubby fish. As with most flowages, the problems of vegetative growth and silt build up will intensify in the future." In 1994 a comprehensive fishery survey was done using fyke nets and electrofishing. The spring northern pike assessment sampled a total of 226 northern pike with a population estimate of about 800 fish. Size structure was poor with a PSD<sub>21</sub> = 13 and catch per effort was low with a CPE = 2 fish/net night. A total of 77 largemouth bass were sampled using the shocking boat. The CPE = 60 fish/hour was a little low. Size structure was good with a PSD<sub>12</sub> = 42 and RSD<sub>14</sub> = 30. Growth rates were slow with fish only 12.5 inches at 7 years old. Bluegill had good size structure with PSD<sub>6</sub> = 54. Growth rates were slightly below average. With vegetation being so heavy in the summer months, it is understandable why gamefish growth rates are not very good. Predator fish, especially northern pike need to see their prey and with abundant vegetation prey fish are able to avoid them. In 2005 a shocking run was done along with a mini-fyke net survey. Four northern pike were sampled (15 - 26.7 inches). 137 largemouth bass were captured and catch per effort was slightly higher (86 fish per hour ≥ 8 inches) than 2013 survey. Bluegill size structure was slightly less in the 2005 survey when the PSD<sub>6</sub> = 11. Catch rate was much higher in 2005 at 705/hour ≥ 3 inches.



*Nice Bass and Bluegill Sampled on Lower White River Flowage*



*New Fisheries Biologist Adam Nickel with 26 in Northern Pike*