WISCONSIN DEPARTMENT OF NATURAL RESOURCES

SEII Summary Report

Lower White River Flowage, Waushara County

WBIC: 151500

Introduction And Objectives

In 2022, the Wisconsin Department of Natural Resources (DNR) 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.

DNR Contact

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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: No size limit, 5 bag

SURVEY INFORMATION				
Site Location	**Survey Dates**	**Water Temperature (°F)**	**Target Species**	**Gear**
Lower White River Flowage	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

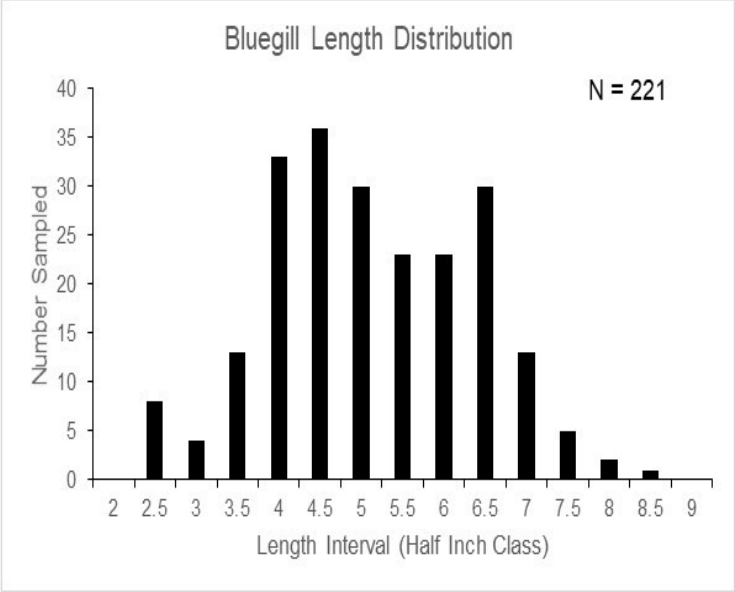
Lower White River Flowage Bluegill

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

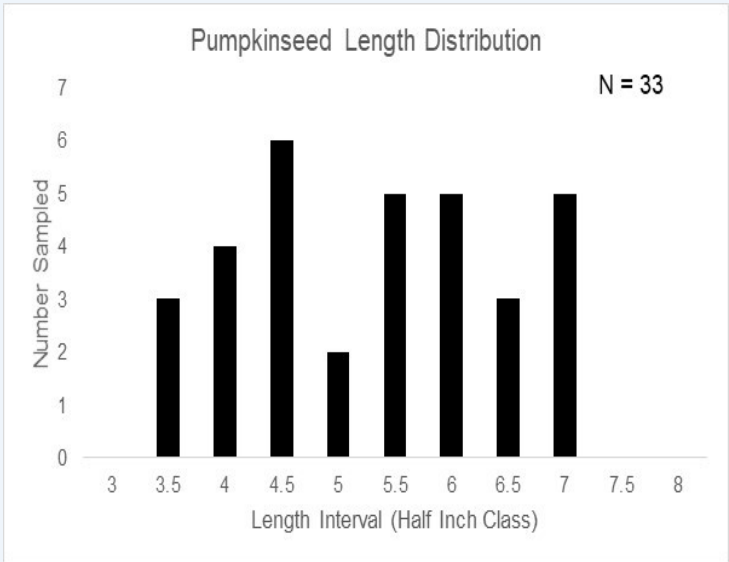


Lower White River Flowage Pumpkinseed

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



Lower White River Flowage Black Crappie

SIZE STRUCTURE METRICS		
Total Number Measured	Average Length (inches)	Length Range (inches)
6	7.7	7.2 – 8.2

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
1	0	6	2.3	50th	Moderate

Lower White River Flowage Yellow Perch

SIZE STRUCTURE METRICS		
Total Number Measured	Average Length (inches)	Length Range (inches)
6	7.5	6.2 –8.4

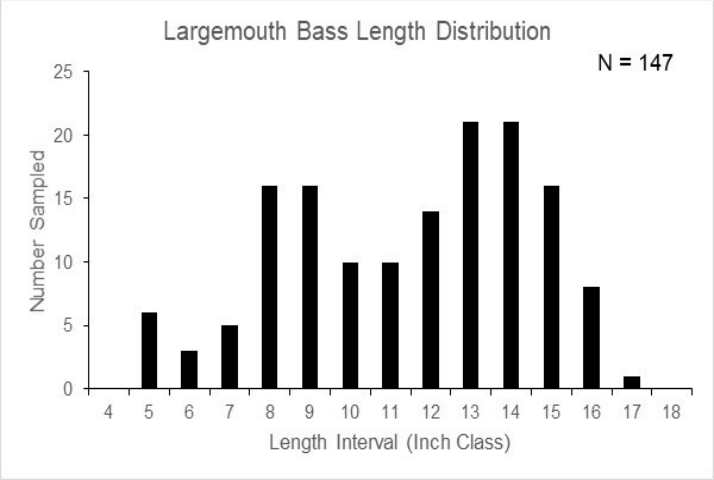
RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)					
2005	2013	2022	Historical Median	2022 Statewide Percentile Rank	2022 Abundance Rating
2	8	6	5.3	37th	Low

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	61.3



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

Summary

Bluegill
Abundance has increased since the 2013 survey but down from 2005 and at 221 per mile ranks in the 83rd percentile statewide. The size structure has increased from PSD =14% to 35% and ranks in the 52nd percentile. Age structures show average growth with fish taking 4.6 years to reach 6.0 inches in length. An ideal management option would be to maintain the abundance and increase size structure to PSD ≥ 50.

Pumpkinseed
Abundance has increased since 2013 from 7 to 33 per mile ranking in the 86th percentile and above the 20 per mile historical average. The size structure is fair with 39% of fish larger than 3 inches also larger than 6 inches and ranks at the 55th percentile statewide. Management should focus on maintaining abundance and increase size structure to PSD=50.

Largemouth Bass
Abundance has remained unchanged over previous survey years at 42 per mile and ranking in the 82nd percentile statewide. The size structure is moderate, PSD = 61%, 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 per mile, maintain the size structure near PSD ≥ 60%, and potentially produce memorable (20 inch) largemouth bass.

Nice Bass and Bluegill Sampled on Lower White River Flowage
Photo by DNR

Northern Pike
This type of survey is not a good indicator of the overall northern pike population and only yielded 3.7/mile. Even so, the abundance was high and 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 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.

Adam Nickel with 26 in Northern Pike .
Photo by DNR

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 completed in 1960, 1967, 1994 and 2005. In August 1960 a shocking run was used 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 PSD21 = 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 completed 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 PSD21 = 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 PSD12 = 42 and RSD14 = 30. Growth rates were slow with fish only 12.5 inches at 7 years old. Bluegill had good size structure with PSD = 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, an electrofishing run was conducted along with a mini-fyke net survey. Sampled were 4 northern pike, (15 - 26.7 inches) and 137 largemouth bass. Electrofishing catch per effort of largemouth bass was slightly higher (86 fish per hour ≥ 8 inches) than the 2013 survey. Bluegill size structure was slightly less in the 2005 survey (PSD = 11), catch rate was much higher in 2005 at 705/hour ≥ 3 inches.