



WISCONSIN DEPARTMENT OF NATURAL RESOURCES

SEII Summary Report Montello Lake, Marquette County WBIC: 164300

Introduction And Objectives

In 2024, the Wisconsin Department of Natural Resources (DNR) conducted a one night electrofishing survey of Montello 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 Montello Lake.

DNR Contact

Scott Bunde - Fisheries Biologist Senior
427 E Tower Dr. Suite 100
Wautoma, WI. 54982
Phone: (920) 295-7020
Email: scott.bunde@wisconsin.gov

Lake Information

Acres: 341
Max. Depth: 17 ft
Shoreline Miles: 3.8+
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
Montello Lake	5/13/2024	68	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

- Montello 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.
- Boom shocker was used to electrofish 3.8 miles of shoreline. All species were collected in 1 mile of the station while gamefish were collected and measured throughout.

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	349	5.39	1.5 - 8.7	349	93rd	90th	High
Pumpkinseed	143	6.19	3.1 - 8.0	143	98th	100th	High
Yellow perch	10	7.32	5.4 - 8.6	10	52nd	-	Moderate
Largemouth bass	99	11.94	2.7 - 20.4	26.05	68th	63rd	Moderate
Northern pike	11	15.95	9.3 - 24.0	2.89	97th	-	High



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Montello 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
349	5.39	1.5 - 8.7	3 and 6	320	142	44	62nd	Moderate

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)

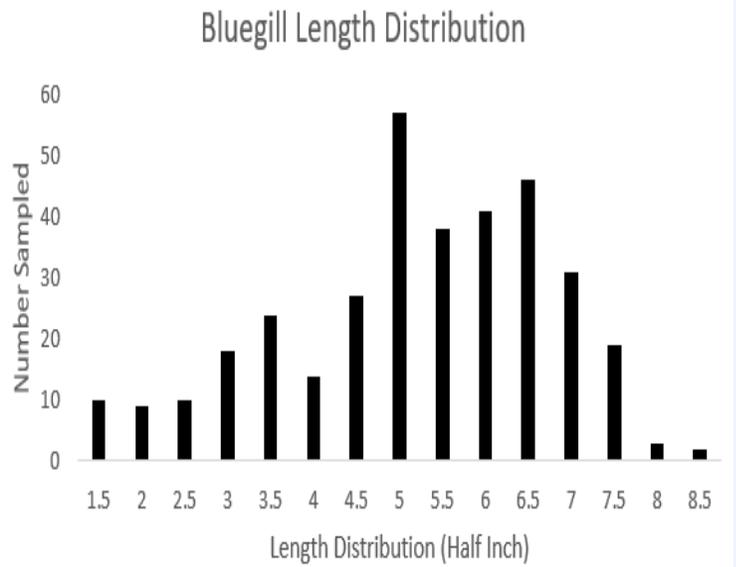
2015	2024	Historical Average	2024 Statewide Percentile Rank	2024 Abundance Rating
42	349	196	93rd	High

SIZE STRUCTURE (PSD) TRENDS

PSD by Year		Historical Average
2015	2024	
5	44.37	24.68

AVERAGE BLUEGILL AGE AT 6 INCHES

Sex	Count	Average Age	Age Range	Lake Class-Rating	Regional Rating
Male	8	4	4	Above Average	Above Average
Female	12	4.2	3 - 5	Above Average	Above Average
All	20	4.1	3 - 5	Above Average	Above



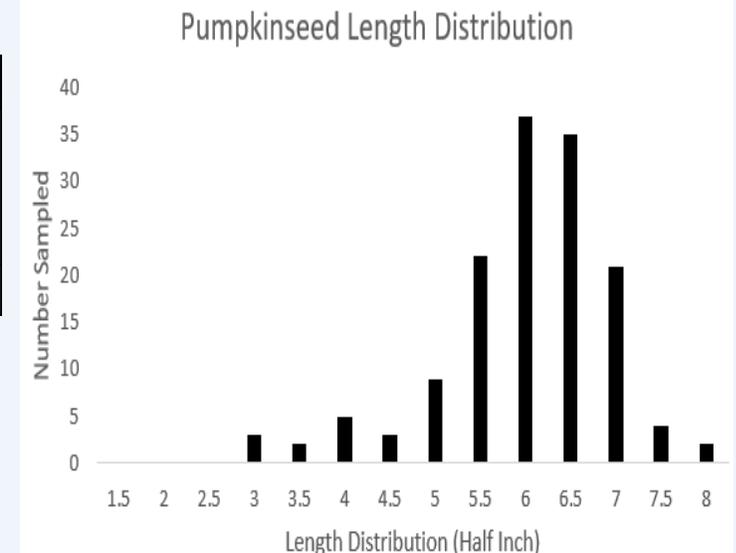
Montello Lake Pumpkinseed

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
143	6.19	3.1 - 8.0	3 and 6	143	99	69	85th	High

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)

2015	2024	Historical Average	2024 Statewide Percentile Rank	2024 Abundance Rating
0	143	71.5	98th	High





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Montello Lake Yellow Perch

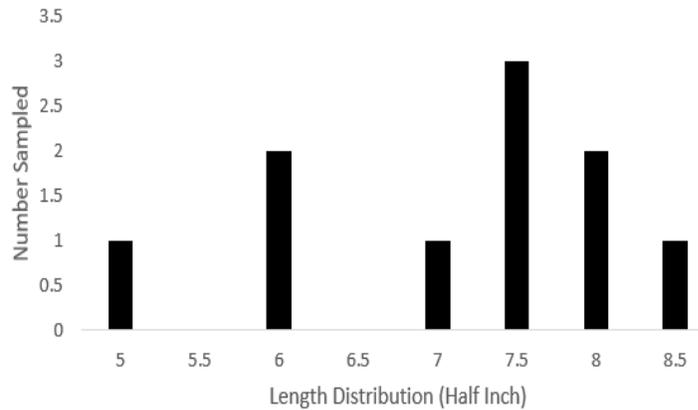
YEAR SIZE STRUCTURE METRICS

Total Number Measured	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
10	7.32	5.4 - 8.6	3 and 6	10	9	Too Few	-	-

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)

2015	2024	Historical Average	2024 Statewide Percentile Rank	2024 Abundance Rating
161	10	85.5	57th	Moderate

Yellow Perch Length Distribution



SIZE STRUCTURE (PSD) TRENDS

PSD by Year		Historical Median
2015	2024	
-	90	45

Montello Lake Largemouth Bass

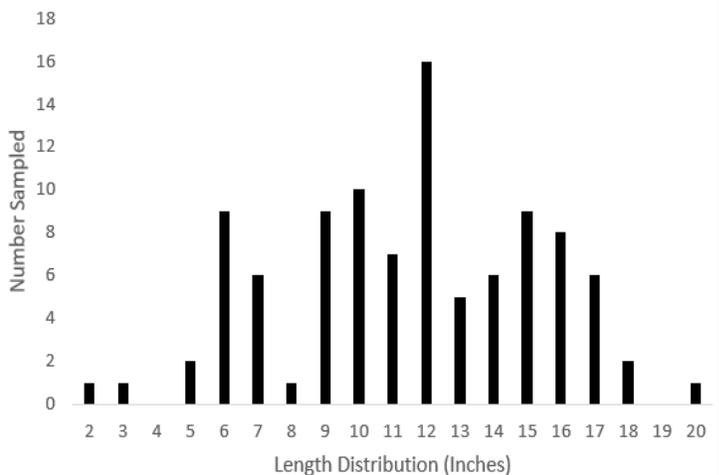
YEAR SIZE STRUCTURE METRICS

Total Number Measured	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
99	11.94	2.7 - 20.4	8 and 12	80	53	66	59th	Moderate

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)

2015	2024	Historical Average	2024 Statewide Percentile Rank	2024 Abundance Rating
3.54	26.05	14.79	68th	Moderate

Largemouth Bass Length Distribution



SIZE STRUCTURE (PSD) TRENDS

PSD by Year		Historical Average
2015	2024	
Too Few Fish	66.25	33.12

AVERAGE LARGEMOUTH BASS AGE AT 14 INCHES

Sex	Count	Average Age	Age Range	Lake Class Rating	Regional Rating
All	6	6	5 - 9	Average	Average

Montello Lake Northern Pike

RELATIVE ABUNDANCE (CPUE = NUMBER PER MILE)

2015	2024	Historical Average	2024 Statewide Percentile Rank	2024 Abundance Rating
3.13	2.89	3.01	68th	Moderate

YEAR SIZE STRUCTURE METRICS

Total Number	Average Length (inches)	Length Range
11	15.95	9.3 - 24.0



Summary

Bluegill

- The bluegill fishery in Montello Lake has increased abundance significantly since the 2015 survey; At 349 per mile it ranks in the 93rd percentile statewide.
- Size structure is up from the PSD = 5 in 2015 to PSD = 44% which is moderate and ranks in the 62nd percentile. The RSD7= 17% which means 17% of the bluegill larger than 3 inches were also larger than 7 inches.
- Age structures show above average growth taking fish 4.1 years to reach 6 inches in length.
- An ideal management option would be to keep abundance between 250- 300/mile and slightly increase size structure (PSD = 50).

Pumpkinseed

- Catch per unit effort is at 143 per mile ranking in the 98th percentile. While not observed during the 2015 survey, this is significantly high compared to the state percentiles.
- Size structure is high with a PSD = 69% which ranks in the 85th percentile statewide.
- Nine years ago there were no pumpkinseed sampled in our survey, now there is a population of harvestable size fish. Hopefully this fishery can maintain abundance around 100/mile and maintain a size structure PSD= 50-60.

Yellow Perch

- Catch per unit effort is down significantly from 161 per mile in 2015 to 10 per mile which still ranks in the 57th percentile statewide.
- There were not enough fish sampled to get a good size structure analysis but fish up to 8.6 were sampled..
- This type of survey does not provide a good assessment of a yellow perch population, but the numbers can be used to compare to other waterbodies from around the state which are conducting the same type of survey.

Largemouth Bass

- Abundance of 26 per mile ranks in the 68th percentile and is a 6+ fold increase from the previous survey in 2015.
- Size structure of PSD = 66 is moderate ranking in the 59th percentile statewide, while no PSD was calculated due to low sample size in 2015.
- Management in the future will desire to maintain abundance between 25 to 50/mile and maintain size structure PSD \geq 60%.

Northern Pike

- This type of survey is not meant to assess the northern pike population, but at 2.89/ mile the abundance has remained steady from the 3.13/mile in 2015.
- The 11 fish sampled ranged from 9.3 - 24.0 inches and averaged 16.0 inches.



Montello Lake



Photo Credit: DNR Staff

Shocking Boat Used

Notes

Montello Lake is a 341 acre warm dark drainage lake with a maximum depth of 17 feet. The surrounding watershed is a mix of agricultural land, homes, and forested areas. Being a flowage waterbody, the sediment bottom is 60% sand and 40% muck. In 1976 eurasian water-milfoil was found in the lake with curly-leaf pondweed being found and hybridizing with milfoil in 1993. Chinese mystery snails were also found in the system back in 2007. Much of the shallow areas were covered with vegetation and thick duckweed creating a challenge to our surveying efficiency.