WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Fisheries Management Report of Upper Genesee Lake
Waukesha County, Wisconsin

WATERBODY IDENTIFICATION CODE 788500

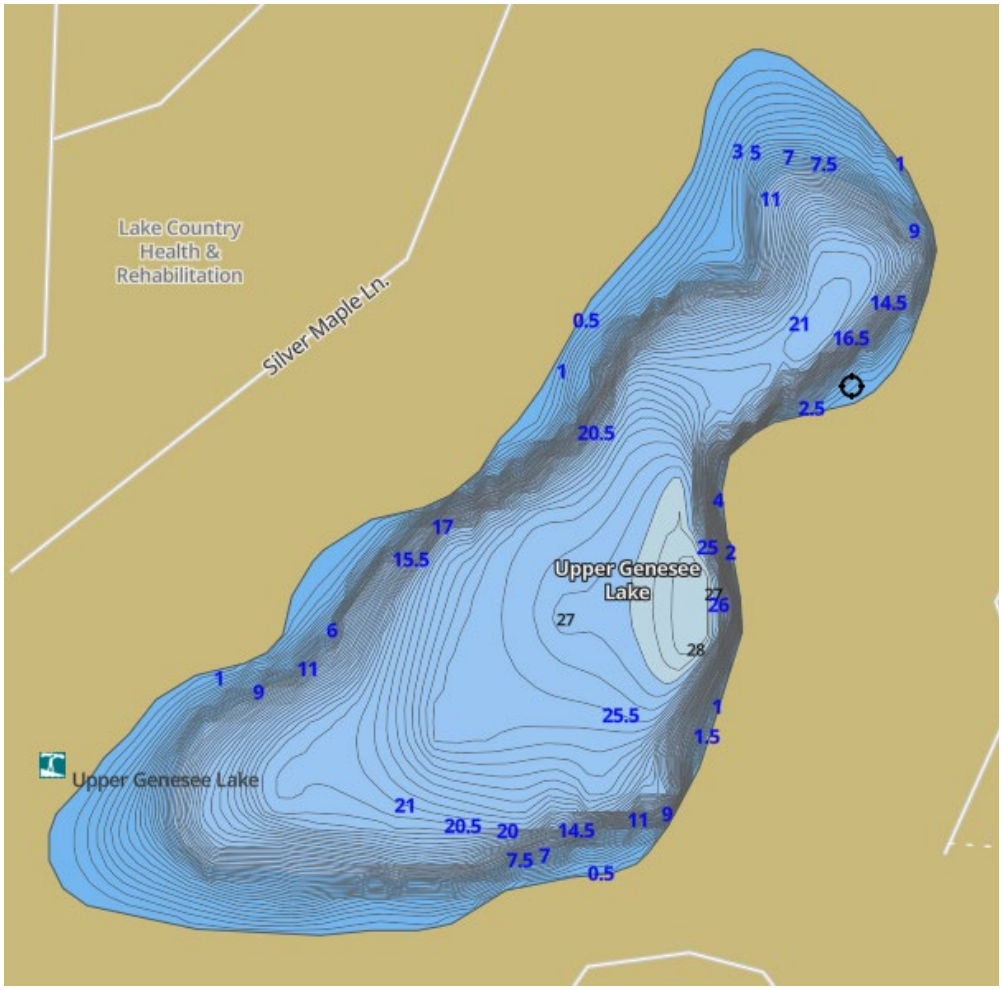

Photo Credit: nautical charts.com

Steven M. Gospodarek
DNR Fisheries Biologist

2025

WISCONSIN DEPT. OF NATURAL RESOURCES

SPORT FISH RESTORATION

Executive Summary

In 2024, the Department of Natural Resources (DNR) conducted a fall electrofishing survey of Upper Genesee Lake in Waukesha County. The objectives of the survey were to 1) assess the status of the northern pike (*Esox lucius*), largemouth bass (*Micropterus salmoides*) and panfish populations and 2) update management recommendations for the fishery of Upper Genesee Lake. The results of the 2024 survey were compared to lakes with similar characteristics. Based on the 2024 survey results, Upper Genesee Lake continues to offer quality fishing opportunities for northern pike, largemouth bass and bluegill (*Lepomis macrochirus*).

A total of 197 individual fish were sampled in the survey. Bluegill were the predominant panfish species sampled with a catch rate slightly below average and excellent size structure. Largemouth bass relative abundance was slightly above average with below average size structure. Despite largemouth bass having a high relative abundance and low average size, multiple memorable and quality size fish are present indicating recruitment is high for largemouth bass and the growth rate is normal. Upper Genesee Lake has an excellent fish community providing above average angling opportunities. Excellent water clarity and a diverse native aquatic plant community provide essential habitat for continued fish production in Upper Genesee Lake. Protecting water quality from nutrient loading and continued monitoring for invasive species introductions is critical for the conservation of this high-quality lake.

Introduction

Upper Genesee Lake is a 32-acre glacial pothole drainage lake in Waukesha County, Wisconsin. It has a maximum depth of 27 feet, its lake classification is simple-warm-clear and the fish community is comprised of northern pike, largemouth bass and panfish. The DNR owns and manages a carry in only public access located off Hwy 67 and the access is heavily used by ice anglers.

Methods

On October 28, 2024 a fall electrofishing (FE) survey was conducted on Upper Genesee Lake. Access was provided at a private residence located on the north shore of the lake. Unseasonably warm weather on the survey date created favorable electrofishing conditions with warm water temperatures and good water clarity. The FE survey was conducted using a standard DNR standard pulsed direct current (PDC) boom shocker boat and the entire shoreline, encompassing 1.25 miles was sampled. The electrical current averaged 150 volts and 15 amps and the pulse rate was 80 per minute and the duty cycle was 20%. Two dip-netters using 10-foot dip nets equipped with 0.5-inch bar mesh collected all fish species encountered throughout the survey.

Proportional size distribution (PSD) was calculated for northern pike, largemouth bass and bluegill to assess population size structure. Stock lengths are based on standardized lengths for each species: northern pike (14 inches), largemouth bass (8 inches) and bluegill (3 inches). Quality lengths used were: northern pike (21 inches), largemouth bass (12 inches) and bluegill (6 inches). Proportional size distribution-preferred (PSD-P) was also calculated for northern pike, largemouth bass and bluegill to assess the proportion of fish in the population that are a length preferred by anglers. These are based on standardized preferred lengths for each species: northern pike (28 inches), largemouth bass (15 inches) and bluegill (8 inches). Proportional size distribution-memorable (PSD-M) was also calculated for northern pike and largemouth bass to assess the proportion of fish in the population that are a length considered memorable. Memorable northern pike (34 inches) and largemouth bass (21 inches) were used for PSD-M. (Anderson, R.O. 1980).

Results

LARGEMOUTH BASS

A total of 80 largemouth bass were sampled for a catch rate of 64 per mile and largemouth bass were the most frequently sampled gamefish species sampled in the survey. This catch rate is above the 75th percentile when compared to other simple-warm-clear lakes (Latzka, 2020). Largemouth bass lengths ranged from 3.3 to 21.9 inches with an average length of 10.8 inches and 15% of the fish sampled were above the current minimum length limit of 14 inches (Figure 1). A balanced largemouth bass population typically displays PSD values between 40-60 (Anderson, R. O. 1980). The PSD of largemouth bass sampled during the 2024 FE was 35, indicating a lower proportion of quality-size bass (greater than or equal to 12 inches) present. The PSD-P was 8, indicating a lower proportion of preferred-size (greater than or equal to 15 inches) bass are present in Upper Genesee Lake.

BLUEGILL

The catch rate of bluegill was 64 per mile and bluegill were the most abundant panfish species sampled in the survey. This catch rate is near the 25th percentile when compared to similar lakes statewide. Bluegill length ranged from 2.1 to 9.4 inches with an average length of 6.4 inches (Figure 2). Bluegill PSD, using a stock length of 3 inches and a quality length of 6 inches was 77, well above the recommended range of 20 to 60 (Anderson, R. O. 1980).

NORTHERN PIKE

Six northern pike were sampled for a catch rate of 5.6 per mile. Northern pike ranged from 13.1 to 34.8 inches with an average length of 24.1 inches. Northern pike have not been stocked in Upper Genesee Lake and the multiple year classes sampled during the survey demonstrate that consistent natural reproduction is maintaining the northern pike population. The low catch rate of northern pike is likely due to

electrofishing gear avoidance. Fyke netting is the preferred method for effectively sampling pre-spawn northern pike and fyke netting data is typically used to compare catch rates by lake classification (Latzka, 2020).

YELLOW PERCH

Twelve yellow perch were sampled for a catch rate of 9.6 per mile. Yellow perch ranged in length from 3.2 to 10.9 inches with an average of 8.1 inches (Figure 3). Yellow perch are a very popular panfish species that provides additional angler harvest opportunities in Upper Genesee Lake. Fyke netting is also the preferred method for effectively sampling pre-spawn yellow perch and fyke netting data is typically used to compare catch rates by lake classification.

OTHER SPECIES

Three additional species were sampled during the survey including yellow bullhead, green sunfish and central mudminnow. These additional species were sampled in low abundance and are common native species found in Wisconsin. No common carp or bowfin were observed during this survey. Black crappies have been observed by lake residents in recent history. However, no black crappies were sampled during this survey. Electrofishing gear is often inconsistent when sampling black crappie due to their preference for suspending in deep water.

Discussion

The bluegill population in Upper Genesee Lake has above average size structure with 77% of the fish sampled greater than six inches. Bluegill abundance is below the 25th percentile when compared to similar lakes statewide. Largemouth bass abundance was above the 75th percentile when compared to similar lakes statewide and 15% of the fish sampled were above the current minimum length limit of 14 inches. The above average largemouth bass abundance is likely maintaining reduced panfish abundance through predation and in return is supporting excellent panfish size structure. The lower abundance of panfish species provides for less competition for food and space, resulting in above average growth rates. Angler exploitation of bluegill is also likely a factor effecting reduced bluegill abundance and above average size structure.

Recommendations

1. Stocking of any panfish or gamefish species is not recommended. Genetic conservation of fish populations is critical to continued natural reproductive potential and balanced fish population in Upper Genesee Lake.
2. Maintain the current northern pike regulation of a minimum length limit of 26 inches and a daily bag limit of two.

3. Maintain the current largemouth bass regulation of a minimum length limit of 14 inches and daily bag limit of five.
4. Maintain the current statewide panfish regulation of a maximum daily bag limit of 25 with no length restrictions.
5. Protect water quality by creating vegetated riparian buffer zones along shoreline properties. Buffer zones filter out phosphorus and nitrogen reducing the overall nutrient loading.
6. Protect native aquatic plant communities and monitor for invasive species such as Eurasian-water milfoil, starry stonewort and curly leave pondweed.
7. Promote course woody fish habitat with riparian tree drops or leaving natural deadfalls in the water.

References

Anderson, R. O. 1980. Proportional stock density (PSD) and relative weight (W_r): interpretive indices for fish populations and communities. Pages 27-33 in S. Gloss and B. Shupp, editors. Practical fisheries management: more with less in the 1980's. Proceedings of the 1st Annual Workshop of the New York Chapter American Fisheries Society

Latzka, Alex. 2020. Comparison of lake class standards, WDNR correspondence.

Tables

Table 1, Catch summary of all fish sampled during the 2024 fall electrofishing survey of Upper Genesee Lake, Waukesha County, WI.

Species	Number Sampled	Minimum Length	Maximum Length	Average Length	Standard Deviation
BLUEGILL	80	2.1	9.4	6.4	2.0
GREEN SUNFISH	3	2.8	6.5	5.3	2.1
LARGEMOUTH BASS	80	3.3	21.9	10.8	3.2
NORTHERN PIKE	6	13.1	34.8	24.1	9.2
YELLOW BULLHEAD	4	5.3	11.5	8.8	2.6
YELLOW PERCH	12	3.2	10.9	8.1	2.3
CENTRAL MUDMINNOW	12				
TOTAL	197				

Figures

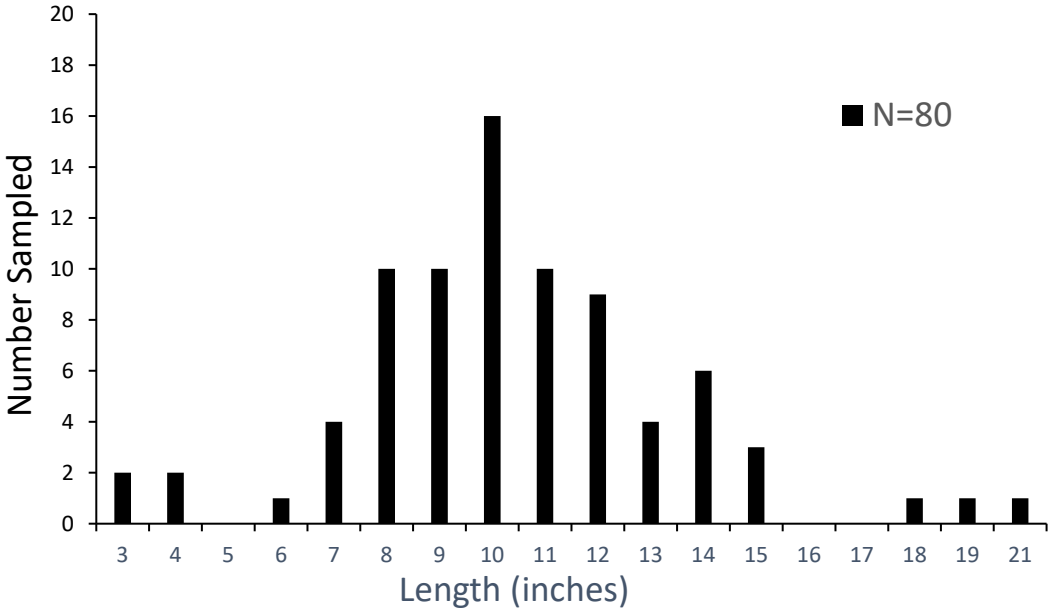

Figure 1. Length frequency histogram of largemouth bass sampled during the 2014 fall electrofishing (FE) survey of Upper Genesee Lake, Waukesha County, WI.

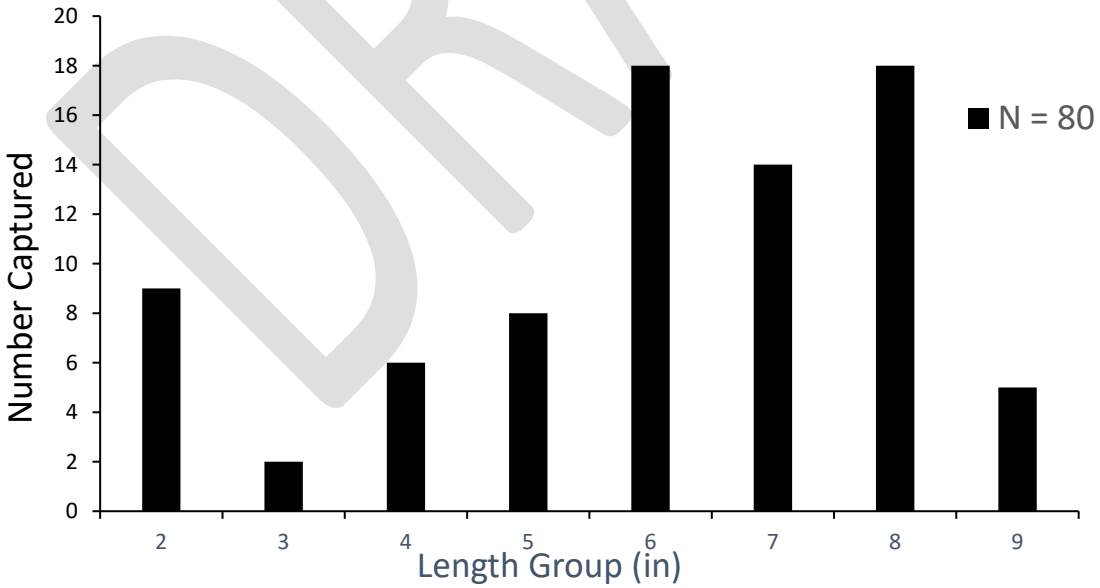

Figure 2. Length frequency histogram of bluegill sampled during the 2014 fall electrofishing (FE) survey of Upper Genesee Lake, Waukesha County, WI.

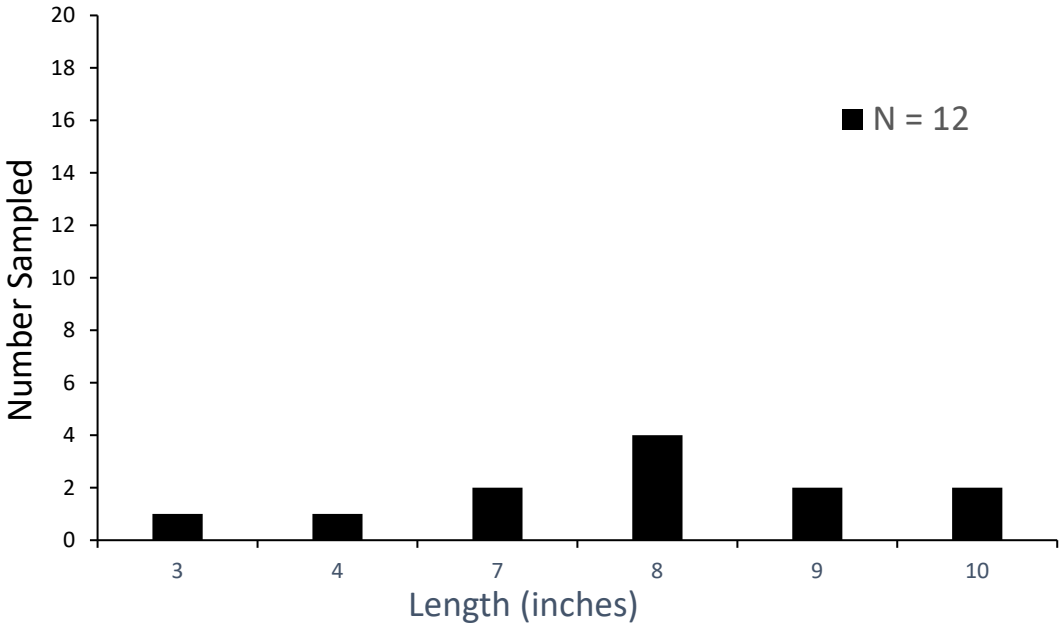

Figure 3. Length frequency histogram of yellow perch sampled during the 2014 fall electrofishing (FE) survey of Upper Genesee Lake, Waukesha County, WI.

Photo Credit: Wisconsin DNR

Advanced Fisheries Technicians Steven Gospodarek and Matthew Marquardt measuring a 34.9-inch northern pike sampled during the 2024 fall electrofishing survey of Upper Genesee Lake, Waukesha County, WI.