WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Fishery Survey Report for Sidie Hollow Lake Vernon County, WI 2019-2024

Waterbody Identification Code: 1641400

Photo Credit: DNR Staff

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Executive Summary

Sidie Hollow Lake is a small simple eutrophic lake that provides a largemouth bass and panfish fishery and is supplemented with annual yearling trout stocking. The largemouth bass population is abundant and provides quality up to trophy-sized fish for anglers to target. Bluegill abundance is high and provides an action fishery, but larger bluegill over 8 inches were low in abundance. Despite the abundance of both species being greater than 75% of similar lakes, the fish condition has remained "plump". Recommendations for Sidie Hollow Lake: a potential minimal effort creel survey, continued rotational sampling, collecting age and growth structures from bass and panfish and maintaining current regulations until creel or fish data support a change in management actions.

Introduction

LAKE CHARACTERISTICS

Sidie Hollow Lake is a 38-acre impoundment on the South Fork of the Bad Axe River headwaters, constructed under the PL-566 conservation program. The Sidie Hollow Lake watershed is 7 square miles composed of 62% agriculture, 26% forest, 10% residential and 2% other (v.4.26.0, US Geological Survey 2025; Table 1). One large population center, Viroqua (2024 population = 4,415), is within a 30-minute drive. Sidie Hollow Lake is surrounded by Vernon County owned land providing public access to hiking trails, a campground, a picnic area and a boat launch. Use of motorboats is prohibited. Sidie Hollow Lake has a max depth of 22 feet with an average depth of 11 feet. The bottom substrate is primarily muck (95%) with a small contribution of sand (5%). The Wisconsin Department of Natural Resources (DNR) lake classification system developed by Rypel et al. (2019) designates Sidie Hollow Lake as simple-riverine. Secchi disk depth and trophic state index records designate Sidie Hollow Lake as mesotrophic (Table 2). Sidie Hollow Lake's fishery is monitored on a three-year rotation and supplemented annually with trout stockings (Table 3). In 2023 and 2024 larger sized rainbow trout in the 10–13-inch range have been stocked by the Viola Sportsman Club as part of the DNR Cooperative Fish Rearing Program. Harvest regulations follow the standard state defaults (Table 4). The following fish species are currently present in Sidie Hollow Lake: black bullhead *Ameiurus melas*, black crappie *Pomoxis nigromaculatus*, bluegill *Lepomis macrochirus*, brook trout *Salvelinus fontinalis*, brown bullhead *Ameiurus nebulosus*, brown trout *Salmo trutta*, green sunfish *Lepomis cyanellus,* largemouth bass *Micropterus* salmoides, pumpkinseed *Lepomis gibbosus*, rainbow trout *Oncorhynchus mykiss*, warmouth *Lepomis gloss,* white sucker *Catostomus commersonii* (Table 5). The unintentional introduction of invasive species includes curly-leaf pondweed *Potamogeton crispus*.

SURVEY EFFORT

LATE SPRING ELECTROFISHING SURVEYS (SEII)

On 5/22/2019, the shoreline was electrofished using pulsing direct current at 150 volts, 14 amps, 80 pulses and a 20% duty cycle for 55 minutes over 1.32 miles targeting gamefish (largemouth bass, trout spp.) and then 15 minutes over 0.25 miles targeting all species. The water temperature was 56 degrees Fahrenheit.

On 05/7/2024, the shoreline was electrofished using pulsing direct current at 150 volts, 14 amps, 80 pulses and a 20% duty cycle for 40 minutes over 1.20 miles targeting gamefish and then 30 minutes over 0.29 miles targeting all species. The water temperature was 62 degrees Fahrenheit.

Methods

In 2019 and 2024, late spring electrofishing surveys targeting gamefish and panfish (SEII) were conducted at night with a mini-boom boat carrying one dipper using 3/8

mesh dip netting. Each SEII survey was split into two stations: a station with an electrofishing run covering roughly 75% of the lake shoreline targeting gamefish, and a station with an electrofishing run covering roughly 25% of the lake shoreline targeting all species. Gamefish and panfish species captured were measured to the nearest 0.1 inch, weighed to the nearest gram then released. The remaining species captured were only counted before release.

Bluegill and largemouth bass catch data was analyzed and graphically displayed using R Statistical Software (v.2023.06.2+561, R Core Team 2023). Size structure data was used to develop length frequency graphs with annual length medians. Proportional stock densities (PSD – P) were calculated for preferred sizes of fish from the Gablehouse (1984) equation:

$$PSD - P = \left(\frac{\#\ of\ fish \geq Preferred\ size}{Number\ of\ fish \geq Stock\ size}\right) x\ 100$$

The average catch per mile was compared amongst years and to Wisconsin standards for simple-riverine waters established by Rypel et al. (2019). Relative weights (Neumann et al. 2012) were calculated for all recorded weights following the equation:

$$Relative\ Weight = \frac{Observed\ weight}{Standard\ weight}\ x\ 100$$

Results & Discussion

FISH POPULATIONS

BLUEGILL

In the 2019 SEII all-species station, 65 bluegill were captured with a median length of 5.9 inches (range= 1.3 – 8.0), a PSD-P of 1.9 and a relative abundance of 260 fish per mile (Fig. 1, Fig. 2). A total of 43 fish were weighed in 2019 with a median relative weight of 102 (range = 86 – 142; Fig. 3). In the 2024 SEII all species station, 162 bluegill were caught with a median length of 6.6 inches (range = 1.5 – 8.0), a PSD-P of 0.7 and a relative abundance of 559 fish per mile. Of the bluegill captured in 2024, a total of 50 were weighed with a median relative weight of 98 (range = 67 – 118).

A twofold increase in the relative abundance of bluegill from 260 fish per mile in 2019 to 559 fish per mile in 2024 was observed. The relative abundance of bluegill in Sidie Hollow Lake was above the 75th percentile of similar Wisconsin waters in both survey years. Despite the high abundance of bluegill observed, relative weight averages in both survey years deemed Sidie Hollow Lake bluegill “plump”, likely not experiencing intraspecific competition. Median length of bluegill also increased 0.7 inches from 2019 to 2024. However, size structure was poor for large bluegill with a PSD-P of less than two in both survey years. Anglers may be cropping off the large fish or Sidie Hollow Lake bluegill growth may be poor for a different reason not yet understood.

LARGEMOUTH BASS

In the 2019 SEII effort, 210 largemouth bass were caught with a median length of 11.3 inches (range = 3.3 – 19.7), a PSD-P of 6.1 and a relative abundance of 134 fish per mile (Fig. 4, Fig. 5). A total of 57 fish were weighed in 2019 with a median relative weight of 92 (range = 63 - 113; Fig. 6). In the 2024 SEII effort, 141 largemouth bass were caught with a median length of 10.0 inches (range = 2.5 – 21.5), a PSD-P of 18.0 and a relative abundance of 95 fish per mile. Of the largemouth bass captured in 2024, a total of 51 were weighed with a median relative weight of 92 (range = 63 - 132).

Largemouth bass median length decreased by over an inch from the 2019 survey to the 2024 survey, however, PSD-P tripled from 6.1 to 18. Both survey years captured a relative abundance of largemouth bass over two to three times greater than the 75th percentile of similar Wisconsin waters. Relative weight did not shift with the decrease in relative abundance from 2019 to 2024; in both survey years average fish condition was “plump”. Along with an increase in PSD-P, the 2024 survey captured a few trophy largemouth bass not observed in the 2019 survey.

SUMMARY

Sidie Hollow Lake may not provide an opportunity to harvest quality-sized panfish, but the small-sized highly abundant bluegill population is functioning as an action fishery and reliable forage base for the largemouth bass fishery providing both quantity and quality fish for anglers to catch. Trophy largemouth bass opportunity is available with fish reaching over 20 inches and 5 pounds. Bass is often considered a catch-and-release fishery to anglers, even when lakes can support harvest without seeing deleterious effects. The warmwater fishery in Sidie Hollow Lake has frequently been supplemented with trout stocking, which creates a seasonal put-and-take fishery. Limited creel data hinders management's ability to make predictions on how angling affects Sidie Hollow Lake fisheries. The most acknowledged impact on Sidie Hollow Lake continues to be agricultural runoff leading to increased macrophyte growth, sedimentation and turbidity. For previously stated reasons, actions to improve current fishing opportunities are limited. Despite its small size, Sidie Hollow Lake’s public access as well as its trout, bass and panfish fisheries provide ample recreation opportunities.

Recommendations

1. Evaluate angler use using a limited effort creel survey (e.g. opening weekend, drop box or month of May Creel survey). Use creel data to determine the use and evaluate the efficacy of spring rainbow trout stocking.

2. Continue SEII surveys on the current three-year rotation cycle to monitor for any significant fish community changes that may warrant more in-depth surveying or management actions.

a. Collect age and growth structures for bluegill and largemouth bass in next survey rotation. Determine mortality estimates and mean length at age metrics. This will shed some light into the size structure concerns noted for the bluegill fishery.

3. Maintain existing fisheries harvest regulations. Regulation changes may be considered if future creel and fish population surveys suggest they would improve fishing opportunities.

Acknowledgments

Special thanks to Kirk Olson for leading Sidie Hollow Lake fisheries management, as well as current and past fisheries technicians for assisting in field surveys and data entry.

References

Gabelhouse Jr., D. W. 1984. A Length-Categorization System to Assess Fish Stocks. North American Journal of Fisheries Management 4:273–285.

Neumann, R. M., C. S. Guy, and D. W. Willis. 2012. Length, Weight, and Associated Indices. Pages 637 – 676 *in* A. V. Zale, D. L. Parrish, and T. M. Sutton, editors. Fisheries Techniques, 3rd edition. American Fisheries Society, Bethesda, Maryland.

R Core Team. 2023. R: A language and environment for statistical computing, v.2023.06.2+561. R Foundation for Statistical Computing, Vienne, Austria.

Rypel, A. L., T. D. Simonson, D. L. Oele, J. D. T. Griffin, T. P. Parks, D. Seibel, C. M. Roberts, S. Toshner, L. S. Tate, and J. Lyons. 2019. Flexible Classification of Wisconsin Lakes for Improved Fisheries Conservation and Management. Fisheries 44(5):225–238.

United States Geological Survey. 2019. The StreamStats program, v.4.26.0. The StreamStats program, online at https://streamstats.usgs.gov/ss/, accessed on (2/6/2025).

Tables & Figures

Table 1. Sidie Hollow Lake waterbody characteristics.

County	Vernon
Lake Size (ac)	38
Watershed (sq mi)	7
Watershed Land Usage	62% Ag, 26% Forest, 10% Residential, 2% Other
Bottom Substrate	95% Muck, 5% Sand
Max Depth (ft)	22
Average Depth (ft)	11

Table 2. Sidie Hollow Lake summer (May-July) water quality sampling event averages.

RECORDING METRIC	2019	2020	2022
Secchi Disk Depth (ft)	6	13	4
Trophic State Index	51	40	57

Table 3. The past decade of fish stocking history for Sidie Hollow Lake.

STOCKING YEAR	SPECIES	AGE CLASS	# OF FISH STOCKED
2024	RAINBOW TROUT	YEARLING	2867
2023	RAINBOW TROUT	YEARLING	2751
2020	RAINBOW TROUT	YEARLING	933
2019	RAINBOW TROUT	YEARLING	618
2018	BROOK TROUT	YEARLING	532
2017	BROOK TROUT	YEARLING	670
2016	BROOK TROUT	YEARLING	519
2015	BROOK TROUT	YEARLING	555
2014	BROOK TROUT	YEARLING	408

Table 4. Sidie Hollow Lake fishing regulations.

Species	Regulation	Harvest Season
Panfish	25 in Total	Open Year Round
Bass	5 Fish ≥ 14 Inches	May 4th to March 2nd
Trout	5 in Total	May 3rd to September 30th

Table 5. Number of fish captured by species in 2019 and 2024 Sidie Hollow Lake surveying.

Common Name	Scientific Name	# Captured
Black Bullhead	*Ameiurus melas*	2
Black Crappie	*Pomoxis nigromaculatus*	3
Bluegill	*Lepomis machrochirus*	227
Brook Trout	*Salvelinus fontinalis*	2
Brown Bullhead	*Ameiurus nebulosus*	1
Brown Trout	*Salmo trutta*	13
Green Sunfish	*Lepomis cyanellus*	1
Largemouth Bass	*Micropterus salmoides*	351
Pumpkinseed	*Lepomis gibbosus*	1
Rainbow Trout	*Oncorhynchus mykiss*	3
Warmouth	*Lepomis gulosus*	20
White Sucker	*Catostomus commersonii*	22

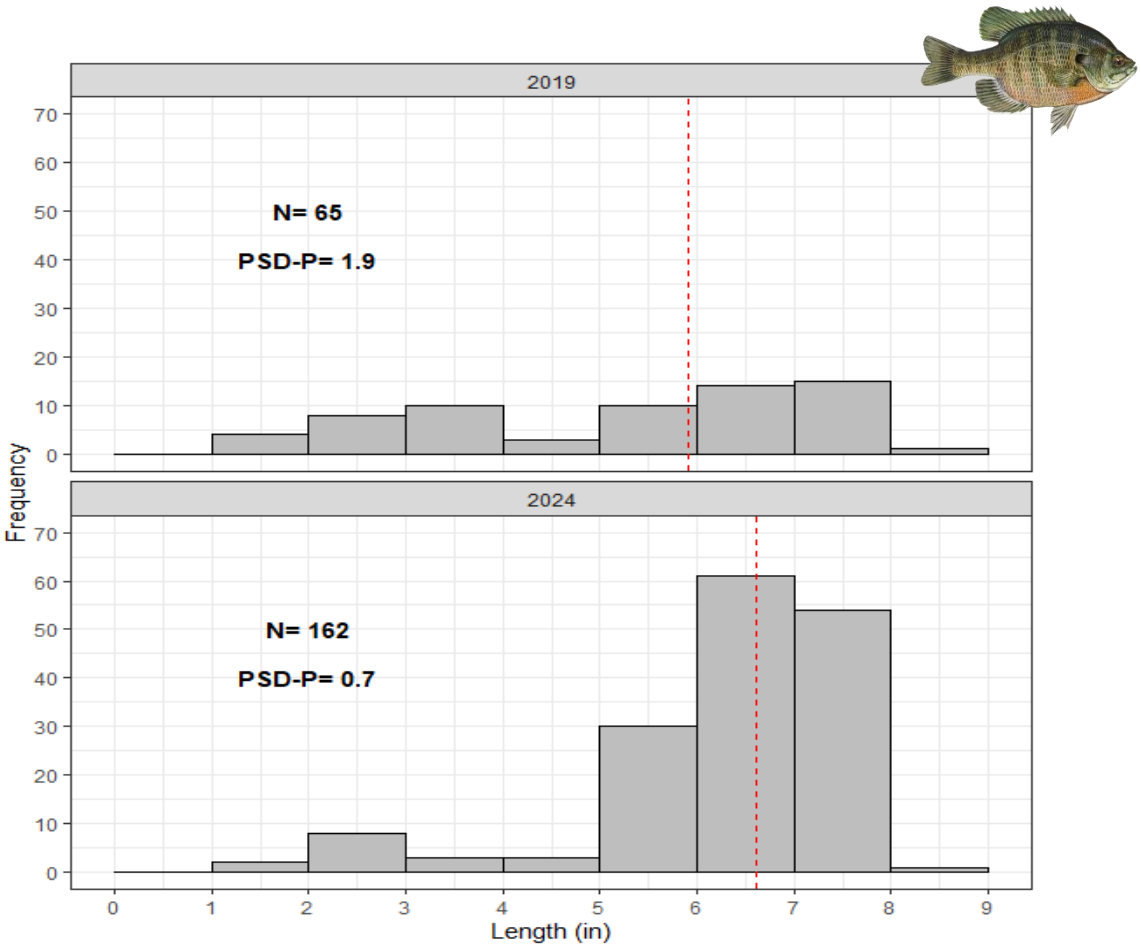


Figure 1. Bluegill length frequency from SEII mini-boom electrofishing efforts targeting all species. The vertical line represents the median bluegill length.

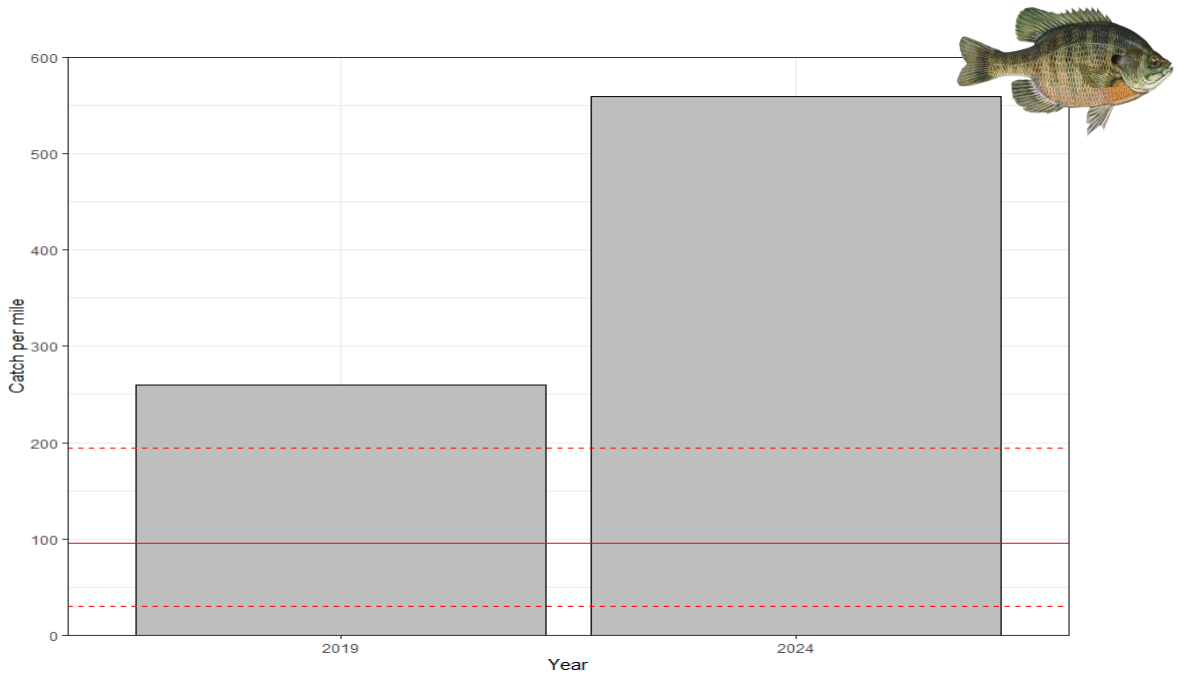


Figure 2. Bluegill relative abundance from SEII mini-boom electrofishing efforts targeting all species. The horizontal lines represent the 25th percentile, median, and 75th percentile of bluegill catches per mile in lakes with similar conditions (see methods).

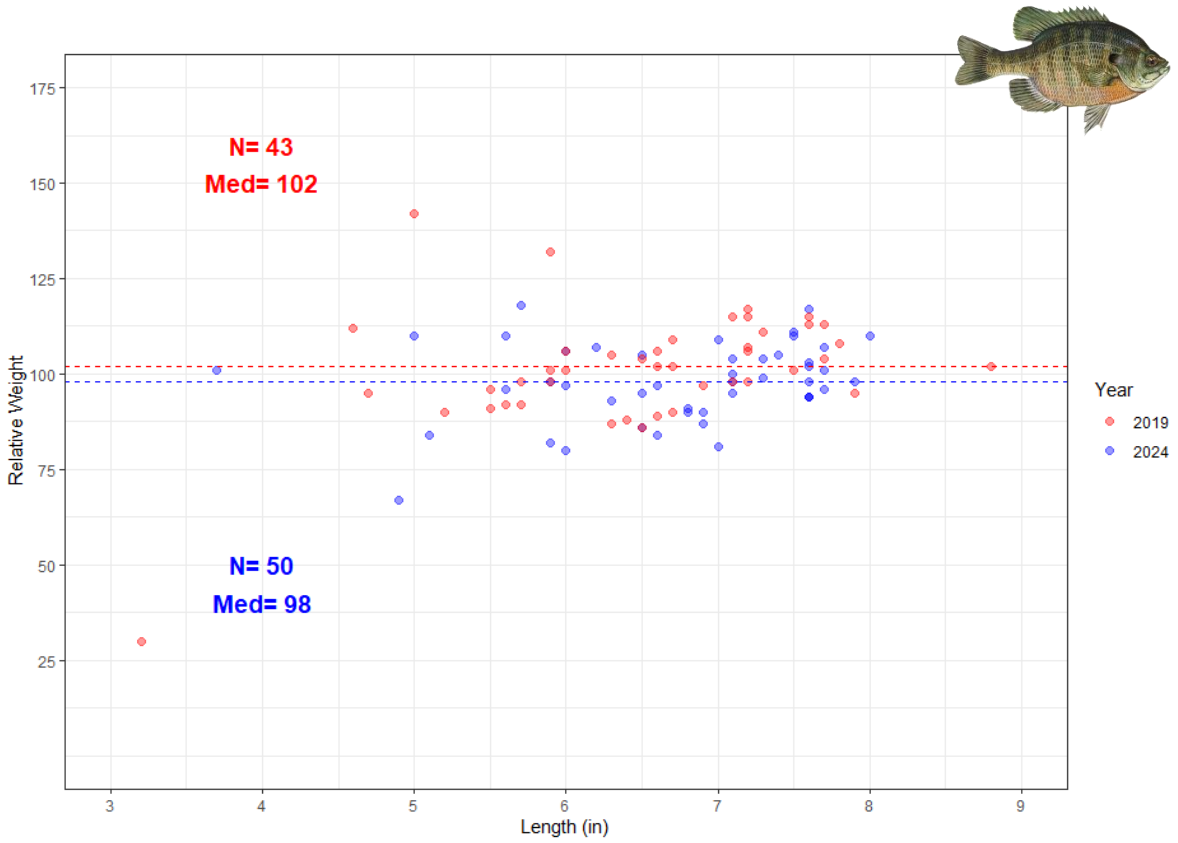


Figure 3. Bluegill relative weight from SEII mini-boom electrofishing efforts targeting all species. The horizontal lines represent the median bluegill relative weight by survey year.

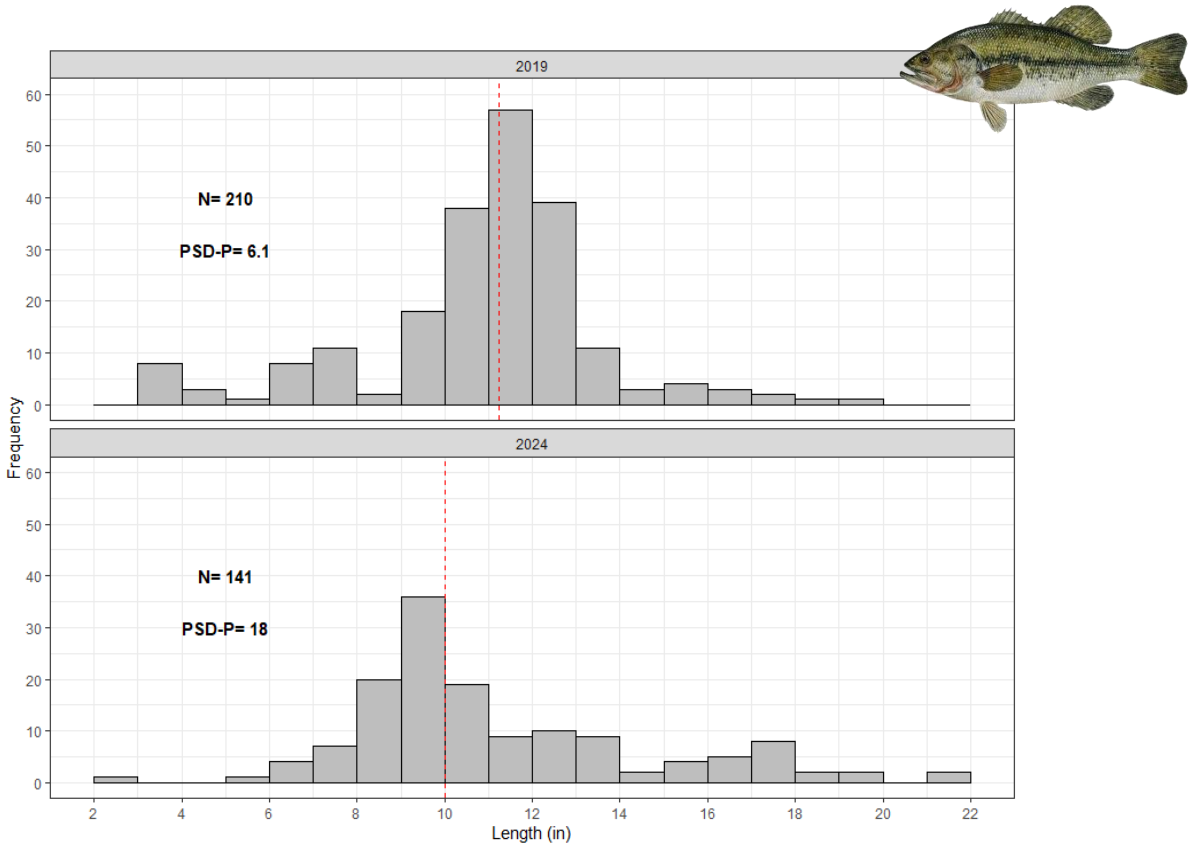
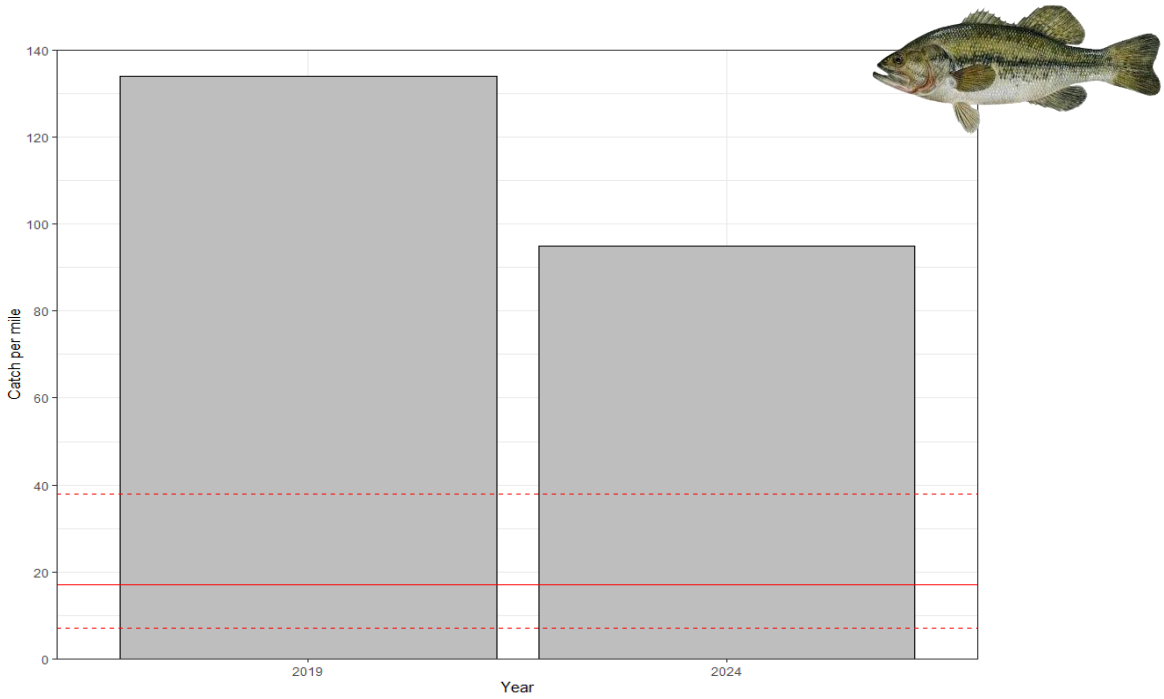


Figure 4. Largemouth bass length frequency from SEII mini-boom electrofishing efforts. The vertical line represents the median largemouth bass length.



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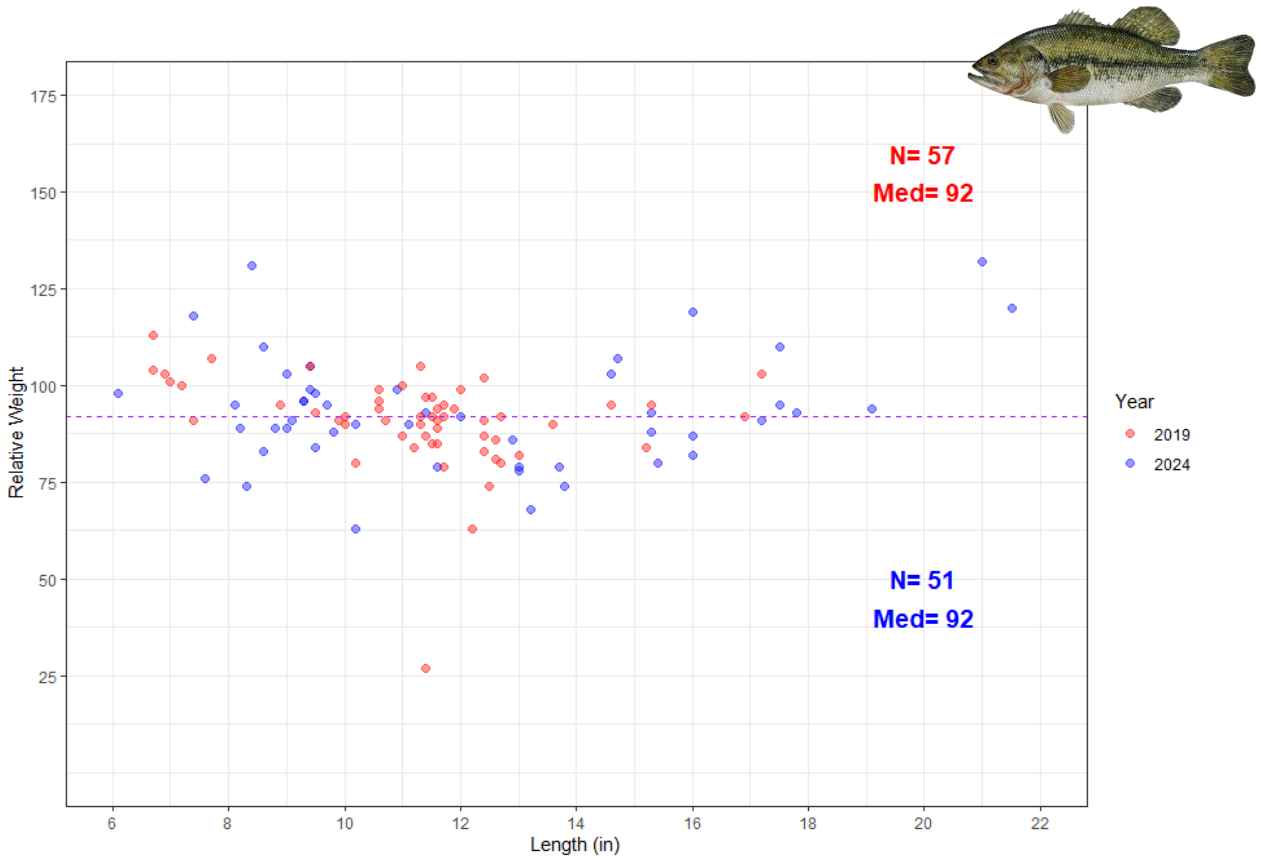

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