



WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Fishery Survey Summary

Sackett Lake

Taylor County, Wisconsin, 2023

Introduction

The Wisconsin Department of Natural Resources' (DNR) Fisheries Management Team from Park Falls completed netting and electrofishing surveys in 2023 to assess the abundance, size structure and reproductive success of important sportfish populations in Sackett Lake. The estimate of adult walleye population density derived from the early spring surveys also helped us evaluate the survival and growth of walleye raised in local ponds and stocked into Sackett Lake under a Cooperative Fish Rearing Agreement between the DNR and the Rib Lake Area Fish & Game Association. An electrofishing survey in late spring characterized the status of largemouth bass and bluegill, and fall electrofishing measured natural walleye recruitment. Quality, preferred and memorable sizes referenced in this summary are based on standard proportions of world record lengths developed for each species by the American Fisheries Society. "Keeper size" is the team's description for black crappie and yellow perch 9 inches or longer and bluegill at least 7 inches long, based on observed angler behavior.

HABITAT AND PUBLIC ACCESS CHARACTERISTICS

Sackett Lake is a 63-acre seepage lake located about 11 miles northwest of Medford, WI. The average depth is 15 feet, and maximum depth is 32 feet. The water is moderately clear with a medium-brown color (Secchi depth = 4 feet). The substrate is comprised of 30% sand, 20% gravel, 5% rock and 45% muck, supporting a moderate density of submergent and emergent vegetation. Sackett Lake is classified among lakes that have complex fish communities, a cool thermal regime and dark water. An intermittent stream discharges from the northeast corner of Sackett Lake to Grassy Knoll Lake. The shoreline vegetation is 80% upland hardwood, 15% upland conifer and 5% swamp conifer. Taylor County maintains a boat landing, a swimming beach and a picnic area on the northeast shore. A municipal ordinance prohibits the use of gas-powered motorboats. Sixteen log cribs were installed in 1968, and 18 were added in 2001.

SURVEY EFFORT

Shortly after the ice thawed when water temperature ranged from 38 to 40°F, we captured, marked and released spawning walleye in 24 net-nights of fyke netting effort from April 20-26, 2023. We also measured or counted all gamefish species encountered in that netting effort. On April 30, 2023, we targeted mature walleye again by nighttime electrofishing along the entire shoreline. We sampled 2.21 shoreline miles in 1.13 hours of electrofishing effort when the water temperature was 42°F. The proportion of marked walleye in our electrofishing survey allowed us to estimate adult walleye density.

With water temperature between 69 and 70°F, our May 22, 2023 electrofishing survey coincided with the early spawning and nest-building activities of largemouth bass and bluegill. We

collected gamefish species along Sackett Lake’s entire shoreline, sampling 1.87 miles in 1.43 hours and subsampling all fish species for a half mile in 0.50 hours.

Our September 11, 2023 electrofishing survey targeted young walleye, but we collected all gamefish along the entire lake perimeter, sampling 1.86 miles in 0.85 hours when water temperature was 70°F.

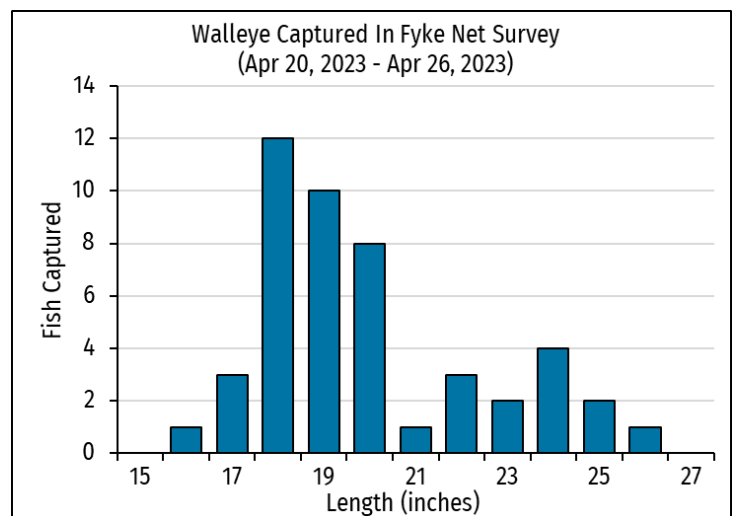
Results and Discussion

FISH COMMUNITY

Though these surveys were not designed to characterize the entire fish community, our combined netting and electrofishing efforts in the spring and fall of 2023 captured nine fish species, compared to 11 species collected by those methods in the spring and fall of 2013. We found smallmouth bass and white suckers in 2013 but not in 2023. After stocking a total of 3,852 large fingerling walleyes since 2011, largemouth bass and walleye are the co-dominant predators in the fish community. Bluegill, yellow perch and black crappie had similar abundance among Sackett Lake’s panfish populations.

WALLEYE

Early spring fyke netting in 2023 captured 53 walleyes at a rate of 2.2 fish ≥ 10 inches per net-night. That catch rate ranked between the 25th and 50th percentile values among lakes in the complex-cool-dark category, compared to spring of 2013 when the fyke netting catch rate ranked between the 10th and 25th percentiles. The 47 walleyes captured just once in nets ranged from 16.4 to 26.2 inches and averaged 20.4 inches long. Early spring electrofishing captured 11 walleyes, including seven that we marked and released in our



netting survey. Electrofishing catch rates were 3.7 walleyes ≥ 10 inches per mile or 7.3 per hour. The four walleyes not handled before ranged from 9.1 to 21.7 inches and averaged 13.2 inches. From these netting and electrofishing samples, we estimated that Sackett Lake’s walleye population had 62 adults (95% confidence interval = 40-84; coefficient of variation = 0.18) or 1.0 adult per acre. Walleye density in Sackett Lake was below the average value of 1.8 adults per acre in populations maintained primarily by stocking in Wisconsin’s Ceded Territory.

Electronic records dating back to 1973 show that the DNR stocked only walleyes into Sackett Lake, usually as small fingerlings from 1.5 to 3 inches long. The stocked walleyes help to control panfish abundance and offer “bonus” angling opportunities. Stocking is the primary source of new recruits to Sackett Lake’s walleye population. Our electrofishing catch rate of 1.05 fingerlings per mile in the fall of 2023 suggests at least some in-lake walleye production, but natural recruitment alone cannot sustain a walleye fishery. We found

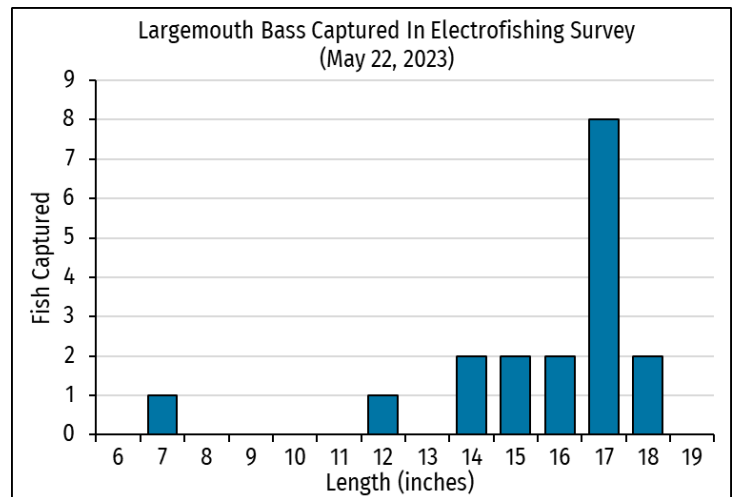
promising signs that the stocked fingerlings are surviving and growing to increase walleye abundance since our most recent surveys. In the spring of 2023, fyke nets captured walleyes at a rate nearly three times faster than that recorded in the spring of 2013.

The ratio of males to females in our early spring samples was 2.2. Ring counts on sectioned dorsal spines revealed that, on average, males grew to 17.5 inches in five years (range 16.4-18.1; n=6), 18.7 inches in six years (range 18.1-19.5; n=5) and 19.5 inches in seven years (range 18.0-20.8; n=11). The female walleye in our sample reached 20.0 inches in five years (range 19.6-20.4; n=2) and 19.8 inches in six or seven years (range 18.5-20.2; n=5). Most of the females in our aged subsample were 22.0-26.2 inches long and 8-11 years old (n=12). We found no mature walleyes less than four years old. Based on our age estimates, walleye grow fast in Sackett Lake. In a pooled sample of males and females, average length exceeded the 75th percentile value by 0.5-2.4 inches at ages 5-8 (n=31) and matched that benchmark at age 9 (n=4).

This faster-than-average growth rate, combined with low population density, enables the population to produce higher-than-average proportions of large fish. All walleye captured in fyke nets were quality-size fish at least 15 inches or longer. Forty-five percent of walleyes in that sample were 20 inches or longer, and 6% were at least 25 inches long. The population's size distribution should meet the expectations of anglers who typically release their walleye catch. However, those who want to keep a walleye meal must be selective in the sizes they keep. A daily bag limit of three walleyes from 15 inches but less than 20 inches long may be kept, except one of the three may be over 24 inches. Fifty-five percent of walleye in our fyke net sample were legal-size fish 15-19.9 inches long, and 13% were legal-size walleyes over 24 inches.

LARGEMOUTH BASS

In our late-spring electrofishing survey, we captured 18 largemouth bass ranging from 7.5 to 18.6 inches and averaging 16.1 inches long. Our catch rates of nine bass ≥ 8 inches per mile or 12 per hour suggest that population abundance has decreased since 2013 when late-spring electrofishing captured 25 bass per mile and 51 per hour. Grouping largemouth bass of all sizes, the electrofishing capture rate of 12 largemouth bass per hour in Sackett Lake in the spring of 2023 nearly matched the median catch rate in lakes that have a complex fish community, a cool thermal regime and dark water.



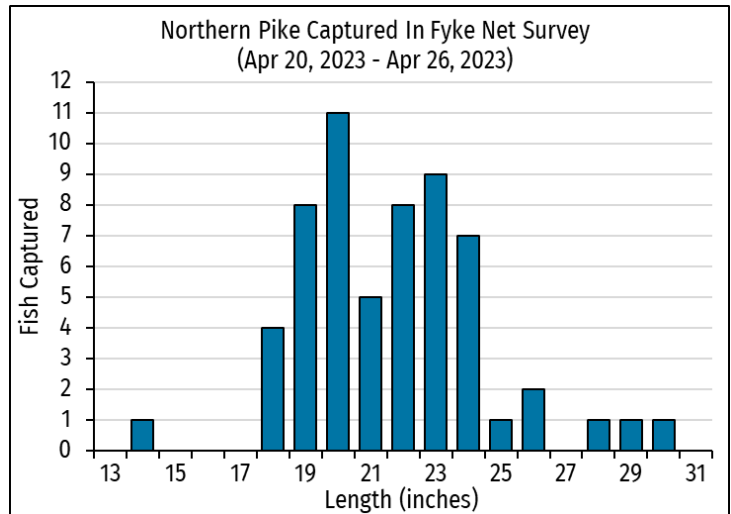
At mid-range abundance, the size structure of Sackett Lake's largemouth bass population improved since our preceding measures. The average length increased 2.8 inches from our last survey ten years earlier, and the proportions of legal-size bass ≥ 14 inches and preferred-size bass ≥ 15 inches increased from 23% and 4% in 2013 to 94% and 82% in 2023. The longest bass we measured ranked between the 95th and 99th percentiles for maximum length in the

complex-cool-dark class. The average length of bass in our sample exceeded the class's maximum value by 1.2 inches, signaling the need to revise the class standards. Sackett Lake lies within the Northern Bass Management Zone where anglers may keep largemouth bass from the first Saturday in May through the first Sunday in March. Smallmouth bass may be kept from the third Saturday in June through the first Sunday in March. A daily bag limit of five largemouth bass or smallmouth bass in any combination may be kept, but they must be at least 14 inches long.

NORTHERN PIKE

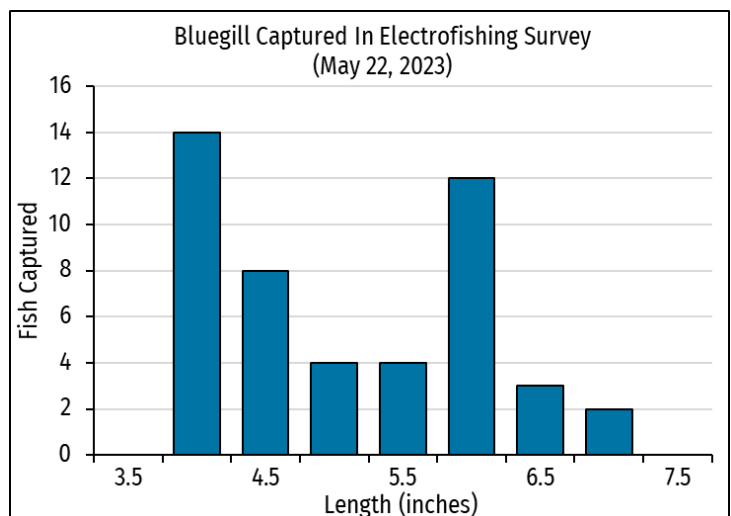
Early spring fyke nets set for spawning walleye incidentally captured 124 northern pike at a rate of 5.2 pike per net-night. That catch rate ranked near the 90th percentile value for northern pike in cool, dark lakes with complex fish communities. Applying Schnabel's equation to the numbers of pike marked and recaptured in four successive fyke netting visits in early spring 2023, we coarsely estimated that the Sackett Lake population had 60 adults (CI_{95%}=42-106) or 1.0 adult per acre. The 59 pike

captured just once ranged from 14.2 to 30.0 inches and averaged 22.1 inches long. Their mean length nearly matched the 95th percentile value of the complex-cool-dark lake class. Fifty-nine percent were quality-size fish ≥ 21 inches long, and 5% attained preferred size ≥ 28 inches. Pike abundance increased and their size structure declined since 2013 when fyke nets captured 2.5 pike ≥ 14 " per net-night, 78% attained quality size, 39% reached preferred size and 6% grew to at least 34 inches long. Nonetheless, the size distribution of Sackett Lake's pike population is somewhat better than we typically find in neighboring lakes. The plentiful, intermediate-size pike between 18 and 24 inches should satisfy anglers who wish to keep a meal or pickle their catch. Anglers may keep a daily bag limit of five northern pike of any size.



BLUEGILL

Electrofishing along a half mile of Sackett Lake's shoreline produced a sample of 47 bluegills that ranged from 4.0 to 7.2 inches and averaged 5.3 inches long. The longest bluegill matched the 75th percentile value for maximum bluegill length among complex, cool, dark lakes. Our electrofishing catch rate of 94 bluegills per mile fell just below the median value, resembling the moderate population abundance we found in late spring 2013 when electrofishing captured 126 bluegills per mile. All indices of bluegill size declined since our last survey. Their average length



decreased one inch. The proportions of quality-size bluegill ≥ 6 inches, keeper-size fish ≥ 7 inches and preferred-size bluegill ≥ 8 inches fell from 80%, 50% and 7% in 2013 (n=132) to 36%, 4% and 0% in 2023 (n=47). Sometimes, fyke nets can catch the larger bluegills that go undetected in electrofishing surveys. The 22 bluegills that we subsampled and measured in the spring 2023 fyke net survey ranged from 4.2 to 9.6 inches and averaged 7.7 inches long, suggesting that the bluegill population has a greater share of large individuals than electrofishing revealed alone. Sackett Lake has no special harvest restrictions. Anglers may keep a daily bag limit of 25 panfish of any size and species.

BLACK CRAPPIE

In 2023, we did not assess the abundance and size structure of crappies in a fall fyke netting survey, nor did we count or measure all crappies captured in spring fyke nets, as we typically do. Late-spring electrofishing along 0.5 shoreline miles captured 44 small crappies, ranging from 4.9 to 6.2 inches and averaging 5.5 inches long. However, we are skeptical that late spring electrofishing samples can adequately represent crappie population status. A modest subsample of 22 crappies measured from several fyke net lifts ranged from 5.2 to 12.1 inches and averaged 8.5 inches long. We cannot make meaningful inferences from our limited samples, so we recommend targeting crappies by fyke netting in the spring and fall of 2032 in the next round of scheduled surveys.

YELLOW PERCH

It has been difficult for us to properly characterize the status of yellow perch populations by our traditional survey methods. In the spring of 2023, electrofishing captured 56 perch. The electrofishing catch rates were 34 fish per mile for perch five inches and longer and 112 perch per mile for all sizes. We found none longer than six inches. Perch are the preferred food of walleye, northern pike and largemouth bass. Lucky anglers may find larger perch that evaded our sampling gear.

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