WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Fishery Survey Summary
Mason and Evergreen Lakes
Sawyer County, Wisconsin, 2021

Introduction

The Wisconsin Department of Natural Resources' (DNR) Fisheries Management Team from Park Falls completed netting and electrofishing surveys in spring and fall of 2021 to assess the status of important sportfish populations in Mason and Evergreen lakes. An electrofishing survey in late spring characterized the abundance and size structure of their Largemouth Bass, Smallmouth Bass and Bluegill populations, and those results helped to evaluate the effectiveness of three experimental panfish harvest regulations. Fall electrofishing evaluated Walleye recruitment. Fyke netting in mid-fall targeted Black Crappie, and the bycatch gave us hints about Muskellunge abundance. Quality, preferred, memorable and trophy 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

Located within the Flambeau River State Forest about 10 miles west of Fifield, Wisconsin, 190-acre Mason Lake and 200-acre Evergreen Lake are drainage lakes connected by a shallow, navigable channel. An unnamed tributary drains from Swamp Lake into Mason Lake, and Mason Creek flows about 1.3 miles from Mason Lake to the North Fork Flambeau River. Together, the pair of lakes has 5.7 miles of shoreline. Except for a few scattered dwellings, nearly all shorelands are forested, publicly owned and managed within the state forest's Scenic Lake Management Zone to maintain their natural aesthetics and undeveloped landscape for long-term public enjoyment.

Mason Lake has low turbidity and moderately clear water (average Secchi depth=9 feet), even though dissolved organic compounds bring about its tea-colored stain. Its maximum depth is 39 feet, and its average depth is 17 feet. The bottom substrate is 60% sand, 5% gravel and 35% muck. Mason Lake is classified with lakes that have a complex fish community and cool, clear water.

Evergreen Lake has noticeably different characteristics. Evergreen Lake is moderately clear in early spring, but water clarity drops as summer progresses. Severe algae blooms produce the turbidity and the pea-green color that inspired a name change from Round Lake to Evergreen Lake. The average late summer Secchi depth is 6 feet. Evergreen Lake's maximum depth is 25 feet, and its average depth is 12 feet. Near shore, the lakebed composition is roughly 40% sand, 55% gravel and 5% muck. Evergreen Lake's classification falls into the complex, cool, dark category.

The DNR maintains a boat landing with minimal improvement at the outlet of Mason Lake near the end of Snuss Boulevard. The Township of Draper's 1981 ordinance limits the size of motors used on Mason Lake to 15 horsepower or less.

SURVEY EFFORT

With water temperatures between 66-67° F, our May 24, 2021 electrofishing survey coincided with the spawning activities of Smallmouth Bass, Largemouth Bass and Bluegill. We collected all fish species along Evergreen Lake's entire shoreline, sampling 2.52 miles in 1.33 hours. In Mason Lake, we dip-netted gamefish along 2.00 shoreline miles in 1.03 hours, and we subsampled all fish species for 1.00 mile in 0.52 hours.

Our Oct. 5, 2021 electrofishing survey targeted young Walleye, but we collected all gamefish along the entire perimeter of both lakes when the water temperature was 66° F. We sampled 3.61 shoreline miles on Mason Lake in 1.40 hours and 2.37 miles on Evergreen Lake in 1.05 hours.

On Oct. 19, 2021, we set four fyke nets in Mason Lake and four in Evergreen Lake and fished them overnight for two nights when the water temperature was 55–57° F. Those eight net-nights of sampling effort per lake were directed at Black Crappie, but we measured or counted all fish captured.

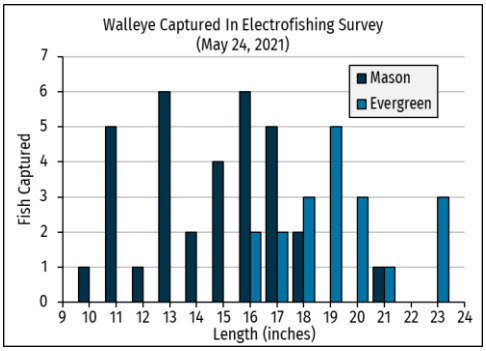
Results and Discussion

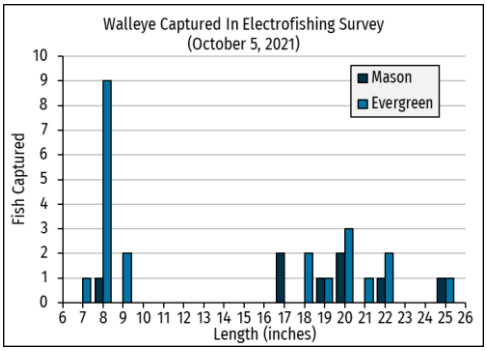
FISH COMMUNITY

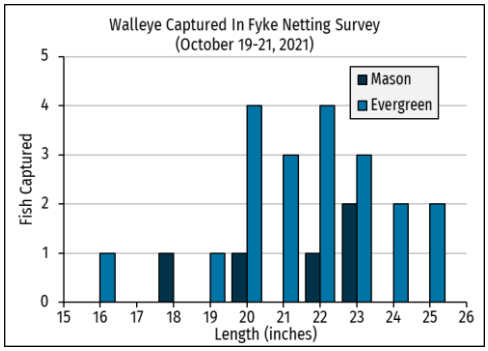
Our combined netting and electrofishing efforts in both lakes captured 15 fish species in 2021 compared to 13 collected by those methods in 2011-2012. Walleye and Muskellunge are the co-dominant predators, and Yellow Perch and Bluegill are their primary prey. Northern Pike remained absent in all survey records, despite the unobstructed connection to the pike population in the North Fork Flambeau River nearby. We caught no Largemouth Bass in 2021. However, three specimens captured in fall 2011 suggest that Largemouth Bass were once present in the fish community.

WALLEYE

We did not specifically target Walleyes by early spring fyke netting to properly describe their population abundance and size structure. Fall electrofishing, our standard assessment of Walleye recruitment, captured only 0-0.6 fingerlings per mile in 2014, 2019 and 2021 in Mason and Evergreen lakes. However, in all spring and fall 2021 surveys, the incidental catches in



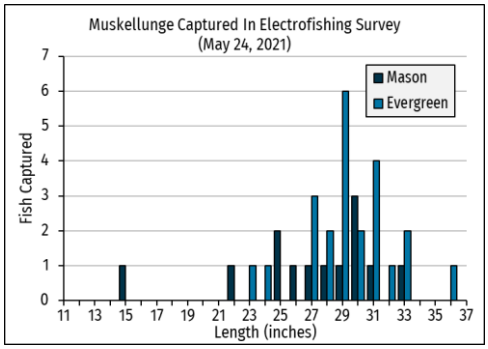


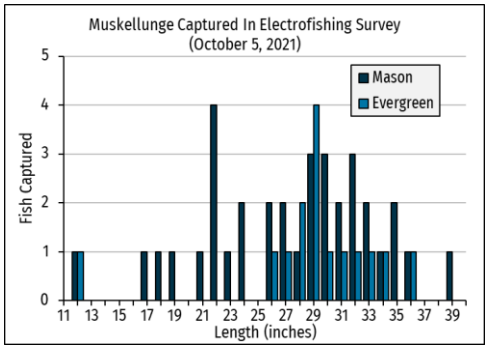


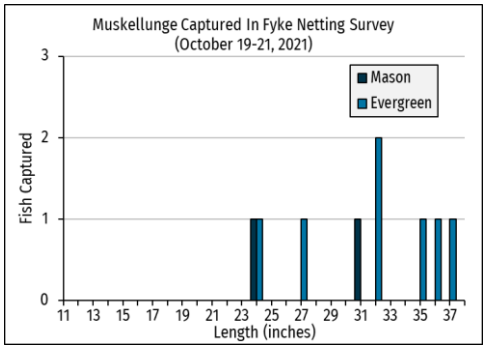
both lakes included Walleyes in a broad range of sizes, suggesting that natural reproduction supplies enough recruits to replace the adults that die to angling and natural causes. In fall 2021, we captured age-1 Walleye 8.0-9.2 inches long at rates of 5.0 yearlings per mile in Evergreen Lake and 0.29 per mile in Mason Lake. Our combined netting and electrofishing surveys included 61 Walleyes from Evergreen Lake and 46 from Mason Lake. Walleyes in those pooled samples ranged 7.1 – 25.4 inches long. We did not compare these results with lake class standards or with our objectives for Walleye density and size structure because the non-targeted bycatch does not represent Walleye population status.

MUSKELLUNGE

Spring fyke netting at water temperatures between 50-55°F is our standard protocol to characterize the adult population status of Muskellunge. Nonetheless, the non-targeted catch and our observations in these three surveys offer some tantalizing hints about musky abundance, growth and size distribution that signal the need for further investigation. The combined netting and electrofishing samples included 50 Muskellunge from Mason Lake



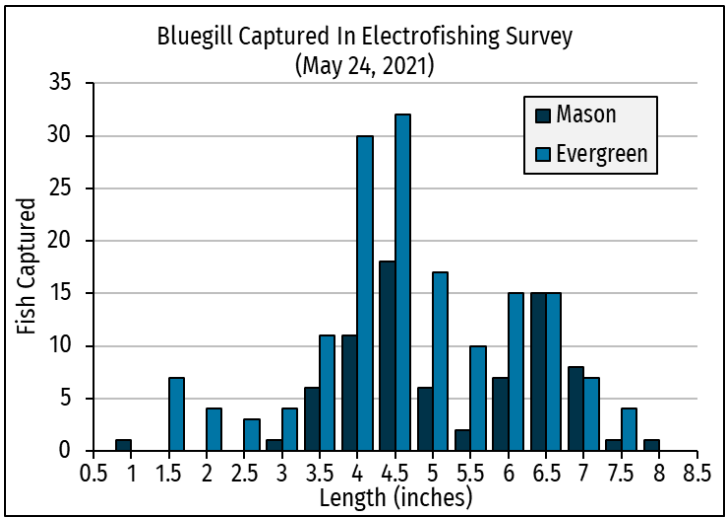




and 45 from Evergreen Lake. Their length ranged from 12.5 to 39.1 inches. The spring and fall electrofishing crews said they saw about twice as many muskies darting away and eluding capture. We injected Passive Integrated Transponder (PIT) tags into the dorsal muscles of most muskies captured in all surveys (n = 83). The single fish that we tagged in Evergreen Lake in the spring and recaptured there in the fall had no change in length from 31.2 inches after 134 days at large in the peak of the growing season. Natural reproduction is the source of all recruitment. Based on electronic records, from 1972-1990, the DNR stocked 13,000 Muskellunge as 3- to 15-inch fingerlings (weighted average = 9.9 inches). Annual stocking was usually at a rate of 1 or 2 fingerlings per acre, but in three years at rates of 0.5, 3 or 6 fingerlings per acre. Those records show that no other fish species have been stocked into Mason and Evergreen lakes and that no stocking has been authorized and logged since 1990. In our 2021 surveys, we noted several indications of an abundant, slow-growing musky population with mediocre size distribution. Anglers may enjoy fast-fishing action in Mason and Evergreen lakes, but with little or no opportunity to catch and release preferred- and memorable-size fish ≥ 38 and 42 inches or to keep a legal-size musky ≥ 40 inches. If our time, budget and staffing allow, we plan to estimate musky population density in both lakes from adults captured, marked and released in spring 2022 and recaptured in spring 2023 fyke netting surveys directed specifically toward Muskellunge. Look for an update on musky population status in winter 2023-2024.

BLUEGILL

Our late spring electrofishing survey in Mason Lake yielded 77 Bluegills that ranged from 1.4-8.0 inches and averaged 5.4 inches long. The electrofishing catch rate of 77 Bluegills per mile in Mason Lake was just below the median value (86 per mile) among lakes in the complex-cool-clear class. Electrofishing captured 147 Bluegills ≥ 3 inches per hour, exceeding the range selected to represent the moderate abundance desired (50-100 Bluegills ≥ 3 inches per hour). Mason Lake's Bluegill population fell short of its size objective to have 5-10% at least 8 inches long. Thirteen percent of Bluegills in our Mason Lake sample reached keeper size ≥ 7 inches, but only one fish (1.3%) grew to 8 inches or longer.



Evergreen Lake's Bluegill population status will be just as disappointing to anglers. Late spring electrofishing captured 159 Bluegills, ranging 1.6-7.8 inches and averaging 4.9 inches long. Our electrofishing catch rate of 63.1 Bluegills per mile in Evergreen Lake ranked near the 33rd percentile among lakes in the complex-cool-dark classification. The catch rate of 109 Bluegills ≥ 3 inches per hour was slightly higher than our objective for moderate Bluegill abundance (50-100 ≥ 3 inches per hour). The Bluegill population did not achieve its benchmark for size structure (5-10% ≥ 8 inches). Only 8% of the Bluegills in Evergreen Lake were ≥ 7 inches, and none reached preferred size ≥ 8 inches.

Sometimes fyke nets capture larger Bluegills that go undetected in late spring electrofishing surveys, but Bluegills in the fall netting survey also had mediocre size. We measured 201 of 306 Bluegills caught in fyke nets in Mason Lake, and only 1% in that subsample was 8 inches or longer. In Evergreen Lake, we measured 60 of 144 Bluegills from fyke nets, but none were ≥ 7 inches.

Experimental panfish harvest regulations, in effect since 2016 on Mason and Evergreen lakes, did not increase the average length size of Bluegill. For five fishing seasons before these surveys, anglers could keep a daily bag limit of 15 panfish, but only five of any one species in May and June. During the remainder of the year, anglers could take a daily bag limit of 25 panfish of any species. The average Bluegill length decreased by 1.3 inches in Mason Lake and 1.5 inches in Evergreen Lake since our last electrofishing surveys in late spring 2012. Water temperature, sample size and sampling effort were lower in 2012 than in 2021, but electrofishing catch rates indicated similar levels of Bluegill abundance in those years. In a broad-scale evaluation that began in 2016, the DNR applied three experimental panfish harvest regulations on 94 lakes where angling harvest appeared to be a problem. Preliminary analysis shows that only one harvest restriction met the evaluation criteria to increase the average length of Bluegill and Black Crappie by 0.5 to 1 inch. A daily bag limit of 15 panfish, but only five of any one species year-round, is most effective for achieving desired panfish size structures. Though Bluegill size in Mason and Evergreen lakes was

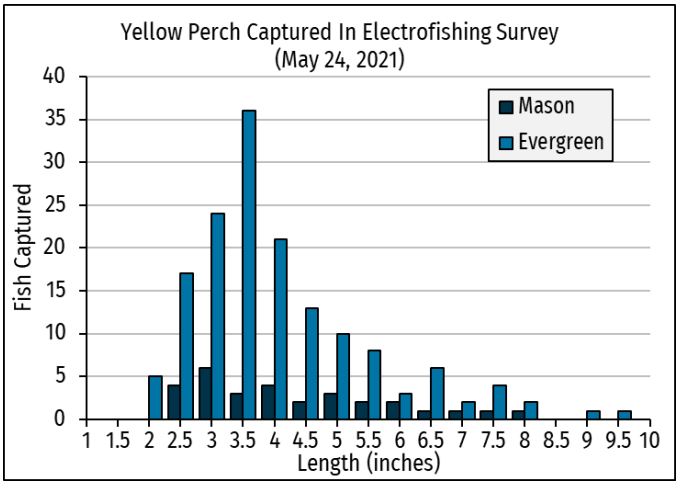
better in 2012, it's possible that predators now do not eat enough Bluegills to control their abundance and keep Bluegills growing at a satisfactory rate to produce the desired share of preferred-size fish. However, if anglers are selectively keeping the largest Bluegills in the population, then further restricting harvest with the year-round 15/5 panfish bag limit would be the next logical step toward our goal to have 5-10% of the Bluegill population at least 8 inches long.

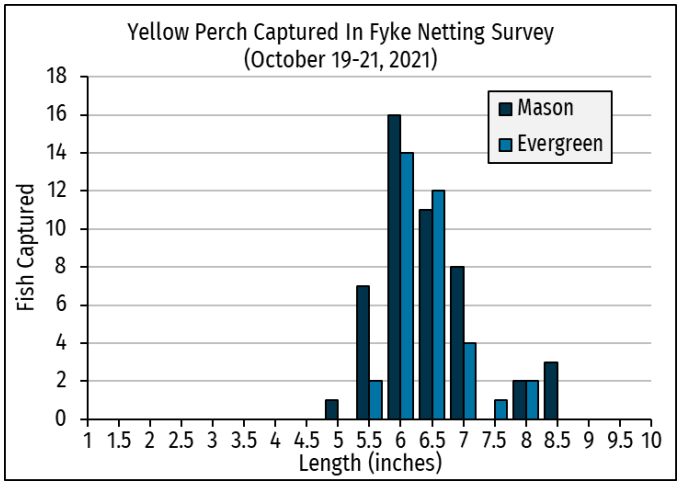
BLACK CRAPPIE

In fall 2021, sixteen net-nights of fyke netting effort directed specifically at Black Crappie captured seven crappies in Evergreen Lake and none in Mason Lake. Crappies were scarce but very large, ranging from 13.5-14.8 inches and averaging 14.2 inches long. In our fall electrofishing survey targeting young Walleyes in Evergreen Lake, we caught and measured five crappies 14.3-15.1 inches and saw two others of similar size. Although we did not estimate the age of the crappies captured in fall 2021, it's possible that they grew from the 3.5- to 4.5-inch size group that predominated our fall 2011 netting sample. We looked intently, but we detected no signs of younger crappie year classes in any of our three netting and electrofishing surveys in spring and fall 2021. Black Crappie production often fluctuates widely from year to year, and those variations are driven primarily by environmental factors. Natural recruitment, predatory pressure and angling harvest were balanced for decades to sustain the crappie population and a high-quality fishery. Through the 1980s and 1990s, patient anglers could expect to catch preferred- and memorable-size crappies ≥ 10 and 12 inches long, but only a handful, and only if they spent much of the day fishing for crappies. If our 2021 samples accurately portray a crappie population comprised solely of the largest and oldest fish without occasional influxes of new recruits to replace the adults that die, Mason and Evergreen lakes' longstanding reputation for good crappie fishing may soon be in jeopardy. We will continue to watch for young crappies in fyke nets set for adult Muskellunge in spring 2022.

YELLOW PERCH

Our spring and fall surveys revealed few prospects for good perch fishing in Mason and Evergreen lakes, probably because Yellow Perch are the preferred food of Walleye and Muskellunge. Yellow Perch often appear sporadically in our surveys, making it difficult for us to characterize their population status from routine samples. Late spring electrofishing captured 153 Yellow Perch in Evergreen Lake at rates of 15 perch ≥ 5 inches per mile or 28 per

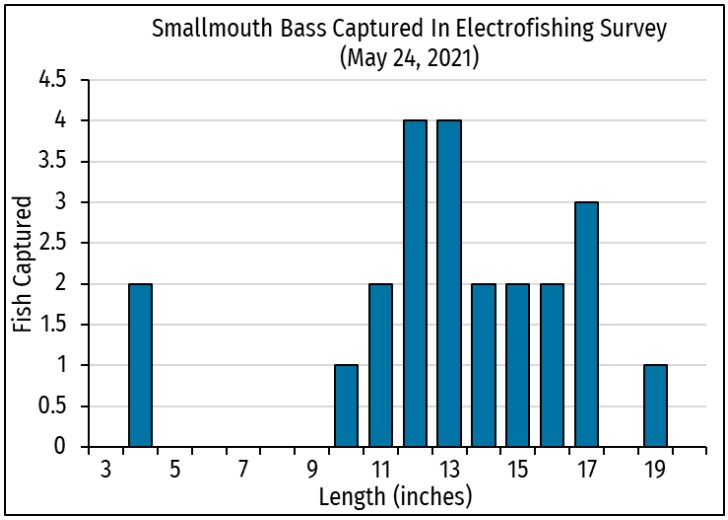


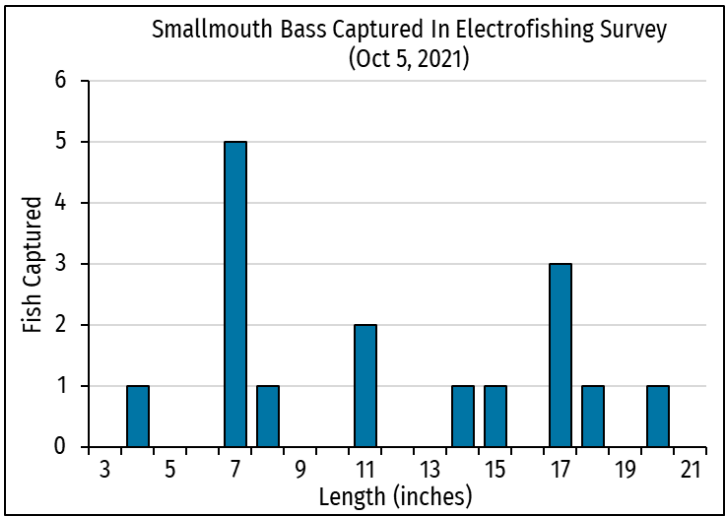


hour. They ranged from 2.3-9.7 inches and averaged 4.2 inches long. Eleven percent were ≥ 8 inches, 5% were ≥ 9 inches, but none were ≥ 10 inches. In Mason Lake, spring electrofishing yielded 30 Yellow Perch ranging 2.5-8.0 inches and averaging 4.5 inches long at catch rates of 11 perch ≥ 5 inches per mile or 21 per hour. Among Mason Lake perch ≥ 5 inches, 9% were 8.0 inches, but none were longer than that. Fyke net catch rates were nearly identical at 8.4 and 8.5 perch ≥ 5 inches per net-night in Mason and Evergreen lakes. The average length was 6.6 inches in fyke nets in both lakes, but fall netting caught no keeper-size perch ≥ 9 inches. Walleye and Muskellunge eat the largest perch to obtain an efficient ration, so selective predation probably influences the size structure of the perch population more than angling harvest does. Consequently, we do not expect harvest restrictions will improve perch size.

SMALLMOUTH BASS

Late spring electrofishing in Mason Lake captured 23 Smallmouth Bass that ranged between 4.1–19.6 inches and averaged 13.6 inches. At 20.3 bass ≥ 7 inches per hour or 10.5 per mile, the electrofishing catch rates were below the objective (25-50 per hour) chosen to represent the moderate population density we want to see. With 48% ≥ 14 inches and 19% ≥ 17 inches, Mason Lake's Smallmouth Bass population nearly attained its goals to have 50-70% at least 14 inches and 10-20% at least 17 inches long. The fall electrofishing sample from Mason Lake had fewer but larger Smallmouth Bass. In that survey, we captured 16 Smallmouth Bass ranging between 4.2–20.3 inches and averaging 12.0 inches at rates of 10.7 bass ≥ 7 inches per hour or 4.2 per mile. A third of bass ≥ 7 inches in that small sample were memorable-size fish ≥ 17 inches, and one grew to trophy size ≥ 20 inches. The bycatch of our fyke net survey in Mason Lake included 22 Smallmouth Bass in the 6.0-8.9 inches length class and one 17.3 inches in fall 2021.





The only Smallmouth Bass we found in Evergreen Lake were two fish, 12.2 and 15.0 inches long, captured in the fall electrofishing survey.

Anglers may catch and release Smallmouth Bass or Largemouth Bass at any time. In the Northern Bass Management Zone, a daily bag limit of five Largemouth Bass or Smallmouth Bass in total may be kept beginning on the third Saturday in June through the first Sunday

in March. Smallmouth Bass population status and goals are almost aligned, so we foresee no reason to modify bass harvest regulations in Mason and Evergreen lakes at this time.

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