



WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Fishery Survey Summary

Crane and Chase Lake

Price County, Wisconsin, 2022

Introduction

The Wisconsin Department of Natural Resources' (DNR) Fisheries Management Team from Park Falls completed netting and electrofishing surveys in 2022 to assess the abundance, size structure and reproductive success of important sportfish populations in Crane and Chase Lake. The estimate of adult Walleye population density derived from the early spring surveys also helped us evaluate the biennial Walleye stocking strategy that we initiated in 2014. 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

Crane and Chase Lake is the source of Crane and Chase Creek, which flows unobstructed 3.2 miles to Lac Sault Dore, a 561-acre impoundment on the Elk River locally known as Soo Lake. This 86-acre lake is located about 5½ miles northwest of Phillips, Wisconsin. Maximum and average depths are 22 and 13 feet, and 5% of the surface area is less than 3 feet deep. The water is slightly acidic at pH=6.4. Secchi disk depth of 6 feet indicates moderately high water clarity. Crane and Chase Lake is classified with lakes that have a "complex" fish community, "cool" thermal characteristics and "dark" water clarity. The bottom material is predominantly muck adjacent to the spruce-tamarack bogs that surround 65% of the lake perimeter. Gravel and rubble substrate flank the upland remainder, where vegetative cover is mixed hardwood forest, cropland and pasture. Residential development is light. Flambeau Township maintains a boat access and pavilion on the west shore, and a local ordinance limits motorboats to slow-no-wake speed during specified morning and evening hours.

SURVEY EFFORT

Shortly after the ice thawed when water temperature ranged from 40 to 43°F, we captured, marked and released spawning Walleye in 12 net-nights of fyke netting effort from April 25-28, 2022. We also measured or counted all fish species encountered in that netting effort. On April 29, 2022, we targeted mature Walleye again by nighttime electrofishing along the entire shoreline. We sampled 1.86 shoreline miles in 0.98 hours of electrofishing effort when the water temperature was 46°F. The proportion of marked Walleye in our electrofishing survey allowed us to estimate adult Walleye density.

With water temperature between 66 and 67°F, our May 17, 2022 electrofishing survey coincided with the early spawning and nest-building activities of Largemouth Bass and Bluegill. We

collected gamefish species along Crane and Chase Lake’s entire shoreline, sampling 1.52 miles in 0.72 hours and subsampling all fish species for a half mile in 0.25 hours.

Our September 27, 2022 electrofishing survey targeted young Walleye, but we collected all gamefish along the entire lake perimeter, sampling 1.50 miles in 0.68 hours when water temperature was 59°F.

Results and Discussion

FISH COMMUNITY

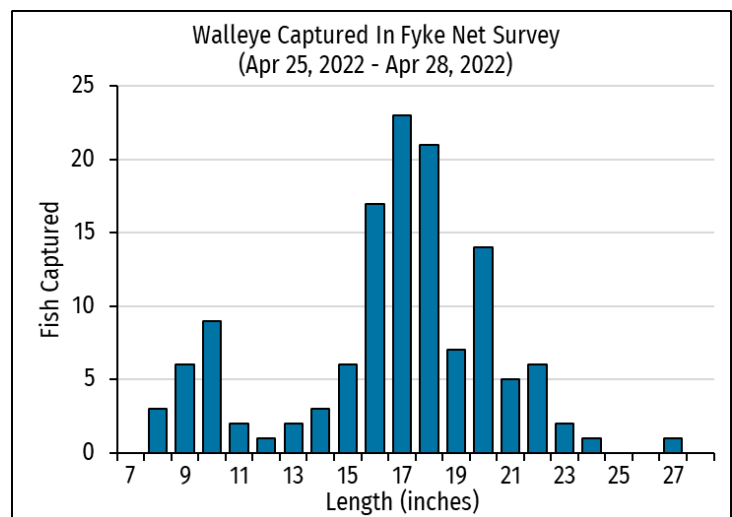
Though these surveys were not designed to characterize the entire fish community, our combined netting and electrofishing efforts in the spring and fall of 2022 captured twelve fish species, the same number collected by those methods in the fall of 2011 and spring of 2012. Species composition was nearly identical in both periods with the same eleven species encountered in 2011-2012 and 2022. In 2022, Creek Chub replaced the Muskellunge recorded in 2012. After stocking Walleye in the last five even-numbered years, it appears that Walleye and Largemouth Bass are co-dominant predators in the fish community, and Bluegill and Black Crappie are the primary panfish populations.

WALLEYE

Early spring fyke netting in 2022 captured 177 Walleyes at a rate of 13.7 fish \geq 10 inches per net-night. That catch rate now exceeded the 75th percentile value among lakes in the complex-cool-dark category, compared to spring of 2012 when the fyke netting catch rate ranked below the 25th percentile. Those 129 Walleyes captured just once in nets ranged between 8.0 and 27.1 inches and averaged 17.1 inches long. Early spring electrofishing captured 45 Walleyes, including 36 that we marked and released in our netting survey.

Electrofishing catch rates were 19 Walleyes \geq 10 inches per mile or 36 per hour. The nine Walleyes not handled before ranged from 8.4 to 19.0 inches and averaged 15.5 inches. From these netting and electrofishing samples, we estimated that Crane and Chase Lake’s Walleye population had 126 adults (95% confidence interval = 114-138; coefficient of variation = 0.05) or 1.5 adults per acre. Walleye density in Crane and Chase Lake was just below the average value of 1.8 adults per acre in populations maintained primarily by stocking in Wisconsin’s Ceded Territory.

Walleyes were present at very low abundance in Crane and Chase Lake before the DNR resumed stocking them in 2014. Fyke netting captured two Walleyes in the fall of 2011 and four in spring of 2012. They were old, large fish with an average length of 25.4 inches, and they were probably the descendants of the fry and fingerlings stocked between 1933 and



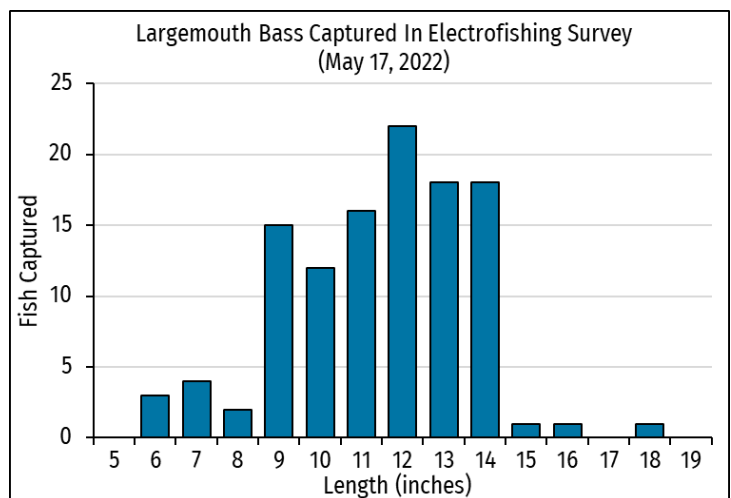
1963. Our predecessors discontinued Walleye stocking in 1963 because natural reproduction was able to sustain the fishery. Fifty years later, we re-started stocking because it could not. The DNR has stocked a total of 4,100 Walleyes at a rate of ten 6- to 7-inch fingerlings per acre in all even-numbered years from 2014 through 2022. The stocked Walleyes help to control panfish abundance and offer “bonus” angling opportunities. Stocking is the sole source of new recruits to Crane and Chase Lake’s Walleye population. Our electrofishing survey in the fall of 2022 detected no natural fingerlings and hence no evidence of in-lake Walleye production. However, we found promising signs that the stocked fingerlings are surviving and growing to increase Walleye abundance. The six Walleyes between 11.2 and 12.5 inches long in that sample represented the contributing survivors from the 873 large fingerlings stocked in the fall of 2020. In the spring of 2022, fyke nets captured Walleye at a rate 41 times faster than that recorded for identical fyke netting effort in the spring of 2012.

The ratio of males to females in our early spring samples was 1.7. Ring counts on sectioned dorsal spines revealed that, on average, males grew to 14.3 inches in three years (range 13.2-15.2; n=4), 15.5 inches in four years (range 14.3-16.9; n=8) and 17.3 inches in five years (range 15.8-18.6; n=11). The female Walleye in our sample reached 18.2 inches in five years (range 17.0–21.0; n=5), 19.7 inches in six years (range 18.0-20.9; n=10) and 21.3 inches in seven years (range 19.1-23.3; n=18). We found no mature females less than five years old. Walleye grow fast in Crane and Chase Lake. In a pooled sample of males, females and Walleye whose gender was unknown, growth outpaced the regional average by 0.2 inches at age 2 and by 1.1 to 2.7 inches at ages 3 through 8.

This faster-than-average growth rate enables the population to produce higher-than-average proportions of large fish. With 86% of Walleye in fyke nets at least 15 inches and 24% at least 20 inches long, the population’s size distribution should meet the expectations of most anglers, including those who want to keep a meal. Sixty-two percent of Walleye ≥ 10 inches in fyke nets were legal-size fish 15-19.9 inches long, and two legal-size Walleyes were over 24 inches. 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.

LARGEMOUTH BASS

In our late-spring electrofishing survey, we captured 113 Largemouth Bass ranging from 6.7 to 18.6 inches and averaging 11.9 inches long. Our catch rates of 70 bass ≥ 8 inches per mile or 148 per hour suggest that population abundance has more than doubled since 2012 when late-spring electrofishing captured 32 bass per mile and 48 per hour. Grouping Largemouth Bass of all sizes, the electrofishing capture rate of 74 Largemouth Bass per mile in Crane and Chase Lake in the spring of 2022 far outpaced the bass catch rate in lakes that have a “complex” fish community, a “cool” thermal regime and “dark” water. By

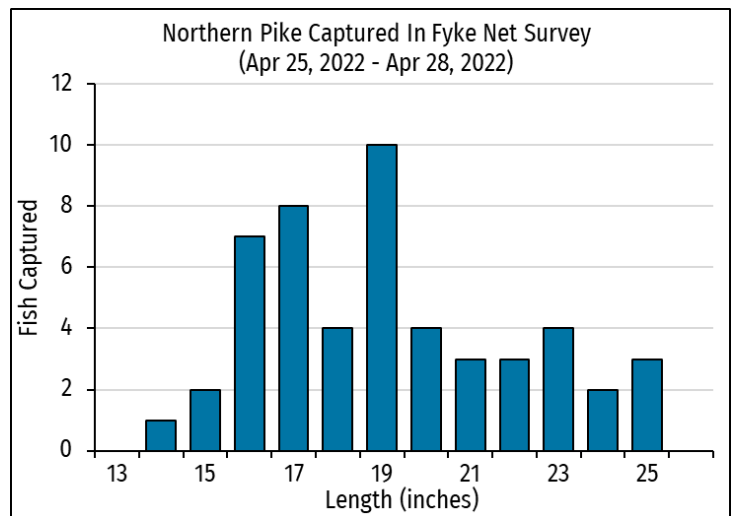


comparison, the 75th percentile rank of electrofishing catch rates in complex-cool-dark lakes was only 13 bass per mile.

Despite a two-fold increase in relative abundance, the size structure of Crane and Chase Lake’s Largemouth Bass population remained quite similar to our preceding measures. The average length increased only three-tenths of an inch from our last survey ten years ago, and the proportions of quality-size bass ≥ 12 inches, legal-size bass ≥ 14 inches and preferred-size bass ≥ 15 inches changed minimally from 47%, 16% and 6% in 2012 to 58%, 20% and 3% in 2022. Crane and Chase 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

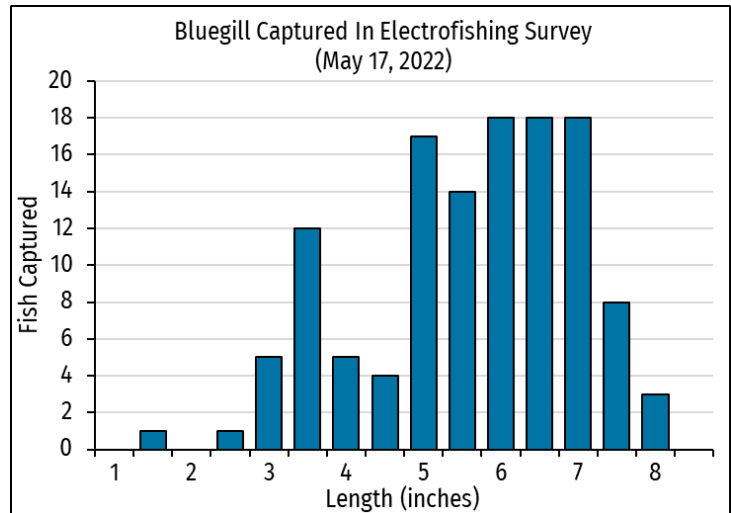
Early spring fyke nets set for spawning Walleye incidentally captured 59 Northern Pike at a rate of 4.9 pike per net-night. That catch rate ranked above the 95th percentile value for Northern Pike in cool, dark lakes with complex fish communities. The 51 pike captured just once ranged from 14.1 to 25.3 inches and averaged 19.5 inches long. Twenty-nine percent were quality-size fish ≥ 21 inches long, but none attained the preferred size ≥ 28 inches. Anglers may keep a daily bag limit of five Northern Pike of any size. Based on their mediocre size distribution in our fyke net sample, we doubt that Crane and Chase Lake’s Northern Pike population attracts much attention from pike anglers seeking memorable-size fish 34 inches or longer. Nonetheless, the plentiful, intermediate-size pike between 17 and 21 inches long work well for those who like to pickle their catch.



BLUEGILL

Electrofishing along a half mile of Crane and Chase Lake's shoreline produced a robust sample of 124 Bluegills that ranged from 1.8 to 8.0 inches and averaged 5.8 inches long. Electrofishing catch rates of 248 Bluegills per mile and 496 per hour indicate moderately high population abundance but not nearly as high as in the spring of 2012 when electrofishing captured 634 Bluegills per mile or 831 per hour. The late-spring electrofishing catch rate in 2022 ranked just above the 75th percentile among complex-cool-dark lakes, whereas in

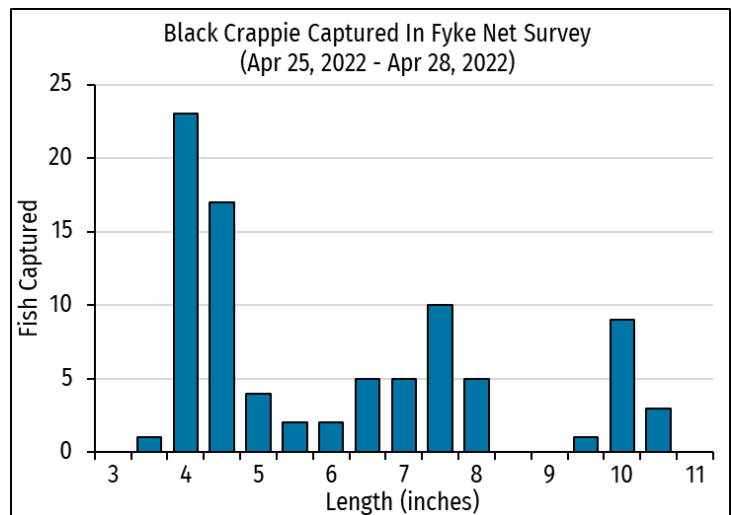
2012, it ranked well above the 95th percentile value. With added predatory pressure from stocked Walleyes, the Bluegill population's abundance has decreased, and its size structure has improved since our last measures ten years ago. Average Bluegill length rose by just over a half inch, and the shares of quality-size fish ≥ 6 inches, keeper-size fish ≥ 7 inches and preferred-size fish ≥ 8 inches increased from 27%, 2.7% and 0% in 2012 to 53%, 24% and 2.5% in 2022. The 57 Bluegills in our 2022 fyke net sample showed even larger gains, with 86% ≥ 6 inches, 68% ≥ 7 inches and 25% ≥ 8 inches long. Crane and Chase Lake has no special harvest restrictions. Anglers may keep a daily bag limit of 25 panfish of any size and species.



BLACK CRAPPIE

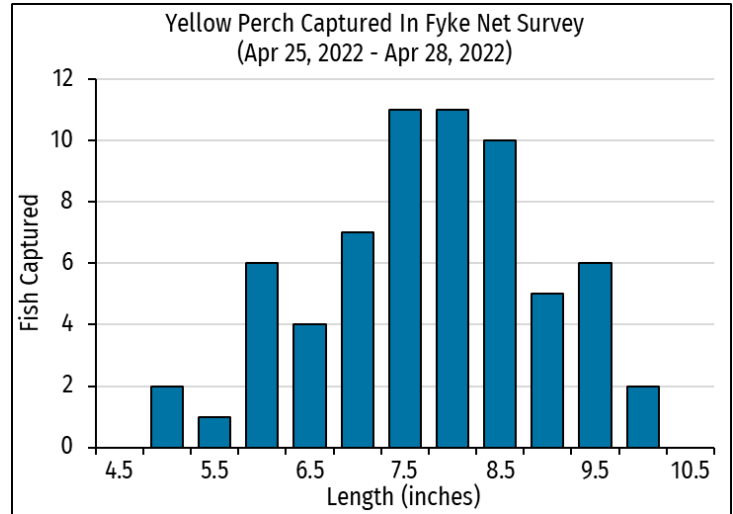
Fyke netting captured 87 Black Crappies ranging from 3.9 to 10.5 and averaging 6.3 inches long. The catch rate of 3.8 crappies ≥ 5 inches per net-night points to moderately low population abundance. Among the crappies ≥ 5 inches in the fyke net sample, 28% were keeper-size fish at least 9 inches long, and 26% attained the preferred size of 10 inches or longer. Our late-spring electrofishing sample included only two crappies, 8.2 and 9.2 inches long. The fyke netting survey in the spring of 2022 showed higher abundance and improved

size structure in the crappie population when compared to fyke net samples from the fall of 2011 and spring of 2012. Fyke nets caught crappies in several age classes, so the population should offer good fishing for a while as the population's young crappies grow to the sizes that anglers like to keep for a meal.



YELLOW PERCH

It has been difficult for us to properly characterize the status of Yellow Perch populations by our traditional survey methods. Perch seem to show up episodically in our netting and electrofishing samples. We may capture perch by handfuls on one day, then by hundreds or thousands on the next day. Keeping that challenge in mind, our fyke netting survey in the spring of 2022 produced a sample of 65 Yellow Perch ranging from 5.2 to 10.4 and averaging 7.9 inches long at a catch rate of 5.4 perch \geq 5 inches per net-night. Fifty-two percent of the perch in fyke nets were \geq 8 inches, 20% were keeper-size fish 9 inches or longer and 3% were preferred-size perch at least 10 inches long. Electrofishing in the late spring of 2022 captured only one 4.9-inch perch. Our fyke net sample had perch in a broad range of sizes and ages that serve as the preferred food of Walleye, Northern Pike and Largemouth Bass. The percentages of keeper- and preferred-size perch in the 2022 fyke net sample were notably higher than we typically find in the waters we manage.



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