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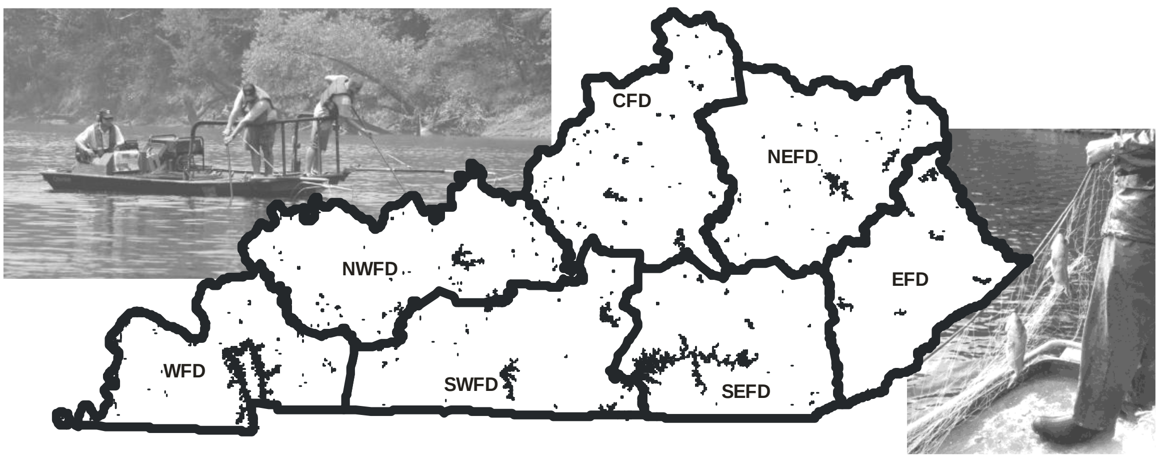
District Fisheries Management

Projects 1-4



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WESTERN FISHERY DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Sampling conditions for each survey event are listed in Table 1.

Kentucky Lake

During the spring, 257 black bass were collected by diurnal electrofishing (120 PPS, DC current). However, it is important to note that we were only allowed to use one dipper due to safety protocols surrounding the ongoing COVID19 pandemic, so catch rates may not be directly comparable to previous years. During this sampling period, 244 largemouth bass (34.9 fish/hr) were collected from Blood River, Jonathan Creek, and Big Bear (Table 2). The catch rate (fish/hr) for largemouth bass was highest in Jonathan Creek (61.0 fish/hr). Unlike previous years, Sugar Bay was not sampled. This was done in order to avoid interference with the ongoing snorkel surveys of the bass spawning habitat in that embayment.

For the first time, each bass collected during spring electrofishing was assessed visually for hook wounds. Overall 22% of the bass caught displayed a hook wound. It is also important to note that fishing tournaments were prohibited during the spring in order to prevent the spread of COVID19.

The spring bass data was used to complete the lake specific assessment (Table 3). The lake specific assessment suggests that the largemouth bass population rated “Poor”. Growth was assessed this year using otoliths. The mean length of age-3 largemouth at capture was 13.4 in (Table 3). The catch rate of age-1 largemouth bass in the sample was low indicating a poor spawn in 2019. This was somewhat discouraging as we had high catch rates of age-0 largemouth in the fall of 2019. However, the mean length of those 2019 YOY bass was very low (3.9 in). Our habitat plan is focused on increasing recruitment of largemouth bass in the reservoir, and we are hopeful that improving habitat can help the bass population to recover.

The size structure parameters used to assess the fishery by standards set in the Kentucky Lake Fish Management Plan (KLFMP) showed a below-average catch of <8.0-in bass (Table 4). The catch rate of intermediate-size bass (12.0-14.9 in; 17.7 fish/hr) was slightly below the plan recommendation. The catch rate of harvestable-size bass (≥15.0 in) was also down from previous years’ data, and below the plan recommendation. The catch rate of trophy-size largemouth bass (≥20.0 in) was also below the average for the last 10 years, and was below the KLFMP recommendation. The size distribution was again skewed heavily towards 12.0- to 14.9-in fish which was expected based on the strong spawn in 2016.

Proportional Size Distributions (PSD) values were calculated for black bass collected from each embayment sampled during the spring (Table 5). The average PSD and RSD_{15} values for largemouth bass were 85 and 26, respectively. These average values were used in the KLFMP assessment. The PSD value is above the assessment preferred range (55-75) due to the high proportion of fish over 12.0 in and the relatively weak year class of 2019 (Table 4). The RSD_{15} value was 26, which also falls inside the targeted range (RSD_{15} of 20-40).

During October, 581 black bass were collected by diurnal electrofishing (120 PPS, DC current) from four embayments; Blood River, Jonathan Creek, Big Bear, and Sugar Bay (Table 6). Largemouth bass comprised 67% (104.0 fish/hr) of this sample in Blood River and Jonathan Creek. This was a major improvement over the 2019 fall sample when the largemouth bass catch rate was 58.6 fish/hr. Smallmouth bass comprised 31.5% (49.1 fish/hr) of the 2020 sample for those two embayments and actually outnumbered the largemouth in Blood River. However, based on length frequency it appears that the majority of those smallmouth were young-of-year.

Length and weight data were recorded from all bass collected during the fall sample to calculate relative weight values. The mean relative weight for harvestable-size largemouth bass was 96 (Table 7). This value was up from the 2019 estimated relative weight value of 93, and is within the preferred range of 95-105. The relative weight of largemouth bass is one parameter that is being watched as an indicator of the effects of the population of silver and bighead carp in the lake. As silver and bighead carp numbers continue to increase, they could impact the plankton levels and hence the upper levels of the food chain.

Length-weight equations for black bass species at Kentucky Lake are:

Largemouth bass $\quad \text{Log}_{10}\text{ (weight)} = -3.5003 + 3.17676 \times \text{Log}_{10}\text{ (length)}$
Smallmouth bass $\quad \text{Log}_{10}\text{ (weight)} = -3.47340 + 3.11512 \times \text{Log}_{10}\text{ (length)}$

Otoliths were collected from a subsample of smallmouth bass <10.0 in during fall sampling in 2020. Otoliths were used to age bass so that the catch rate and growth of age-0 fish could be evaluated. Otoliths were also collected from a subsample of largemouth bass in fall of 2020. When possible, at least 10 largemouth bass per inch class were collected, weighed, measured, and sexed, in addition to their otoliths being removed. Sex was determined visually by internal examination of the gonads. The catch rates of age-0 smallmouth and largemouth bass during the fall sample were 39.8 and 76.7 fish/hr, respectively (Tables 8 and 9). The 2020 year class appears to be well above average, with average growth. The mean length of the age-0 largemouth bass was 5.3 in at time of capture in the fall. The age-length key from the full age sample was also used to assess the age frequency of largemouth bass >age-1. Few older fish were collected this fall, although the 2016 year class was still noticeable as a bump in 4-year-old fish (Table 10). The low catch rates of older fish solidify the idea of very weak spawns in 2014 and 2015 (Table 10). Visible annuli on each otolith were measured using an ocular micrometer. The measurements were then used to backcalculate each fish's length at each annulus. Backcalculated lengths at age for all largemouth, all male largemouth, and all female largemouth are provided in Tables 11-13, respectively. Although the sample size of larger fish was small, the results suggest that female largemouth bass are showing higher lengths at age than their male counterparts (Tables 12 and 13).

Because of a string of several weak bass spawns, WFD started placing bass spawning habitat in Kentucky Lake and Lake Barkley prior to the bass spawn in spring 2019. Habitat consisted of shallow-water laydowns (sometimes referred to as spawning benches) and artificial spawning beds. Artificial beds are bowl-shaped structures that provide preferred substrate for bass. Our artificial beds were initially constructed with plastic sides but we have since changed to using all concrete. Habitat was placed at water elevations slightly below winter pool in areas that were perceived as lacking good habitat. Our goal is to provide sufficient habitat at lower water elevations because bass are often ready to spawn before water is high enough to reach good shoreline habitat in the spring. A reduction in competition for habitat resources should lead to higher individual nest success. To help determine how fish use these structures we conducted 11 weekly snorkel surveys from March 30 – June 8, 2020, at Sugar Bay on Kentucky Lake (Table 14). We rated the relative amount of observed eggs and fry at 67 sites and collected egg and fry samples to help with identification. An additional rating of "cleaned off" was added to track beds that had been brushed clean of debris but had no eggs or fry. Summary percentages of usage are in Tables 15 and 16.

In 2020, 51% of the sites were used at least once by spawning bass including 13% of sites that were used twice by bass. Two thirds of artificial beds next to laydowns were used by bass, while artificial beds without laydowns were used at a rate of 47%. The usage rates of laydowns without artificial nests were lower at 38%. Once water temperatures started to warm up to about 70F, sunfish started to use our spawning habitat heavily. About 81% of our experimental habitat sites were used at least once by sunfish, and 96% of the artificial spawning beds were used by sunfish.

Across 53 artificial beds in Sugar Bay, we suspect 37 individual bass spawning events occurred based on weekly snorkel surveys. During the spawn of 2020 we had 269 artificial beds deployed in Kentucky Lake and 268 in Lake Barkley. If we expect similar results across both lakes, we can extrapolate those numbers and estimate that bass spawned 375 times on our beds in the spring of 2020. A typical bass nest may contain anywhere from 2,000-7,000 fry after hatch (Post et al., 1998) meaning our artificial beds could have helped with the spawn of anywhere from about 750,000-2,600,000 bass fry. It is possible, however, that bass would have spawned in these areas even without any artificial spawning habitat. During snorkel surveys we never noted any natural beds away from our habitat but visibility often made that very difficult.

In order to further understand the timing and duration of the bass spawn, shoreline seining was conducted in Sugar Bay on June 15, 2020 and in Blood River on June 16, 2020. A 50-foot seine with ¼-in mesh was used to collect YOY largemouth bass until a total of 100 specimens were collected from each embayment. Smallmouth bass were also collected, but catches were much lower. Each bass was measured for total length in mm and the sagittal otoliths were removed. Otoliths were mounted convex side up using thermoplastic cement, sanded with 1200 grit sandpaper, and polished with 0.3-micron alumina powder.

Each otolith was aged independently by two readers using a compound microscope at 100x-400x magnification. Reader agreement was typically within 1-3 days, but if the difference between readers was less than 10% of the fish's estimated age, the counts were averaged and accepted. To determine hatch dates we used the equation [(ordinal date collected)-(average ring count)-5)] (Dicenzo and Bettoli, 1995). To determine what dates bass were actually spawned on (when spawning activity took place on the nest), we used the equation [(hatch date)-3] (Heidinger, 1976). The results of the hatch date and spawn date analysis are provided in Tables 17 and 18.

Differences in spawn dates between species and embayments were initially compared with an F-test for variances. Then, depending on equal or unequal variance, the spawn dates were compared using appropriate T-tests. In 2020, the average largemouth bass spawn date in Sugar Bay (April 24±1.7 days) was significantly earlier than in Blood River (April 28±1.5 days; p=0.004). Although this is only one year, the mean length of age-0 bass in October was 5.1 inches in Sugar Bay, and only 4.6 inches in Blood River, which supports the theory that earlier hatch dates correspond with larger mean lengths later in the year. The average smallmouth bass spawn date in Sugar Bay (April 13±2.5 days) was not significantly different than in Blood River (April 15±6.9 days; p=0.617). However, when both embayments were combined, the average smallmouth bass spawn date (April 14±2.6 days days) was significantly earlier than the average largemouth bass spawn date (April 26±1.1 days; $p=3.45e^{-14}$).

Trap nets were fished for crappie in Blood River and Jonathan Creek embayments for 80 net-nights (nn) during October and November. In addition, Ledbetter Bay was sampled for 40 nn. This is the fourth time Ledbetter Bay has been sampled for crappie. Otoliths were collected from a subsample of the entire population and used to assign ages and calculate mean lengths at age. The combined sampling effort yielded 931 crappie (7.8 fish/nn), of which 3.3 fish/nn (42%) were white crappie and 4.4 fish/nn (58%) were black crappie (Table 19). The Blood River and Jonathan Creek data are listed as "sub-total" on this table and only data from these two embayments were used in the proceeding assessments. The total catch rate of crappie >age-0 was 9.5 fish/nn which is below the goal of 20.0 fish/nn set in the KLFMP (Table 20). The low total catch rate is a reflection of the weak spawns in 2016 and 2017. However, the catch rate of 7.7 fish/nn for age-1 crappie this fall was an encouraging sign of an above average spawn in 2019.

The number of crappie $\geq$8.0 in and $\geq$10.0 in collected in trap nets was 2.7 and 1.4 fish/nn, respectively (Table 20). The KLFMP objective for crappie is to maintain a catch rate of at least 10.0 fish/nn for crappie $\geq$8.0 in and 4.0 fish/nn for crappie $\geq$10.0 in. Neither objective was met this year.

Crappie at Kentucky Lake had above average growth rates in 2020. The growth management objective in the KLFMP is for age-2 crappie collected in the fall to reach 9.5 inches in length. The average length of the age-2 crappie collected this year was 9.8 in (Table 20).

Another management objective in the KLFMP is to maintain a catch rate of age-1 crappie of at least 11.0 fish/nn (Table 20). The catch rate for this age group of crappie was 7.7 fish/nn. Although still below the management objective, this was the highest catch rate observed since 2015. For a discussion of the potential impacts of environmental factors on the spawn, please refer to the 2017 Annual Performance Report.

These parameters are also used as part of the calculation for ranking the crappie fishery at Kentucky Lake. Overall, the crappie population at Kentucky Lake rated "fair" this year (Table 21).

The fall trap netting data was used to calculate proportional size distributions and length-weight equations for crappie. PSD and RSD_{10} values are reported in Table 22.

The mean relative weights of keeper-size (>10.0 in) white crappie and black crappie were (101) and (97), respectively (Table 23). These relative weights are excellent and we have had several comments from anglers about the good health of the fish. This is in stark contrast to 2017 when skinny crappie were a major source of complaints and concerns. Relative weights for white and black crappie in 2017 were (89) and (85), respectively.

Length-weight equations for white and black crappie are listed below.

White crappie	Log_{10} (weight) = -3.81796 + 3.51717 x Log_{10} (length)
Black crappie	Log_{10} (weight) = -3.69679 + 3.447 x Log_{10} (length)

Tables 24-29 list the back-calculated lengths at age for all white crappie, all male white crappie, all female white crappie, all black crappie, all male black crappie, and all female black crappie, respectively. Differences in growth rates between sexes were not obvious for either species. The age frequencies for white and black crappie collected are listed in Tables 30 and 31, respectively. The poor white crappie spawns reported in 2016 and 2017 are very noticeable as no 3 or 4-year-old white crappie were collected in 2020.

During the spring of 2020, icthyoplankton sampling was conducted in the Jonathan Creek embayment of Kentucky Lake. Weekly sampling began March 30, 2020 and ran through June 9, 2020. Samples were conducted using a rectangular neuston net with a 100-micron mesh size, towed 50 feet behind a boat, at a speed of 1.5 mph. Tow duration was either 5 or 3 minutes depending on an a priori assessment of the expected concentration of icthyoplankton and *leptodora* to prevent clogging. A General Oceanics flowmeter was attached inside the mouth of the net to record the volume of water sampled during each run. Sampling began just after dusk and always followed the same site order. Each sampling event started closest to the main lake site and then progressed farther into the embayment (Appendix A).

Ichthyoplankton samples were preserved immediately in 95% ethanol and stored in mason jars. All larval fish were sorted and identified to the lowest practical taxon using "A Practical Key to Identify Families, Genera, and Species of Fish Larvae Commonly Collected in Tennessee Reservoirs" (Sammons, 1999), "Preliminary Guide to the Identification of Larval Fishes in the Tennessee River" (TVA, 1976), and "Early Development of Four Cyprinids Native to the Yangtze River, China" (Chapman, and Wang, 2006) (Bolu Yi, et al. 1988). Once identified, fish were counted and measured for total length. In cases of more than 100 individuals in a sample, a random subsample of at least 30 individuals was measured and used to extrapolate the lengths of the fish from the entire sample. Larval crappies were not identified to species due to overlapping myomere counts between both species and their hybrids (Spier and Ackerson, 2004).

The geometric mean and median of the 6 sample sites were used to evaluate overall densities during each week (Table 32). The standard error and coefficients of variation of the mean and geometric mean were used to evaluate sample accuracy. In 2015 the peak weekly density of crappie occurred on May 12th and was 70.50 crappie/1000m³. In 2016 the peak weekly density of crappie occurred on May 19th and was only 3.88 crappie/1000m³. In 2017 the peak weekly density of crappie occurred on May 19th and was 31.99 crappie/1000 m³. In 2018 the peak weekly density of crappie occurred on May 19th and was 27.74 crappie/1000 m³. In 2019 the peak weekly density of crappie occurred on May 20th and was 150.18 crappie/1000 m³. In 2020 the peak weekly density of crappie occurred on April 21st and was 15.06 crappie/1000 m³ (Table 33). Based on these results, the crappie spawn in Jonathan Creek in 2020 appears to have been below average. This will still need to be verified by trap netting age-1 crappie in 2021. This year the peak weekly density of crappie occurred a full month ahead of when it typically occurs based on our sampling since 2015.

In order to determine the hatch dates of crappies more precisely, based on growth rates, all crappie that were 7–11 mm in total length were assumed to represent a one-week cohort (Table 33). Just like last year, crappie in this size range appeared to be fully recruited to the gear, and were best represented in the sample. It is possible that crappie shorter than 7 mm were not located in the pelagic sample sites yet, and that crappie over 11 mm were more likely to avoid capture. This length range was also chosen because a 7 mm crappie would grow to 11.1 mm in one week (our sample interval), based on a growth rate of 0.71 mm per day after swim up. This was our estimated daily growth rate from daily otolith ring counts of Jonathan Creek crappie collected later in the year (next section).

In addition to weekly cohorts, we also estimated daily cohorts of hatched crappie. All crappie that were captured outside of the 7–11 mm length range were excluded from the hatch date analysis to minimize the effects of gear bias and the longer exposure to natural mortality of older fish (Table 34). A hatch date was then back-calculated for each individual fish using the assumed growth rate (0.71 mm/day) and the total length of each fish. A total length at hatch (4 mm) was factored into the regression for hatch date. This technique has been employed in other systems (Mitzner 1991). An incubation period of 95 hours (based on temperature) was also factored into the regression so that the day when fertilization occurred could be estimated.

The estimated hatching densities indicated that the spawn in Jonathan Creek lasted at least 54 days and extended at least until late May (Table 34). Because of our limited larval sampling window, we cannot be sure that crappie did not spawn before or after our sampling window. The literature reports most crappie spawns to be relatively short (1-2 months; Mitzner 1991 and Travnichek, et. al.1996). There does not appear to have been any strong peaks in spawning activity in 2020. The highest amount of spawning occurred around April 10 and the spawn stayed fairly steady at about half of that level until about May 7. Then there was almost three weeks of no crappie spawning activity until a small spawn on May 26. Similar to prior years' surveys, we found higher densities of larval crappie farther into the embayment (Table 32; Appendix A).

In June 2020 an effort was made to capture YOY crappie using a benthic otter trawl. Crappie were identified to species using dorsal fin counts, and a subsample of otoliths was collected from approximately 200 crappie for daily ring count analysis. The subsample was collected randomly without regard to crappie species or size. Crappie trawling has typically been conducted in the fall to assess year class strength. However, an earlier sample was necessary for accurate daily ring counts since those counts can become unreliable in fish >100 days old (Sweatman and Kohler, 1991). Trawling runs were conducted in Jonathan Creek because this is where the larval sampling occurred during the spring. To evaluate whether hatching periods and growth rates differed by embayment, trawling was also conducted at Blood River embayment. Otoliths were mounted convex side up using thermoplastic cement, sanded with 1200 grit sandpaper, and polished with 0.3-micron alumina powder.

Each otolith was aged independently by two readers using a compound microscope at 100x-400x magnification. Reader agreement was typically within 1-5 days, but if the difference between readers was less than 10% of the fish's estimated age, the counts were averaged and accepted. In 2020, one fish was excluded based on reader disagreement. We were able to estimate an average daily growth rate for both species of crappie by using the equation described by Sweatman and Kohler (1991) [(total length mm-4mm)/#days old-4 days]. This growth rate estimate was coupled with the larval data to provide an accurate estimate of crappie hatch dates in Jonathan Creek as described earlier (Table 34). There is no way to practically differentiate between crappie species in the larval samples. Thusly, the estimated growth rate used in the larval hatch date back calculation combined both species together. Our estimated growth rate of 0.71 mm/day was slightly higher than 0.67 mm/day from the past few years.

Because the collection of black crappie was so low (n=5 of 185; Table 35), both black and white crappie were combined when making comparisons across embayments. Differences in growth rates and hatch dates between embayments were initially compared with an F-test for variances. Then, depending on equal or unequal variance, comparisons were made using appropriate T-tests. In 2020, crappie in Blood River had a faster average growth rate (0.81mm/day) than crappie in Johnathan Creek (0.71mm/day; $p=5.58e^{-11}$). Additionally, the average crappie hatch date in Johnathan Creek (May 2±2.2 days) was significantly earlier than in Blood River (May 18±1.6 days; $p=4.71e^{-25}$). The difference in hatch dates may be due to differences in embayment morphology or unknown temperature differences, and is consistent with prior years.

The catfish population was sampled at Kentucky Lake during June using low pulse (15 PPS) electrofishing along the main lake river channel. A chase boat was utilized to help collect catfish around the electrofishing boat. One dipper was used in each boat. A total of 114 catfish were collected during 58 electrofishing runs (Table 36). Each run lasted 300 seconds, for a total sample time of 4.83 hours over a three-day period. Of the samples, blue catfish had the highest catch rate at 13.3 fish/hr, and made up 63% of the catfish collected. The catch rate was much lower than observed in some previous years, but consistent with the last three years' results. Relative weight values are listed in Table 37. The relative weight values are all high, suggesting the fish are healthy.

Otoliths were collected from a subsample of blue catfish in 2019. That age data was used to calculate age frequencies. Age frequency data for blue catfish is presented in Table 38. This table should be used with caution as some length classes were missing from the 2019 age sample. Bumpiness around the catch-at-age curve suggests variable recruitment, but low conductivity seems to be depressing our catch rates in recent years making it difficult to draw conclusions.

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Lake Barkley

Black bass were collected during 7.5 hours of diurnal electrofishing (120 PPS, DC current) during the spring at sampling sites historically used on Lake Barkley. Because of covid-19 pandemic protocols at the time, only one dipper was used, making it difficult to fairly compare 2020 to historical data. A total of 168 black bass were collected at a rate of 22.4 fish/hr (Table 39). Spotted and smallmouth bass combined for about 8% of the total black bass sampled. Catch rates were well below recent spring surveys and long term averages. At best, sampling yielded only fair results in a few embayments, while most locations had near record low catch rates. Although sampling during some years (2011, 2012, and 2016) has been affected by weather conditions, this year was likely affected by unusual sampling restrictions due to Covid19 as well as some recent below-average spawns on Lake Barkley. Catch rates of age-1 fish following spawns in 2014, 2015, 2017, and 2018 have been poor and have likely reduced the overall numbers of bass in Lake Barkley when compared to long-term average catch rates. The 2019 largemouth bass spawn seemed promising due to the very high catch rate of age-0 fish in the fall last year (98.7 fish/hr); however, these fish seem to have experienced high over-winter mortality and were only caught at a rate of 2.5 fish/hr this spring. The long term average for age-1 largemouth in the spring is about 25.0 fish/hr. Even if some fish were missed because we only used one dipper, this is still well below average and indicates poor winter survival from the 2019 cohort. The small average size of the 2019 cohort last fall (4.1 in) might help explain the poor survival The overall largemouth bass catch rate was 20.7 fish/hr which is the lowest spring catch rate on record since 1985 and falls well below the ten-year average of 60.9 fish/hr (Table 40). Overall, 18% of sampled black bass had hook wounds, and these fish averaged 15.4 in.

The overall PSD and RSD_{15} values for largemouth bass at Lake Barkley, along with values for individual embayments are listed in Table 41. The PSD value (90) is greater than the objective goal (PSD of 55-75) established in the Barkley Lake Fish Management Plan (BLFMP). This value indicates a bass fishery that is skewed towards larger fish. The RSD_{15} (54) was also greater than the set goal (20-40). The spring catch rates of small ($\leq$8.0 in), medium (8.0-14.9 in), and larger ($\geq$15.0 in) largemouth bass all remain lower than historical and 10-year averages (Table 40).

The lake specific assessment score for Lake Barkley was “Poor” (Table 42). The score was “Fair” or “Poor” for most of the last decade. Seasonal flooding as well as the occasional drought may have affected sampling in some years which in turn negatively influenced the assessment score. However, spring catch rates of most size classes of largemouth bass have been below average during this time as well. The fishery showed improvement in these ratings in 2017 and was rated as “Good”. However, generally low catch rates overall have since negatively affected the score. We calculated age-3 largemouth bass mean length at capture as outlined by Murphy and Willis (1996) in addition to the traditional method. This method uses a weighted average based on the age-length key and includes all sampled fish per age class. Although differences are slight, we do feel that this calculation more accurately describes this metric, as all spring-sampled bass are included in the calculation. The annual mortality of largemouth bass older than a year was 31% as determined using catch-curve regression of fall-caught largemouth (Table 42).

Black bass were sampled in October to collect length-weight data to assess condition factors and to determine the strength of the 2020 year-class. A total of 853 bass were collected from Little River, Eddy Creek, Willow Creek, and Demumbers Bay with about 72% being largemouth bass (Table 43). For historical comparisons, only data from Little River and Eddy Creek were used in the standardized population parameters of Lake Barkley bass. Largemouth bass were caught at a rate of 121.0 fish/hr which was just shy of 2019 (125.8 fish/hr) and about equal to the historical average going back to 2000. Well above average catch rates of small fish (<8.0 in) largely influenced overall catch rates. Catch rates of intermediate and large-sized largemouth bass were all below their respective 10 year averages. Relative weights were determined for all bass, but few adult smallmouth bass were collected (Table 44). Relative weights for all size groups of largemouth bass were good this year. The relative weight for harvestable-size ($\geq$15.0 in) largemouth bass from Little River and Eddy Creek was 105 which is above the average for Lake Barkley and within the acceptable range. The length-weight equations for black bass at Lake Barkley are:

Largemouth BassLog_{10} (weight) = -3.505 + 3.2141x Log_{10} (length)
Smallmouth BassLog_{10} (weight) = -3.444 + 3.1121x Log_{10} (length)

During 2019, largemouth bass age and growth data was collected in the fall. This age and growth data was coupled with fall 2020 data to yield an estimate of the age distribution for largemouth bass. Catch rates for fall-caught fish by age-class are shown in Table 45. Ages ranged from 0-11 with age-0 being the most abundant.

Mean length of the age-0 cohort of largemouth bass was 4.8 in (Table 46). This is below the historical average (5.3 in) and shy of our 5.0-in goal. It has been suggested that bass which reach at least 5.0 in by the fall will have a better chance of survival during their first winter. This year’s total catch rate of age-0 largemouth bass from Little River and Eddy Creek (99.3 fish/hr) was the highest catch rate on record, while this year’s catch rate of age-0 largemouth bass over 5.0 in (42.3 fish/hr) was the fourth highest catch rate since 2001. This year we again collected age-0 length and catch data on smallmouth bass. Mean length of the age-0 cohort of smallmouth bass was 4.5 in (Table 47). Total catch rate (42.5 fish/hr) and the catch rate of age-0 smallmouth bass over 5.0 in (13.8 fish/hr) were both higher than fall 2019.

Trap nets were fished for crappie in Little River and Donaldson Creek embayments for 80 net-nights (nn) during October and November. A total of 1056 crappie were collected at a rate of 13.2 fish/nn (Table 48). Additionally, Crooked Creek (LBL) and Eddy Bay were sampled for another 80 net-nights. Crooked Creek (6.6

fish/nn) and Eddy Bay (11.2 fish/nn) both provided reasonable samples, and will remain on the sampling schedule in the future if possible.

White crappie accounted for 79% of the total catch, and were caught at 8.8 fish/nn. Black crappie accounted for the remaining 21% of the total catch, and were collected at a rate of 2.3 fish/nn (Table 48). The proportion of black crappie collected in Little River (8%) was less than half of all other embayments. The mean relative weights for keeper-size (>10.0 in) black and white crappie were 101 and 104, respectively (Table 49). For historical comparisons, only data from Little River and Donaldson Creek were used in the standardized population parameters of Lake Barkley crappie in Table 50. The catch rate of harvestable-size ($\geq$10.0 in) crappie was 0.4 fish/nn, which is lower than the ten-year average of 1.4 fish/nn. The catch rate of quality-size ($\geq$8.0 in) crappie was 1.8 fish/nn, which is below the management objective (4.0 fish/nn) set in the BLFMP. The catch rate of age-1 crappie (3.1 fish/nn) was also below the management objective (5.0 fish/nn).

The length-weight equations of white and black crappie from Lake Barkley are:

White crappie	Log_{10} (weight) = -3.616 + 3.2975 x Log_{10} (length)
Black crappie	Log_{10} (weight) = -3.456 + 3.1837 x Log_{10} (length)

Crappie collected in trap nets in Little River and Donaldson Creek were used to determine stock densities. The PSD (49) of white crappie was higher than last year but still below the historic average of 57, while the RSD_{10} (10) of white crappie was similar to last year but still below the historic average of 28. These metrics suggest a somewhat balanced size distribution of white crappie that is missing some larger fish (Table 51). The PSD (43) of black crappie was higher than last year but still below the historic average of 55, while the RSD_{10} (12) of black crappie was lower than last year and still below the historic average of 20. These metrics also suggest a somewhat balanced size distribution of black crappie that is missing some larger fish.

Otoliths from 529 crappie were used for age and growth analysis. Ages ranged from 0-5 years for white crappie and 0-3 years for black crappie (Tables 52 and 53). Growth continues to be good as crappie generally reached 10.0 in between age 1 and 2 at capture. There did not appear to be any major differences in growth patterns between male and female white crappie (Tables 54 and 55) or black crappie (Tables 56 and 57). The average lengths of age-2 white crappie and black crappie at capture were 10.7 and 10.4 in, respectively (Table 50). In addition, we calculated age-2 crappie mean length at capture as outlined by Murphy and Willis (1996) for all years presented in Table 50. This method uses a weighted average based on the age-length key and includes all sampled fish per age class. Although differences are slight, we do feel that this calculation more accurately describes this metric, as all crappie are included in the calculation.

Age frequencies were estimated by combining catch data with age data. 76% of white crappies captured in Little River and Donaldson Creek were age-0 fish while age-1 fish made up another 22% of the catch (Table 58). Few white crappies older than age-2 were collected, suggesting that fish from the relatively strong spawns in 2014 and 2015 are finishing their life cycles followed by below average spawns in 2016, 2017, and 2019, and an average spawn in 2018. The black crappie catch in Little River and Donaldson Creek was also dominated by age-0 fish (Table 59). Very few black crappie were older than age-1, suggesting that fish from the relatively strong spawns in 2014 and 2015 are finishing their life cycles followed by below average to average spawns in 2016-2019. Similar to largemouth bass, high age-0 catch rates of white and black crappie in fall 2019 were not represented well in 2020 as catch rates of age-1 crappie were below the long-term averages for both species. The age-0 white crappie catch rate was well above the long-term average in 2020, while the age-0 catch rate of black crappie was about equal to the long-term average. This preliminary age-0 data suggests that 2020 could have been a decent crappie spawn.

Assessment of the crappie population yielded a rating of "Fair" at Lake Barkley in 2020 (Table 60). The catch of age-1 crappie was below the 10-year average; however, catches of age-0 fish were above average. The catch rate of crappie $\geq$8.0 in and the average length of age-2 crappie both rebounded a bit from 2019 and are closer to 10-year averages. As expected, the population of larger fish dropped in 2020, due to combined effects of mortality of the stronger 2014 and 2015 year classes and in response to the weaker 2016 and 2017 year classes. We are hopeful to see more large fish in the next couple of years following a decent spawn in 2018 and what appears to potentially be a decent spawn in 2020.

The catfish population was sampled along the main lake river channel at Lake Barkley in June and July with low-pulse (15 PPS) electrofishing while utilizing a chase boat to collect fish further away from the electrofishing boat. One dipper was positioned in each boat for a total of two dippers at all times. A total of 486 catfish were collected during 46 electrofishing runs (Table 61). Each run lasted 300 seconds, for a total sample time of 3.83 hours over a three-day period. Blue catfish had the highest catch rate at 118.3 fish/hr, and made up 93% of the catfish collected. Flathead catfish and channel catfish are likely underrepresented using this method as these fish were often observed, but were much harder to approach and dip than blue catfish. Relative weight values were all within or greater than ideal values of 95-105, with the exception of flathead catfish 20.0-29.9 in., and are listed in Table 62.

Otoliths from 135 blue catfish were extracted and analyzed in 2019. Age data from blue catfish collected in 2019 was used to calculate an age frequency for the population (Table 63). Of the blue catfish, 61% of the sample consisted of age 1-3 fish.

Literature Cited

Murphy, B. R. and D. W. E. Willis. 1996. Fisheries techniques, second edition. American Fisheries Society, Bethesda, MD.

Kentucky Lake Creel Survey

A random, non-uniform probability, roving creel survey was conducted on the Kentucky portion (51,000 a) of Kentucky Lake from 13 March to 30 November 2020. The Kentucky portion of the lake was divided into ten creel areas (Appendix B). The survey was conducted six hours per day, with the goal of 5 days per week. However, the initial technician quit and was replaced by a technician who was also a full time student. This resulted in fewer overall sample days than normal, but was still adequate for statistical comparison. One hour each day was randomly chosen to conduct an angler count. The remaining five hours was dedicated to creeling anglers actively fishing. The overall temporal sampling scheme was twenty days per month, consisting of six weekend days and fourteen weekdays. Varying time period probabilities were assigned to each month. Higher geographic probabilities, resulting in more frequent interviews, were assigned to the Blood River and Jonathan Creek areas from March through May, and October and November, than were assigned to the other six areas. Equal probabilities were assigned to all areas from June to September. An angler attitude questionnaire concerning fishing on Kentucky Lake was conducted by the creel clerk throughout the survey period (Appendix C).

During the 2020 creel, the typical angler was a male (87%) resident (73%) who was casting (45%) or still fishing (35%) from a boat (85%; Table 64). There was a much higher percentage of resident anglers than normal in 2020, which could be attributed to the Covid19 travel restrictions enacted by Kentucky and other states. Of the crappie anglers, 66% used a spider rig (defined as 3 or more poles per angler) for fishing. The average fishing trip for all anglers was 4.21 hours. The number of trips declined to 146,711 in 2020. This is the lowest number of trips ever recorded in a Kentucky Lake creel survey, but it is impossible to attribute this to poor interest from anglers or to the effects of Covid19 restrictions. It may also be important to note that fishing tournaments were prohibited during the spring and early summer to help prevent the spread of Covid19. Length frequencies of all harvested or released fish are given in Table 65.

Table 66 provides fish catch and harvest statistics for the 2020 creel survey. Crappie anglers accounted for 23% of fishing trips to Kentucky Lake in 2020 (33% in 2017, 33% in 2015 and 24% in 2011). Estimated catch and harvest rates for crappie were slightly below average. Crappie anglers caught (0.77 fish/hr) which is below the long-term average of (1.08 fish/hr). However, of the crappie caught, 72% were harvested (Table 67). This higher proportion of legal size crappie corresponds to fall trap netting data that suggested good year classes in 2014 and 2015 and poor year classes in 2016 and 2017. Fifty-two percent of the crappie were caught in April and May (Table 68). As part of our efforts to evaluate harvest by method, crappie anglers were recorded as using the following methods: casting, still fishing (1-2 poles), spider rigging (3 poles), spider rigging (4-5 poles), and spider rigging (>5 poles). During this survey, 66% of crappie anglers used 3 or more poles. The percentage of crappie anglers using (>5 poles) increased to 26% in 2017 compared to only 15% of crappie anglers in 2015 (Table 69). However, the percentage of anglers using (>5 poles) stayed around 25% again in 2020. There is an ongoing trend in crappie fishing right now to use only 1 or two poles in conjunction with advanced live-imaging sonar to target individual fish. In the future this may cause a trend towards fewer poles, but ultimately higher catch rates which will be tough to regulate with the use of reduced bag limits and impossible to regulate with pole limits.

Black bass anglers accounted for 36% of all fishing trips to Kentucky Lake during 2020 (Table 66). There were 53,022 black bass fishing trips in the 2020 creel. During older surveys, any bass that was currently in the livewell was recorded as harvested. However, during recent surveys, anglers with bass in the livewell were asked if they intended to release them at the end of the day. In all cases, tournament anglers indicated that they intended to release their fish after the weigh-in. Additionally some non-tournament anglers simply chose to keep fish in the livewell for photographic or "mock tournament" purposes, but indicated that they would release them at the end of the day. As a comparison with previous surveys, bass kept in livewells by anglers were reported as harvested, even though they would be released at the end of the day. The harvest rate, which included tournament bass and "mock tournament" bass, was estimated to be 0.06 bass per hour for anglers actually targeting bass (Table 70). However, when tournament and "mock tournament" harvested bass were removed from the actual harvest, the harvest rate dropped to 0.013 bass/hr. Largemouth bass accounted for 87% of the harvested black bass by number (Table 71).

About 15% of all trips were taken to catch panfish during 2020 (Table 66). In 2017, only 6% of the trips taken targeted panfish. However, despite higher efforts the catch and harvest rates were below the long-term average. Almost 55% of the panfish were harvested during May (Table 72). Bluegill and redear sunfish accounted for 100% of the panfish harvested. Of the bluegill, only 52% of the fish caught were harvested, while 81% of the redear sunfish caught were harvested (Table 73).

Catfish anglers accounted for 14% of all fishing trips on Kentucky Lake in 2020 (Table 66). The number of trips for catfish was well above the long-term average, despite low numbers of fishing trips overall. The catfish fishery remains highly harvest oriented. Almost 70% of the catfish caught were harvested (Table 74). Higher numbers of catfish caught were reported in May (Table 74). These were likely anglers targeting channel catfish in the embayments. The total catch of channel catfish was almost six times higher than the catch of blue catfish (Table 75).

Less than 1% of the anglers fishing Kentucky Lake during 2020 sought *Morones* (Table 66). This group includes; white bass, yellow bass, striped bass and hybrids. However, it is likely that most anglers were fishing for white or yellow bass. In 2018, 100,000 striped bass were stocked in the lake and there are some anglers who target them at certain times of the year. However, positive ID on this genus is difficult for anglers and was more difficult for the creel clerk during this year due to the social distancing requirements of the Covid19 pandemic. Approximately 70% of the *Morones* caught were yellow bass, with white bass making up 28%. Almost 75% of yellow bass were released after being caught (Table 77). Similar to the prior survey in 2017, the highest catch rates of *Morones* occurred during April and June when no anglers reported they were targeting *Morone*s (Table 76).

An angler attitude survey was also given to anglers willing to participate (Appendix C). Results for the anglers opinions on the black bass fishing were encouraging with only 15% of anglers reporting that they were somewhat or very dissatisfied. Most anglers were not in favor of pole limits for crappie or catfish. Consistent with prior surveys, only 55% of anglers stated they knew that Asian carp were widely considered to be a good fish to eat. Additionally, only 65% of anglers were aware that commercial fishing for Asian carp was occurring on Kentucky Lake. There was also a section of questions directed at tournament anglers. Although the sample size was low (n=13), 100% of the tournament anglers interviewed said they would be in favor of a free tournament permit system.

Lake Beshear

Largemouth bass were collected by diurnal electrofishing (120 PPS, DC current) during April at Lake Beshear. As with all of our spring electrofishing, these results should be used with caution as we were only able to use one dipper. Ninety-seven largemouth bass were collected at a rate of 38.8 fish/hr (Table 78). The catch rate of harvestable-size (≥12.0 in) largemouth bass was 28.0 fish/hr (Table 79). This year's sample falls below the objective in the Lake Beshear Fish Management Plan (LBFMP) to maintain a catch rate of at least 45.0 fish/hr for harvestable-size largemouth bass. The catch of age-1 fish was low this year (3.2 fish/hr), but low recruitment is typical in Lake Beshear. Other objectives are to maintain high catch rates of bass ≥15.0 and ≥20.0 in. Ideally, these catch rates should be greater than 30.0 and 3.0 fish/hr, respectively. The catch rates per hour for these length groups of bass were 24.8 and 4.8, respectively. Lake Beshear continues to have a quality bass fishery with good numbers of bass ≥15.0 in. However, the lower catch of bass <12.0 in this spring is a potential concern for the future. The fishery rated as “Fair” in 2020 (Table 80).

Largemouth bass were collected by diurnal electrofishing (120 PPS, DC current) in October (Table 78). The catch rate (124.0 fish/hr) was an improvement over last year, but again the catch was skewed towards smaller fish. Relative weight data (Table 81) suggests that larger bass (≥15.0 in) are healthy with regard to their length-weight ratio. The average relative weight value was 100 for these larger bass and 83 for all sizes of bass. The length-weight equation for largemouth bass at Lake Beshear is:

$$\text{Log}_{10}\text{ (weight)} = -3.55334 + 3.18177 \times \text{Log}_{10}\text{ (length)}$$

Otoliths were removed from a subsample of largemouth bass ≤10.0 in to determine the mean fall length of the age-0 cohort, and determine their catch rate. The catch rate for age-0 largemouth bass was 60.8 fish/hr (Table 82). The average length of an age-0 bass was 5.1 in.

Lake Pennyrile

Electrofishing for all species of sportfish at Lake Pennyrile was conducted on April 24, 2020. Because of Covid19 pandemic protocols at the time, only one dipper was used, making it difficult to fairly compare 2020 to historical data. One-hundred-and-fourteen largemouth bass were captured at a rate of 114.0 fish/hr (Table 83). This catch rate is above the 10-year average of 99.6 fish/hr (Table 84). The majority of largemouth bass were still below 12.0 in. Only 4 (3.5%) bass were 12.0 in or larger, while only 1 (0.9%) bass was over 15.0 in from this year’s sample. The catch rate of fish ≥15.0 in (1.0 fish/hr) is below the 10-year average of 2.2 fish/hr (Table 84). The catch rate of largemouth bass 8.0-11.9 in was 75.0 fish/hr which is almost equal to the management objective of 80.0 fish/hr. A high catch rate of intermediate-size largemouth bass is desirable in order to maintain good numbers of large sunfish in this system.

The catch rate of large-size (≥8.0 in) bluegill was below average at 8.0 fish/hr. (Table 85). The catch rate of large-size (≥8.0 in) redear was also below average at 10.0 fish/hr. Catch rates of large bluegill and redear were much higher in 2015-2018 than they were in 2019-2020. Overall catch rates for most species rebounded from lows in 2019. We will continue to monitor Lake Pennyrile in 2021 to see if catches of larger panfish improve.

PSD and RSD values for largemouth bass, bluegill and redear sunfish are listed in Table 86. The PSD value for largemouth bass (5) suggests a population heavily skewed toward small bass. The largemouth bass fishery is likely stunted which is our goal when managing for large panfish. PSD’s and RSD’s were about average for bluegill in 2020 and suggest a more balanced size distribution. PSD’s and RSD’s were below average for redear in 2020 and suggest a size distribution skewed towards more small fish.

In 2019, a small sample of bass from Lake Pennyrile were aged using otoliths. Age data collected in 2019 was coupled with our 2020 sample to calculate an age frequency for the population. Bass ranged from 1-7 years old, and most fish were age-1 (Table 87). The largemouth bass population was rated as “Fair” in 2020 (Table 88). This is a slight improvement from “Poor” in 2019 but due to the shift in management focus towards trophy sunfish, it is unlikely that the largemouth bass population will be rated highly again soon.

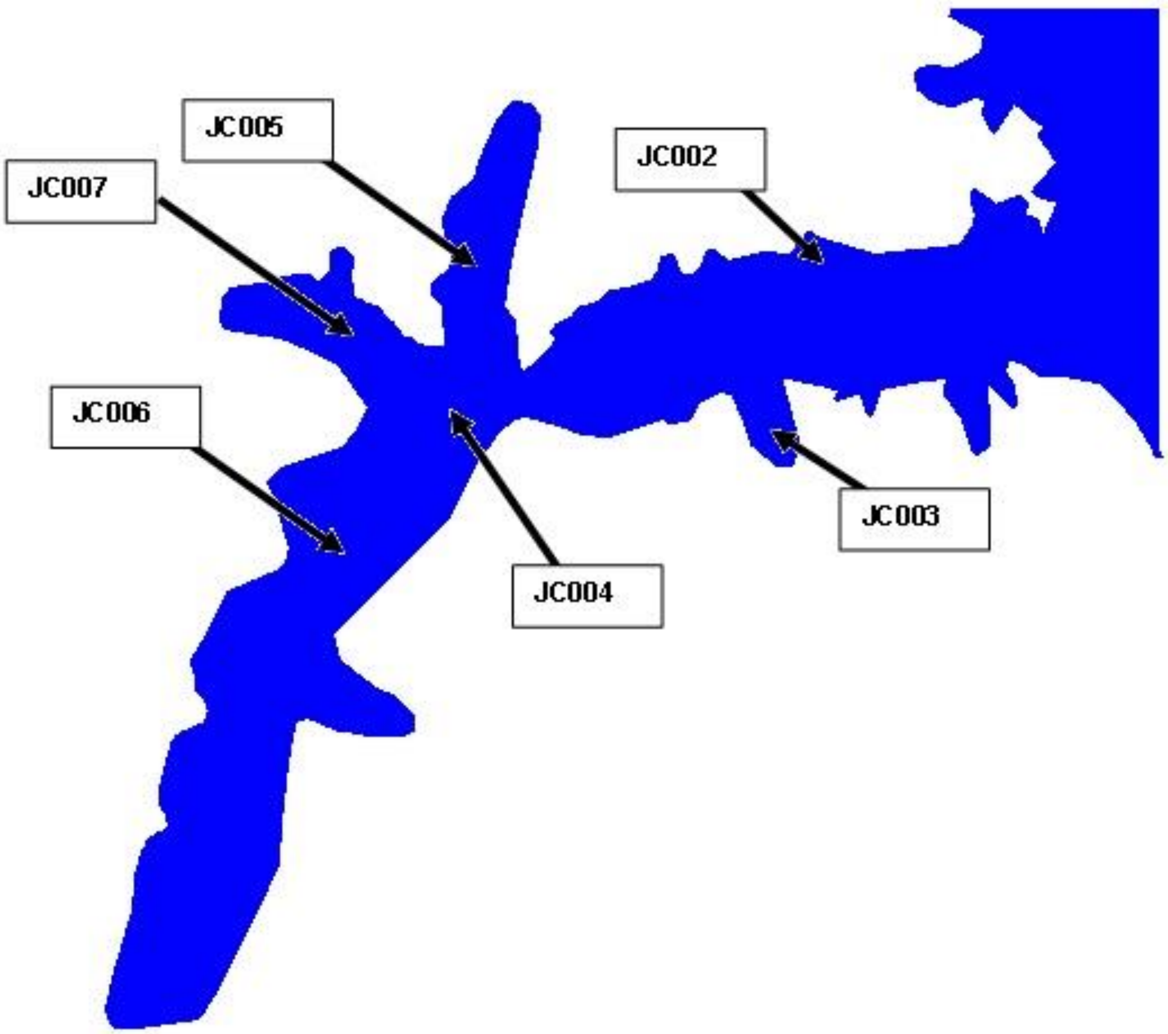
Lake George

Electrofishing for all species of sportfish was conducted at Lake George (Marion, KY, Crittenden Co.) on May 14, 2020. Because of Covid19 pandemic protocols at the time, only one dipper was used. This survey was the first electrofishing survey at Lake George since 1994. Sixty-nine largemouth bass were captured at a rate of 69.0 fish/hr (Table 89). Intermediate (12.0-14.9 in; 22.0 fish/hr) and large (≥15.0 in; 31.0 fish/hr) fish made up the majority of the sample (Table 90). The PSD (90) and RSD_{15} (53; Table 91) values for largemouth bass suggest an unbalanced population skewed towards more large fish. Catch rates for fish >18.0 in (18.0 fish/hr) and >20.0 in (9.0 fish/hr) were also quite high.

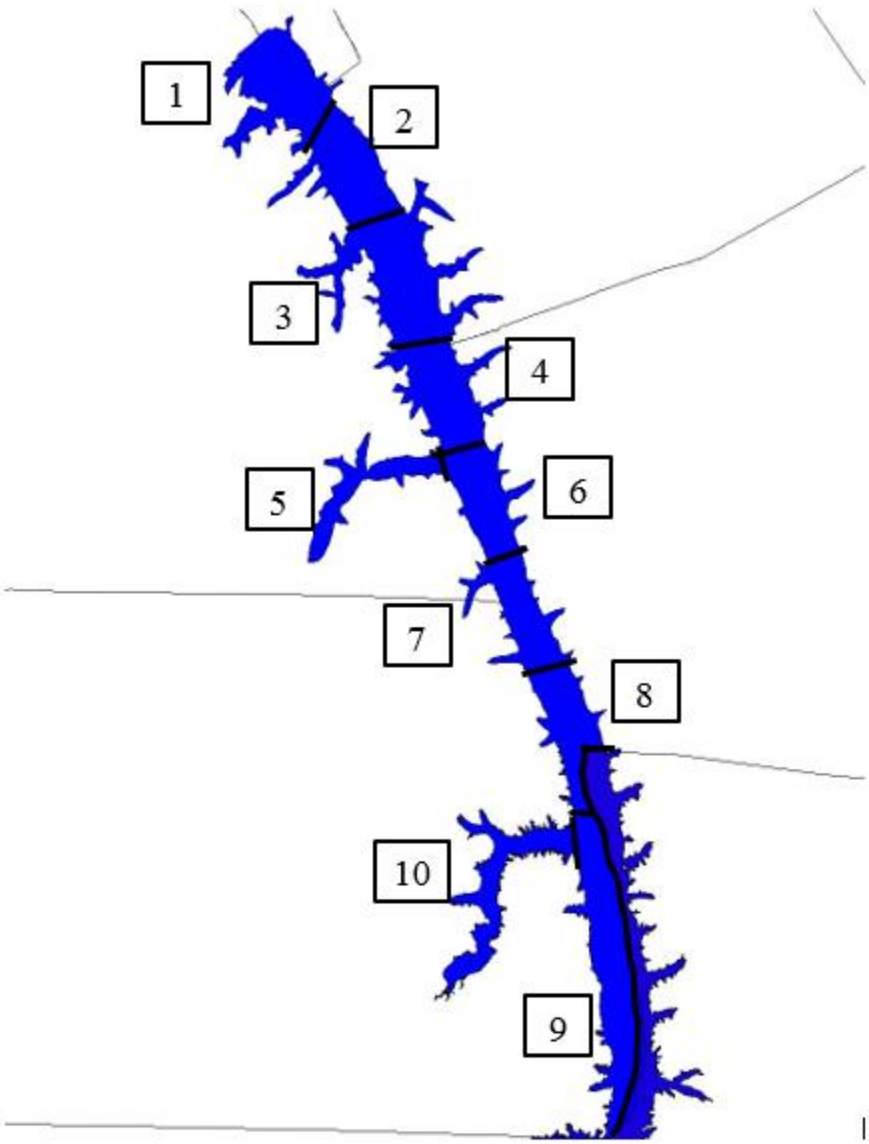
The catch rate of bluegill was 176.0 fish/hr (Table 89). The PSD (30) of bluegill suggests an unbalanced population skewed towards small fish (Table 91). The catch rate of redear sunfish was 81.0 fish/hr (Table 89). The PSD (50) and RSD_9 (23) values for redear suggest a fairly balanced size distribution (Table 91). The catch rate of white crappie was 40.0 fish/hr (Table 89). The PSD (15) and RSD_{10} (3) values for white crappie suggest an unbalanced population skewed towards small fish (Table 91). The catch rate of channel catfish was 35.0 fish/hr (Table 89). The PSD (89) value for channel catfish suggests an unbalanced size distribution skewed towards more large fish (Table 91).

In 2020, a small subsample of white crappie from Lake George was aged using otoliths. Crappie ranged from 3-8 years old and most fish were age-5 (Table 92). Relatively few white crappie greater than 7.0 in were observed indicating that most fish in the population stunt at that size.

Appendix A. 2020 Larval fish sample sites in Jonathan Creek embayment, Kentucky Lake



Appendix B. Kentucky Lake Creel Survey Areas 2020.



Appendix C. KENTUCKY LAKE ANGLER ATTITUDE SURVEY 2020

1. Have you been surveyed this year? Yes - stop survey No – continue

2. Name ____ (**Optional**) and Zip Code ____________________

3. How many times do you fish Kentucky Lake each year? N=133

First time here 7.5% 1 to 4 21.64% 5-10 20.9% More than 10 49.25%

4. Which species of fish do you fish for at Kentucky Lake (**check all that applies**)? N=134
Redear 5.22% Bluegill 35.07% Black Bass 58.96% Crappie 48.52% Catfish 48.51% White bass 3.73% Yellow bass 1.49% **Other-** Asian carp 0.0%; Striped bass, Sauger, Anything each 0.0%

5. Which one species do you fish for most at Kentucky Lake (**check only one**)? N=134
Redear 2.24% Bluegill 10.45% Black Bass 38.06% Crappie 20.15% Catfish 29.1% White bass 0.0% Yellow bass 0.0% **Other-** Anything 0.0%

Answer the following questions for each species you fish for – (see question 4)

Redear Anglers

6. In general, what level of satisfaction or dissatisfaction do you have with redear fishing at Kentucky Lake? N=6
Very satisfied 33.3% Somewhat satisfied 33.3% Neutral 33.3% Somewhat dissatisfied 0.0%
Very dissatisfied 0.0%

6a. If you responded with somewhat or very dissatisfied in question (6) – what is the single most important reason for your dissatisfaction? N=0
Number of fish 0.0% Size of fish 0.0% Not happy with regulations 0.0% Don't know how to catch them 0.0%

Bluegill Anglers

7. In general, what level of satisfaction or dissatisfaction do you have with the bluegill fishing at Kentucky Lake? N=46
Very satisfied 2.1% Somewhat satisfied 32.6% Neutral 36.9% Somewhat dissatisfied 28.2%
Very dissatisfied 0.0%

7a. If you responded with somewhat or very dissatisfied in question (7) – what is the single most important reason for your dissatisfaction? N=13
Number of fish 15.3% Size of fish 76.9% Not happy with regulations 0.0% Other reason "size and number" 7.6%

Black Bass Anglers

8. In general, what level of satisfaction or dissatisfaction do you have with the black bass fishing at Kentucky Lake? N=78
Very satisfied 6.4% Somewhat satisfied 57.6% Neutral 20.5% Somewhat dissatisfied 14.1%
Very dissatisfied 1.2%

8a. If you responded with somewhat or very dissatisfied in question (8) – what is the single most important reason for your dissatisfaction? N=12

Number of fish 66.6% Size of fish 16.6% Not happy with regulations 0.0% **Other-** "size and number" 8.3% "cant catch them from the bank" 8.3%

Crappie Anglers

9. In general, what level of satisfaction or dissatisfaction do you have with crappie fishing at Kentucky Lake? N=60
Very satisfied 8.3% Somewhat satisfied 51.6% Neutral 11.6% Somewhat dissatisfied 26.6%
Very dissatisfied 1.6%

9a. If you responded with somewhat or very dissatisfied in question (9) – what is the single most important reason for your dissatisfaction? N=17

Number of fish 82.3% Size of fish 5.8% Not happy with regulations 5.8% **Other-** "water levels" 5.8%

Catfish Anglers

10. In general, what level of satisfaction or dissatisfaction do you have with the catfish fishing at Kentucky Lake? N=62
Very satisfied 30.6% Somewhat satisfied 48.3% Neutral 16.1% Somewhat dissatisfied 4.8%
Very dissatisfied 0.0%

10a. If you responded with somewhat or very dissatisfied in question (10) – what is the single most important reason for your dissatisfaction? N=0
Number of fish 0.0% Size of fish 0.0% Not happy with regulations 0.0% Too much commercial fishing 0.0%

White Bass Anglers

11. In general, what level of satisfaction or dissatisfaction do you have with the white bass fishing at Kentucky Lake? N=5
Very satisfied 20.0% Somewhat satisfied 40.0% Neutral 20.0% Somewhat dissatisfied 20.0%
Very dissatisfied 0.0%

11a. If you responded with somewhat or very dissatisfied in question (11) – what is the single most important reason for your dissatisfaction? N=1
Number of fish 100.0% Size of fish 0.0% Not happy with regulations 0.0% **Other-** 0.0%

All Anglers

12. Are you satisfied with the current size and creel limits on all sport fish at Kentucky Lake? N=130 Yes 98.4% No 1.5%
12a. If you responded "No" to Question 11, which species are you dissatisfied with and what size and creel limits would you prefer? Creel Limit (CL), Length Limit (LL), Slot Limit (SL)

Crappie - "increase crappie limit"
Bass – Largemouth 19" LL, Smallmouth 19" LL,

13. Are you aware that the Kentucky Department of Fish and Wildlife creates and maintains shallow water stakebeds marked with white poles, and deepwater brushpiles marked with white buoys as fish attractors in Kentucky Lake? N=132
Yes 68.9% No 31.1%

13a. When you fish Kentucky Lake, how regularly do you fish around Department placed fish attractors? N=126
Always 1.6% Frequently 21.4% Occasionally 28.6% Rarely 21.4% Never 27.0%

13b. If you answered "Rarely" or "Never", what is the single most important reason you don't fish around Department placed fish attractors? N=52
Over fished 7.7% No boat 34.6% No success 7.7% Don't know their location 0.0% Wrong water depth 0.0%
Fishes own stuff 7.7% Boat too big 0.0% Get snagged 0.0% **Other-** "no reason" 7.7" ; "didnt know" 5.8% ; "fishes open water" 5.7%; "first time" 3.8%;

14. If you fish for crappie, do you spider rig (three or more poles per angler at the same time) as your primary method of crappie fishing? N=61
Yes 36.1% No 64%%

14a. If "Yes", how many poles do you use? N=22 3 18.1% 4 31.8% 5 22.7% 6 18.2% >6 9.0%

15. Do you support or oppose a pole limit while fishing for crappie? N=60 Support 28.3% Oppose 50.0% No Opinion 21.6%

15a. If you support a pole limit, what should be the pole limit per person? N=17
1 0.0% 2 11.8% 3 29.4% 4 23.6% 5 11.8% 6 11.8% >6 11.8%

16. If you fish for catfish, do you fish with multiple poles at the same time? N=64 Yes 78.1% No 21.9%

16a. If "Yes", how many poles do you use? N=50 2 54.0% 3 24.0% 4 12.0% 5 4.0% 6 2.0% >6 4.0%

17. Do you support or oppose a pole limit while fishing for catfish? N= 64 Support 35.9% Oppose 59.3% No Opinion 4.6%

17a. If you support a pole limit, what should be the pole limit per person? N=23
1 4.3% 2 30.4% 3 30.4% 4 26.1% 5 0.0% >5 8.7%

18. If you fish for catfish in Kentucky Lake, which is more important to you: catching trophy fish, or catching more keeper size fish to eat? N=64
Trophy fish 7.8% Catching keeper fish to eat 76.5% Both equally important 6.2% No opinion 9.4%

19. Have you participated in an organized fishing tournament on any body of water within the last twelve months? N=134
Yes 9.7% No 90.3%

19a. Were any of the tournaments an alternative format (catch, photo, release; onboard weighing, etc.)? N=13
Yes 7.8% No 92.3%

19b. KDFWR is interested in learning more about the number of fishing tournaments in Kentucky. Would you support or oppose a regulation requiring fishing tournaments to register for a free permit that required upcoming tournaments and their ramp locations to be available on the KDFWR website and also required tournaments to report their fishing effort and catch? N=13
Support 100% Oppose 0.0% No opinion 0.0%

20. Are you aware that Asian carps are generally considered to be an excellent fish to eat? N=134?
Yes 55.2% No 44.78%

21. Are you aware that commercial harvest of Asian carps occurs on Kentucky Lake? N=134
Yes 65.67% No 26.12%

21a. How often do you see commercial fishermen fishing for Asian carps on Kentucky Lake? N=98
Always 1.1% Frequently 3.1% Occasionally 23.5% Rarely 29.6% Never 31.6% Not aware 0.0%

21b. How are your typical interactions with commercial fishermen fishing for Asian carps? N= 65

Positive 26.2% Negative 1.5% No opinion 56.9%

Table 1. 2020 yearly summary of sampling conditions by waterbody, species sampled, and date.

Water body	Location	Species	Date	Effort	Gear	Weather	Water temp. °F	Water level	Secchi (in)	Water conditions	Pertinent sampling comments
Barkley	Nickel Branch	black bass	4/22/2020	2.5 hr	electrofishing	cloudy	58.5	358.7	26	elevation falling	1 dipper, tough to find fish
Barkley	Eddy Bay	black bass	4/30/2020	2.0 hr	electrofishing	partly cloudy/breezy	60.6	359		elevation falling	1 dipper, tough to find fish
Barkley	Donalsdon Bay	black bass	5/7/2020	3.0 hr	electrofishing	sunny/light wind	62.9	359	36	stable	1 dipper, tough to find fish
Lake Pennyrile		sportfish	4/24/2020	1.0 hr	electrofishing	sunny	62.3	normal	56	calm	1 dipper, good sample
Lake George		sportfish	5/14/2020	1.0 hr	electrofishing	breezy	63.3	normal	22	calm	1 dipper, good sample
Barkley	Devils Elbow	catfish	6/26/2020	1.58 hr	electrofishing	overcast/breezy	81.3	359.5		stable	fair sample
Barkley	Nickel Branch	catfish	6/30/2020	0.58 hr	electrofishing	showers/windy	80.8	359.3		falling/choppy	sample cut short-too much wind
Barkley	Cravens Bay	catfish	7/2/2020	1.67 hr	electrofishing	overcast/fog at start	80	359.7		elevation falling	fair sample
Barkley	Eddy Bay	black bass	10/6/2020	2.0 hr	electrofishing	sunny	64.5	354.9	17	rising slightly	fair sample
Barkley	Little River	black bass	10/8/2020	2.0 hr	electrofishing	sunny	67	354.8	23	falling slightly	fair sample
Barkley	Demumbers	black bass	10/15/2020	1.5 hr	electrofishing	overcast	66.4	355	32	elevation rising	fair sample/ cut short for incoming storms
Barkley	Eddy Bay	crappie	10-20 - 10/23	40 nn	trapnet	variable	61.5	355		stable	SWFD assisted/fair sample
Barkley	Crooked Creek	crappie	10-20 - 10/23	40 nn	trapnet	variable	65	354	24	stable	fair sample
Barkley	Donaldson Bay	crappie	10-27 - 10-30	40 nn	trapnet	variable	57.5	354.3	22	elevation rising	fair sample
Barkley	Little River	crappie	11-3 - 11-6	40 nn	trapnet	variable	53	354.4	14	stable	fair sample
Kentucky	Jonathan Creek	crappie	3/31/2020	6 tows	neustonic tow net	dusk	60	361.7			lots of debris on the surface
Kentucky	Jonathan Creek	crappie	4/7/2020	6 tows	neustonic tow net	dusk	65.2	358.1			
Kentucky	Jonathan Creek	crappie	4/14/2020	6 tows	neustonic tow net	dusk	60.5	359.4			
Kentucky	Jonathan Creek	crappie	4/21/2020	6 tows	neustonic tow net	dusk	63	358.8			
Kentucky	Jonathan Creek	crappie	4/28/2020	6 tows	neustonic tow net	dusk	63	359.1			
Kentucky	Jonathan Creek	crappie	5/5/2020	6 tows	neustonic tow net	dusk	66.1	358.9			
Kentucky	Jonathan Creek	crappie	5/13/2020	6 tows	neustonic tow net	dusk	63.7	359.3			
Kentucky	Jonathan Creek	crappie	5/19/2020	6 tows	neustonic tow net	dusk	71.1	359.6			
Kentucky	Jonathan Creek	crappie	5/26/2020	6 tows	neustonic tow net	dusk	76.1	359.4			
Kentucky	Jonathan Creek	crappie	6/2/2020	6 tows	neustonic tow net	dusk	78.7	361.3			
Kentucky	Jonathan Creek	crappie	6/9/2020	6 tows	neustonic tow net	dusk	80.1	359.2			
Kentucky	Sugar Bay	black bass	6/15/2020	10 hauls	50' seine	sunny					earlier sample than 2019
Kentucky	Blood River	black bass	6/16/2020	3 hauls	50' seine	sunny, light wind		359			earlier sample than 2019
Kentucky	Blood River	crappie	6/22/2020	2 tows	benthic trawl	sunny		359.4			fair sample
Kentucky	Johnathan Creek	crappie	6/23/2020	8 tows	benthic trawl	partly cloudy	82	359.3			fair sample
Lake Beshear		black bass	5/1/2020	2.5 hr	electrofishing	sunny	71.0			stable	fish deeper than normal ONE DIPPER
Kentucky	Big bear	black bass	5/5/2020	2.5 hr	electrofishing	overcast/windy	66.8	358.8	35	rising slightly	ONE DIPPER
Kentucky	Jonathan Creek	black bass	4/29/2020	2.0 hr	electrofishing	thunderstorm	63.0	359.1	30	stable	ONE DIPPER
Kentucky	Blood River	black bass	5/6/2020	2.5 hr	electrofishing	overcast/windy	63.8	358.9	55	rising slightly	ONE DIPPER
Kentucky	Fenton	catfish	6/24/2020	1.66 hr	low pulse	after cold front	83.0	359.4		calm	fair sample, still low amps...

Table 1 (cont).

Water body	Location	Species	Date	Effort	Gear	Weather	Water temp. °F	Water level	Secchi (in)	Water conditions	Pertinent sampling comments
Kentucky	Little Bear	catfish	7/7/2020	1.66 hr	low pulse	breezy	85.7	358.9		choppy	still unable to achieve more than 2 amps
Kentucky	Patterson Landing	catfish	6/29/2020	1.5 hr	low pulse	sunny	83.0	359.5		rising slightly	still unable to achieve more than 2 amps
Lake Beshear		black bass	10/14/2020	2.5 hr	electrofishing	sunny	67.5		44	calm	fair sample
Kentucky	Jonathan Creek	black bass	10/5/2020	2.0 hr	electrofishing	sunny/light wind	66.0	355.0	22	falling slightly	fair sample
Kentucky	Blood River	black bass	10/13/2020	1.73 hr	electrofishing	cloudy	68.1	354.7		stable	runs in smaller test pockets
Kentucky	Sugar Bay	black bass	10/7/2020	2.0 hr	electrofishing	sunny	68.0	355.0		stable	fair sample
Kentucky	Big Bear	black bass	10/12/2020	2.0 hr	electrofishing	cloudy	69.0	354.8		rising slightly	fair sample
Kentucky	Ledbetter	crappie	10/19 - 10/23	40 nn	trapnet	sunny	64.0	354.8	48	steady	fair sample
Kentucky	Jonathan	crappie	10/26 - 10/30	40 nn	trapnet	variable/rainy	59.0	354.4		steady	fair sample/water temps dropping
Kentucky	Blood River	crappie	11/02 - 11/6	40 nn	trapnet	variable	56.0	354.8	20	steady	fair sample/water temps dropping

Table 2. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 7.0 hours (14- 30-minute runs) of diurnal electrofishing at Kentucky Lake during April-May 2020. **Only one dipper was used due to covid19 pandemic restrictions.

	Inch class																					
Area	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	Total	CPUE	Std err
Blood River																						
Smallmouth bass								1												1	0.4	0.4
Largemouth bass	3		1	1		1			3	4	8	15	2	2	4	2	3	1	1	51	20.4	6.3
Jonathan Creek																						
Smallmouth bass		2	3	1	1	1			1											9	4.5	2.9
Spotted bass						1														1	0.5	0.5
Largemouth bass	3	7	4	3	7	1	1	3	9	16	22	14	14	5	4	3	5	1		122	61.0	17.6
Big Bear																						
Smallmouth bass		1								1										2	0.8	0.5
Largemouth bass			1		2		1	4	9	11	16	18	4	2	1	1	1			71	28.4	4.5
Total																						
Smallmouth bass		3	3	1	1	1		1	1	1										12	1.7	0.9
Spotted bass						1														1	0.1	0.1
Largemouth bass	6	7	6	4	9	2	2	7	21	31	46	47	20	9	9	6	9	2	1	244	34.9	7.0

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Table 3. Lake specific assessment for largemouth bass collected at Kentucky Lake from 2011-2020. This table includes the parameter estimates and the individual scores as well as the total score and assessment rating. The final two columns list the instantaneous mortality (Z) and % annual mortality (A). Only data collected from Blood River, Big Bear, Jonathan Creek, and Sugar Bay were used for historical comparison.

				Length group						
	Mean length age-3 at capture	****Mean length age-3 at capture	CPUE age-1	12.0-14.9 in	>15.0 in	>20.0 in				
Year				CPUE	CPUE	CPUE	Total score	Assessment rating	Z	A
2020	12.7	13.4	4.3	17.7	8	0.4			***0.356	30
Score	2		1	2	1	1	7	P		
2019	13.2**		3.3	11.9	8.1	0.9				
Score	2		1	1	1	1	6	P		
2018	13.2**		24.7	7.9	12.2	1.3			***0.456	36.6
Score	2		2	1	1	2	8	F		
2017	13.2**		95.8	14.1	16.4	1.1			***0.513	40.1
Score	2		4	2	3	2	13	G		
2016	13.2	13.7	4.0	25.9	19.1	0.8			***0.410	33.7
Score	2		1	4	3	1	11	F		
2015	13.9**		10.2	22.0	15.6	1.2			0.408	33.5
Score	4		1	3	2	2	12	G		
2014	13.9**		32.6	15.0	15.7	0.9			0.452	36.3
Score	4		2	1	2	1	10	F		
2013	13.9**		40.2	9.6	15.8	0.8			0.446	35.9
Score	4		2	1	2	1	10	F		
2012*	13.9	14.2	35.6	26.9	17.5	0.8			0.588	44.5
Score	4		2	2	2	1	11	F		
2011*	12.9	12.4	7.4	34.0	8.6	0.9				
Score	3		1	2	1	1	8	F		
Average	13.2	13.4	25.8	18.5	13.7	0.9	9.6		0.315	36.325

Data from 1985 to 2010 is listed in previous annual reports.

Assessment quartiles were updated in 2015, previous years' APR's will list rating based on old assessment ranges.

** age and growth data was not collected this year, therefore used previous age data set estimates.

2011* and 2013* samples were hampered by high water levels during flooding, sample was later than normal; overall a poor sample and not all embayments were sampled.

2012* sample was hampered by low water levels during drought.

*** mortality rates were calculated from fall caught and aged fish.

****Mean length calculated using a weighted average applied to the entire sample

Rating
5-7 = Poor (P)
8-11 = Fair (F)
12-16 = Good (G)
17-20 = Excellent (E)

(Kentucky Bass Database.xls)

Table 4. Spring diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Kentucky Lake during May 2011-2020.
**Only one dipper was used in 2020 due to Covid19 protocol.

	Mean length age-3 at	*Mean length age-3 at	Age-1		Length group <8.0 in		Length group 12.0-14.9 in		Length group ≥15.0 in		Length group ≥18.0 in		Length group ≥20.0 in		Total			
Year	capture (in)	capture (in)	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	PSD	RSD_{15}
2020	12.7	**13.4	4.3	1.5	4.6	1.6	17.7	3.5	8.0	2.1	2.6	0.7	0.4	0.2	34.9	7.0	85	26
2019	13.2	**13.7	3.3	0.6	3.5	0.6	11.9	1.6	8.1	1.0	3.5	0.6	0.9	0.3	33.8	3.0	66	27
2018	13.2	**13.7	24.7	3.5	23.7	3.4	7.9	1.1	12.2	1.5	5.0	0.9	1.3	<0.1	66.7	5.3	47	28
2017	13.2	**13.7	95.8	10.6	66.4	7.1	14.1	1.7	16.4	1.7	3.3	0.7	1.1	0.3	136.3	11.8	44	23
2016	13.2	**13.7	4.0	0.7	11.8	2.0	25.9	2.4	19.1	2.4	2.9	0.7	0.8	0.3	63.2	5.7	88	37
2015	13.9	14.2	10.2	1.1	3.9	0.7	22.4	2.1	14.1	1.3	5.3	0.6	1.1	0.3	60.4	4.2	65	25
2014	13.9	14.2	32.6	6.2	26.4	5.5	15.0	1.4	15.7	1.7	4.2	0.6	0.9	0.3	78.1	7.1	59	30
2013	13.9	14.2	40.2	7.0	30.5	6.4	9.6	1.3	15.8	1.6	3.3	0.5	0.8	0.3	78.2	7.1	53	33
2012	13.9	14.2	35.6	5.3	25.6	4.0	26.9	3.5	17.5	2.2	2.7	0.6	0.8	0.3	86.2	6.7	73	29
2011	12.4	12.4	7.4	1.6	5.1	1.1	34.0	5.4	8.6	2.0	3.7	1.0	0.9	0.6	61.1	7.7	76	15
Average	13.1	13.4	25.8		20.2		18.5		13.6		3.7		0.9		69.9		65.6	27.3
KLFMP	≥ 12.0 in		≥ 30				> 22		≥ 18				≥ 2				55-75	20-40

(Kentucky Bass Database.xls)
Data for 1985-2010 is listed in previous annual reports; KLFMP - Kentucky Lake Fish Management Plan objective goal.
*Mean length calculated using a weighted average applied to the entire spring sample
**Mean length in spring estimated by backcalulating lengths of fall aged fish and then estimating length frequency from spring sample

Table 5. PSD and RSD_{15} values calculated for largemouth bass collected during diurnal electrofishing at Kentucky Lake during April-May 2020; 95% confidence limits are shown in parentheses. **Only one dipper was used due to Covid19 protocol.

Area	No. ≥8.0 in	PSD	RSD_{15}
Blood River	46	91 (+/-8)	33 (+/-6)
Jonathan Creek	98	86 (+/-8)	33 (+/-10)
Big Bear	68	79 (+/-10)	13 (+/-8)
Total	212	85 (+/-5)	26 (+/-6)

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Table 6. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 7.32 hours of diurnal electrofishing at Kentucky Lake during October 2020.

	Inch class																				
Area / Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	Std err
Blood River																						
Smallmouth bass		28	41	22	8	3	2	4	2		3	2	1	2		1			1	120	69.4	17.2
Spotted bass							1													1	0.6	0.8
Largemouth bass		38	37	8	7	6	3	3				1	2	2	1	1				109	63.0	13.4
Jonathan Creek																						
Smallmouth bass	1	9	19	13	4		2	4	5	1		2	2			1				63	31.5	5.3
Spotted bass		1	5	1		1				1										9	4.5	2.1
Largemouth bass	2	28	41	35	52	47	7	1	4	3	5	23	8	13	6	1	2	1		279	139.5	25.1
Sugar Bay																						
Smallmouth bass	1	20	21	18	1	3	3					1	1							69	34.5	1.3
Largemouth bass	1	19	22	16	15	6	2	2	3	3	2	3	8	5	2	1				110	55.0	13.0
Big Bear																						
Smallmouth bass	7	13	14	7		6	2	3			1	1								54	27.0	5.0
Largemouth bass	1	3	7	7	16	7	2	4	4	1	9	18	15	12	4	1	3			114	57.0	6.8
***TOTAL**																						
Smallmouth bass	1	37	60	35	12	3	4	8	7	1	3	4	3	2		2			1	183	49.1	6.6
Spotted bass		1	5	1		1	1			1										10	2.7	1.1
Largemouth bass	2	66	78	43	59	53	10	4	4	3	5	24	10	15	7	2	2	1		388	104.0	6.7

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*TOTAL only for Blood River and Jonathan Creek for historical comparisons

Table 7. Number of bass and relative weight (Wr) for each length group of black bass collected at Kentucky Lake during October 2020.

		Length group									Total		
		8.0-11.9 in			12.0-14.9 in			≥15.0 in					
Species	Area	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
Largemouth bass	Blood River	6	99	3	3	97	3	4	97	2	13	98	2
	Jonathan Creek	15	96	2	36	98	1	23	94	2	74	96	1
	Big Bear	11	95	2	42	90	2	20	97	3	73	92	1
	Sugar Bay	10	100	3	12	90	2	8	96	3	30	95	2
	Total	42	97	1	93	93	1	55	96	1	190	95	1

		Length group									Total		
		7.0-10.9 in			11.0-13.9 in			≥14.0 in					
Species	Area	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
Spotted bass	Total	2	100	1	1	90					3	97	3
Smallmouth bass	Total	39	87	1	10	81	2	10	82	2	59	85	1

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Table 8. Age-0 CPUE (fish/hr) and mean length (in) of smallmouth bass collected in the fall, and CPUE of age-1 smallmouth bass collected the following spring during diurnal electrofishing at Kentucky Lake (Jonathan Creek and Blood River only).

	Age 0[A]		Age 0[A]		Age 0 ≥5.0 in[A]		Age 1[B]	
Year class	Mean length	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
2020	4.7	0.1	39.8	12.0	13.4	3.7		
2019	4.3	0.1	30.1	6.3	3.4	1.2		
Average	4.5		35.0		8.4		0.0	

[A] Data collected by fall (October) diurnal electrofishing. Mean lengths were determined by analysis of otoliths removed from a subsample of LMB <8.0 in and extrapolated to the entire catch of the fall sample. Since 2010, bass up to 10.0 in have been collected for analysis.

[B] Data from diurnal electrofishing samples collected the following spring (April/May).
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Table 9. Age-0 CPUE (fish/hr) and mean length (in) of largemouth bass collected in the fall, and CPUE of age-1 largemouth bass collected the following spring during diurnal electrofishing at Kentucky Lake (Jonathan Creek and Blood River only for historical comparison).

	Age 0[A]		Age 0[A]		Age 0 ≥5.0 in[A]		Age 1[B]	
Year class	Mean length	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
2020	5.3	0.1	76.7	12.6	38.5	10.6		
2019	3.9	0.1	37.1	5.9	5.4	1.8	**4.3	1.5
2018	5.7	0.1	18.6	2.8	13.0	2.5	3.3	0.6
2017	5.9	0.1	28.9	5.2	18.2	3.6	24.7	3.5
2016	6.4	0.1	58.4	7.4	47.9	5.3	95.8	10.6
2015	4.6	0.1	32.6	8.6	9.1	1.5	4.0	0.7
2014	4.1	0.1	20.2	7.9	3.8	1.0	10.2	1.1
2013	5.7	0.1	31.3	5.2	21.5	4.1	32.6	6.2
2012	6.4	0.1	63.0	13.9	55.9	12.5	40.2	7.0
2011	5.7	0.1	75.9	8.3	54.1	6.4	35.6	5.3
Average	5.4		44.3		26.7		27.8	

[A] Data collected by fall (October) diurnal electrofishing. Mean lengths were determined by analysis of otoliths removed from a subsample of LMB <8.0 in and extrapolated to the entire catch of the fall sample. Since 2010, bass up to 10.0 in have been collected for analysis.

[B] Data from diurnal electrofishing samples collected the following spring (April/May).

*2010, 2011 and 2013 spring data was poor due to high water levels.

*2012 spring data was poor due to low water levels.

**2020 spring sample only used 1 dipper due to covid19 pandemic

Data from 1990 to 2010 is listed in previous year reports.

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Table 10. Age frequency and CPUE (fish/hr) of largemouth bass collected during diurnal electrofishing at Kentucky Lake in October 2020. Samples conducted at Jonathan Creek, Blood River, Sugar Bay, and Big Bear.

	Inch class																				
Age	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	%	CPUE	Std err
0	4	88	107	66	90	66	11												432	70.6	56.2	9.3
1							1	9	10	4	3								27	4.4	3.3	0.9
2							1	1	1	2	11	23	10		1				50	8.2	5.8	1.3
3										1	1	18	7	10	3				40	6.5	4.6	0.9
4											1	5	17	16	6	3	1		49	8.0	5.6	1.0
5														6	1		1		8	1.3	1.0	0.2
6																	1		1	0.2	0.1	0.1
7																	2		2	0.3	0.2	0.1
8															1			1	2	0.3	0.3	0.1
9																1			1	0.2	0.1	0.1
Total	4	88	107	66	90	66	13	10	11	7	16	46	34	32	12	4	5	1	612	100		
%	1	14	17	11	15	11	2	2	2	1	3	8	6	5	2	1	1	0	100			

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Table 11. Mean back-calculated length (in) at each annulus of largemouth bass including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek, Sugar Bay, and Big Bear) in fall 2020.

		Age								
Year class	N	1	2	3	4	5	6	7	8	9
2019	22	6.2								
2018	22	7.4	11.2							
2017	13	7.3	11.0	13.1						
2016	20	8.0	10.9	12.9	14.5					
2015	4	6.7	10.9	12.7	14.2	15.6				
2014	1	6.4	10.2	12.7	15.2	16.5	17.8			
2013	2	6.1	9.8	11.9	13.7	15.3	16.6	18.0		
2012	2	5.4	7.6	9.6	11.5	13.2	14.8	16.1	17.2	
2011	1	3.8	7.2	9.6	11.2	12.9	13.9	14.8	15.5	16.3
Mean	87	7.1	10.8	12.7	14.1	14.9	15.7	16.6	16.6	16.3
Smallest		3.8	6.5	8.2	9.8	11.6	13.2	14.7	15.5	16.3
Largest		10.0	15.0	15.4	17.0	17.0	17.8	18.4	18.8	16.3
Std err		0.1	0.2	0.2	0.3	0.5	0.7	0.8	1.1	
Low 95% CI		6.8	10.5	12.2	13.6	13.9	14.3	15.1	14.4	
High 95% CI		7.4	11.2	13.1	14.7	15.9	17.2	18.1	18.7	

* Intercept = 0.

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Table 12. Mean back-calculated length (in) at each annulus of MALE largemouth bass including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek, Sugar Bay, and Big Bear) in fall 2020.

		Age								
Year class	N	1	2	3	4	5	6	7	8	9
2019	7	6.6								
2018	10	7.1	10.9							
2017	5	6.6	10.2	12.1						
2016	9	7.9	10.7	12.7	14.2					
2015	2	6.5	10.7	12.8	13.9	14.7				
2011	1	3.8	7.2	9.6	11.2	12.9	13.9	14.8	15.5	16.3
Mean	34	7.0	10.6	12.3	13.9	14.1	13.9	14.8	15.5	16.3
Smallest		3.8	7.2	9.6	11.2	12.9	13.9	14.8	15.5	16.3
Largest		9.2	12.4	14.5	16.2	15.0	13.9	14.8	15.5	16.3
Std err		0.2	0.2	0.3	0.4	0.6				
Low 95% CI		6.5	10.1	11.7	13.1	12.9				
High 95% CI		7.4	11.0	13.0	14.7	15.4				

* Intercept = 0.

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Table 13. Mean back-calculated length (in) at each annulus of FEMALE largemouth bass including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek, Sugar Bay, and Big Bear) in fall 2020.

		Age							
Year class	N	1	2	3	4	5	6	7	8
2019	13	6.2							
2018	11	7.8	11.7						
2017	8	7.8	11.6	13.8					
2016	11	8.2	11	13.2	14.8				
2015	2	6.9	11.1	12.7	14.5	16.5			
2014	1	6.4	10.2	12.7	15.2	16.5	17.8		
2013	2	6.1	9.8	11.9	13.7	15.3	16.6	18.0	
2012	2	5.4	7.6	9.6	11.5	13.2	14.8	16.1	17.2
Mean	50	7.2	11.1	12.9	14.3	15.2	16.1	17.1	17.2
Smallest		4.4	6.5	8.2	9.8	11.6	13.2	14.7	15.5
Largest		10.0	15.0	15.4	17.0	17.0	17.8	18.4	18.8
Std err		0.2	0.3	0.3	0.4	0.7	0.8	0.8	1.6
Low 95% CI		6.9	10.6	12.3	13.5	13.9	14.6	15.5	14.0
High 95% CI		7.6	11.6	13.5	15.1	16.5	17.6	18.7	20.3

* Intercept = 0

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Table 14. Lake conditions and spawning activity rating for each survey site during snorkel surveys in Sugar Bay, 2020. WFD laydowns were placed by KDFWR staff and Natural laydowns were pre-existing laydowns that were monitored. Rating 0-5 was based on relative density of observed eggs or fry, c=cleaned off (bed brushed clean of debris), blank=not found/not searched for. LMB=largemouth bass, SMB=smallmouth bass, BASS=undetermined black bass, SF=sunfish, UNK=unknown species.

Conditions	**March 30**	**April 6**	**April 15**	**April 21**	**April 27**	**May 4**	**May 11**	**May 18**	**May 26**	**June 2**	**June 8**
Air temp (F)	55	70	45	65	70	70	55	70	80	80	80
Water temp (F)	61.1	64.5	61.3	63.3	63.3	67.5	66.0	70.3	75.3	76.9	80.0
Secchi (in)	46	48	50	51	46	44	48	43	44	36	49
Elevation (ft)	361.1	359.2	359.6	359.0	359.0	358.8	358.6	359.6	359.1	361.4	359.4
Weather	p.cloudy, low wind	sunny	sunny, breezy	sunny, breezy	sunny, low wind	p.cloudy, low wind	sunny, breezy	cloudy, breezy	cloudy, showers	p.cloudy, low wind	cloudy, breezy

Site ID	**Laydown**	**Spawning Bed**	**March 30**	**April 6**	**April 15**	**April 21**	**April 27**	**May 4**	**May 11**	**May 18**	**May 26**	**June 2**	**June 8**
K3-PSB-1	WFD	Plastic	c	c	c	LMB 3	LMB 3	LMB 3	LMB 3	0	SF 2	0	0
K3-PSB-2	WFD	Plastic	c	0	BASS 3	0	LMB 2	0	0	SF 5	c	SF 3	0
K3-PSB-2.9	WFD		0	0	0	0	0	0	0	LMB 4	0	0	0
K3-PSB-3	WFD	Plastic	0	0	0	0	0	0	0	c	SF 1	c	SF 3
K3-PSB-4	WFD	Plastic	0	0	0	0	0	0	0	0	0	SF 5	c
K3-PSB-4.9	WFD		0	0	0	0	0	0	0	0	0	0	0
K3-PSB-5	WFD		0	0	0	0	0	0	0	0	0	0	0
K3-PSB-6	WFD	Plastic	0	0	0	0	0	0	0	SF 1	SF 5	SF 3	c
K3-PSB-6.9	WFD			0	0	0	0	0	0	0	0	0	0
K3-PSB-7	WFD	Plastic	0	0	0	c	0	LMB 2	LMB 4	SF 2	SF 4	SF 3	c
K3-PSB-8		Plastic	0	0	0	0	0	0	0	SF 3	SF 2	c	c
K3-PSB-8.8	WFD		0	0	0	0	0	c	c	UNK 3	SF 5	SF 5	SF 4
K3-PSB-8.9	WFD	Plastic	0	0	c	SMB 3	SMB 3	SMB 3	SF 3	SF 2	SF 1	SF 5	SF 1
K3-PSB-9	WFD	Plastic	0	0	0	0	0	c	0	SF 3	SF 3	SF 5	SF 5
K3-PSB-10	WFD	Plastic	0	BASS 1	c	BASS 3	0	c	0	SF 3	c	c	SF 5
K3-PSB-10.9	WFD		0	0	0	0	0	0	0	0	0	0	0
K3-PSB-11	WFD	Plastic	0	0	c	BASS 4	c	SF 2	c	SF 1	SF 1	SF 1	c
K3-PSB-12	WFD	Plastic	0	0	SMB 3	0	0	SF 3	LMB 3	SF 2	SF 4	0	0
K3-PSB-13	WFD	Plastic		c	c	c	c	SF 1	c	SF 3	SF 3	c	SF 3
K3-PSB-14	WFD	Plastic		0	c	0	0	c	c	SF 3	SF 2	0	SF 2
K3-PSB-14.8	WFD		0	0	0	0	0	0	0	0	0	0	0
K3-PSB-14.9	WFD		0	0	0	0	0	0	0	0	0	0	0
K3-PSB-15	WFD	Plastic	c	BASS 2	0	BASS 3	BASS 3	SF 5	c	SF 4	SF 2	SF 5	SF 5
K3-PSB-16		Plastic	0	0	0	0	0	0	0	0	SF 1	c	SF 1
K3-PSB-16.8	Natural			0	0	0	0	0	0				
K3-PSB-16.9	WFD		0	0	0	0	0	0	0	0	0	0	0
K3-PSB-17	WFD	Plastic	c	0	BASS 3	LMB 2	LMB 3	SF 1	0	SF 4	SF 3	c	SF 3
K3-PSB-18	Natural	Plastic	0	0	0	c	c	SF 2	0	SF 3	c	SF 3	c
K3-PSB-19	WFD	Plastic	0	0	0	0	0	c	LMB 3	SF 2	SF 2	SF 4	c
K3-PSB-20	WFD	Plastic	0	0	0	0	0	UNK 1	LMB 3	SF 3	SF 3	SF 2	SF 3
K3-PSB-21	WFD	Plastic	0	0	SMB 3	0	0	c	0	c	SF 1	SF 2	0
K3-PSB-22		Plastic	0	0	0	c	0	0	0	0	0	0	0
K3-PSB-23	WFD	Plastic	c	BASS 2	SMB 1	0	c	BASS 1	LMB 4	c	SF 1	SF 1	0
K3-PSB-25		Plastic	c	c	c	BASS 1	UNK 2	UNK 3	c	SF 5	SF 4	SF 3	SF 3
K3-PSB-26	Natural	Plastic		0	0	0	BASS 1	UNK 4	0	SF 2	SF 1	SF 2	SF 3
K3-PSB-27		Plastic	0	BASS 5	BASS 2	c	BASS 5	LMB 3	BASS 2	SF 4	SF 2	SF 2	SF 4
K3-PSB-28		Plastic	0	0	0	0	0	0	c	SF 5	0	SF 4	SF 3
K3-PSB-29		Plastic	0	0	c	0	BASS 2	SMB 4	SMB 3	SMB 1	0	0	0
K3-PSB-30		Plastic	0	0	0	0	c	SF 3	UNK 4	SF 4	SF 3	SF 1	0
K3-PSB-31		Plastic	0	0	0	0	0	c	UNK 2	SF 3	SF 1	c	SF 4

Table 14 (cont).

Conditions	March	April 6	April 15	April 21	April 27	May 4	May 11	May 18	May 26	June 2	June 8
Air temp (F)	55	70	45	65	70	70	55	70	80	80	80
Water temp (F)	61.1	64.5	61.3	63.3	63.3	67.5	66.0	70.3	75.3	76.9	80.0
Secchi (in)	46	48	50	51	46	44	48	43	44	36	49
Elevation (ft)	361.1	359.2	359.6	359.0	359.0	358.8	358.6	359.6	359.1	361.4	359.4
Weather	p.cloudy, low wind	sunny	sunny, breezy	sunny, breezy	sunny, low wind	p.cloudy, low wind	sunny, breezy	cloudy, breezy	cloudy, showers	p.cloudy, low wind	cloudy, breezy

Site ID	Laydown	Artificial Spawning Bed	March 30	April 6	April 15	April 21	April 27	May 4	May 11	May 18	May 26	June 2	June 8
K3-PSB-33		Plastic	0	0	0	0	0	0	0	SF 5	SF 2	SF 4	c
K3-PSB-34		Plastic	c	c	c	BASS 3	LMB 4	0	0	SF 4	c	SF 2	SF 3
K3-PSB-35		Plastic	c	c	c	c	LMB 3	LMB 4	c	SF 5	SF 4	SF 5	c
K3-PSB-36		Plastic	BASS 1	0	0	0	0	0	0	SF 5	SF 1	SF 3	SF 5
K3-PSB-37		Plastic	0	0	0	0	0	0	0	0	SF 3	c	SF 1
K3-PSB-38		Plastic	0	0	0	LMB 3	0	c	c	SF 1	SF 2	SF 4	SF 1
K3-CSB-33.9	WFD			0	0	0	0	0	SMB 1	SMB 1	0	c	0
K3-CSB-34		Concrete	c	c	SMB 2	SMB 3	SMB 3	SMB 1	SMB 1	SMB 1	SF 5	c	SF 2
K3-CSB-34.9	WFD		0	0	0	0	0	LMB 2	0	0	0	0	0
K3-CSB-35		Concrete	c	c	0	c	c	LMB 3	LMB 3	c	SF 3	c	c
K3-CSB-35.9	WFD		BASS 4	0	0	c	BASS 1	SMB 3	SMB 4	0	0	0	0
K3-CSB-36		Concrete	0	0	c	c	c	0	0	SF 3	SF 5	SF 4	c
K3-CSB-36.9	WFD							LMB 1	LMB 3	UNK 1	SF 4	0	SF 3
K3-CSB-37		Concrete		0	c	c	0	c	0	SF 4	SF 4	c	c
K3-CSB-38		Concrete	c	0	c	c	c	c	0	SF 4	SF 4	SF 2	SF 2
K3-CSB-39		Concrete	0	0	0	0	0	0	c	SF 4	SF 5	SF 2	SF 4
K3-CSB-40		Concrete	0	0	0	0	c	c	c	SF 3	SF 1	SF 4	SF 5
K3-CSB-41		Concrete	0	0	c	c	c	c	BASS 1	SMB 2	c	SF 4	c
K3-CSB-42		Concrete	0	BASS 4	SMB 3	SMB 4	SMB 2	BASS 1	BASS 1	SMB 1	SF 4	c	SF 2
K3-CSB-43		Concrete	0	c	0	0	c	c	c	SF 5	SF 3	SF 4	SF 1
K3-CSB-44		Concrete	c	c	0	0	c	c	0	SF 4	SF 5	0	SF 4
K3-CSB-45		Concrete	0	0	c	c	c	SF 2	UNK 4	SF 3	SF 4	SF 4	SF 4
K3-CSB-46		Concrete	c	c	0	c	BASS 3	c	c	SF 5	SF 2	SF 3	SF 1
K3-CSB-47		Concrete	0	c	c	c	c	BASS 4	BASS 2	SF 1	SF 2	SF 3	SF 3
K3-CSB-48		Concrete	c	c	SMB 2	SMB 2	SMB 4	SMB 1	SMB 1	BASS 1	SF 2	SF 2	0
K3-CSB-49		Concrete	c	c	c	BASS 1	SMB 3	SMB 4	SMB 1	BASS 2	SF 1	SF 5	SF 1
K3-CSB-50		Concrete	c	c	c	0	c	0	0	SF 1	SF 3	c	SF 1

*Species or species group determined by presence of adult fish or identification of eggs or larvae collected

Table 15. Number of survey sites located and the percentage of each spawning activity rating among sites that were located during snorkel surveys in spring of 2020.

	March 30	April 6	April 15	April 21	April 27	May 4	May 11	May 18	May 26	June 2	June 8
# sites located	59	67	66	66	66	67	67	66	66	66	66
cleaned off (%)	27.1	20.9	27.3	22.7	22.7	22.4	19.4	6.1	7.6	21.2	19.7
1 (%)	1.7	1.5	1.5	3.0	3.0	11.9	9.0	16.7	16.7	4.6	12.1
2 (%)	0.0	3.0	4.6	3.0	6.1	7.5	4.5	10.6	16.7	12.1	6.1
3 (%)	0.0	0.0	7.6	10.6	12.1	11.9	11.9	18.2	13.6	12.1	15.2
4 (%)	1.7	1.5	0.0	3.0	3.0	7.5	7.5	15.2	13.6	13.6	9.1
5 (%)	0.0	1.5	0.0	0.0	1.5	1.5	0.0	12.1	9.1	10.6	7.6
Total (%)	30.5	28.4	40.9	42.4	48.5	62.7	52.2	78.8	77.3	74.3	69.7

Table 16. Number of artificial spawning beds located and the percentage of each spawning activity rating among beds that were located during snorkel surveys in 2020.

	March 30	April 6	April 15	April 21	April 27	May 4	May 11	May 18	May 26	June 2	June 8
# beds located	49	53	53	53	53	53	53	53	53	52	52
cleaned off (%)	32.7	26.4	34.0	26.4	28.3	26.4	22.6	7.6	9.4	25.0	25.0
1 (%)	2.0	1.9	1.9	3.8	1.9	13.2	9.4	17.0	20.8	5.8	15.4
2 (%)	0.0	3.8	5.7	3.8	7.6	7.6	5.7	13.2	20.8	15.4	7.7
3 (%)	0.0	0.0	9.4	13.2	15.1	13.2	13.2	20.8	17.0	15.4	17.3
4 (%)	0.0	1.9	0.0	3.8	3.8	9.4	7.6	17.0	15.1	17.3	9.6
5 (%)	0.0	1.9	0.0	0.0	1.9	1.9	0.0	15.1	9.4	11.5	9.6
Total (%)	34.7	35.9	50.9	50.9	58.5	71.7	58.5	90.6	92.5	90.4	84.6

Table 17. Estimated hatch dates of largemouth bass in Sugar Bay and Blood River at Kentucky Lake, derived using daily ring counts of juveniles in 2020. "# hatch" represents the time when bass actually hatched on the nest. "#spawned" represents the estimated time when eggs were fertilized. Elevation (mean feet above sea level) and mean daily discharge (cubic feet/second) at Kentucky Dam also provided. Daily mean temperature readings (1 meter below surface) taken at Hancock Biological Station in main channel. Environmental variables were provided by TVA and Murray State University.

	Largemouth bass						
	Sugar Bay		**Blood River**				
	#hatch	#spawned	#hatch	#spawned	**Environmental variables**		
					Elevation	Discharge (cfs)	Temp. F
3-Apr		1			361.74	228719	62.7
4-Apr					360.94	224085	63.5
5-Apr		1			359.96	209377	64.0
6-Apr	1			2	359.02	194405	64.9
7-Apr		1		2	358.22	158461	65.3
8-Apr	1	4			357.87	107530	64.5
9-Apr		1	2	1	357.71	60230	63.9
10-Apr	1	2	2		357.83	44558	63.4
11-Apr	4	3			358.36	45260	63.2
12-Apr	1	3	1	1	358.79	66498	62.2
13-Apr	2				358.98	130566	61.4
14-Apr	3	2		1	359.39	184503	60.7
15-Apr	3	1	1	1	359.55	205476	60.5
16-Apr		3		1	359.58	205697	61.1
17-Apr	2		1	3	359.45	204016	61.8
18-Apr	1	2	1	1	359.26	201656	62.5
19-Apr	3	4	1	3	359.2	200665	62.9
20-Apr		1	3	1	359.1	199179	63.1
21-Apr	2	3	1	4	358.88	196555	62.8
22-Apr	4	4	3	4	358.79	194303	63.6
23-Apr	1	3	1	1	358.87	169261	63.5
24-Apr	3	5	4	1	359.03	155045	63.0
25-Apr	4	4	4	1	359.14	156521	62.8
26-Apr	3	3	1		358.96	154956	62.7
27-Apr	5	4	1	5	359.06	146778	63.0
28-Apr	4	5	1	8	359.11	138785	63.5
29-Apr	3	12		6	359	137077	65.2
30-Apr	4	7	5	11	358.79	135368	65.4
1-May	5	6	8	11	358.78	110296	66.3
2-May	12	2	6	6	358.87	82505	67.1
3-May	7	2	11	8	358.83	82288	66.8
4-May	6	5	11	4	358.81	82514	66.7
5-May	2	2	6	5	358.89	82878	66.4
6-May	2	1	8	3	358.94	83265	66.0
7-May	5	1	4	1	359.19	83757	65.6
8-May	2		5	2	359.1	83742	65.4
9-May	1	2	3	2	359.07	83370	65.2
10-May	1	1	1		358.85	82592	64.8
11-May			2		358.73	61346	64.4
12-May	2		2		359.05	45024	64.7
13-May	1				359.29	46578	65.8

Table 18. Estimated hatch dates of smallmouth bass in Sugar Bay and Blood River at Kentucky Lake, derived using daily ring counts of juveniles in 2020. "# hatch" represents the time when bass actually hatched on the nest. "#spawned" represents the estimated time when eggs were fertilized. Elevation (mean feet above sea level) and mean daily discharge (cubic feet/second) at Kentucky Dam also provided. Temperature readings (1 meter below surface) taken at Hancock Biological Station in main channel. Environmental variables were provided by TVA and Murray State University.

	Smallmouth bass						
	Sugar Bay		Blood River		Environmental variables		
	#hatch	#spawned	#hatch	#spawned	Elevation	Discharge (cfs)	Temp. F
4-Apr		1			360.94	224085	63.5
5-Apr		1			359.96	209377	64.0
6-Apr		2			359.02	194405	64.9
7-Apr	1				358.22	158461	65.3
8-Apr	1	1		2	357.87	107530	64.5
9-Apr	2	3			357.71	60230	63.9
10-Apr		4		1	357.83	44558	63.4
11-Apr	1	2	2	1	358.36	45260	63.2
12-Apr	3			2	358.79	66498	62.2
13-Apr	4	1	1		358.98	130566	61.4
14-Apr	2	1	1	1	359.39	184503	60.7
15-Apr			2	1	359.55	205476	60.5
16-Apr	1	4		1	359.58	205697	61.1
17-Apr	1	1	1		359.45	204016	61.8
18-Apr			1		359.26	201656	62.5
19-Apr	4	1	1		359.2	200665	62.9
20-Apr	1	1			359.1	199179	63.1
21-Apr					358.88	196555	62.8
22-Apr	1				358.79	194303	63.6
23-Apr	1				358.87	169261	63.5
24-Apr		2			359.03	155045	63.0
25-Apr					359.14	156521	62.8
26-Apr					358.96	154956	62.7
27-Apr	2				359.06	146778	63.0
28-Apr					359.11	138785	63.5
29-Apr					359	137077	65.2
30-Apr					358.79	135368	65.4
1-May					358.78	110296	66.3
2-May		1			358.87	82505	67.1
3-May		2			358.83	82288	66.8
4-May					358.81	82514	66.7
5-May	1				358.89	82878	66.4
6-May	2				358.94	83265	66.0
7-May		2			359.19	83757	65.6
8-May					359.1	83742	65.4
9-May					359.07	83370	65.2
10-May	2				358.85	82592	64.8
11-May					358.73	61346	64.4
12-May					359.05	45024	64.7
13-May					359.29	46578	65.8
14-May					359.44	45492	67.8
15-May					359.38	43101	68.2
16-May				1	359.32	41427	68.5
17-May					359.64	30742	68.9
18-May					359.57	31066	69.0
19-May			1		359.61	49962	70.0

Table 19. Species composition, relative abundance, and CPUE (fish/nn) of crappie collected by trap nets fished during 120 net-nights of effort at three embayments of Kentucky Lake during October-November 2020. The Sub-Total is used for historical comparison and excludes the data for an embayment which historically had not been sampled.

		Inch class															
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	CPUE	Std err
Blood River	White crappie	44	28	6	60	27	12	19	7	7	3	2			215	5.4	0.6
	Black crappie	20	7	17	118	83	15	11	14	7	13	7	3	1	316	7.9	1.0
Jonathan Cr.	White crappie	14	7	7	55	26	16	18	8	5	4	4	1	1	166	4.2	0.8
	Black crappie	10	1	5	37	45	19	13	17	20	23	10			200	5.0	0.8
Sub-Total	**White crappie**	**58**	**35**	**13**	**115**	**53**	**28**	**37**	**15**	**12**	**7**	**6**	**1**	**1**	**381**	**4.8**	**0.5**
	Black crappie	**30**	**8**	**22**	**155**	**128**	**34**	**24**	**31**	**27**	**36**	**17**	**3**	**1**	**516**	**6.5**	**0.7**
Ledbetter	White crappie	14	3						1						18	0.5	0.2
	Blacknose crappie									1					1	<0.1	<0.1
	Black crappie	1	5				3	2	2	1	2				16	0.4	0.1
TOTAL	**White crappie**	**72**	**38**	**13**	**115**	**53**	**28**	**37**	**16**	**12**	**7**	**6**	**1**	**1**	**399**	**3.3**	**0.4**
	Black crappie	**31**	**13**	**22**	**155**	**128**	**37**	**26**	**33**	**28**	**38**	**17**	**3**	**1**	**532**	**4.4**	**0.5**

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Table 20. Crappie population parameters used to manage the population at Kentucky Lake, with values determined from fall trap netting at Blood River and Jonathan Creek.

	Total CPUE (fish/nn) excluding age-0			CPUE (fish/nn) age-0			Mean length (in) age-2 at capture						CPUE (fish/nn) ≥8.0 in			CPUE (fish/nn) age-1			CPUE (fish/nn) ≥10.0 in		
Year	WC	BC	Crappie	WC	BC	Crappie	WC	*WC	BC	*BC	Crappie	*Crappie	WC	BC	Crappie	WC	BC	Crappie	WC	BC	Crappie
2020	3.6	6.0	9.5	1.2	0.5	1.7	10.4	10.3	9.4	9.6	9.8	9.8	1.0	1.7	2.7	3.2	4.5	7.7	0.3	1.1	1.4
2019	3.5	6.7	10.2	4.4	4.6	9.0	9.1	9.1	7.9	8.5	8.0	8.5	1.5	5.0	6.6	2.0	1.4	3.4	1.2	1.9	3.0
2018	2.8	5.6	8.4	1.4	1.7	3.1	10.7	10.6	9.5	9.5	9.9	9.8	2.2	4.3	6.5	0.7	0.9	1.6	1.5	1.2	2.6
2017	3.6	9.6	13.1	0.4	0.7	1.1	9.6	9.5	8.2	8.3	8.9	8.7	3.4	7.3	10.6	0.3	1.2	1.5	1.1	1.2	2.4
2016	1.7	6.3	8.0	0.2	0.7	0.9	10.0	9.8	9.3	8.6	9.7	8.9	1.4	3.8	5.3	0.8	2.1	2.9	0.5	0.9	1.4
2015	7.7	15.0	22.7	2.2	2.1	4.3	9.7	9.4	8.8	8.0	9.2	8.4	4.4	4.9	9.3	4.1	5.8	9.9	1.2	0.5	1.7
2014	3.6	6.7	10.3	1.7	1.2	2.9	10.3	10.1	8.8	8.0	9.7	8.8	1.7	2.3	3.9	2.4	4.3	6.7	1.2	1.1	2.3
2013	2.5	7.4	9.9	2.5	3.1	5.5	10.4	10.6	8.8	9.2	9.4	9.5	2.4	6.3	8.7	0.5	1.8	2.3	1.7	2.9	4.6
2012[A]	4.2	8.7	12.9	0.0	0.2	0.2	10.5	10.4	9.6	9.4	10.0	9.7	3.4	7.0	10.4	2.8	2.5	5.3	1.4	3.1	4.5
2011	3.2	15.6	18.8	2.3	1.1	3.4	10.5	10.5	9.6	9.2	10.0	9.3	2.0	10.3	12.3	2.3	6.7	9.0	0.9	2.5	3.4
Avera	3.6	8.8	12.4	1.6	1.6	3.2	10.1	10.0	9.0	8.8	9.5	9.1	2.3	5.3	7.6	1.9	3.1	5.0	1.1	1.6	2.7
KLFMP			≥ 20			≥ 8					≥ 9.5 in				≥ 10			≥ 11			≥ 4

[A] Indicates year where age and growth data was not collected. Age and growth data from the previous year was used to calculate the appropriate value.

*Mean length calculated using a weighted average applied to the entire fall trapnet sample

Data from 1985 to 2010 is listed in previous annual reports.

KLFMP - Kentucky Lake Fish Management Plan objective goal.

Kentucky Lake Crappie Database

Table 21. Lake specific assessment for crappie collected at Kentucky Lake (Blood River and Jonathan Creek) from 2011-2020. This table includes the individual scores for each parameter, as well as the total scores and assessment ratings. The final columns list the instantaneous mortality (Z) and annual mortality (A).

Year	CPUE age-1 and older	CPUE age-1	CPUE age-0	CPUE ≥8.0 in	Mean length age-2 at capture	*Mean length age-2 at capture	Total score	Assessment rating	Z	A
2020	9.5	7.7	1.7	2.7	10.4	9.8				
Score	1	2	1	1	3		8	F		
2019	10.2	3.4	9.0	6.6	8.0	8.5			0.643	47.4
Score	1	1	4	2	1		9	F		
2018	8.4	1.6	3.1	6.5	9.9	9.8			0.504	39.6
Score	1	1	2	2	3		9	F		
2017	13.1	1.5	1.1	10.6	8.9	8.7			0.805	55.3
Score	1	1	1	3	1		7	P		
2016	8.0	2.9	0.9	5.3	9.7	8.9			1.072	65.8
Score	1	1	1	1	2		6	P		
2015	22.7	9.9	4.3	9.3	9.2	8.4			0.925	60.3
Score	4	3	3	3	1		14	G		
2014	10.5	6.7	2.9	3.9	9.7	8.8			0.910	59.7
Score	1	1	2	1	2		7	P		
2013	9.9	2.3	5.5	8.7	9.4	9.5			0.657	48.2
Score	1	1	3	2	1		8	P		
2012	13.0	5.3	0.5	10.4	10.0	9.7			1.028	64.2
Score	1	1	1	3	3		9	F		
2011	18.8	9.0	3.4	12.3	10.0	9.3			0.916	60.0
Score	3	2	2	3	3		13	F		
Average	12.4	5.0	3.2	7.6	9.5	9.1			0.8	55.6

*Mean length calculated using a weighted average applied to the entire fall trapnet sample

Rating
1 - 7 = Poor (P)
8 - 12 = Fair (F)
13 - 17 = Good (G)
18 - 20 = Excellent (E)

Assessment Quartiles updated in 2016.
Kentucky Lake Crappie Database

Table 22. Proportional stock density (PSD) and relative stock density (RSD_{10}) of white and black crappie collected with trap nets (120 net-nights) at Kentucky Lake (Blood River, Jonathan Creek and Ledbetter Bay) during October and November 2020. 95% confidence intervals are shown in parentheses.

Location	Species	N	PSD	RSD_{10}
Blood River	White crappie	137	28 (+/- 8)	9 (+/- 5)
	Black crappie	272	21 (+/-4)	11 (+/- 4)
Jonathan Creek	White crappie	138	30 (+/- 7)	11 (+/- 5)
	Black crappie	184	45 (+/- 7)	29 (+/- 7)
Sub Total	**White crappie**	**275**	**29 (+/- 6)**	**10 (+/- 4)**
	Black crappie	**456**	**30 (+/- 4)**	**18 (+/- 3)**
Ledbetter	White crappie	1	100	
	Black crappie	10	70 (+/- 30)	30 (+/- 30)
Total	**White crappie**	**276**	**29 (+/- 6)**	**10 (+/- 4)**
	Black crappie	**466**	**31 (+/- 3)**	**19 (+/- 3)**

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Table 23. Number of fish and the relative weight (Wr) values for each length group of black and white crappie collected at Kentucky Lake during trapnetting in October and November 2020.

		Length group								
		5.0-7.9 in			8.0-9.9 in			>10.0 in		
Species	Area	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
White crappie	Blood River	99	84	1	26	101	1	12	104	2
	Jonathan Creek	95	87	1	26	101	1	15	98	3
	Ledbetter				1	103				
	Total	194	86	1	53	101	1	27	101	2

		Length group								
		5.0-7.9 in			8.0-9.9 in			>10.0 in		
Species	Area	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
Black crappie	Blood River	214	89	1	25	101	1	31	97	1
	Jonathan Creek	100	91	1	29	98	2	51	97	1
	Ledbetter	3	99	2	4	100	4	3	95	1
	Total	317	90	<1	58	99	1	85	97	1

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Table 24. Mean back-calculated length (in) at each annulus of white crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek and Ledbetter Bay) in fall 2020.

		Age					
Year class	N	1	2	3	4	5	6
2019	103	3.8					
2018	20	4.1	7.2				
2015	5	4.8	7.9	9.3	10.3	11.4	
2014	6	4.3	6.8	9.0	9.8	10.6	11.4
Mean	134	3.9	7.3	9.1	10.0	11.0	11.4
Smallest		2.4	5.7	7.7	8.8	9.6	10.3
Largest		5.6	9.4	10.2	11.2	12.1	12.5
Std err		0.1	0.2	0.2	0.2	0.2	0.3
Low 95% CI		3.8	7.0	8.8	10.5	10.5	10.7
High 95% CI		4.0	7.6	9.5	11.4	11.4	12.0

* Intercept = 0.

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Table 25. Mean back-calculated length (in) at each annulus of MALE white crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek and Ledbetter Bay) in fall 2020.

		Age					
Year class	N	1	2	3	4	5	6
2019	21	4.4					
2018	13	4.1	7.4				
2015	3	4.7	7.8	9.2	10.1	11.3	
2014	4	4.2	6.7	8.8	9.7	10.5	11.2
Mean	41	4.3	7.3	9.0	9.9	10.8	11.2
Smallest		3.3	5.7	7.7	8.8	9.6	10.3
Largest		5.6	9.4	9.6	10.7	11.7	12.5
Std err		0.1	0.2	0.2	0.3	0.3	0.5
Low 95% CI		4.2	7.0	8.5	9.4	10.2	10.3
High 95% CI		4.5	7.7	9.4	10.4	11.4	12.1

* Intercept = 0.

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Table 26. Mean back-calculated length (in) at each annulus of FEMALE white crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek and Ledbetter Bay) in fall 2020.

		Age					
Year class	N	1	2	3	4	5	6
2019	20	4.2					
2018	6	4.0	7.0				
2015	2	4.9	7.9	9.5	10.5	11.6	
2014	2	4.4	7.1	9.5	10.1	10.8	11.7
Mean	30	4.2	7.2	9.5	10.3	11.2	11.7
Smallest		3.4	5.9	8.8	9.7	10.8	11.4
Largest		5.3	8.5	10.2	11.2	12.1	11.9
Std err		0.1	0.3	0.3	0.3	0.3	0.3
Low 95% CI		4.0	6.7	8.9	9.6	10.6	11.1
High 95% CI		4.4	7.7	10.0	10.9	11.8	12.2

* Intercept = 0.

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Table 27. Mean back-calculated length (in) at each annulus of black crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek and Ledbetter Bay) in fall 2020.

		Age						
Year class	N	1	2	3	4	5	6	7
2019	100	3.9						
2018	37	3.8	6.9					
2017	8	4.2	7.1	9.1				
2016	3	6.3	8.7	10.2	11.9			
2015	24	4.8	7.4	8.8	9.5	10.4		
2014	13	4.3	7.1	9.0	10.0	10.6	11.3	
2013	2	4.3	7.5	8.9	10.0	10.6	11.1	11.7
Mean	187	4.1	7.2	9.0	9.9	10.5	11.3	11.7
Smallest		2.6	5.1	6.7	7.6	10.0	10.0	11.6
Largest		7.7	10.7	12.3	14.3	13.5	13.5	11.7
Std err		0.1	0.1	0.1	0.2	0.2	0.2	0.1
Low 95% CI		4.0	6.9	8.8	9.6	10.8	10.8	11.5
High 95% CI		4.2	7.4	9.3	10.2	11.8	11.8	11.8

* Intercept = 0.

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Table 28. Mean back-calculated length (in) at each annulus of MALE black crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek and Ledbetter Bay) in fall 2020.

		Age					
Year class	N	1	2	3	4	5	6
2019	29	4.3					
2018	29	3.9	7.2				
2017	3	4.3	7.2	9.3			
2016	2	6.8	9.1	10.6	12.3		
2015	12	4.9	7.8	9.2	9.9	11.0	
2014	5	4.2	7.3	9.4	10.3	11.0	11.7
Mean	70	4.3	7.5	9.4	10.3	11.0	11.7
Smallest		2.8	5.9	8.0	8.8	9.5	10.5
Largest		7.7	10.7	12.3	14.3	13.0	13.5
Std err		0.1	0.2	0.2	0.3	0.2	0.6
Low 95% CI		4.1	7.1	8.9	9.7	10.5	10.5
High 95% CI		4.5	7.8	9.8	10.9	11.4	12.9

* Intercept = 0.

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Table 29. Mean back-calculated length (in) at each annulus of FEMALE black crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Kentucky Lake (Blood River, Jonathan Creek and Ledbetter Bay) in fall 2020.

		Age						
Year class	N	1	2	3	4	5	6	7
2019	23	4.7						
2018	17	3.8	6.7					
2017	5	4.1	7.0	9.0				
2016	1	5.3	7.7	9.4	11.2			
2015	12	4.7	7.0	8.5	9.1	9.9		
2014	8	4.4	7.0	8.8	9.9	10.4	11.1	
2013	2	4.3	7.5	8.9	10.0	10.6	11.1	11.7
Mean	68	4.4	6.9	8.7	9.6	10.2	11.1	11.7
Smallest		3.2	5.3	6.7	7.6	8.0	10.0	11.6
Largest		7.7	9.1	10.6	11.2	11.6	11.9	11.7
Std err		0.1	0.1	0.1	0.2	0.2	0.2	0.1
Low 95% CI		4.2	6.7	8.5	9.2	9.8	10.7	11.5
High 95% CI		4.6	7.1	9.0	9.9	10.5	11.5	11.8

* Intercept = 0.

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Table 30. Age frequency and CPUE (fish/nn) of white crappie collected in trap nets fished for 80 net-nights in Kentucky Lake (Blood River and Jonathan Creek) during October and November 2020.

	Inch class															
Age	2	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std err
0	58	35	1										94	25	1.2	0.2
1			12	115	53	28	35	10	1				254	66	3.2	0.4
2							2	5	11	4			22	6	0.3	0.1
3													0	0	0.0	0.0
4													0	0	0.0	0.0
5											4	1	5	1	0.1	<0.1
6										4	2	1	7	2	0.1	<0.1
Total	58	35	13	115	53	28	37	15	12	8	6	2	382		4.78	
%	15	9	3	30	14	7	10	4	3	2	2	1				

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Table 31. Age frequency and CPUE (fish/nn) of black crappie collected in trap nets fished for 80 net-nights in Kentucky Lake (Blood River and Jonathan Creek) during October and November 2020.

	Inch class																
Age	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	%	CPUE	Std err
0	30	8	2											40	8	0.5	0.1
1			20	155	128	31	9	14	6	3	1			367	71	4.6	0.5
2						3	14	16	9	8				50	10	0.6	0.1
3								1	5	2	2			10	2	0.1	<0.1
4										2	1		1	4	1	0.1	<0.1
5							1		7	14	7	1		30	5.8	0.4	0.1
6										9	4	2	1	16	3.1	0.2	<0.1
7											2			2	0.4	<0.1	<0.1
Total	30	8	22	155	128	34	24	31	27	38	17	3	2	519		6.5	
%	6	2	4	30	25	7	5	6	5	7	3	1	0				

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Table 32. Length frequency, CPUE (fish/1000M³), median catch, and geometric mean catch (standard error given in parentheses) of each 0.5 mm class of crappie collected during nocturnal neustonic tow net sampling (72 tows) at 6 sample sites in the Jonathan Creek embayment of Kentucky Lake from 30 March-9 June 2020. See Appendix A for sample site locations.

		mm class																
Date	Location	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	CPUE	*Median	*Geometric Mean
3/31/2020	JC002															0	0	0
	JC003															0		
	JC004															0		
	JC006															0		
	JC007															0		
	JC005															0		
4/7/2020	JC002															0	0	0
	JC003															0		
	JC004															0		
	JC006															0		
	JC007															0		
	JC005															0		
4/14/2020	JC002															0	4.2	2.61 (0.68)
	JC003				3.2											3		
	JC004					3										3		
	JC006					3										3		
	JC007															0		
	JC005				3.2											3		
4/21/2020	JC002					2			2.5							5	16.8	15.06 (3.46)
	JC003			3	3.3	7		6.5								20		
	JC004			3		3		3.3								10		
	JC006					5	9	9.2	4.6							28		
	JC007					4	7	11								22		
	JC005						9	3								12		
4/28/2020	JC002							14	4.5							18	8.1	6.39 (2.56)
	JC003						4	3.8								8		
	JC004									3.6						4		
	JC006					4			3.6	3.6						11		
	JC007															0		
	JC005							6.7								7		
5/5/2020	JC002			3								3				6	5.9	3.56 (1.37)
	JC003															0		
	JC004					3										3		
	JC006															0		
	JC007							3.2			3					6		
	JC005								3.8	3.8						8		
5/13/2020	JC002															0	12.9	8.36 (4.02)
	JC003							17		3.4		3				24		
	JC004							8.4						4		13		
	JC006					3	3	3.2								10		
	JC007						3									3		
	JC005		4					3.5		3.5				4		14		
5/19/2020	JC002															0	2.6	2.27 (1.09)
	JC003															0		
	JC004							3.3			3					7		
	JC006									3.3						3		
	JC007								3.2							3		
	JC005															0		
5/26/2020	JC002															0	0	0
	JC003															0		
	JC004															0		
	JC006															0		
	JC007															0		
	JC005															0		
6/2/2020	JC002															0	0	0
	JC003															0		
	JC004															0		
	JC006															0		
	JC007															0		
	JC005															0		
6/2/2020	JC002															0	3.6	3.08 (2.17)
	JC003									10						10		
	JC004															0		
	JC006															0		
	JC007															0		
	JC005															0		

*includes all lengths of yoy crappie collected

Table 33. Geometric mean catch rates for pelagic larval fish captured in neuston tow nets from 30-March -9-June 2020 (six tows per sample night). Standard errors given in parentheses. Temperature (degrees Fahrenheit) and water elevation (feet above sea level) also provided.

	Geometric Mean (Standard Error)						
	Pomoxis spp.		Clupeid spp.	Lepomis spp.	Cyprinid spp.		
Day	7.0-11.0mm	Total catch	Total catch		Total catch	Temp	Elevation
3/31/2020	0.00	0.00	0.00	0.00	0.00	60.0	361.7
4/7/2020	0.00	0.00	0.00	0.00	0.00	65.2	358.1
4/14/2020	1.62 (0.69)	2.61 (0.68)	8.74 (3.35)	0.00	0.00	60.5	359.4
4/21/2020	13.31 (3.61)	15.06 (3.46)	16.42 (9.39)	0.00	0.00	63.0	358.8
4/28/2020	6.39 (2.56)	6.39 (2.56)	73.61 (45.66)	0.00	1.79 (1.14)	63.0	359.1
5/5/2020	3.24 (1.29)	3.56 (1.37)	15.10 (2.53)	0.00	2.08 (0.75)	66.1	358.9
5/13/2020	7.49 (3.38)	8.36 (4.02)	80.90 (31.44)	0.00	0.00	63.7	359.3
5/19/2020	2.27 (1.09)	2.27(1.09)	72.59 (10.46)	0.00	0.00	71.1	359.6
5/26/2020	0.00	0.00	337.45 (114.37)	0.00	2.11 (2.40)	76.1	359.4
6/2/2020	0.00	0.00	862.19 (780.25)	2.95 (4.45)	12.26 (51.86)	78.7	361.3
6/9/2020	1.50 (1.74)	3.08 (2.17)	1109.91 (466.98)	122.08 (83.50)	51.28 (65.74)	80.1	359.2

Table 34. Estimated crappie hatch dates in Jonathan Creek, derived using larval fish lengths back calculated using a growth rate derived from the daily ring counts of juveniles in 2020. Hatch dates from Jonathan Creek and Blood River derived solely from daily ring counts of juveniles also provided. "# hatch" represents the time when crappie actually hatched on the nest. "#spawned" represents the estimated time when crappie eggs were fertilized. Elevation (mean feet above sea level) and mean daily discharge (cubic feet/second) at Kentucky Dam also provided. Temperature readings (1 meter below surface) taken at Hancock Biological Station in main channel. Environmental variables were provided by TVA and Murray State University.

	Jonathan Creek				**Blood River**				
	Back calculated estimate larval crappie	Back calculated estimate larval crappie	Juvenile daily ring count	Juvenile daily ring count	Juvenile daily ring count	Juvenile daily ring count	**Environmental variables**		
	# hatch / 1000m³	# spawned / 1000m³	# hatch	# spawned	# hatch	# spawned	Elevation	Discharge (cfs)	Temp. F
3-Apr		1.62					361.74	228719	62.7
4-Apr							360.94	224085	63.5
5-Apr							359.96	209377	64.0
6-Apr	1.62						359.02	194405	64.9
7-Apr							358.22	158461	65.3
8-Apr		6.67					357.87	107530	64.5
9-Apr		3.08					357.71	60230	63.9
10-Apr		3.80					357.83	44558	63.4
11-Apr	6.67			1			358.36	45260	63.2
12-Apr	3.08						358.79	66498	62.2
13-Apr	3.80						358.98	130566	61.4
14-Apr		1.66	1				359.39	184503	60.7
15-Apr		4.57		1			359.55	205476	60.5
16-Apr		1.30		1			359.58	205697	61.1
17-Apr	1.66	1.29					359.45	204016	61.8
18-Apr	4.57		1	5			359.26	201656	62.5
19-Apr	1.30		1	4		1	359.20	200665	62.9
20-Apr	1.29	2.54		10			359.10	199179	63.1
21-Apr		1.30	5	5			358.88	196555	62.8
22-Apr		2.57	4	5	1	1	358.79	194303	63.6
23-Apr	2.54		10	4		1	358.87	169261	63.5
24-Apr	1.30	1.28	5	6			359.03	155045	63.0
25-Apr	2.57	1.69	5	3	1	2	359.14	156521	62.8
26-Apr			4	4	1	2	358.96	154956	62.7
27-Apr	1.28	1.28	6	4			359.06	146778	63.0
28-Apr	1.69	1.65	3	1	2		359.11	138785	63.5
29-Apr		3.85	4	2	2		359.00	137077	65.2
30-Apr	1.28	1.62	4			1	358.79	135368	65.4
1-May	1.65	1.27	1	2			358.78	110296	66.3
2-May	3.85		2	1			358.87	82505	67.1
3-May	1.62			3	1	1	358.83	82288	66.8
4-May	1.27	1.27	2	2			358.81	82514	66.7
5-May		1.28	1	2			358.89	82878	66.4
6-May		2.54	3	1	1	1	358.94	83265	66.0
7-May	1.27		2	1		1	359.19	83757	65.6
8-May	1.28		2	1		2	359.10	83742	65.4
9-May	2.54		1	1	1	2	359.07	83370	65.2
10-May			1	1	1	3	358.85	82592	64.8
11-May			1		2	3	358.73	61346	64.4
12-May			1		2	1	359.05	45024	64.7
13-May			1	3	3	2	359.29	46578	65.8
14-May					3	3	359.44	45492	67.8
15-May					1	7	359.38	43101	68.2
16-May			3	1	2	7	359.32	41427	68.5
17-May				1	3	11	359.64	30742	68.9
18-May				4	7	8	359.57	31066	69.0
19-May			1	1	7	5	359.61	49962	70.0
20-May			1	1	11	8	359.32	79208	70.2
21-May			4		8	10	359.07	78909	71.1
22-May			1	1	5	2	358.98	79915	71.7
23-May			1	2	8	4	358.87	78411	73.5
24-May					10	3	358.80	78129	73.6
25-May			1		2	3	358.87	78482	73.7
26-May		1.50	2		4	5	359.18	71046	74.2
27-May					3		359.80	59337	74.5
28-May					3		360.34	71694	74.6
29-May	1.50				5		360.52	101905	74.2

Table 35. Estimated hatch dates of black and white crappie in Jonathan Creek and Blood River, derived using daily ring counts of juveniles in 2020. "# hatch" represents the time when crappie actually hatched on the nest. Elevation (mean feet above sea level) and mean daily discharge (cubic feet/second) at Kentucky Dam also provided. Temperature readings (1 meter below surface) taken at Hancock Biological Station in main channel. Environmental variables were provided by TVA and Murray State University.

	Jonathan Creek		Blood River		Environmental variables		
	White crappie #hatch	Black crappie #hatch	White crappie #hatch	Black crappie #hatch	Elevation	Discharge (cfs)	Temp. F
14-Apr	1				359.39	184503	60.7
15-Apr					359.55	205476	60.5
16-Apr					359.58	205697	61.1
17-Apr					359.45	204016	61.8
18-Apr	1				359.26	201656	62.5
19-Apr	1				359.20	200665	62.9
20-Apr					359.10	199179	63.1
21-Apr	5				358.88	196555	62.8
22-Apr	4		1		358.79	194303	63.6
23-Apr	10				358.87	169261	63.5
24-Apr	5				359.03	155045	63.0
25-Apr	5		1		359.14	156521	62.8
26-Apr	4		1		358.96	154956	62.7
27-Apr	6				359.06	146778	63.0
28-Apr	3		2		359.11	138785	63.5
29-Apr	4		2		359.00	137077	65.2
30-Apr	4				358.79	135368	65.4
1-May	1				358.78	110296	66.3
2-May	2				358.87	82505	67.1
3-May				1	358.83	82288	66.8
4-May	2				358.81	82514	66.7
5-May	1				358.89	82878	66.4
6-May	3		1		358.94	83265	66.0
7-May	1	1			359.19	83757	65.6
8-May	2				359.10	83742	65.4
9-May	1		1		359.07	83370	65.2
10-May	1		1		358.85	82592	64.8
11-May		1	2		358.73	61346	64.4
12-May	1		2		359.05	45024	64.7
13-May		1	3		359.29	46578	65.8
14-May			3		359.44	45492	67.8
15-May			1		359.38	43101	68.2
16-May	3		2		359.32	41427	68.5
17-May			3		359.64	30742	68.9
18-May			7		359.57	31066	69.0
19-May	1		7		359.61	49962	70.0
20-May	1		10	1	359.32	79208	70.2
21-May	4		8		359.07	78909	71.1
22-May	1		5		358.98	79915	71.7
23-May	1		8		358.87	78411	73.5
24-May			10		358.80	78129	73.6
25-May	1		2		358.87	78482	73.7
26-May	2		4		359.18	71046	74.2
27-May			3		359.80	59337	74.5
28-May			3		360.34	71694	74.6
29-May			5		360.52	101905	74.2

Table 36. Length frequency and CPUE (fish/hr) of channel, blue, and flathead catfish collected from Kentucky Lake in June and July 2020 using low pulse (15 PPS) electrofishing along the main river channel. A chase boat was used. A total of 4.83 hours of sampling consisting of 58- 300-second runs.

	Inch class																											
Species	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	25	26	27	28	29	30	31	Total	CPUE	Std err
Blue catfish		1	4	18	12	8	2	1	2		2	1	1	1	1	5	1	3					1			64	13.3	2.7
Channel catfish	1		1	4	1																					7	1.4	0.6
Flathead catfish	1			1			1	2	3	2	2	2	1	1	1		1	4	1	3	1		1	2	1	31	6.4	1.7

wfdcatk.d20

Table 37. Relative weight (Wr) of each length group of blue, channel, and flathead catfish collected from Kentucky Lake during June and July 2020. Fish were collected using low pulse (15 PPS) electrofishing.

Species	Length group											
Blue catfish	12.0-19.9 in			20.0-29.9 in			≥30.0 in			Total		
	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err
	8	130	21	11	99	2				19	112	9

	Length group											
Flathead catfish	12.0-19.9 in			20.0-29.9 in			≥30.0 in			Total		
	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err
	12	115	19	11	87	2	4	93	2	27	101	9

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Table 38. Age frequency and CPUE (fish/hr) of blue catfish collected from low pulse (15 PPS) electrofishing at Kentucky Lake in June and July 2020 estimated using 2019 age length key.

	Inch class															
Age	7	10	12	13	14	15	16	17	18	20	21	22	*Total	%	*CPUE	Std err
1	1												1	3	0.3	0.2
2		12											12	38	3.7	1.1
3			2	1	2								5	16	1.5	0.6
4						2							2	6	0.6	0.3
5							1				1		2	6	0.6	0.2
6								1	1	1	2		5	16	1.5	0.4
7										0	1	1	2	6	0.6	0.2
8											1		1	3	0.3	0.1
9									1			1	2	6	0.6	0.2
Total	1	12	2	1	2	2	1	1	2	1	5	2	32			
%	3	38	6	3	6	6	3	3	6	3	16	6				

wfdcatk.d20 and wfdkcag.d19

* Use results with caution as some inch classes were not found in 2019 age sample

Table 39. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 7.5 hours (15- 30-minute runs) of diurnal electrofishing at Lake Barkley from 22 April to 7 May 2020. **Only one dipper was used due to Covid19 protocol.

		Inch class																					Std
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	err
Lower																							
Donaldson Cr.	Smallmouth bass											1				1	1				3	3.0	1.5
	Spotted bass		1																		1	1.0	0.5
	Largemouth bass				3						1	1	3		2		1		1		12	12.0	1.0
Fords	Spotted bass													1							1	0.5	0.3
	Largemouth bass	3	2	5	4		1	1		1		1		5	3	6	5	3	1	1	42	21.0	2.8
Middle																							
Eddy Cr.	Smallmouth bass		1								1	1									3	1.5	0.8
	Largemouth bass		1			2			1	2	2	1	3	12	2	1	1				28	14.0	3.6
Upper																							
Demumbers	Smallmouth bass													1							1	2.0	<0.1
	Largemouth bass										1	3	6	2	3						15	30.0	<0.1
Nickell Cr.	Smallmouth bass		2							1											3	3.0	1.5
	Largemouth bass					1			1	5	6	5	8	7	2	2		1	1		39	39.0	1.5
Willow	Smallmouth bass				1																1	1.0	0.5
	Largemouth bass									1	1	2	5	5		3	2				19	19.0	3.5
Total	Smallmouth bass		3		1					1	1	2		1		1	1				11	1.5	0.3
	Spotted bass		1											1							2	0.3	0.1
	Largemouth bass	3	3	5	7	3	1	1	2	9	11	13	25	31	12	12	9	4	3	1	155	20.7	1.6

wfdpsdb.d20

Table 40. Spring diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Lake Barkley during late April/early May since 2011. Mean length at capture of age-3 fish also provided.

Year	Mean length age-3 at capture	Mean length age-3 at capture***	Age-1		Length group <8.0 in		8.0-11.9 in		12.0 -14.9 in		≥15.0 in		≥20.0 in		Total	
			CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
2020*			2.5	0.9	2.8	1.0	1.7	0.6	6.5	2.0	9.6	1.3	0.5	0.2	20.7	3.2
2019**	12.9	13.1	14.6	4.0	11.7	3.5	8.7	2.4	16.9	3.9	16.0	3.1	1.5	0.7	53.3	10.4
2018			10.9	1.4	10.8	1.4	11.0	2.2	5.7	1.1	17.4	2.9	1.1	0.4	44.9	5.8
2017			26.5	5.1	19.0	3.8	11.7	2.5	9.7	1.3	26.8	3.5	1.7	0.5	67.2	6.2
2016			10.8	1.8	6.6	1.2	6.0	1.2	14.9	2.3	22.2	3.2	1.0	0.4	49.7	4.9
2015**	13.4	13.6	10.3	1.3	8.5	1.3	15.1	2.1	29.7	4.0	26.3	3.0	1.7	0.4	79.6	7.1
2014			22.2	3.7	21.4	3.6	13.5	1.7	22.8	2.5	23.5	4.1	1.4	0.3	81.2	7.5
2013			18.2	2.7	14.6	2.3	16.2	2.4	22.9	3.2	19.3	2.1	0.7	0.3	73.0	7.9
2012	13.0	13.5	10.0	1.7	8.7	1.8	13.1	2.0	32.4	5.4	24.1	5.0	1.5	0.5	78.4	10.6
2011	Did not sample due to flooding															
Average	13.1	13.4	14.0		11.6		10.8		18.0		20.6		1.2		60.9	

(Revised_Barkley_Bass_Database.xlsx)

Data is available since 1985 in previous annual reports

*only one dipper w as used due to covid19 protocols in 2020

** back-calculated fall age data used in 2015 and 2019

***Mean length calculated using a w eighted average applied to the spring sample

Table 41. PSD and RSD_{15} values calculated for largemouth bass collected during 7.5 hours (15- 30-minutes runs) of spring diurnal electrofishing at each area of Lake Barkley from 22 April to 7 May 2020. 95% confidence intervals are shown in parentheses. **Only one dipper was used due to Covid19 protocol.

Area	No. $\geq$8.0 in	PSD	RSD_{15}
Donaldson	9	100 (+/-0)	44 (+/-34)
Fords	28	89 (+/-12)	86 (+/-13)
Eddy Creek	25	88 (+/-13)	64 (+/-19)
Demumbers	15	100 (+/-0)	33 (+/-25)
Nickell	38	84 (+/-12)	34 (+/-15)
Willow	19	95 (+/-10)	53 (+/-23)
Total	134	90 (+/-5)	54 (+/-8)

wfdpsdb.d20

Table 42. Lake specific assessment for largemouth bass collected at Lake Barkley from 2011-2020. This table includes the parameter estimates and the individual scores as well as the total scores and assessment ratings. The final two columns list the instantaneous mortality rate (Z) and the annual mortality (A).

				Length group						
	Mean length age-3 at	Mean length age-3 at	CPUE	12.0-14.9 in	≥15.0 in	≥20.0 in	Total	Assessment		
Year	capture	capture***	age-1	CPUE	CPUE	CPUE	score	rating	Z	A
2020*	12.9	13.1	2.5	6.5	9.6	0.5			0.246	21.8
Score	2		1	1	1	1	6	P		
2019**	12.9	13.1	14.6	16.9	16	1.5			0.335	28.5
Score	2		1	1	1	1	6	P		
2018	13.4	13.6	10.9	5.7	17.4	1.1			0.327	27.9
Score	4		1	1	1	1	8	F		
2017	13.4	13.6	26.5	9.7	26.8	1.7			0.322	27.5
Score	4		3	1	3	2	13	G		
2016	13.4	13.6	10.8	14.9	22.2	1.7			0.402	33.1
Score	4		1	1	2	1	9	F		
2015**	13.4	13.6	10.3	29.7	26.3	1.7			0.472	38.0
Score	4		1	2	2	1	10	F		
2014	13.0	13.5	22.2	22.8	23.5	1.4			0.649	47.8
Score	3		2	1	2	1	9	F		
2013	13.0	13.5	18.2	22.9	19.3	0.7			0.282	25.0
Score	3		1	1	1	1	7	P		
2012	13.0	13.5	10.0	32.4	24.1	1.5			0.431	35.0
Score	3		1	2	2	1	9	F		
2011	Did not sample due to flooding									
Average	13.1	13.4	14.0	18.0	20.6	1.3	8.6		0.385	31.6

Older data is listed in previous annual reports.

(Revised _Barkley_bass_Database.xlsx)

*only one dipper w as used due to covid19 protocols in 2020

** used back calculated lengths from fall

***Mean length calculated using a w eighted average applied to the spring sample

[A] age and grow th data w as not collected. Previous year data used for age estimates.

Rating
5-7 = Poor (P)
8-11 = Fair (F)
12-16 = Good (G)
17-20 = Excellent (E)

Table 43. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 5.5 hours of diurnal electrofishing (11- 30-minute runs) for black bass in each area of Lake Barkley October 6, 8, and 15, 2020. Sub-Total uses only data collected from Little River and Eddy Creek for historical comparison.

	Inch class																					
Area / Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	Std err
Eddy Creek																						
Smallmouth bass		13	10	7	2	1	1	2		1	1	3	1		2					44	22.0	2.9
Spotted bass		5	3	2							1									11	5.5	2.9
Largemouth bass	16	89	35	35	58	27	3	2	4	3	6	7	7	11	8	1	3			315	157.5	10.3
Little River																						
Smallmouth bass	2	41	49	38	7	1		1	1	4			1	2					1	148	74.0	39.5
Spotted bass		1	1				1	1					1							5	2.5	2.5
Largemouth bass	1	48	39	26	11	8	3	3	7		1	5	4	5	2	2	2	1	1	169	84.5	20.6
Sub-Total																						
Smallmouth bass	**2**	**54**	**59**	**45**	**9**	**2**	**1**	**3**	**1**	**5**	**1**	**3**	**2**	**2**	**2**				**1**	**192**	**48.0**	**20.81**
Spotted bass		**6**	**4**	**2**			**1**	**1**			**1**		**1**							**16**	**4.0**	**1.85**
Largemouth bass	**17**	**137**	**74**	**61**	**69**	**35**	**6**	**5**	**11**	**3**	**7**	**12**	**11**	**16**	**10**	**3**	**5**	**1**	**1**	**484**	**121.0**	**17.42**
Demumbers Bay																						
Smallmouth bass		3	1	11	3	1						1		1						21	21.0	7.0
Largemouth bass	1	5	13	17	13	8	3	1	2	6	1	11	8	4	4	1				98	98.0	16.0
Willow Creek																						
Smallmouth bass			5	3																8	16.0	0.0
Largemouth bass		2	4	5	7	2	1	1				3	4	2	1	2				34	68.0	0.0
Total																						
Smallmouth bass	**2**	**57**	**65**	**59**	**12**	**3**	**1**	**3**	**1**	**5**	**1**	**4**	**2**	**3**	**2**				**1**	**221**	**40.2**	**3.9**
Spotted bass		**6**	**4**	**2**			**1**	**1**			**1**		**1**							**16**	**2.9**	**1.3**
Largemouth bass	**18**	**144**	**91**	**83**	**89**	**45**	**10**	**7**	**13**	**9**	**8**	**26**	**23**	**22**	**15**	**6**	**5**	**1**	**1**	**616**	**112.0**	**13.8**

wfdwrb.d20, wfdwrb1.d20

Table 44. Number of fish and the relative weight (Wr) values for each length group of largemouth and smallmouth bass collected at Lake Barkley during 5.5 hours of diurnal electrofishing (11- 30-minute runs) in October 2020. Sub-Total uses only data collected from Little River and Eddy Creek for historical comparison.

		Length group											
		8.0-11.9 in			12.0-14.9 in			≥15.0 in			Total		
Species	Area	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
Largemouth bass	Eddy Creek	12	111	2	20	102	2	23	106	2	55	106	1
	Little River	13	101	2	10	105	4	13	103	4	36	103	2
	Sub-Total	**25**	**106**	**2**	**30**	**103**	**2**	**36**	**105**	**2**	**91**	**105**	**1**
	Demumbers Bay	12	107	4	20	105	2	9	101	4	41	105	2
	Willow Creek	2	105	11	7	112	3	5	93	6	14	104	4
	Total	**39**	**106**	**2**	**57**	**105**	**1**	**50**	**103**	**2**	**146**	**105**	**1**

		Length group											
		7.0-10.9 in			11.0-13.9 in			≥14.0 in			Total		
Species	Area	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
Smallmouth bass	Eddy Creek	4	95	9	5	88	1	3	89	4	12	91	3
	Little River	3	94	4	4	104	3	4	88	7	11	96	4
	Sub-Total	**7**	**95**	**5**	**9**	**95**	**3**	**7**	**88**	**4**	**23**	**93**	**2**
	Demumbers Bay	1	73		1	97		1	88		3	86	7
	Willow Creek	0			0			0			0		
	Total	**8**	**92**	**5**	**10**	**95**	**3**	**8**	**88**	**4**	**26**	**92**	**2**

wfdwrb.d20, wfdwrb1.d20

Table 45. Age frequency and CPUE (fish/hr) of largemouth bass collected during diurnal electrofishing at Eddy Creek and Little River at Lake Barkley in October 2020.

	Inch class																						
Age	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	%	CPUE	Std err
0	17	137	74	61	69	35	5													398	82	99.6	15.3
1							1	5	11	2	3									22	5	5.4	1.3
2											1	6	1							8	2	2.1	0.3
3										1	2	5	6	8	3					25	5	6.2	1.2
4											1	1	3	6	4	1				16	3	4.1	0.8
5														2	2	1	2	1		8	2	1.6	0.2
6															1	1				2	0	0.4	0.1
7																				0	0	0.1	<0.1
8													1				2			3	1	0.7	0.2
9																	2		1	3	1	0.5	0.1
11																		1	1	2	0	0.3	0.2
Total	17	137	74	61	69	35	6	5	11	3	7	12	11	16	10	3	6	2	2	487		121.8	17.4
%	3	22	12	10	11	6	1	1	2	0	1	2	2	3	2	0	1	0	0	100			

wfdwrb1.d20, wfdwragb.d20

Table 46. Age-0 CPUE (fish/hr) and mean length (in) of largemouth bass collected in the fall and CPUE of age-1 largemouth bass collected the following spring during diurnal electrofishing at Lake Barkley.

Year class	Age-0[A] Mean length	Std err	Age-0[A] CPUE	Std err	Age-0 $\geq$5.0 in[A] CPUE	Std err	Age-1[B] CPUE	Std err
2020	4.8	0.1	99.3	15.4	42.3	9.9		
2019	4.1	0.1	98.7	17.5	16.9	2.8	2.5*	0.9*
2018	6.2	0.2	11.4	2.8	8.6	1.7	14.6	4.0
2017	4.8	0.1	25.1	4.8	10.2	3.0	10.9	1.4
2016	5.4	0.1	22.4	4.8	14.0	3.7	26.5	5.0
2015	5.0	0.1	38.8	9.0	16.6	4.5	10.8	1.8
2014	4.8	0.1	24.8	4.4	11.0	1.9	10.3	2.0
2013	5.8	0.1	55.0	8.7	43.3	6.0	22.2	3.7
2012	6.4	0.1	29.8	4.5	26.8	3.7	22.2	2.7
2011	5.6	0.1	18.8	2.8	13.6	2.5	10.0	1.7
2010	6.4	0.1	35.4	5.5	33.2	5.3	**	
Average	5.4		41.8		21.5		14.4	

[A] Data collected by fall (October) diurnal electrofishing. Mean lengths were determined by analysis of otoliths, removed from a subsample of LMB <12.0 in.

[B] Data collected during the following spring (April/May) diurnal electrofishing sample.

[*] only one dipper used because of covid19 protocols in spring 2020

[**] Data not collected in spring of 2011 due to flood conditions.

wfdwrb.dxx, wfdwrb1.dxx, wfdpsdb.dxx

Table 47. Age-0 CPUE (fish/hr) and mean length (in) of smallmouth bass collected in the fall and CPUE of age-1 smallmouth bass collected the following spring during diurnal electrofishing at Lake Barkley.

Year class	Age-0[A] Mean length	Std err	Age-0[A] CPUE	Std err	Age-0 $\geq$5.0 in[A] CPUE	Std err	Age-1[B] CPUE	Std err
2020	4.5	0.1	42.5	20.7	13.8	5.8		
2019	4.1	0.1	18.9	3.6	2.4	0.7	0.5*	0.3*
Average	4.3		30.7		8.1		0.5	

[A] Data collected by fall (October) diurnal electrofishing. Mean lengths were determined by analysis of otoliths, removed from a subsample of SMB <12.0 in.

[B] Data collected during the following spring (April/May) diurnal electrofishing sample.

[*] only one dipper used because of covid19 protocols in spring 2020

wfdwrb1.dxx, wfdpsdb.dxx

Table 48. Length frequency and CPUE (fish/nn) of each inch class of white and black crappie collected by trap nets (160 net-nights) at Lake Barkley from 19 October-6 November 2020. Sub-Total is shown for comparisons with historical data which included only Little River and Donaldson Creek.

		Inch class															
Area	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	Total	CPUE	Std err
Little River	White crappie		68	153	88	18	16	22	22	28	11	2		2	430	10.8	1.2
	Black crappie		6	10	6	1		2	9	2	2				38	1	0.2
Donaldson Creek	White crappie		130	139	51	19	23	21	20	23	5		2	1	434	10.9	1.9
	Black crappie		14	43	48	12	13	9	5	4	3	1		2	154	3.9	0.7
Sub-Total	**White crappie**		**198**	**292**	**139**	**37**	**39**	**43**	**42**	**51**	**16**	**2**	**2**	**3**	**864**	**10.8**	**1.1**
	Black crappie		**20**	**53**	**54**	**13**	**13**	**11**	**14**	**6**	**5**	**1**		**2**	**192**	**2.4**	**0.4**
Crooked Creek	White crappie	1	47	22	5	12	38	10	27	35	5	2			204	5.1	0.7
	Black crappie		3	7	1	9	13	14	5	5	4				61	1.5	0.3
Eddy Bay	White crappie		83	130	57	10	10	8	8	23	3		1	1	334	8.4	1.5
	Black crappie		36	45	12	1	1	7	3	4	4				113	2.8	0.6
TOTAL	**White crappie**	**1**	**328**	**444**	**201**	**59**	**87**	**61**	**77**	**109**	**24**	**4**	**3**	**4**	**1,402**	**8.8**	**0.7**
	Black crappie		**59**	**105**	**67**	**23**	**27**	**32**	**22**	**15**	**13**	**1**		**2**	**366**	**2.3**	**0.3**

wfdtpntb.d20, wfdtpnb1.d20

Table 49. Number of fish and the relative weight (Wr) values for each length group of black and white crappie collected by trap nets (160 net-nights) at Lake Barkley from 19 October-6 November 2020.

		Length group											
		5.0-7.9 in			8.0-9.9 in			≥10.0 in			Total		
Species	Area	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
Black crappie	Crooked Creek	36	91	1	10	101	3	4	105	2	50	94	1
	Eddy Bay	9	90	2	6	101	2	4	101	3	19	96	2
	Little River	3	90	8	11	99	2	2	101	1	16	98	2
	Donaldson Bay	33	96	2	9	106	4	6	99	2	48	98	2
	Total	**81**	**93**	**1**	**36**	**102**	**1**	**16**	**101**	**1**	**133**	**96**	**1**

		Length group											
		5.0-7.9 in			8.0-9.9 in			≥10.0 in			Total		
Species	Area	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
White crappie	Crooked Creek	60	85	1	61	102	1	7	107	2	128	95	1
	Eddy Bay	27	91	2	31	100	1	5	105	5	63	96	1
	Little River	54	88	1	50	98	1	15	101	2	119	94	1
	Donaldson Bay	63	95	1	43	102	1	8	107	3	114	98	1
	Total	**204**	**90**	**1**	**185**	**101**	**1**	**35**	**104**	**1**	**424**	**96**	**1**

wfdtpntb.d20

Table 50. Crappie population parameters used to manage the population at Lake Barkley from 2011-2020, with values determined from fall trap netting. To allow for historical comparisons, only data from Little River and Donaldson Creek are presented.

	Total CPUE (fish/nn) excluding age-0			CPUE (fish/nn) age-2			Mean length (in) age-2 at capture				CPUE (fish/nn) >8.0 in			CPUE (fish/nn) age-1			CPUE (fish/nn) >10.0 in		
Year	WC	BC	Crappie	WC	BC	Crappie	WC	BC	Crappie	Crappie*	WC	BC	Crappie	WC	BC	Crappie	WC	BC	Crappie
2020	2.6	0.8	3.4	0.1	0.1	0.2	10.7	10.4	10.5	10.7	1.5	0.4	1.8	2.4	0.7	3.1	0.3	0.1	0.4
2019	3.5	0.8	4.3	0.3	0.3	0.6	10.1	9.3	9.7	10.0	0.7	0.3	1.0	3.1	0.5	3.6	0.4	0.2	0.5
2018	1.8	0.5	2.3	0.1	0.0	0.1	11.8	10.9	11.5	11.5	1.1	0.2	1.3	1.5	0.5	2.0	0.5	0.1	0.6
2017	1.5	1.6	3.1	0.6	0.4	1.0	11.2	9.9	10.7	10.5	1.4	1.0	2.4	0.7	1.1	1.7	1.0	0.3	1.3
2016	6.2	3.5	9.7	2.0	0.6	2.6	10.6	9.5	10.3	9.9	3.6	1.3	4.9	4.1	2.6	6.7	1.4	0.4	1.8
2015	11.4	3.1	14.4	0.3	1.6	1.9	11.6	9.9	10.5	10.1	3.2	1.9	5.1	10.8	1.4	12.2	0.9	0.9	1.8
2014	1.5	2.1	3.5	0.1	0.0	0.1	11.8	9.6	11.4	11.5	1.3	0.6	1.9	1.1	1.9	3.0	0.7	0.1	0.8
2013	2.2	0.8	3.0	0.8	0.4	1.2	11.1	10.6	10.9	11.0	2.2	0.8	3.0	0.3	0.0	0.4	1.9	0.6	2.5
2012	4.1	2.6	6.7	2.9	1.5	4.4	10.9	10.0	10.5	10.5	4.0	2.2	6.3	1.1	0.9	2.0	2.8	0.9	3.7
2011[A]	4.6	2.8	7.4	0.3	0.2	0.5	11.6	10.5	11.1	10.4	3.0	0.7	3.6	4.2	2.6	6.8	0.8	0.2	1.0
Average	3.9	1.8	5.8	0.7	0.5	1.3	11.1	10.1	10.7	10.6	2.2	0.9	3.1	2.9	1.2	4.2	1.1	0.4	1.4

*Mean length calculated using a w eighted average applied to the w hole fall trapnet sample

[A] Indicates year w here age and grow th data w as not collected. Age and grow th data from the previous year w as used to calculate the appropriate value.

Data is available from 1985 in previous annual reports.

Revised_Barkley_Crappie_Database

Table 51. Proportional stock density (PSD) and relative stock density (RSD_{10}) of white and black crappie collected by trap nets (160 net-nights) at Lake Barkley from 19 October-6 November 2020. Sub-Total uses only data collected from Little River and Donaldson Creek. Numbers in parentheses represent 95% confidence intervals.

Location	Species	N	PSD	RSD_{10}
Little River	White crappie	121	54 (+/-9)	12 (+/-6)
	Black crappie	16	81 (+/-20)	13 (+/-17)
Donaldson	White crappie	114	45 (+/-9)	7 (+/-5)
	Black crappie	49	31 (+/-13)	12 (+/-9)
Sub-Total	**White crappie**	**235**	**49 (+/-6)**	**10 (+/-4)**
	Black crappie	**65**	**43 (+/-12)**	**12 (+/-8)**
Crooked Creek	White crappie	129	53 (+/-9)	5 (+/-4)
	Black crappie	50	28 (+/-13)	8 (+/-8)
Eddy Bay	White crappie	64	56 (+/-12)	8 (+/-7)
	Black crappie	20	55 (+/-22)	20 (+/-18)
Total	**White crappie**	**428**	**52 (+/-5)**	**8 (+/-3)**
	Black crappie	**135**	**39 (+/-8)**	**12 (+/-5)**

wfdtpntb.d20, wfdtpnb1.d20

Table 52. Mean back-calculated length (in) at each annulus of white crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Lake Barkley (Little River, Donaldson Creek, Crooked Creek, and Eddy Bay) from 19 October-6 November 2020.

		Age				
Year class	N	1	2	3	4	5
2019	185	3.9				
2018	15	3.9	7.7			
2017	5	4.2	9.7	12.0		
2015	2	4.7	8.2	10.3	11.7	12.6
Mean	207	4.0	8.2	11.5	11.7	12.6
Smallest		2.5	5.8	10.2	11.6	12.4
Largest		5.6	10.7	12.6	11.8	12.9
Std err		0.0	0.3	0.3	0.1	0.3
Low 95% CI		3.9	7.7	10.9	11.5	12.1
High 95% CI		4.0	8.7	12.2	11.9	13.1

*Intercept = 0
wfdtnagb.d20

Table 53. Mean back-calculated length (in) at each annulus of black crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Lake Barkley (Little River, Donaldson Creek, Crooked Creek, and Eddy Bay) from 19 October-6 November 2020.

		Age		
Year class	N	1	2	3
2019	101	4.1		
2018	14	4.2	7.8	
2017	2	3.8	6.6	9.6
Mean	117	4.1	7.6	9.6
Smallest		3.1	6.3	8.6
Largest		6.7	12.3	10.6
Std err		0.1	0.5	1.0
Low 95% CI		4.0	6.7	7.7
High 95% CI		4.3	8.6	11.5

*Intercept = 0
wfdtnagb.d20

Table 54. Mean back-calculated length (in) at each annulus of MALE white crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Lake Barkley (Little River, Donaldson Creek, Crooked Creek, and Eddy Bay) from 19 October-6 November 2020.

		Age		
Year class	N	1	2	3
2019	49	4.3		
2018	10	3.9	7.7	
2017	3	4.5	9.9	12.0
Mean	62	4.3	8.2	12.0
Smallest		3.2	10.7	12.6
Largest		5.6	10.7	12.6
Std err		0.1	0.4	0.3
Low 95% CI		4.1	7.5	11.4
High 95% CI		4.5	8.9	12.6

*Intercept = 0
wfdtnagb.d20

Table 55. Mean back-calculated length (in) at each annulus of FEMALE white crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Lake Barkley (Little River, Donaldson Creek, Crooked Creek, and Eddy Bay) from 19 October-6 November 2020.

		Age				
Year class	N	1	2	3	4	5
2019	56	4.2				
2018	5	4.0	7.7			
2017	2	3.8	9.5	12.0		
2015	1	4.3	7.6	10.2	11.8	12.9
Mean	64	4.1	8.1	11.4	11.8	12.9
Smallest		3.0	5.8	10.2	11.8	12.9
Largest		5.5	10.6	12.1	11.8	12.9
Std err		0.1	0.5	0.6		
Low 95% CI		4.0	7.2	10.3		
High 95% CI		4.3	9.1	12.6		

*Intercept = 0
wfdtnagb.d20

Table 56. Mean back-calculated length (in) at each annulus of MALE black crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Lake Barkley (Little River, Donaldson Creek, Crooked Creek, and Eddy Bay) from 19 October-6 November 2020.

		Age	
Year class	N	1	2
2019	30	4.3	
2018	6	4.1	7.9
Mean	36	4.3	7.9
Smallest		3.4	6.5
Largest		5.9	12.3
Std err		0.1	0.9
Low 95% CI		4.1	6.1
High 95% CI		4.5	9.6

*Intercept = 0
wfdtnagb.d20

Table 57. Mean back-calculated length (in) at each annulus of FEMALE black crappie including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected from Lake Barkley (Little River, Donaldson Creek, Crooked Creek, and Eddy Bay) from 19 October-6 November 2020.

		Age		
Year class	N	1	2	3
2019	35	4.3		
2018	7	4.3	7.7	
2017	1	3.8	6.9	10.6
Mean	43	4.3	7.6	10.6
Smallest		3.1	6.3	10.6
Largest		6.7	12.1	10.6
Std err		0.1	0.7	
Low 95% CI		4.1	6.3	
High 95% CI		4.5	8.9	

*Intercept = 0
wfdtnagb.d20

Table 58. Age frequency and CPUE (fish/nn) of white crappie collected during 160 net-nights at Lake Barkley (Little River, Donaldson Creek, Crooked Creek, and Eddy Bay) from 19 October-6 November 2020. Little River and Donaldson Creek also shown separately for historical comparison.

Little River and Donaldson Creek

	Inch class																
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std err
0		198	292	135	27	4								656	76	8.2	1.1
1				4	10	35	43	42	50	9				193	22	2.4	0.3
2									1	7	2			10	1	0.1	<0.1
3												2	2	4	0	0.1	<0.1
4														0	0	0.0	0.0
5													1	1	0	<0.1	<0.1
Total		198	292	139	37	39	43	42	51	16	2	2	3	864		10.8	1.1
%		23	34	16	4	5	5	5	6	2	0	0	0				

Lake Barkley Total

	Inch class																
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std err
0	1	328	444	196	43	8								1020	73	6.4	0.7
1				5	16	79	61	77	106	14				358	26	2.2	0.2
2									3	10	4			17	1	0.1	<0.1
3												3	2	5	0	<0.1	<0.1
4														0	0	0.0	0.0
5													2	2	0	<0.1	<0.1
Total	1	328	444	201	59	87	61	77	109	24	4	3	4	1,402		8.8	0.7
%	0	23	32	14	4	6	4	5	8	2	0	0	0				

wfdtpntb.d20, wfdtpnb1.d20, wfdtnagb.d20

Table 59. Age frequency and CPUE (fish/nn) of black crappie collected during 160 net-nights at Lake Barkley (Little River, Donaldson Creek, Crooked Creek, and Eddy Bay) from 19 October-6 November 2020. Little River and Donaldson Creek also shown separately for historical comparison.

Little River and Donaldson Creek

	Inch class															
Age	2	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std err
0	20	53	52	3									128	67	1.6	0.3
1			2	10	13	11	14	3	3				56	29	0.7	0.1
2								3	2			2	7	4	0.1	<0.1
3										1			1	1	<0.1	<0.1
Total	20	53	54	13	13	11	14	6	5	1	0	2	192		2.4	0.4
%	10	28	28	7	7	6	7	3	3	1	0	1				

Lake Barkley Total

	Inch class															
Age	2	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std err
0	59	105	65	6									235	64	1.5	0.2
1			2	17	27	32	22	6	8				114	31	0.7	0.1
2								8	5			2	15	4	0.1	<0.1
3								1		1			2	1	<0.1	<0.1
Total	59	105	67	23	27	32	22	15	13	1	0	2	366		2.3	0.3
%	16	29	18	6	7	9	6	4	4	0	0	1				

wfdtpntb.d20, wfdtpnb1.d20, wfdtnagb.d20

Table 60. Lake specific assessment for crappie collected at Lake Barkley (Little River and Donaldson Creek) from 2011-2020. This table includes the parameter estimates and the individual scores as well as the total scores and assessment ratings. The final columns list the instantaneous mortality (Z) and annual mortality (A).

Year	CPUE age-1 and older	CPUE age-1	CPUE age-0	CPUE ≥8.0 in	Mean length age-2 at capture	*Mean length age-2 at capture	Total score	Assessment rating	Z	A
2020	3.4	3.1	9.8	1.8	10.5	10.7			1.110	67.0
Score	1	2	4	1	3		11	F		
2019	4.3	3.6	17.0	1.0	9.7	10.0			1.084	66.2
Score	2	2	4	1	1		10	F		
2018	2.3	2.0	7.6	1.3	11.5	11.5			0.848	57.2
Score	1	2	4	1	4		12	F		
2017	3.1	1.7	7.9	2.4	10.7	10.5			0.949	61.0
Score	1	2	4	1	3		11	F		
2016	9.7	6.7	1.5	4.9	10.3	10.0			1.472	77.0
Score	4	4	1	3	2		14	G		
2015	14.5	12.2	5.0	5.1	10.5	10.1			0.680	49.3
Score	4	4	3	3	3		17	G		
2014	3.5	3.0	9.2	1.9	11.2	11.5			0.418	34.2
Score	1	2	4	1	4		12	F		
2013	3.0	0.4	2.8	3.0	10.9	11.0			0.788	54.5
Score	1	1	2	2	4		10	F		
2012	6.7	2.0	0.4	6.3	10.5	10.5			0.857	57.6
Score	2	2	1	4	3		12	F		
2011	7.4	6.8	10.0	3.6	10.9	10.4			1.188	69.5
Score	3	4	4	2	4		17	G		
Average	5.8	4.2	7.1	3.1	10.7	10.6	12.6		0.939	59.35

Rating
1 - 7 = Poor (P)
8 - 12 = Fair (F)
13 - 17 = Good (G)
18 - 20 = Excellent (E)

*Mean length calculated using a weighted average applied to the entire fall trapnet sample (Revised_Barkley_Crappie_Database.xlsx)

Table 61. Length frequency and CPUE (fish/hr) of channel, blue, and flathead catfish collected from Lake Barkley in June-July 2020 using low pulse (15 PPS) electrofishing along the main lake river channel. A chase boat was used during a total of 3.83 hours of sampling (46- 300-second runs).

	Inch class																														
Species	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	Total	CPUE	Std err
Blue catfish	1	17	7	42	81	57	54	51	34	35	19	13	10	10	13	2	3	1			1		1			1				453	118.3	15.7
Channel catfish	2	2	1		4	9	1	2	1																					22	5.7	1.6
Flathead catfish			1					1		1	1					2	1	1		1						1			1	11	2.9	0.8

wfdcatb.d20

Table 62. Relative weight (Wr) of each length group of blue, channel, and flathead catfish collected from Lake Barkley during June-July 2020. Fish were collected using low pulse (15 PPS) electrofishing.

Species	Length group											
Blue catfish	12.0-19.9 in			20.0-29.9 in			≥30.0 in			Total		
	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err
	113	104	1							113	104	1
	Length group											
Channel catfish	11.0-15.9 in			16.0-23.9 in			≥24.0 in			Total		
	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err
	4	107	3							4	107	3
	Length group											
Flathead catfish	12.0-19.9 in			20.0-29.9 in			≥30.0 in			Total		
	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err	N	Wr	Std err
				2	93	1	2	110	8	4	101	6

wfdcatb.d20

Table 63. Age frequency and CPUE (fish/hr) of blue catfish collected from low pulse (15 PPS) electrofishing at Lake Barkley in June-July 2020. Age and growth data from 2019 was used to calculate the appropriate values.

	Inch class																								
Age	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total	%	CPUE	Std err
1	1	9																				10	2	2.8	4.4
2		9	5	42	18	5																79	17	22.0	8.0
3			2		63	52	41	28	3													189	42	52.7	14.7
4							14	19	24	16	5	1										79	17	22.0	4.5
5								5	7	16	10	8	1		7							54	12	15.1	3.9
6										3	2	1	1									7	2	2.0	0.7
7											2	1	4	8								15	3	4.2	1.7
8												1	4	1	7	1	3	1				18	4	5.0	1.4
9														1				1			1	3	1	0.8	0.4
Total	1	18	7	42	81	57	55	52	34	35	19	12	10	10	14	1	3	2	0	0	1	454		118.3	15.7
%	0	4	2	9	18	13	12	11	7	8	4	3	2	2	3	0	1	0	0	0	0				

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Table 64. Fishery statistics derived from a creel survey at Kentucky Lake (51,000 acres) from March through 30 November 2020.

Fishing Trips			
	No. of fishing trips (per acre)	146,711	(2.9)
Fishing Pressure			
	Total angler-hours (S.E.)	617,660	(40917)
	Angler-hours/acre	12.1	
Catch / Harvest			
	No. of fish caught (S.E.)	507,208	(79,041)
	No. of fish harvested (S.E.)	214,624	(45,208)
	Lb of fish harvested	194,749	
Harvest Rates			
	Fish/hour	0.35	
	Fish/acre	4.21	
	Pounds/acre	3.82	
Catch Rates			
	Fish/hour	0.82	
	Fish/acre	9.95	
Miscellaneous Characteristics (%)			
	Male	86.90	
	Female	13.10	
	Resident	73.20	
	Non-resident	26.80	
Method (%)	**Non-Crappie Anglers**		
	Still fishing	35.40	
	Casting	44.50	
	Trolling	3.60	
	Trotline/Jugging	1.30	
	Bow Fishing	NA	
	Crappie Anglers Only		
	Casting	10.00	
	Still fishing (1-2 poles)	24.00	
	Spider Rig (3 Poles)	12.00	
	Spider Rig (4-5 Poles)	29.00	
	Spider Rig (>5 Poles)	25.00	
Mode (%)			
	Boat	85.00	
	Bank	7.70	
	Dock	6.30	

Table 65. Length distribution for each species of fish harvested or released (lengths of released fish were estimated by anglers) at Kentucky Lake (51,000 acres) from March through 30 November 2020.

		Inch class																								
Species		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
White crappie	H									6,224	12,151	21,784	10,521	6,520	1,037	297										
	R		252	1,761	1,132	3,270	1,384	4,528	4,528	2,138	755	880	503	755	252	377	252									
Black crappie	H									2,313	4,935	5,398	4,472	1,851	1,388	308										
	R			842		361	1,323	962	1,203	1,203	241	842	842	120												
Largemouth	H														693	1,212	520	520		172						
bass	R							3,764	1,807	9,033	1,656	16,260	12,948	21,831	24,089	12,797	3,613	3,914	2,258	1,506	602	452	151	150		
Smallmouth	H																									
bass	R							2,593	1,296	2,722	389	2,593	1,296	3,111	1,426	1,037	778	519	389	648		388				
Spotted bass	R																									
Bluegill	H		2,726	6,541	8,903	17,080	11,084	13,264	6,178	1,636																
	R	465	12,552	28,358	12,862	3,409	1,860	1,550	775																	
Redear sunfish	H						359	539	180	1,616	359	359	718		538											
	R			318	477				159				158													
Longear sunfish	R		283	708	284																					
Warmouth	R			134																						
Green sunfish	H																									
Channel catfish	H							507	169	1,014	507	5,072	2,198	2,536	4,903	2,536	1,860	5,917	1,691	5,072	2,029	2,198	1,691	334		
	R					1,443	801	641	321	2,404	962	1,763	321	1,282	1,443	801	321	641	962	1,923	321	481	801	1,763	321	319
Blue catfish	H										173	173	173	346	173	519			519	1,729	1,383	2,594		519	346	
	R							321		481		160	160			160		160				160		162		
Flathead catfish	H												404	202	201											
	R											179			179		180									
White bass	H									265	397		1,192	397	133											
	R		171	171		512	341	853	341	512	171	1,706	171		171	171	171	2,554								
Yellow bass	H					1,446	1,566	2,169	241	241		241														
	R	666		1,732	2,131	3,330	1,732	3,197	400	400	266	1,198														
Sauger	R					324		162		972		648	162	324	162				161							
Yellow perch	H							134		134																
	R					117	117	117																		
Drum	H					124		124										125								
	R				123			616		1,232		1,848	370	370	370	616	493	370	493	616		616	246	370	370	123
Skipjack herring	H											121		122												
	R			291												145										
Carp	R																									
Gar	R														121	121							121	242		

Table 65 (cont).

Species		Inch class 27	28	29	30	31	32	33	34	35	36	37	38	39	40	Total
White crappie	H															58,534
	R															22,767
Black crappie	H															20,665
	R															7,939
Largemouth	H															3,117
bass	R															116,831
Smallmouth	H															0
bass	R															19,185
Spotted bass	R															0
Bluegill	H															67,412
	R															61,831
Redear sunfish	H															4,668
	R															1,112
Longear sunfish	R															1,275
Warmouth	R															134
Green sunfish	H															0
Channel catfish	H															40,234
	R															20,035
Blue catfish	H		172													8,819
	R															1,764
Flathead catfish	H															807
	R															538
White bass	H															2,384
	R															8,016
Yellow bass	H															5,904
	R															15,052
Sauger	R															2,915
Yellow perch	H															268
	R															351
Drum	H															373
	R	123			370		243									9,978
Skipjack herring	H															243
	R															436
Carp	R															0
Gar	R						121				363				122	1,211

Table 66. Fish harvest statistics derived from a creel survey at Kentucky Lake (51,000 acres) from March through 30 November 2020

	Black bass group	Largemouth bass	Smallmouth bass	Spotted bass	**Crappie group**	White crappie	Black crappie	**Catfish group**	Channel catfish	Flathead catfish	Blue catfish	**Panfish group**	Bluegill	Redear sunfish	Longear sunfish	Warmouth	Green sunfish
No. caught	**139,725**	119,948	19,697	0	**109,905**	81,301	28,604	**72,601**	60,269	1,345	10,583	**136,586**	129,396	5,780	1,275	134	0
(per acre)	**(2.74)**	**(2.35)**	**(0.39)**	(0.00)	**(2.16)**	**(1.59)**	**(0.56)**	**(1.42)**	**(1.18)**	**(0.03)**	**(0.21)**	**(2.68)**	**(2.54)**	**(0.11)**	**T**	T	(0.00)
No. harvested	**3,629**	3,117	512	0	**79,199**	58,534	20,665	**50,264**	40,234	807	8,819	**72,080**	67,412	4,668	0	0	0
(per acre)	**(0.07)**	**(0.06)**	**(0.01)**	(0.00)	(1.55)	(1.15)	(0.41)	(0.99)	(0.79)	(0.02)	(0.17)	(1.41)	(1.32)	(0.09)	(0.00)	(0.00)	(0.00)
% of total no. harvested	**1.7**	1.5	0.2	0.0	**36.9**	27.3	9.6	**23.4**	18.7	0.4	4.1	**33.6**	31.4	2.2	0.0	0.0	0.0
Lb. harvested	**8,278**	8,277	990	0	**71,025**	50,179	20,845	**95,062**	86,178	829	29,703	**16,577**	12,558	4,020	0	0	0
(per acre)	**(0.16)**	**(0.16)**	**(0.02)**	**(0.00)**	**(1.39)**	**(0.98)**	**(0.41)**	**(1.86)**	**(1.69)**	**(0.02)**	**(0.58)**	**(0.33)**	**(0.25)**	**(0.08)**	**(0.00)**	**(0.00)**	(0.00)
% of total lb. harvested	**4.3**	3.7	0.5	0.0	**36.5**	25.8	10.7	**48.8**	32.8	0.4	15.3	**8.5**	6.4	2.1	0.0	0.0	**0.0**
Mean length (in)		17.3	16.0			11.7	11.6		15.6	13.8	17.6		5.8	10.9			
Mean w eight (lb)		2.79	1.93			0.79	0.87		1.29	1.02	2.15		0.13	0.88			
No. of fishing trips for that species	**53,022**				**33,003**			**19,825**				**21,755**					
% of all trips	**36.1**				**22.5**			**13.5**				**14.8**					
Hours fished for that species	**223,144**				**138,947**			**83,466**				**91590**					
(per acre)	**(4.38)**				**(2.72)**			**(1.64)**				**(1.80)**					
No. harvested fishing for that species	**2,971**				**78,536**			**41,369**				**65,319**					
Lb harvested fishing for that species	**6,505**				**70,323**			**84,434**				**15,593**					
No./hour harvested fishing for that species	**T**				**0.51**			**0.50**				**0.71**					
% success fishing for that species	**2.3**				**46.3**			**40.6**				**31.5**					

T = < .005

Table 66 (cont.).

	Sauger	**Morone Group**	White bass	Yellow bass	Drum	Skipjack herring	Gar	Carp	Yellow perch	**Anything**
No. caught	2,914	**32,012**	10,400	20,955	10,350	678	1,210	0	619	
(per acre)	(0.06)	(0.63)	(0.20)	(0.41)	(0.20)	(0.01)	(0.02)	(0.00)	(0.01)	
No. harvested	0	**8,434**	2,384	1,092	373	243	0	0	268	
(per acre)	(0.00)	(0.17)	(0.05)	(0.02)	T	T	(0.00)	(0.00)	(0.01)	
% of total no. harvested	0.00	**3.93**	1.11	2.75	0.17	0.11	0.00	0.00	0.13	
Lb. harvested	0	**3,202**	2,051	1,092	240	126	0	0	91	
(per acre)	(0.00)	(0.06)	(0.04)	(0.02)	(0.00)	T	(0.00)	(0.00)	T	
% of total lb. harvested	0.00	**1.64**	1.05	0.56	0.12	0.06	0.00	0.00	T	
Mean length (in)			12.9	8.2	12.5	13.0			9.0	
Mean w eight (lb)			0.90	0.25	1.26	0.53			0.34	
No. of fishing trips for that species		**576**								**18,548**
% of all trips		**0.4**								**12.6**
Hours fished for that species		**2423**								**78,090**
(per acre)		**(0.05)**								**(1.53)**
No. harvested fishing for that species		**0**								
Lb harvested fishing for that species		**0**								
No./hour harvested fishing for that species		**0.00**								
% success fishing for that species		**0.0**								**10.1**

T = < 0.005

Table 67. Crappie catch and harvest statistics derived at Lake Barkley (51,000) from March through 30 November 2020.

	White crappie				Black crappie			
	Harvested	Released		Total	Harvested	Released		Total
	≥10.0 in	<10.0 in	≥10.0 in		≥10.0 in	<10.0 in	≥10.0 in	
*Total no. of crappie	58,534	16,855	5,912	81,301	20,665	4,691	3,248	28,604
% of crappie harvested by number	74%				26%			
*Total weight of crappie (lb)	50,180	4,288	1,502	55,970	20,845	1,733	1,200	23,778
% of crappie harvested by weight	70%				30%			
Mean length (in)	11.7				11.6			
Mean weight (lb)	0.79				0.87			
*Catch rate (fish/hr)	0.13				0.05			
*Harvest rate (fish/hr)	0.095				0.032			

* Includes effort and catch of non-crappie anglers

Table 68. Monthly crappie angling success at Kentucky Lake (51,000 acres) from March through 30 November 2020.

	Total no. of crappie caught	Total no. of crappie harvested	*Total no. of crappie harvested	No. of crappie fishing trips	Hours fished for crappie	Crappie caught by crappie anglers	Crappie caught/ hour by crappie anglers	Crappie harvested by crappie anglers	Crappie harvested/ hour by crappie anglers
Mar	16,695	12,792	12,142	6,093	25,650	16,695	0.65	12,142	0.47
Apr	28,574	18,379	18,379	10,086	42,464	28,441	0.67	18,245	0.43
May	29,472	25,637	25,637	8,659	36,455	28,867	0.79	25,233	0.69
Jun	17,291	13,334	13,334	3,064	12,902	17,143	1.33	13,334	1.03
Jul	6,387	5,748	5,748	1,658	6,982	6,387	0.91	5,748	0.82
Aug	1,272	0	0	149	629	0	0.00	0	0.00
Sept	4,307	1,971	1,971	1,241	5,223	4,307	0.82	1,971	0.38
Oct	3,402	1,008	1,008	1,432	6,027	3,024	0.50	882	0.15
Nov	2,506	981	981	621	2,615	2,507	0.96	981	0.38
Total	109,906	79,850	*79199	33,004	138,947	107,371	0.77	78,536	0.57
Mean	12,212	8,872	*8,800	3,667	15,439	11,930		8,726	

* harvest which excluded crappie kept in a livewell, but which the angler stated they intended to release as part of an organized tournament

Table 69. Crappie angling methods at Kentucky Lake (51,000 acres) from March through 30 November 2020.

Year	Casting (1 pole)	Still-fishing (1-2 poles)	Spider Rig (3 poles)	Spider Rig (4-5 poles)	Spider Rig (>5 poles)
2020	10.0%	24.0%	12.0%	29.0%	25.0%
2017	37.3%	11.6%	14.2%	10.8%	26.2%
2015	7%	29.3%	37.6%	11.7%	14.8%
Mean	23.63%	17.81%	13.09%	19.90%	25.58%

Table 70. Monthly black bass angling success at Kentucky Lake (51,000 acres) from March through 30 November 2020.

Month	Total no. of bass caught	Total no. of bass harvested	*Total no. of bass harvested	No. of black bass fishing trips	Hours fished by bass anglers	Bass caught by bass anglers	Bass caught/ hour by bass anglers	Bass harvested by bass anglers	*Bass harvested by bass anglers	Bass harvested/ hour by bass anglers	*Bass harvested/ hour by bass anglers
Mar	14,852	1,843	108	5,077	21,375	12,791	0.60	1,734	0	0.08	0.00
Apr	22,403	1,342	671	7,020	29,555	20,123	0.68	1,342	671	0.05	0.02
May	46,630	4,643	2,624	15,156	63,796	41,180	0.65	3,836	2,221	0.06	0.035
Jun	33,116	3,517	147	12,786	53,831	30,332	0.56	3,370	0	0.06	0.00
Jul	7,345	1,916	0	4,027	16,956	7,344	0.43	1,916	0	0.11	0.00
Aug	3,895	238	79	1,743	7,337	3,736	0.51	238	79	0.03	0.011
Sept	2,774	219	0	3,412	14,363	2,701	0.19	219	0	0.02	0.00
Oct	4,662	378	0	2,611	10,991	4,410	0.40	378	0	0.03	0.00
Nov	4,250	327	0	1,173	4,940	3,814	0.77	327	0	0.07	0.00
Total	139,927	14,422	*3,629	53,006	223,144	126,431	0.57	13,360	*2971	0.06	0.013
Mean	15,547	1,602	*403	5,890	24,794	14,048		1,484	*330		

* harvest which excluded bass kept in a livewell, but which the angler stated they intended to release

Table 71. Black bass catch and harvest statistics derived at Kentucky Lake (51,000 acres) from March through 30 November 2020.

	Largemouth bass				Smallmouth bass				Spotted bass			
	Harvest	Release		Total	Harvest	Release		Total	Harvest	Release		Total
	≥15.0 in	12.0-14.9 in	≥15.0 in		≥15.0 in	12.0-14.9 in	≥15.0 in			12.0-14.9 in	≥15.0 in	
Total no. of bass	12,489	50,593	40,807	120,150	1,933	6,901	3,963	19,698	0	0	0	0
*Total no. of bass	(*3,117)		(*49,532)		(*512)		(*5,185)					
% of bass harvested by number	87%				13%				0.0			
Total weight of bass (lb)	26,414	67,211	54,208	169,436	5,270	6,803	3,904	22,781	0	0	0	0
*Total weight of bass (lb)	(*7,288)		(*68,180)		(*989.7)		(*5,686)					
% of bass harvested by weight	83%				0.2				0.0			
Mean length (in)	16.2				16.0							
Mean weight (lb)	2.21				1.93							
**Catch rate (fish/hr)	0.19				0.03				0.0			
**Harvest rate (fish/hr)	0.02				0.001				0.0			

* harvest which excluded bass kept in a livewell, but which the angler stated they intended to release

** Includes effort and catch of non-bass anglers

Table 72. Monthly panfish angling success at Kentucky Lake (51,000 acres) from March through 30 November 2020.

Month	Total no. of panfish caught	Total no. of panfish harvested	No. of panfish fishing trips	Hours fished by panfish anglers	Panfish caught by panfish anglers	Panfish caught/ hour by panfish anglers	Panfish harvested by panfish anglers	Panfish harvested/ hour by panfish anglers
March	217	0	0	0	0	0	0	
Apr	13,683	2,951	1,372	5,775	9,926	1.72	1,475	0.00
May	74,891	54,099	12,861	54,146	69,239	1.28	52,686	1.72
Jun	36,633	13,481	5,918	24,913	25,350	1.02	10,111	0.10
Jul	3,513	319	948	3,990	1,277	0.32	0	2.79
Aug	3,100	795	249	1,048	1,033	0.99	795	0.51
Sept	292	73	0	0	0	0.00	0	4.32
Oct	3,276	252	253	1,064	2,142	2.01	252	
Nov	981	109	0	0	0	0.00	0	0.00
Total	136,586	72,080	21,600	90,936	108,967	1.20	65,319	0.72
Mean	15,176	8,009	2,400	10,104	12,107		7,258	

Table 73. Panfish catch and harvest statistics derived from Kentucky Lake (51,000 acres) from March through 30 November 2020.

	Bluegill				Redear sunfish			
	Harvested	Released		Total	Harvested	Released		Total
		6.0-7.9 in	≥8.0 in			6.0-7.9 in	≥8.0 in	
Total no. of panfish	67,412	5,269	2,479	129,396	4,668	0	317	5,780
% of panfish harvested by number	94%				6%			
Total weight of panfish (lb)	12,558	289	134	15,958	4,020	0	88	4,327
% of panfish harvested by weight	76%				24%			
Mean length (in)	5.8				10.9			
Mean weight (lb)	0.13				0.89			
*Catch rate (fish/hr)	0.21				0.01			
*Harvest rate (fish/hr)	0.09				0.006			

* includes effort and catch of non-panfish anglers

Table 74. Monthly catfish angling success at Kentucky Lake (51,000 acres) from March through 30 November 2020.

Month	Total no. of catfish caught	Total no. of catfish harvested	No. of catfish fishing trips	Hours fished by catfish anglers	Catfish caught by catfish anglers	Catfish caught/ hour by catfish anglers	Catfish harvested by catfish anglers	Catfish harvested/ hour by catfish anglers
Mar	759	0	0	0	0	0.00	0	0.15
Apr	5,903	4,427	1,291	5,435	3,353	0.62	2,951	0.78
May	38,758	29,472	7,768	32,702	27,656	0.85	26,243	1.03
Jun	23,885	13,921	7,397	31,142	14,360	0.46	11,429	0.43
Jul	958	639	1,895	7,979	319	0.04	0	0.67
Aug	159	79	299	1,258	0	0.00	0	0.82
Sept	730	511	310	1,306	438	0.34	365	0.87
Oct	252	126	590	2,482	0	0.00	0	1.07
Nov	1,199	1,090	276	1,162	981	0.84	981	0.61
Total	72,601	50,264	19,826	83,466	47,107	0.56	41,969	0.50
Mean	8,067	5,585	2,203	9,274	5,234		4,663	

Table 75. Catfish catch and harvest statistics derived at Kentucky Lake (51,000 acres) from March through 30 November 2020.

	Blue catfish				Channel catfish				Flathead catfish			
	Harvest	Release		Total	Harvest	Release		Total	Harvest	Release		Total
		8.0-11.9 in	>12.0 in			8.0-11.9 in	>12.0 in			8.0-11.9 in	>12.0 in	
Total no. of catfish	8,819	802	962	10,583	40,234	4,328	13,463	60,269	808	0	538	1,345
% of catfish harvested by	18%				81%				2%			
Total weight of catfish (lb)	29,704	856	1,027	31,587	63,941	4,803	14,943	86,178	829	0	665	1,494
% of catfish harvested by weight	31%				68%				1%			
Mean length (in)	17.6				15.6				13.8			
Mean weight (lb)	2.15				1.29				1.03			
*Catch rate (fish/hr)	0.02				0.10				0.002			
*Harvest rate (fish/hr)	0.012				0.058				0.0010			

* includes effort and catch of non-catfish anglers

Table 76. Monthly Morone angling success at Kentucky Lake (51,000 acres) from March through 30 November 2020.

Month	Total no. of Morone caught	Total no. of Morone harvested	No. of Morone fishing trips	Hours fished by Morone anglers	Morones caught by Morone anglers	Morones caught/ hour by Morone anglers	Morones harvested by Morone anglers	Morones harvested/ hour by Morone anglers
Mar	3,035	867	0	0	0	0.0	0	0.0
Apr	6,708	2,683	0	0	0	0.0	0	0.0
May	3,835	0	127	536	404	0.8	0	0.0
Jun	5,715	1,905	0	0	0	0.0	0	0.0
Jul	4,151	0	237	997	1,916	1.9	0	0.0
Aug	1,669	636	0	0	0	0.0	0	0.0
Sept	1,095	0	0	0	0	0.0	0	0.0
Oct	5,040	2,016	0	0	0	0.0	0	0.0
Nov	763	327	0	0	0	0.0	0	0.0
Total	32,012	8,434	364	1,534	2,320	1.51	0	0.0
Mean	3,557	937	40	170	258		0	

Table 77. Morone catch and harvest statistics derived at Kentucky Lake (51,000 acres) from March through 30 November 2020.

	White bass				Yellow bass			Hybrid striped bass				Striped bass			
	Harvest	Release		Total	Harvest	Release	Total	Harvest	Release		Total	Harvest	Release		Total
		12.0-14.9 in	≥15.0 in						12.0-14.9 in	≥15.0 in		≥15.0 in	12.0-14.9 in	≥15.0 in	
Total no. of *Morone*	2,384	1,877	3067.01	10,400	5,904	15,052	20,955	0			0	146.53	255	127.88	656.4
% of Morone harvested by number	28%				70%			0%				2%			
Total weight of *Morone* (lb)	2,051	1688	2766	9,265	1,091	1,890	2,981	0			0	59.5	151	75.9	361.4
% of Morone harvested by weight	64%				34%			0%				2%			
Mean length (in)	12.92				8.2							10			
Mean weight (lb)	0.9				0.25							0.4			
*Catch rate	0.0168				0.0339			0				0.0011			
*Harvest rate	0.0044				0.0118			0				0.0002			

* includes effort and catch of non-morone anglers

Table 78. Species composition, relative abundance, and CPUE (fish/hr) of largemouth bass collected during diurnal electrofishing at Lake Beshear during 2020. **Only one dipper was used during the spring samples due to COVID19 pandemic restrictions.

	Inch class																						
Season	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	Std err
*Spring		1	4	3		6	6	3	4	3	3	2	7	12	3	17	11	7	4	1	97	38.8	3.4
Fall	10	52	75	15	13	44	31	20	12	10	5	3	2	4	5	3	6				310	124.0	28.8

wfdpsdlb.d20 and wfdwrlb.d20

Table 79. Spring diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Lake Beshear during April or May of 2011 to 2020.

					Length group															
	Mean length age-3 at capture	*Mean length age-3 at capture	Age-1		<8.0 in		≥12.0 in		12.0-14.9 in		≥15.0 in		≥18.0 in		≥20.0 in		Total			
Year			CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	PSD	RSD_{15}
**2020	13.8	13.8	3.2	1.5	3.2	1.5	28.0	3.4	3.2	1.9	24.8	3.8	16.0	3.4	4.8	2.3	38.8	3.4	79	70
2019	13.8	13.8	4.0	2.2	4.0	2.2	28.0	4.8	4.8	1.4	23.2	3.7	16.0	3.9	4.8	1.0	36.8	5.0	85	71
2018	13.8	13.8	6.0	1.3	6.8	0.8	43.6	2.7	5.6	1.0	38.0	3.0	24.4	2.0	8.0	1.8	59.6	4.6	83	72
2017[A]	13.8	13.8	6.4	1.3	20.0	3.9	43.6	3.1	12.0	2.4	31.6	4.6	19.2	4.2	4.8	2.4	72.8	5.9	69	50
2016AB	13.8	13.8	30.4	4.0	16.4	3.4	67.2	8.3	10.8	2.3	56.4	7.0	32.8	4.8	5.6	1.2	102.8	6.5	78	65
2015[B]	13.8	13.8	4.4	1.5	4.4	1.5	78.4	4.5	17.6	3.5	60.8	3.4	28.0	3.0	8.0	0.6	91.6	3.9	90	70
2014[A]	13.3	13.4	1.9	0.9	3.2	1.4	61.6	5.6	18.0	2.3	43.6	6.1	20.4	2.3	4.4	1.2	83.6	6.8	77	54
2013[A]	13.3	13.4	33.8	9.6	37.5	10.3	63.0	11.8	18.0	5.5	45.0	7.2	23.5	5.6	6.0	1.4	127.0	18.4	70	50
2012[A]	13.3	13.4	27.6	5.5	34.4	4.9	46.8	3.6	8.8	2.2	38.0	4.6	18.4	1.8	4.4	1.0	114.8	7.0	58	47
2011	13.3	13.4	11.7	2.2	13.5	1.7	65.0	9.2	17.5	4.8	47.5	5.9	23.5	3.0	5.5	1.7	92.5	10.3	82	60
Average	13.6	13.6	12.9		14.3		52.5		11.6		40.9		22.2		5.6		82.0		77.1	60.8
LBFMP	≥ 12.0 in		≥ 10				≥ 45		≥ 15		≥ 30				≥ 3				55 - 75	20 - 40

(Lake Beshear Bass Database.xls)

Data for 1985-2010 is listed in previous year reports.

[A] age and growth data was not collected. Previous year data used for age estimates.

[B] age and growth data was collected in the Fall. Mean length age-3 was calculated from back calculations. Spring CPUE age-1 was determined from back-calculations and extrapolation with spring data. Mortality was determined from fall age frequency data.

LBFMP - Lake Beshear Fish Management Plan objective goal.

*mean length calculated using a weighted average applied to entire catch

** only one dipper used due to covid19 pandemic restrictions

Table 80. Lake specific assessment for largemouth bass collected at Lake Beshear from 2011-2020. This table includes the parameter estimates and the individual score as well as the total score and assessment rating. The final two columns list the instantaneous mortality (Z) and annual mortality (A).

Year	Mean length age-3 at capture	*Mean length age-3 at capture	CPUE age-1	Length group 12.0-14.9 in CPUE	Length group ≥15.0 in CPUE	Length group ≥20.0 in CPUE	Total score	Assessment rating	Z	A
**2020	13.8	13.8	3.2	3.2	24.8	4.8				
Score	3		1	1	1	3	9	F		
2019	13.8	13.8	4	4.8	23.2	4.8				
Score	3		2	1	1	3	10	F		
2018	13.8	13.8	6.0	5.6	38.0	8				
Score	3		3	1	3	4	14	G		
2017	13.8	13.8	6.4	12.0	31.6	4.8			0.349	29.4
Score	3		3	3	2	3	14	G		
2016	13.8	13.8	30.4	10.8	56.4	5.6			0.423	34.5
Score	3		4	2	4	4	17	E		
2015[B]	13.8	13.8	4.4	17.6	60.8	8.0			0.457	36.7
Score	3		2	4	4	4	17	E		
2014[A]	13.3	13.4	1.9	18.0	43.6	4.4			0.145	13.5
Score	3		1	4	4	3	15	G		
2013[A]	13.3	13.4	33.8	18.0	45.0	6.0			0.355	29.9
Score	3		4	4	4	4	19	E		
2012[A]	13.3	13.4	27.6	8.8	38.0	4.4			0.291	25.2
Score	3		4	2	3	3	15	G		
2011	13.3	13.4	11.7	17.5	47.5	5.5			0.194	17.6
Score	3		3	4	4	4	18	G		
Average	13.6	13.6	12.9	11.6	40.9	5.6	14.8		0.316	26.7

Data from 1985 to 2010 is listed in previous year reports.
**only one dipper used in spring 2020 due to covid19 pandemic restrictions
[A] age and growth data was not collected. Previous year data used for age estimates.
[B] age and growth data was collected in the Fall. Mean length age-3 was calculated from back calculations. Spring CPUE age-1 was determined from back-calculations and extrapolation with spring data. Mortality was determined from fall age frequency data.
*Mean length calculated using a weighted average applied to the entire spring sample

Assessment Quartiles were updated in 2016

Rating
1-7 = Poor (P)
8-11 = Fair (F)
12-16 = Good (G)
17-20 = Excellent (E)

Lake Beshear Bass Data Base

Table 81. Number of fish and the relative weight (Wr) values for each length group of largemouth bass collected at Lake Beshear during 2.5 hours of diurnal electrofishing (5- 30-minute runs) in October 2020.

	Length group											
	8.0-11.9 in			12.0-14.9 in			≥15.0 in			Total		
Species	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err	No.	Wr	Std err
Largemouth bass	105	80	1	18	83	4	20	100	3	143	83	1

wfdwrlb.d20

Table 82. Age-0 CPUE (fish/hr) and mean length (in) of largemouth bass collected in the fall, and CPUE of age-1 largemouth bass collected the following spring during diurnal electrofishing at Lake Beshear.

	Age 0[A]		Age 0[A]		Age 0 ≥5.0 in[A]		Age 1[B]	
Year class	Mean length	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
2020	5.1	0.1	60.8	25.0	36.0	17.7		
2019	4.7	0.1	63.2	9.9	26.4	10.3	*3.2	1.5
2018	5.3	0.1	50.7	4.3	29.6		4.0	2.2
2017	4.1	0.1	38.0	2.9	6.5	1.9	6.0	1.3
2016	4.4	0.1	50.5	6.0	10.0	4.0	6.4	1.3
2015	3.9	0.1	34.5	7.0	3.5	1.5	30.4	4.0
2014	4.8	0.1	24.8	4.4	11.0	1.9	4.4	1.5
2013	4.1	0.1	25.0	7.0	4.5	2.6	1.9	0.9
2012	6.3	0.1	34.0	8.8	33.2	7.4	33.8	9.6
2011	5.0	0.1	41.6	14.8	23.6	7.6	27.6	5.5
2010	4.9	0.1	54.0	4.6	22.0	4.5	11.7	2.2
2009	3.6	0.1	24.8	5.3	2.0	0.6	22.3	4.9
Average	4.7		41.8		17.4		13.8	

[A] Data collected by fall (October) diurnal electrofishing. Mean lengths were determined by analysis of otoliths removed from a subsample of LMB <10.0 in, which were extrapolated to the entire catch of the fall sample, and length frequencies.

[B] Data collected during the following spring (April/May) diurnal electrofishing sample.

*only one dipper used due to covid19 pandemic restrictions

WFDWRLB.Dxx, WFDWRAGB.Dxx, WFDPSDLB.Dxx

Table 83. Species composition, relative abundance, and CPUE (fish/hr) of fish collected during 1.0 hour (4- 900s-runs) of diurnal electrofishing at Lake Pennyrile on 24 April, 2020. **Only one dipper was used due to Covid19 protocol.

	Inch class																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	20	Total	CPUE	Std err
Largemouth bass				9	16	8	2	8	18	39	10	2	1	1	114	114.0	13.1
Bluegill	1	5	17	45	39	33	37	8							185	185.0	35.6
Redear sunfish			14	20	29	19	15	9	1						107	107.0	16.2
Longear sunfish			12	16	17	1									46	46.0	15.7
White crappie										2	1				3	3.0	3.0
Yellow bullhead					1		2	6	3	1		1			14	14.0	3.8
Warmouth			9	5	10	7	1								32	32.0	4.3
Topminnow		1													1	1.0	1.0

wfdpsdp.d20

Table 84. Spring, diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Pennyrile Lake from 2011-2020.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
2020*	35.0	7.6	75.0	11.8	3.0	1.9	1.0	1.0	1.0	1.0	114.0	13.1
2019	10.0	2.0	9.0	5.3	5.0	3.0	1.0	1.0	0.0		25.0	7.9
2018	29.0	5.0	63.0	16.8	7.0	2.5	2.0	2.0	1.0	1.0	101.0	21.3
2017	35.0	11.0	67.0	9.7	4.0	1.6	5.0	1.9	1.0	1.0	111.0	18.4
2016	44.0	9.7	62.0	6.2	13.0	3.0	3.0	1.9	1.0	1.0	122.0	10.0
2015	44.0	3.6	68.8	8.1	8.8	2.9	3.2	1.5	0.8	0.8	124.8	10.6
2014	17.0	3.0	36.0	5.2	7.0	3.0	1.0	1.0	0.0		61.0	8.2
2013**	63.0	11.8	48.0	4.9	11.0	3.0	2.0	1.2	1.0	1.0	124.0	12.3
2012	Did not sample											
2011	32.0	10.4	68.0	7.7	12.0	2.5	1.6	1.0	0.8	0.8	113.6	18.3
Mean	34.3		55.2		7.9		2.2		0.7		99.6	

wfdpsdp.dxx

Data from 1990 to 2010 is listed in previous year reports.

*only one dipper was used due to covid19 protocols in 2020

**2013 sample collected in June due to water conditions at normal sample time in May

Table 85. Spring, diurnal electrofishing CPUE (fish/hr) for each length group of bluegill and redear sunfish collected at Lake Pennyrile from 2011-2020.

		Length group									
		<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in		Total	
Species	Year	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Bluegill											
	2020*	6.0	2.6	101.0	28.1	70.0	9.0	8.0	3.7	185.0	35.6
	2019	17.0	5.3	54.0	3.5	37.0	7.9	10.0	4.2	118.0	15.2
	2018	35.0	12.8	94.0	20.8	134.0	9.0	27.0	7.7	290.0	35.2
	2017	6.0	2.6	87.0	13.3	42.0	22.5	19.0	9.2	154.0	35.4
	2016	45.0	16.4	65.0	3.4	51.0	12.3	41.0	18.4	202.0	49.1
	2015	30.4	3.0	84.0	11.4	64.8	13.9	32.0	5.7	211.2	14.1
	2014	0.0		12.0	4.3	15.0	6.6	0.0		27.0	7.9
	2013**	1.0	1.0	18.0	5.8	21.0	6.2	0.0		40.0	12.1
	2012	Did Not Sample									
	2011	1.6	1.0	36.8	20.2	41.6	14.2	5.6	1.6	85.6	35.7
	Mean	15.8		61.3		52.9		15.8		145.9	

		Length group									
		<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in		Total	
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Redear sunfish											
	2020*	0.0		63.0	14.8	34.0	9.3	10.0	6.0	107.0	16.2
	2019	0.0		14.0	1.2	21.0	2.5	15.0	7.2	50.0	6.2
	2018	2.0	1.2	33.0	12.8	24.0	5.4	27.0	4.1	86.0	19.1
	2017	0.0		15.0	3.0	14.0	10.4	25.0	18.4	54.0	30.4
	2016	0.0		16.0	5.9	15.0	3.0	30.0	7.4	61.0	15.8
	2015	0.8	0.8	12.0	2.5	4.8	1.5	32.8	15.3	50.4	18.1
	2014	0.0		8.0	5.4	17.0	5.7	8.0	3.7	33.0	12.5
	2013**	0.0		4.0	2.3	9.0	5.5	12.0	2.8	25.0	6.6
	2012	Did Not Sample									
	2011	0.0		9.6	4.5	17.6	8.1	28.0	11.9	55.2	21.4
	Mean	0.3		19.4		17.4		20.9		58.0	

wfdpsdp.dxx

Data from 1990 to 2010 is listed in previous year reports.

*only one dipper was used due to covid19 protocols in 2020

**2013 sample collected in June due to water conditions at normal sample time in May

Table 86. PSD and RSD values obtained for largemouth bass, bluegill and redear sunfish collected during 1.0 hour of diurnal electrofishing (4 - 900s-runs) at Lake Pennyrile on 24 April 2020. 95% confidence intervals are in parentheses. **Only one dipper was used due to Covid19 protocol.

Species	N	PSD	RSD*
Largemouth bass	79	5 (+/-5)	1 (+/-2)
Bluegill	179	44 (+/-7)	4 (+/-3)
Redear sunfish	93	27 (+/-9)	1 (+/-2)

* Largemouth = RSD_{15}, Bluegill = RSD_{8}, Redear sunfish = RSD_{9}.

wfdpsdp.d20

Table 87. Age frequency and CPUE (fish/hr) of largemouth bass collected during diurnal electrofishing at Lake Pennyrile on 24 April, 2020. Age and growth data from 2019 was used to calculate the appropriate values. **Only one dipper was used due to Covid19 protocol.

	Inch class												
Age	4	5	6	7	8	9	10	11	12	Total	%	CPUE	Std err
1	9	16	8							33	35	33.0	6.8
2				2	8					10	11	10.0	4.8
3							23			23	24	23.0	5.9
4							8	10		18	19	18.0	4.5
5									2	2	2	2.0	1.4
6										0	0	0.0	0.3
7							8			8	9	8.0	1.8
Total	9	16	8	2	8	0	39	10	2	94		114.0	13.1
%	10	17	9	2	9	0	41	11	2	100			

wfdpsdp.d20, wfdlbagp.d19

Table 88. Lake specific assessment for largemouth bass collected at Pennyrile Lake from 2011-2020. This table includes the parameter estimates and the individual scores as well as the total scores and assessment ratings. The final columns list the instantaneous mortality (Z) and annual mortality (A) in years when age and growth was collected.

Year	Age-1 CPUE	CPUE 12.0-14.9 in	CPUE ≥15.0 in	CPUE ≥20.0 in	Mean length age-3 at capture	Total score	Assessment rating	Z	A
2020*	33.0	3.0	1.0	1.0	10.5				
Score	2	1	1	3	4	11	F		
2019	9.0	5.0	1.0		10.5				
Score	1	1	1		4	7	P	0.164	15.1
2018	29.0	7.0	2.0	1.0	11.7				
Score	2	2	2	3	4	13	G		
2017	28.0	4.0	5.0	1.0	11.7				
Score	2	1	4	3	4	14	G		
2016	38.0	13.0	3.0	1.0	11.7				
Score	3	3	3	3	4	16	G		
2015	36.0	8.8	3.2	0.8	11.7				
Score	3	2	3	3	4	15	G		
2014	19.8	7.0	1.0		11.7				
Score	1	2	1		4	8	F		
2013**	10.6	11.0	2.0	1.0	11.7				
Score	1	2	2	3	4	12	F		
2012	Did not sample								
Score									
2011	31.0	12.0	1.6	0.8	11.7			0.488	38.6
Score	2	3	2	3	4	14	G		
Average	26.0	7.9	2.2	0.8	11.4				

Rating
1 - 7 = Poor (P)
8 - 12 = Fair (F)
13 - 17 = Good (G)
18 - 20 = Excellent (E)

*only one dipper was used due to covid19 protocols in 2020
**2013 sample collected in June due to water conditions at normal sample time in May

Table 89. Species composition, relative abundance, and CPUE (fish/hr) of fish collected during 1.0 hour (4- 900s-runs) of diurnal electrofishing at Lake George (Crittenden Co) on 14 May 2020. **Only one dipper was used due to Covid19 protocol.

	Inch class																							
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	40	Total	CPUE	Std err
Gizzard shad							28	19		1												48	48.0	15.9
Grass carp																					1	1	1.0	1.0
Golden shiner			2	4	2																	8	8.0	3.7
Yellow bullhead							1															1	1.0	1.0
Channel catfish														4	10	10	5	3	1	2		35	35.0	13.0
Green sunfish					2																	2	2.0	2.0
Bluegill	10	29	71	16	44	6																176	176.0	30.4
Redear sunfish		1		14	26	19	3	14	4													81	81.0	17.7
Largemouth bass			5	2	1	2	3			3	13	6	3	5	2	6	4	5	5	4		69	69.0	11.5
White crappie					2	32	4	1	1													40	40.0	19.9
Black crappie						2																2	2.0	1.2

wfdpsdg.d20

Table 90. Spring electrofishing CPUE (fish/hr) for each length group of sportfish collected at Lake George in 2020.

Species	Year	Length group									
		<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		Total	
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Largemouth bass											
	2020	10.0	3.5	6.0	3.8	22.0	2.6	31.0	7.6	69.0	11.5

Species	Year	Length group									
		<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in		Total	
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Bluegill											
	2020	10.0	3.5	116.0	20.2	50.0	8.7			176.0	30.4

Species	Year	Length group									
		<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in		Total	
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Redear sunfish											
	2020			15.0	3.4	45.0	15.3	21.0	1.9	81.0	17.7

Species	Year	Length group				Total	
		≥8.0 in		≥10.0 in			
		CPUE	Std err	CPUE	Std err	CPUE	Std err
White crappie							
	2020	6.0	2.0	1.0	1.0	40.0	19.9

Species	Year	Length group									
		<12.0 in		≥12.0 in		≥15.0		≥20.0 in		Total	
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Channel catfish											
	2020			35.0	13.0	35.0	13.0	3.0	1.9	35.0	13.0

wfdpsdg.d20

*only one dipper was used due to covid19 protocols in 2020

Table 91. PSD and RSD values obtained for sportfish collected during 1.0 hour of diurnal electrofishing (4 - 900s-runs) at Lake George (Crittenden Co) on 14 May 2020. 95% confidence intervals are in parentheses. **Only one dipper was used due to Covid19 protocol.

Species	N	PSD	RSD*
Largemouth bass	59	90 (+/-8)	53 (+/-13)
Bluegill	166	30 (+/-7)	
Redear sunfish	80	50 (+/-11)	23 (+/-9)
White crappie	40	15 (+/-11)	3 (+/-5)
Channel catfish	35	89 (+/-11)	

* Largemouth = RSD_{15}, Bluegill = RSD_{8}, Channel Catfish = RSD_{24}, Crappie =RSD_{10}, Redear =RSD_{9}.

wfdpsdg.d20

Table 92. Age frequency and CPUE (fish/hr) of white crappie collected during diurnal electrofishing at Lake George (Crittenden Co) on 14 May 2020. **Only one dipper was used due to Covid19 protocol

	Inch class								
Age	6	7	8	9	10	Total	%	CPUE	Std err
3	1	4	1			6	15	5.9	2.9
4	1	5	1			7	18	7.7	3.8
5		12	1	1	1	15	38	15.8	7.7
6		7				7	18	7.1	3.8
7		2				2	5	1.8	1.0
8		2				2	5	1.8	1.0
Total	2	32	3	1	1	39		40.0	19.9
%	5	82	8	3	3	100			

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NORTHWESTERN FISHERY DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Table 1 presents a summary of conditions encountered while sampling at state-owned or managed lakes and ACOE reservoirs during the 2020 field season.

Nolin River Lake

Black Bass Sampling

For various reasons black bass have not been surveyed since fall of 2017. Black bass were unable to be surveyed during spring 2020 due to high water conditions throughout the sampling window. However, diurnal boat electrofishing to survey the black bass population at Nolin River Lake was conducted on October 13, 2020 (Tables 2 and 3). CPUE and relative weights are lower than last collected in 2017, but are not alarming at this point with few recent data points. Complete data collection efforts will be attempted in 2021 (spring/fall samples, age/growth samples).

Crappie Sampling

The crappie population was not directly assessed in 2020. It is scheduled to be surveyed during fall 2021.

White Bass Sampling

Gill netting to assess the white bass population was conducted in November (Tables 4-8). CPUE is within range of previous collections; although, it would have been above average if not for poor sampling conditions lower lake on the last two days of sampling. Catch rate for age-1 fish is among the highest collected, indicating above average recruitment of the 2019 year class. Recruitment is highly variable at Nolin due to dynamic spring water conditions but catch rate for age-0 fish also indicates a successful 2020 spawn. Mean length at age-2+ decreased slightly from recent collections. Utilization remains low outside of the spring spawning run (reference Table 18 for creel statistics) as we regularly capture fish ages 5-7. Relative weights are over 100 for each length group and improved from the 2015 survey. The white bass population at Nolin River Lake is stable and performing well, as usual.

Walleye Sampling

Two attempts were made to collect walleye via diurnal electrofishing in the headwaters during March 2020. Water was very high and made for dynamic and inefficient sampling conditions. On March 9, Northwest Fishery District (NWFD) staff put in at Bacon Creek and worked upstream with one boat. We collected thirteen male and one female walleye on this trip. On March 17, the Southwest Fishery District (SWFD) brought their jet boat to assist. SWFD sampled the Nolin River Lake tailwater while NWFD sampled along the face of the dam within the lake. Neither crew collected walleye on these trips. Next, both crews put in at Bacon Creek. SWFD ran upstream approximately 14 miles to the mouth of Roundstone Creek and sampled downstream, capturing a handful of male walleye. NWFD sampled upstream from Bacon Creek approximately seven miles, capturing six male walleye.

Walleye were sampled concurrently with white bass using 150-foot experimental gill nets (Tables 9-13) in November 2020. A total of 54 walleye were collected for a CPUE of 6.0 fish/nn. Table 9 provides length frequency and CPUE for the past 14 fall samples. With CPUE remaining relatively consistent and low, effort could be increased in order to increase catch, but will result in the sacrifice of many more white bass. Mean length at ages 1-3 increased from the 2015 survey. Relative weights are consistent with previous collections (Table 12). The walleye population at Nolin River Lake continues to be below average and is subject to further evaluation and discussion on future management moving forward.

Channel Catfish Sampling

Data was recorded for each catfish collected during white bass/walleye sampling in November (Tables 14 and 15). All metrics are very similar to previous collections and show no cause for concern.

Dissolved Oxygen – Temperature Profiles

Profiles were completed July 7, 2020 (Table 29) to document water temperature and dissolved oxygen levels at Nolin River Lake. Profiles were conducted at five sites (Dam (site 1), State Park (site 2), Long Fall Creek (site 3), Big Island (site 4), and Barton Run (site 5)) along the main channel of the lake. As expected, profiles are very different throughout the lake with the best water conditions found upper lake.

Profiles have been conducted intermittently since 2011. Recent interest in following the walleye population and associated water quality parameters will require profiles to be taken at more regular intervals moving forward. Plans for 2021 include taking profiles during June, July, August, and September.

Creel Survey

A random, stratified, roving, creel survey scheduled for 16 days per month was conducted at Nolin River Lake from April 01 to October 31, 2020 to estimate angling pressure and angler catch/harvest statistics (Tables 16-28). Due to lake conditions, the survey did not begin until April 08, 2020.

For survey purposes the lake was divided into an upper and lower section with one section being surveyed per day (6-hour time period) during either a morning or afternoon time period. Each section (upper and lower) was further divided into three equal subsections that the clerk spends an equal amount of time in (2 hours), while interviewing and progressively counting anglers in each. Creel interviews and angler attitude surveys were collected using an iPad with GPS capability in 2020, which allowed for the collection of coordinates associated with each interview (Figures 1 and 2). Figure 1 provides points of reference for each angler creel interview conducted in 2020 (N = 2,148).

Table 16 provides summary statistics from the four most recent creel surveys conducted at Nolin. Estimated angler pressure was a 20-year high while angler catch and harvest statistics are all time highs (1991-2020). The number of fishing trips showed a significant increase from the 2015 and 2008 creels but was lower than the 2004 survey. In 2020, anglers expended an estimated 197,265 hours fishing at Nolin River Lake. This is an increase of 44,315 hours from the 2015 survey. In 2020, anglers caught an estimated 648,323 fish, an incredible increase of 492,739 from the 2015 survey, and harvested an estimated 188,625 fish, almost three times the estimated 64,205 fish harvested in 2015. The majority of increases can likely be attributed to Covid19. The USACE retracted launch fees for the year and many people were either out of work or "working from home" which afforded more time to fish! It is worth noting that fishing pressure, catch and harvest all increased, indicating that the extra time on the water resulted in success.

When ranked by preference, anglers expended an estimated 103,411 man-hours pursuing black bass, 45,785 hours for crappie, 18,592 hours for panfish, 12,204 hours for "anything", 7,595 hours for catfish, 5,453 for walleye, and 4,226 hours for white bass in 2020. The order of group preference remains very similar to previous surveys. The panfish group did bump up two spots in 2020 from the 2015 creel, which was ranked; black bass, crappie, "anything", catfish, panfish, walleye, and white bass. However, it lines up well with the 2008 survey, which ordered the groups; black bass, crappie, panfish, "anything", walleye, white bass, and catfish.

The white bass fishery continues to receive limited pressure outside of the spring spawning run. We will attempt to improve utilization of the fishery. We plan to pursue several avenues to raise awareness and participation, including, but not limited to, working with local guides, Marketing Division, I&E Division, USACE, and Nolin Lake State Park.

Black bass harvest statistics used in the creel summary included all tournament-caught livewell fish as harvested. While we know these fish were supposedly released after weigh-in, there is a certain amount of mortality that can be expected. We chose to include those fish as harvested in order to overestimate rather than underestimate harvest. If tournament-caught fish in livewells are tallied as released, and none estimated as lost to delayed mortality, the annual harvest rate for black bass is right at 1.0%. When including all tournament livewell fish as harvested the estimated annual harvest rate is 4.89%.

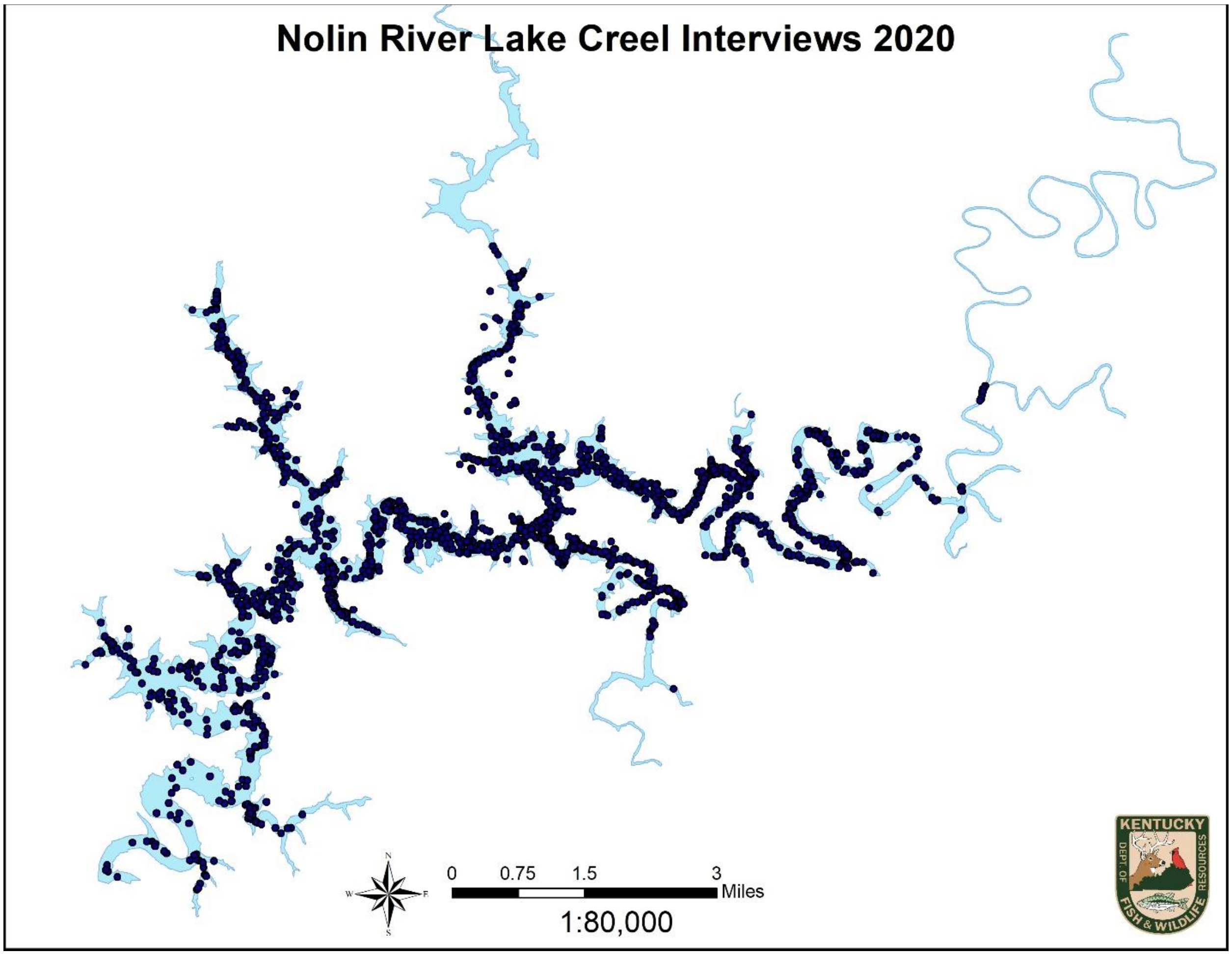

Figure 1. Distribution of creel interviews at Nolin River Lake in 2020 (N = 2,148). Several interviews did not generate an accurate GPS location and were not included on the map.

An Angler Attitude (AA) Survey was conducted during the creel survey to gather angler preference and satisfaction and data (Figures 2 and 3). A total of 250 angler attitude surveys were completed in 2020. Those survey points are visually represented in Figure 2. Each respondent was first asked for his or her home zip code. Ninety-seven percent of respondents were Kentucky residents; the remaining 2.8% provided home zip codes from four other states. In general, the percentage of anglers who target bass most frequently has decreased a little, while those targeting crappie, walleye, white bass, and flathead catfish have all increased from 2008 and 2015 surveys. The largest increase is found in flathead catfish anglers. In 2008, there were no anglers primarily targeting flatheads. In 2015, there were a few (0.7%, N=2) and in 2020, 12.4% (N=30) of anglers who completed an Angler Attitude Survey fished for flathead catfish more than any other species at Nolin. Bass and crappie anglers had overwhelmingly positive outlooks on the fisheries. The few who responded negatively cited the same reasons for dissatisfaction as many anglers who claim to be satisfied. Walleye anglers (N=44) are, understandably, mostly somewhat dissatisfied or neutral (40.9 % and 34.1%, respectively). The primary reason for dissatisfaction is number of fish available. Walleye anglers primarily fish March through November with a higher frequency of responses indicating they fish in the fall. However, this AA survey did not catch folks during the early spring walleye fishery in the headwater. It is possible that some of the same anglers were interviewed later in the year but that is unknown. Additionally, live bait and casting were cited as the two most often used fishing tactics (36.4% and 31.8%, respectively). Trolling (18.2%) and jigging under lights (11.4%) were the next two most frequently utilized methods. All white bass anglers interviewed were either very or somewhat satisfied with the fishery. Number of fish and size of fish were cited as the two most important reasons for their satisfaction.

All interviewed anglers were asked questions 8, 9, and 11 through 15 (Figure 3). Approximately 66% of anglers fish Nolin River Lake more than ten times per year. There were no first time anglers interviewed for the AA survey. Only 61.5% of respondents owned a smart phone, and, of those, 92% regularly use it as a fishing tool. Question 10 is vague as it leaves the definition of fishing tool open to interpretation. Affirmative responses could include things such as using their smartphone to check the weather, using a mobile app such as Navionics for navigation or depth charts, or using the KDFWR website to find fish habitat structures, among other things. The purpose of this questions was to see how many of our anglers could potentially benefit from, or be reached, via the publication of a KDFWR fishing and boating mobile app. Seventy-nine percent of respondents stated they were aware that KDFWR places fish habitat structures within the lake and 98.5% indicated they fished the structures in the past. The majority of interviewees stated they found the locations of the structures while the lake was at winter pool (60.8%), while 24.7% found the locations on the KDFWR website. Almost all respondents felt the addition of structure had improved their fishing success and 71.6% were aware the structure locations were available on our website.

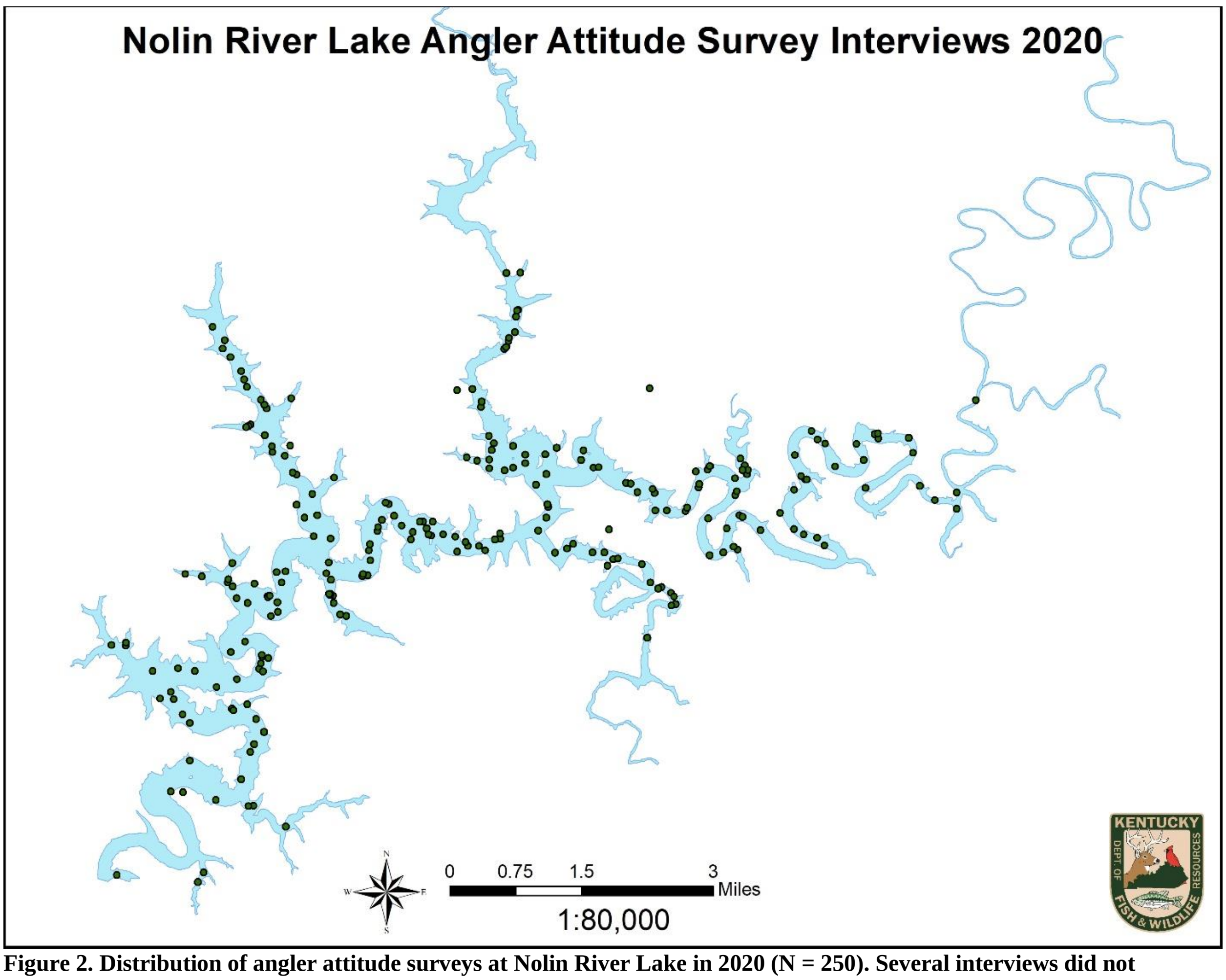

Figure 2. Distribution of angler attitude surveys at Nolin River Lake in 2020 (N = 250). Several interviews did not generate an accurate GPS location and were not included on the map.

NOLIN RIVER LAKE ANGLER ATTITUDE SURVEY 2020

1. Home Zip Code (N=250) **89 unique zip codes**

2. Which species of fish do you fish for at Nolin River Lake (**check all that apply**)? (N=517)
Bass **56.8%** Crappie **60.4%** Walleye **17.6%** White Bass **24.4%** Channel Catfish **12.0%** Flathead Catfish **12.4%** Bluegill **23.2%**

3. Which one species do you fish for most at Nolin River Lake (**check only one**)? (N=250)
Bass **47.6%** Crappie **35.6%** Walleye **5.6%** White Bass **2.4%** Channel Catfish **0.8%** Flathead Catfish **12.4%** Bluegill **5.2%**

-Answer the following questions for <u>each species you fish for</u> – (see question 3)

Bass Anglers

4. In general, what level of satisfaction or dissatisfaction do you have with bass fishing at Nolin River Lake? (N=142)
Very satisfied **38.7%** Somewhat satisfied **57.0%** Neutral **1.4%** Somewhat dissatisfied **2.8%** Very dissatisfied **0.0%** No opinion **0.0%**

4a. If you responded with very or somewhat satisfied in question (4) - What is the single most important reason for your <u>Satisfaction</u>? (N=135)
Number of fish **70.4%** Size of fish **25.9%** Size Limit **0.0%** Creel Limit **0.0%** Low Angler Pressure **4.4%** Other **0.0%**

4b. If you responded with somewhat or very dissatisfied in question (4) - What is the single most important reason for your <u>Dissatisfaction</u>? (N=4)
Number of fish **75.0%** Size of fish **25.0%** Not happy with regulations **0.0%** Too many anglers **0.0%** Other **0.0%**

Crappie Anglers

5. In general, what level of satisfaction or dissatisfaction do you have with crappie fishing at Nolin River Lake? (N=151)
Very satisfied **47.7%** Somewhat satisfied **49.0%** Neutral **2.6%** Somewhat dissatisfied **0.7%** Very dissatisfied **0.0%** No opinion **0.0%**

5a. If you responded with very or somewhat satisfied in question (5) - What is the single most important reason for your <u>Satisfaction</u>? (N=145)
Number of fish **49.7%** Size of fish **49.7%** Size Limit **0.0%** Creel Limit **0.0** Low Angler Pressure **0.7%** Other **0.0%**

5b. If you responded with somewhat or very dissatisfied in question (5) - What is the single most important reason for your <u>Dissatisfaction</u>? (N=1)
Number of fish **100%** Size of fish **0.0%** Not happy with regulations **0.0%** Too many anglers **0.0%** Other **0.0%**

Walleye Anglers

6. In general, what level of satisfaction or dissatisfaction do you have with walleye fishing at Nolin River Lake? (N=44)
Very satisfied **0.0%** Somewhat satisfied **20.5%** Neutral **34.1%** Somewhat dissatisfied **40.9%** Very dissatisfied **4.5%** No opinion **0.0%**

6a. If you responded with very or somewhat satisfied in question (6) - What is the single most important reason for your <u>Satisfaction</u>? (N=9)
Number of fish **11.1%** Size of fish **66.7%** Size Limit **0.0%** Creel Limit **0.0%** Low Angler Pressure **22.2%** Other **0.0%**

6b. If you responded with somewhat or very dissatisfied in question (6) - What is the single most important reason for your <u>Dissatisfaction</u>? (N=20)
Number of fish **95.0%** Size of fish **0.0%** Not happy with regulations **0.0%** Too many anglers **5.0%** Other **0.0%**

6c. When do you specifically fish for walleye? (N=43)
Spring (March-May) **27.9%** Summer (June-Sept) **25.6%** Fall (October-Nov) **44.2%**
Winter (Dec-Feb) **2.3%**

6d. How do you fish for walleye? (N=44)
Casting **31.8%** Trolling **18.2%** Live bait **36.4%** Jigging (under lights) **11.4%** Other **2.3%**

White Bass Anglers

7. In general, what level of satisfaction or dissatisfaction do you have with white bass fishing at Nolin River Lake? (N=61)
Very satisfied **55.7%** Somewhat satisfied **44.3%** Neutral **0.0%** Somewhat dissatisfied **0.0%** Very dissatisfied **0.0%** No opinion **0.0%**

7a. If you responded with very or somewhat satisfied in question (7) - What is the single most important reason for your Satisfaction? (N=61)
Number of fish **93.4%** Size of fish **6.6%** Size Limit **0.0%** Creel Limit **0.0%**
Low Angler Pressure **0.0%** Other **0.0%**

7b. If you responded with somewhat or very dissatisfied in question (7) - What is the single most important reason for your Dissatisfaction? (N=0)
Number of fish **n/a** Size of fish **n/a** Not happy with regulations **n/a** Too many anglers **n/a**
Other **n/a**

All Anglers

8. On average how many times do you fish Nolin River Lake in a year? (N=250)
First time **0.0%** 1 to 4 **2.8%** 5 to 10 **31.6%** More than 10 **65.6%**

9. Do you own a smart phone? (N=244)
Yes **61.5%** No **38.5%**

10. If yes, do you regularly use it as a fishing tool? (N=148)
Yes **91.9%** No **8.1%**

11. Are you aware KDFWR places fish habitat (i.e. fish attractors/structures) within the lake? (N=250)
Yes **78.8%** No **21.2%**

12. How often do you fish around KDFWR placed fish attractors/structures at Nolin River Lake? (N=197)
Very often **2.5%** Often **25.4%** Sometimes **57.9%** Not very often **12.7%** Never **1.5%**

13. How did you find these attractors/structures at Nolin River Lake? (N=194)
On my own **1.5%** Winter pool **60.8**% Friend/word of mouth **12.9%** KDFWR website **24.7%** Other **0.0%**

14. Do you feel the addition of KDFWR placed attractors/structures has improved your fishing success? (N=194)
Yes **97.9%** No **2.1%**

15. Are you aware the locations of all KDFWR placed attractors/structures are available on our website? (N=197)
Yes **71.6%** No **28.4%**

Figure 3. Results of the 2020 Nolin River Lake angler attitude survey (N = 250).

Rough River Lake

Black bass Sampling

The black bass population was not directly assessed in 2020. It is scheduled to be surveyed during spring and fall 2021.

Hybrid Striped Bass Sampling

Gill netting to assess the hybrid striped bass population was conducted during November (Tables 30-34). Northwestern Fisheries District staff fished sampling nets on the South Fork and the Urban Fisheries Research Section fished sampling nets on the North Fork. A total of 405 hybrids were collected in 11 net-nights (36.8 fish/nn) over the three-day sampling period.

Catch rates in 2020 rebounded from lows seen in 2019 (Table 34) and fall within the range of previous samples. On average, body condition decreases with size (Table 31). In 2020, relative weight for 8.0- to 11.9-in fish was a little lower than what has been seen over the past 8-9 years. There is nothing to be alarmed about at the moment but we will continue to keep an eye on that in future samples to make sure it rebounds. There has been an abundance of forage available year-round over the past decade, which should produce high relative weights for the larger fish (≥ 15.0 in) which are feeding exclusively on shad. Since that is not the case, it leads us to hypothesize that poor water quality conditions (temperature and dissolved oxygen) leads to enough stress during the summer months to reduce foraging to the point that fish are losing weight. Stress due to high temperature and low D.O. will affect larger fish to a greater extent. As water quality improves in the early fall, fish resume feeding and gain back some, but not all, of the weight lost during the stressful period. The extent of the poor water quality is evident when Temp/D.O. profile data is color coded (Tables 37-39). We know that fish are being caught during the summer months, and that fish are being caught below, or at least in the bottom of, the thermocline. This tells us that fish are actively selecting cooler water over higher dissolved oxygen concentrations. The amount of time spent in cooler water is unknown but it seems fish are moving up and down throughout the water column multiple times a day. Data from the telemetry project may shed some light on this hypothesis, because the acoustic tags included temperature sensors. The data is in the process of being analyzed and will be reported when complete.

The mean length at age 2+ at capture increased slightly from 2019 and remains within the expected range (Table 34). Growth remains a bit variable, but is similar to previous collections (Table 32). We routinely collect old fish, between ages 7-11 during sampling events; however, these fish make up a small proportion of the catch. It is interesting that we do not see fish over eight pounds with any frequency given the longevity of life for some of these fish. This also supports the hypothesis that water quality is keeping fish from reaching their maximum growth potential.

Gill netting as part of the project to detect differences in survival and growth rate of reciprocal and original crosses was completed in 2020. The research showed no significant difference in performance of the two crosses at early ages. NWFD will continue to monitor growth and longevity of the crosses through regularly scheduled standard sampling and alternative data collection methods (angler caught fish, short net sets while trap netting). Reciprocal cross hybrid striped bass will be stocked moving forward until data shows a need for change.

In response to frequent angler complaints about not being able to find or catch fish during the summer months, a radio telemetry project was initiated in 2018 to determine summer locations and movement patterns. Hybrid striped bass were collected for tagging via electrofishing from the upper lake/river area (Eveleigh to Adkins Camp boat ramps). Forty hybrid striped bass from 15.8-22.3 in were surgically implanted with VEMCO V13T transmitters (13x43mm, 12.0 g air). Twelve VEMCO VR2W receivers were deployed throughout the lake on May 11, 2018. Eleven of twelve receivers were removed from the lake in November 2020. The remaining receiver is missing in action. Data is still being analyzed and will be reported when complete.

The hybrid striped bass population continues to be relatively stable and thriving despite increased catch/harvest and poor summer water quality. Based on the statewide assessment, the hybrid population rebounded from 2019 to go back to an “Excellent” rating.

Channel Catfish Sampling

Gill netting to assess the channel catfish population was conducted concurrently with hybrid striped bass sampling (Tables 35 and 36). A total of 61 channel catfish were collected over 11 net-nights for a CPUE of 5.6 fish per net-night (Table 35). Catch rate and length distribution is similar to previous collections. Weights were recorded for each catfish sampled and indicate condition (Wr) is good and similar to previous collections (Table 36).

Dissolved Oxygen – Temperature Profiles

Dissolved oxygen and temperature profiles were conducted June – August in 2020 (Tables 37-39) to document seasonal changes in water temperature and dissolved oxygen levels throughout the water column. Profiles were conducted at four to six sites (upper, middle, and lower South Fork, the dam, and middle and lower North Fork) along the main channel of the lake. Profiles are color coded by water quality category taken from Kilpatrick 2003 (M.S. thesis, Virginia Tech). Blue indicates "Optimal" conditions where water temperature is between 70.7 and 77.9° F and dissolved oxygen is ≥ 4.5 ppm. Green indicates "Sub-optimal" condition where water temperature is < 70.7 or between 77.9 and 80.6° F and dissolved oxygen is between 2.0 and 4.4 ppm. Orange indicates "Poor" conditions where water temperature is greater than 80.6° F and dissolved oxygen is less than 2.0 ppm.

Profiles have been conducted since 2013 as part of ongoing projects documenting survival and growth of stocked original and reciprocal hybrid striped bass, and documenting seasonal movement and habitat use with radio telemetry equipment. Profiles are highly variable relative to weather and water conditions. Historically, June profiles show some amount of sub-optimal conditions, July profiles show the entire water column is "poor" habitat, August is highly variable and can provide either some or zero "sub-optimal" habitat, and September has generally rebounded to hold some of each category. There seems to be little doubt fish are significantly stressed during July/August of each year. Usually, we consider 2.0 mg/L O_2 to be the cutoff for sustained fish activity, but we know anglers are catching fish at depths with less than 2.0 mg/L O_2. Biologists in North Carolina are finding the same thing with hybrid striped bass in Lake Norman. Fish are actively seeking cooler water temperature with low dissolved oxygen during summer months when water temperatures are high. However, creel data shows that Rough River Lake anglers continue to fish for and catch fish during that period, although average size of fish harvested is less than 15.0 in. Again, once telemetry data analysis is complete, it should help us see how much time is being spent at depths with poor water quality.

Lake Malone

Largemouth Bass Sampling

Largemouth bass sampling was not conducted at Lake Malone during spring 2020 but was completed during October (Tables 40 and 41). A total of 503 largemouth bass were collected during 2.5 hours of diurnal electrofishing, yielding a CPUE of 201.2 fish/hr. Relative weights for each length group were slightly lower than previous collections (Table 41). Bass will be sampled both spring and fall 2021 to document catch rates, length distributions, relative weights and age and growth statistics.

Dissolved Oxygen – Temperature Profile

Dissolved oxygen and temperature profiles were conducted September 12, 2020. Profiles were conducted mid-channel in three locations (above Shady Cliff Bridge, where the two main arms of the lake converge, and near the spillway tower; Table 42). A dissolved oxygen concentrations greater than 2.0 mg/L was present to a depth of approximately 9 feet at sites 1 and 2 and down to 11 feet at site 3.

Mauzy Lake

Largemouth Bass Sampling

Sampling to evaluate the largemouth bass population was conducted in May 2020 (Tables 43-46). Total catch rate was the highest of record, with the majority of fish in the 8.0- to 11.9-in range. Catch rate for fish ≥ 15.0 and ≥ 20.0 in was down compared to recent samples, especially for fish over 15.0 in. Good numbers of fish in the 12.0- to 14.9-in range should lead to an increase of fish greater than 15.0 inches in 2021. Despite lower catch rates for larger size classes, other increases led to Mauzy receiving a "Good" to "Excellent" rating based on the statewide assessment.

Recently, excessive aquatic vegetation (coontail) spread throughout the lake and impeded sampling efforts, fertilization efforts, and public fishing opportunity. Attempts to limit growth using herbicide and fertilization was unsuccessful in 2020. Grass carp will be stocked during spring 2021 and herbicide will be applied as necessary to keep the boat ramp and bank fishing access areas relatively clear. Fertilization will not be attempted initially in 2021 due to poor success in 2020. If aquatic vegetation can be maintained at reasonable levels it may be attempted mid 2021 or spring 2022.

Bluegill/Redear Sunfish Sampling

Electrofishing to assess the bluegill and redear sunfish populations was not conducted in 2020. It will be completed in 2021.

Lake Renovation Plans

Across all species, growth continues to decline or remain constant at undesirable levels. Additionally, there are numerous undesirable species present in the lake (gizzard shad, crappie spp., flathead catfish, spotted gar, etc.). Ultimately, Mauzy Lake would benefit from another, more complete, renovation. Plans to dredge and deepen extensive shallow areas, upgrade existing bank fishing access, install fish habitat, lime the lake basin, renovate the fishery, and construct a headwater wetland are being created. Mauzy Lake is wholly contained within a WMA and renovation efforts can easily be accomplished.

Carpenter Lake

Largemouth Bass

Largemouth bass were sampled at Carpenter Lake in April and October 2020 (Tables 41, 44, and 47-50). Catch rates were very similar to the year prior (2019) but below the long-term average for each length group except fish ≥ 15.0 in. We continue to see a great catch rate for fish ≥ 15.0 in, which should translate to more fish ≥ 20.0 inches in 2021. Body condition collected in the fall is within the range established in previous samples. The bass population at Carpenter is relatively stable and performing as expected; however, we will continue to monitor the bass population annually.

Bluegill/Redear Sunfish Sampling

Electrofishing to assess the bluegill and redear sunfish populations was conducted in May (Tables 51-54). Total catch rate for bluegill was the highest of record and was seen across all length groups. For the first time since 2014, we collected one bluegill greater than 8.0 in. This is likely the result of abundant gizzard shad and submerged aquatic vegetation.

Seventy-four redear sunfish were collected in May in conjunction with bluegill sampling. Total catch rate is near the record high from 2019. The most notable change is the increase in catch rate for ≥ 8.0-in fish, which can be attributed to growth of the 6.0- to 7.9-in fish from 2019. Redear sunfish less than 3.0 in have not been collected since 2010. This is a result of sampling inefficiencies rather than lack of reproduction as evidenced by annual collection of 3.0- to 5.9-in fish. We did not collect any fish > 10.0 inches in 2020 but anglers report catching some quality fish.

Gizzard shad are likely negatively affecting the bluegill and redear sunfish populations. After two failed shad eradication efforts, saugeye were stocked at 85 fish/acre in May 2019 and 100 fish/acre in 2020. These stockings are an attempt to reduce the gizzard shad and crappie populations and increase bass predation on the bluegill. Increased predation on the bluegill should positively affect their growth and produce bluegill greater than 8.0 inches in the future. A third saugeye stocking is scheduled for 2021 at 100 fish/acre. Anglers report catching a few saugeye throughout the year but very few are seen during standard sampling events. Nighttime electrofishing was attempted in November 2020 but no saugeye were seen. Several attempts will be made to collect data in 2021.

New Kingfisher Lakes

Largemouth Bass

Electrofishing to assess the largemouth bass population at New Kingfisher Lake was conducted in April and October (Tables 41, 44, 56-59). Spring catch rate more than doubled from 2020 to 2021. The length frequency distribution is now more consistent and shows signs of successful recruitment. Advanced largemouth bass fingerlings were stocked in fall 2019 (1,600) to help fill in the gaps and kick start the population. Catch rates for fish greater than 15.0 in and greater than 20.0 in remain high and the largemouth bass fishery should continue to grow over the next few years as multiple year classes develop and stabilize. Fall sampling produced fish in good condition and with a consistent length distribution. Overall, based on the statewide assessment, New Kingfisher looks and scores “Excellent”. Sampling to monitor the development of the bass population will continue in the spring and fall of 2021.

Bluegill/Redear Sunfish Sampling

The sunfish population was sampled via electrofishing in May (Tables 53, 60-62). Total bluegill CPUE is similar to that seen in 2019 but lower than 2017-2018. This is probably closer to where we want to be for growth rates to continue to improve. As the largemouth bass population continues to balance out and stabilize, it is hoped the bluegill numbers will follow suit. Only fifteen redear sunfish were collected in 2020 and, of those, several were 8.0-9.0 in.

Total sunfish CPUE does not account for the presence of green sunfish and warmouth, which are prolific throughout the rock-lined shoreline. A shoreline rotenone treatment was conducted in summer 2019 in an attempt to reduce undesirable sunfish. Another shoreline rotenone application may be attempted in summer 2021 pending spring sampling results. Gizzard shad were documented in both spring and fall samples. The bluegill population will be monitored to ensure adequate growth and size structure develops. If not, shad control methods (winter rotenone treatments and/or saugeye stocking) will be employed.

Old Kingfisher Lake

Largemouth Bass

Electrofishing to assess the largemouth bass population was conducted at Old Kingfisher Lake in April and October (Tables 41, 44, 63-66). A total of 51 bass were collected in April ranging from 4.3 to 19.3 in. Catch rate for fish less than 8.0 in increased significantly, while catch rate for fish ≥ 15.0 and ≥ 20.0 in both declined. Total CPUE nearly doubled from 2019 to 2020; however, when dealing with low collection numbers it only takes not collecting a few fish to make a significant impact on catch rate. Fall sampling revealed that fish were in good condition, with the fish over 15.0 in looking exceptional. Sampling is planned for spring and fall 2021. Age and growth data will be collected in a few years once the bass population expands and stabilizes.

Bluegill/Redear Sunfish Sampling

The sunfish population at Old Kingfisher Lake was sampled via electrofishing in May (Tables 53, 67-69). Total bluegill CPUE was 874.7 fish/hr, which is roughly half way between 2018 and 2019 total CPUE. Catch rate for each length group increased from 2019 findings. The size structure is slightly improved from 2019. Total numbers remain above the desired range but are still shifting around as the bass population changes as well. There is an abundance of green sunfish and warmouth residing amongst the shoreline riprap. A shoreline rotenone treatment was conducted along the riprap of both Kingfisher lakes in 2019. A second shoreline rotenone will be conducted in 2021 if the number of green sunfish and warmouth increase or remain similar. As the largemouth bass population grows and stabilizes, sunfish growth and size structure will improve. Age-growth data will be collected after populations have stabilized.

Gizzard shad were documented at both Old and New Kingfisher lakes in 2018. Given the high productivity of the Kingfisher lakes, it is likely the shad populations will expand quickly. They will be monitored along with the sunfish to determine if shad control strategies need to be employed. Two potential options for controlling shad are winter shad eradications and saugeye stocking.

Washburn Lake

Largemouth Bass

Electrofishing to assess the largemouth bass population was conducted at Washburn Lake in April and October (Tables 41, 44, 70-73). Total CPUE (266.7 fish/hr) is the lowest seen in about a decade and below the long-term average (346.5 fish/hr). Fish 12.0-20.0 in were noticeably missing. Good numbers of 8.0- to 11.9-in and 12.0- to 14.9-in fish seen in 2019 did not show up in the larger length groups in spring or fall samples in 2020. In general, it is unclear where these fish have went. We are hopeful that sampling during 2021 will shed some light on the situation.

Bluegill/Redear Sunfish Sampling

The sunfish population at Washburn Lake was sampled via electrofishing in May (Tables 53, 74-77). Again, nearly equal numbers of bluegill and redear sunfish were collected in 2020 as they were in 2018. However, total catch rate for both species was half of the total catch rates observed in 2018. Catch rates for each length group declined for both species. Some of the decline can likely be attributed to effective aquatic vegetation management. Grass carp were stocked at 3 fish/acre, and herbicide treatments were conducted in 2018. Beginning in 2019, Pond Pro powdered fertilizer (10-52-4) became the standard use product and multiple applications are made annually. The combination of all strategies has kept aquatic vegetation to a minimum for both 2019 and 2020, and now affords the opportunity to deploy more fish habitat structures that will not be covered up by SAV.

Channel Catfish Sampling

Channel catfish were sampled on two occasions during October using tandem hoop nets (Table 78). Three tandem sets (3 nets each) were baited with Zote soap and fished for two nights. A total of 52 channel catfish were collected during the first sampling event. While processing the catch from the first survey, the adipose fin of each fish was clipped upon release. During the second sample, a total of 42 channel catfish were collected, with 13 of those being recaptures from the previous sample. Using the Lincoln-Peterson Index for mark-recapture population estimate we come up with a population estimate of 168 channel catfish. The time period between samples was approximately two weeks which limited the chances of fish being removed from the sample population through mortality or harvest. Fish were not aged this year. Channel catfish were last stocked in 2019. Washburn was removed from the stocker list for 2020 and moving forward. Eight channel catfish spawning boxes were installed during May 2020. Boxes were checked for use June 26 using a GoPro camera. We were unable to locate one of the boxes, it is believed to have been deployed deeper than planned and settled into the soft substrate. That box will be searched for and repositioned in 2021. Additionally, two boxes had eggs but no adults present, three boxes had eggs and an adult present, one box had an adult present but no eggs, and the last box was inconclusive due to visibility. We will continue to monitor the catfish population via hoop nets and fin clips to document natural reproduction and recruitment.

Washburn Lake needs another renovation. Plans to dredge and deepen extensive shallow areas, create more bank fishing access, install fish habitat, lime the lake, renovate the fishery, create a headwater wetland, and replace the existing water control structure have been created. The current water control tower leaks profusely and could fail at any time, requiring plans to be in place to move forward with a renovation when necessary. This renovation will require more planning, cooperation, and financial commitment than the renovation at Mauzy due to the proximity of private landowners and county roads serving as two of the lake boundaries. The feasibility of surveying and marking the property boundary will be explored further in 2021.

Table 1. Annual summary of sampling conditions by waterbody, species sampled and date for Northwestern Fishery District lakes during 2020.

Water body	Species	Date	Time (24hr)	Gear	Weather	Water temp. F	Water level	Secchi (in)	Conditions	Pertinent sampling comments
Nolin River Lake	WE	3/9	1000	EF	Cloudy and breezy 50°F	50.7-51.9	519.7	-	Fair	High w ater
Nolin River Lake	WE	3/17	900	EF	Cloudy, 50	50	525.9	-	Poor	Higher w ater
Nolin River Lake	WE	7/7	930	TEMP/DO	Cloudy, upper 40s	85-87	515.5	30-40"	Poor	
Nolin River Lake	LMB	10/13/2020	900	EF	Mostly Sunny, in the 70s	69.4-70.7	514.8	36-57	Good	Fish off shore 6-12' mostly
Nolin River Lake	ALL	10/13/2020	930	EF	Mostly Sunny 50-70°F	70.7	514.8	57"	Good	Fish habitat site survey
Nolin River Lake	WB/WE	10/26 - 10/30	1000	GN	Sunny on set, cloudy, rainy, w indy on pull	61-63	507-506.4	20-40"	Fair	
Rough River Lake	HSB	6/16/2020	900	TEMP/DO	-	80.0-81.0	495	32-60"	Good	
Rough River Lake	HSB	7/8/2020	900	TEMP/DO	-	87.6-89.0	501.6	46-106"	Good	
Rough River Lake	HSB	8/5/2020	900	TEMP/DO	-	81.0-84.2	496.9	25-71"	Good	
Rough River Lake	HSB	11/10 - 11/12	1000	GN	Sunny on set, partly sunny and breezy on pull	59-63.3	488.7-487.4	24-40"	Good	
Lake Malone	ALL	8/17/2020	1000	TEMP/DO	-	84.1-86.2	pool	24-32"	Good	
Lake Malone	LMB	10/15/2020	900	EF	Started sunny changed to cloudy and drizzley, 55-70°F	68.0	pool	28-44"	Good	
Mauzy	LMB	5/11/2020	900	EF	53°F, partly sunny/cloudy, w indy	64.0	pool	60-64.5"	Fair	
Carpenter	LMB	4/8/2020	900	EF	72°F, Cloudy	69.0	pool	-	Fair	
Carpenter	BG	5/26/2020	900	EF	75°F, Sunny	77.5	pool	24"	Fair	Lots of coontail, lilly pads, and expanding Hydr.
Carpenter	ALL	7/13/2020	1245	TEMP/DO	-	87.5-89.6	pool	15-17"	Good	
Carpenter	LMB	10/7/2020	900	EF	Sunny, blue skies, 65°F	65.8	pool	17"	Fair	Boat motor died at end of first run
Carpenter	LMB	10/12/2020	900	EF	Cloudy, overcast, blue skies by the end	68.2	pool	15"	Fair	
Carpenter	SAE	11/17/2020	1700	EF	Dark, low 40's	-	pool	-	Good	
New Kingfisher	LMB	4/8/2020	1100	EF	78°F, Mostly Sunny	71.9	pool	30"	Good	
New Kingfisher	BG	5/26/2020	1100	EF	85°F, cloudy	80.4	pool	26"	Good	
New Kingfisher	ALL	7/13/2020	1045	TEMP/DO	-	85.0-85.4	pool	11-12"	Good	
New Kingfisher	LMB	10/12/2020	1130	EF	Partly cloudy to cloudy, 70°F	69.4	pool	15"	Good	
Old Kingfisher	LMB	4/8/2020	1300	EF	Low er 80°Fs, Sunny	73.9	pool	18"	Good	
Old Kingfisher	BG	5/26/2020	1300	EF	84°F, cloudy	81.0	pool	30"	Good	
Old Kingfisher	ALL	7/13/2020	1220	TEMP/DO	-	88.1	pool	11"	Good	
Old Kingfisher	LMB	10/12/2020	1300	EF	Cloudy, 70°F	70.3	pool	13"	Good	
Washburn	BG	5/29/2020	1000	EF	Mid 70°F	77.2	pool	40"	Fair	
Washburn	LMB	6/1/2020	1000	EF	65°F, Sunny amd breezy	75.0	pool	40"	Fair	
Washburn	CCF	10/7/2020	1000	HN	Set: 68°F sunny, Pull: mostly cloudy, slight w ind	64.8	pool	36"	Fair	
Washburn	CCF	10/20/2020	1000	HN	Sunny, partly cloudy, breezy, 65°F	65.0	pool	29"	Fair	
Washburn	LMB	10/20/2020	1100	EF	Cloudy, dreary, misty, in the 60s	61.7	pool	29"	Good	

Table 2. Species composition, length frequency, and CPUE (fish/hr) of black bass collected during 4.0 hours of 30-minute diurnal electrofishing at Nolin River Lake in October 2020.

		Inch class																					
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	SE
Upper	Largemouth bass	2	32	10	3	9	14	5	12	7	11	11	15	11	16	5	2	3	2	1	171	85.5	17.0
	Spotted bass		4	1			3	1			1	1	1	1							13	6.5	3.8
Mid	Largemouth bass		2	3	3	1	6	2	3	4	6	9	5	12	5	17	7	2	2		89	44.5	2.6
	Spotted bass	5	13	3	9	18	10	3	4	2	2	2	2								73	36.5	12.5
Total	Largemouth bass	2	34	13	6	10	20	7	15	11	17	20	20	23	21	22	9	5	4	1	260	65.0	11.1
	Spotted bass	5	17	4	9	18	13	4	4	2	3	3	3	1							86	21.5	8.3

nwd1lmb.d20

Table 3. Number of fish and relative weight (Wr) for length groups of largemouth bass collected at Nolin River Lake during October 2020. Standard errors are in parentheses.

		Length group					
Species	Area	8.0-11.9 in		12.0-14.9 in		≥ 15.0 in	
		No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Upper	35	87 (1)	36	86 (1)	26	90 (2)
Largemouth bass	Mid	15	84 (2)	26	81 (1)	33	88 (2)
Largemouth bass	Total	50	86 (1)	62	84 (1)	59	89 (1)

nwd1lmb.d20

Table 4. Length frequency and CPUE (fish/nn) for white bass collected in 9 net-nights of sampling at Nolin River Lake during October 2020.

Species	Inch class 7	8	9	10	11	12	13	14	15	Total	CPUE	Std. error
White bass	15	44	35	15	55	73	42	29	6	314	34.9	10.1

nwd1gn.d20

Table 5. Mean back calculated lengths (in) at each annulus for white bass collected at Nolin River Lake in October 2020.

Year class	No.	Age 1	2	3	4	5	6	7
2019	81	8.5						
2018	22	7.4	11.3					
2017	8	9.8	11.6	13.2				
2016	7	7.9	11.5	13.2	13.9			
2014	2	7.2	9.8	10.8	12.5	13.3	14.3	
2013	1	6.4	9.1	10.9	11.9	12.9	13.7	14.7
Mean		8.3	11.3	12.8	13.4	13.2	14.1	14.7
No.		121	40	18	10	3	2	1
Smallest		3.7	8.3	10.1	11.4	12.7	13.7	14.7
Largest		11.3	13.1	14.7	15.3	14.0	14.6	14.7
Std error		0.2	0.3	0.3	0.4	0.4	0.3	
95% CI (±)		0.3	0.5	0.5	0.7	0.8	0.5	

nwd1wba.d20

Table 6. Age-frequency and CPUE (fish/nn) per inch class of white bass gill netted for 9 net-nights at Nolin River Lake in October 2020.

Age	Inch class 7	8	9	10	11	12	13	14	15	Total	Age %	CPUE	Std. error
0	15	44	35	5						99	31.5	11.0	3.6
1				6	55	62	17			140	44.9	15.6	5.3
2				4		11	17	9		41	13.0	4.5	1.4
3							8	9		17	5.4	1.8	0.6
4								11	3	14	4.5	1.5	0.4
5										0	0.0	0.0	0.0
6									2	2	0.6	0.3	0.1
7									1	1	0.3	0.1	0.1
Total	15	44	35	15	55	73	42	29	6	314			
(%)	4.8	14.0	11.1	4.8	17.5	23.2	13.4	9.2	1.9		100.0		

nwd1wba.d20, nwd1gn.d20

Table 7. Number of fish and the relative weight (Wr) for each length group of white bass collected at Nolin River Lake during October 2020. Standard errors are in parentheses.

Length group					
6.0-8.9 in		9.0-11.9 in		≥12.0 in	
No.	Wr	No.	Wr	No.	Wr
59	101 (1)	105	103 (1)	149	100(1)

nwd1gn.d20

Table 8. Population assessment for white bass based on fall gill netting at Nolin River Lake from 1996-2020 (scoring based on statewide assessment).

Year	CPUE (excluding age-0)	Mean length age-2+	CPUE ≥ 12.0 in	CPUE age-1	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020	23.9 (4)	13.2 (2)	16.7 (4)	15.6 (4)	0.933	60.7	14	Excellent
2015	26.5 (4)	13.0 (2)	16.9 (4)	6.0 (3)			13	Good
2013	38.1 (4)	13.0 (2)	25.8 (4)	14.0 (4)			14	Excellent
2011	21.6 (4)	13.1 (2)	17.5 (4)	7.5 (4)	0.504	39.6	14	Excellent
2009	33.2 (4)	13.2 (2)	19.4 (4)	15.6 (4)	0.629	46.7	14	Excellent
2007	37.9 (4)	13.9 (4)	26.6 (4)	16.0 (4)	0.717	51.2	16	Excellent
2006	7.9 (3)	13.3 (2)	4.3 (3)	5.4 (3)	1.134	67.8	11	Good
2003	18.7 (4)	13.4 (3)	6.2 (3)	15.3 (4)	1.387	75.1	14	Excellent
2002	10.2 (3)	13.3 (2)	5.3 (3)	5.2 (3)			11	Good
2001	2.5 (1)	13.6 (3)	1.6 (2)	1.1 (1)			8	Fair
2000	3.9 (2)	13.8 (4)	2.8 (2)	1.1 (1)			9	Fair
1998	27.4 (4)	12.0 (1)	22.0 (4)	7.5 (4)			13	Good
1996	26.1 (4)	13.3 (2)	14.8 (4)	15.1 (4)			14	Excellent

Table 9. Length frequency and CPUE (fish/nn) for walleye collected during fall gill net samples at Nolin River Lake 1991-2020.

	Inch class																							Std.
Year	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	CPUE	error
2020				4	5			1	2	1	9	13	10	6	2	1						54	6.0	1.5
2015					3	1		2	12	8	3	3		1								33	3.0	0.6
2013				7	4	1	2	10	18	5	8	3	5	5	3		1					72	6.0	1.2
2011				1	4	1		3	13	10	11	5	4	5	2		1					60	4.3	0.8
2009			3	7	7	2	3	8	26	21	15	10	10	5	2	3	1					123	8.8	1.3
2007			1	1	1			2	11	3			1	3	1					1		25	2.3	0.6
2006			2	6	4		1	5	22	14	18	21	10	4								107	7.1	1.4
2003	1			4	1		1	1	4	1	3	2	3	3	2	4	1	1				32	2.3	0.4
2002					1		1	1	2	2	3	5	6	6	3		1	1				32	2.7	1.0
2001					1						2	1	3	1			1		1			10	2.6	1.0
2000						1	1	1	3		2	1			1							10	1.3	0.3
1998				2	5	3	2	1	8	8	12	7	5	1								54	7.7	2.6
1996						1	2	8	8	3	1		3	1								27	3.0	1.6
1991			1	5	40	18	1	1	7	18	19	14	6	5	4			2			1	142	10.1	-

nwd1gn.d20

Table 10. Mean back calculated lengths (in) at each annulus for walleye collected at Nolin River Lake in October 2020.

Year		Age			
class	No.	1	2	3	4
2019	5	10.5			
2018	15	9.8	14.5		
2017	24	12.1	15.1	17.4	
2016	1	9.9	13.2	15.7	17.6
Mean		11.1	14.8	17.3	
No.		45	40	25	1
Smallest		7.1	11.9	14.1	
Largest		14.1	17.7	20.4	
Std error		0.3	0.2	0.3	
95% CI (±)		0.5	0.4	0.6	

nwd1wea.d20

Table 11. Age-frequency and CPUE (fish/nn) per inch class of walleye gill netted for 9 net-nights at Nolin River Lake in October 2020.

	Inch class																
Age	9	10	11	12	13	14	15	16	17	18	19	20	21	No.	CPUE	Std. error	Age %
0	4	5												9	1.0	0.5	17.0
1					1	2	1	1						5	0.6	<0.1	9.0
2								6	7	2				15	1.7	0.5	28.0
3								2	6	8	5	2	1	24	2.7	0.8	44.0
4											1			1	0.1	0.1	2.0
Total	4	5	0	0	1	2	1	9	13	10	6	2	1	54			
(%)	7.0	9.0	0.0	0.0	2.0	4.0	2.0	17.0	24.0	19.0	11.0	4.0	2.0				100

nwd1gn.d20, nwd1wea.d20

Table 12. Number of fish and the relative weight (Wr) for each length group of walleye collected at Nolin River Lake during fall netting 1991-2020. Standard errors are in parentheses.

	Length group					
	10.0-14.9 in		15.0-19.9 in		≥20.0 in	
Year	No.	Wr	No.	Wr	No.	Wr
2020	8	92 (4)	39	94 (1)	3	94 (5)
2015	18	87 (1)	15	85 (1)	0	
2013	35	95 (1)	26	89 (1)	4	88 (2)
2011	26	92 (1)	38	90 (1)	3	85 (1)
2009	43	91 (1)	56	90 (1)	6	94 (4)
2007	10	90 (2)	4	80 (3)	2	74 (2)
2006	32	95 (1)	67	92 (1)	0	
2003	7	90 (2)	12	89 (3)	8	91 (2)
2002	5	89 (3)	11	88 (1)	0	
2001	1	-	4	83 (6)	0	
2000	13	84 (2)	3	83 (3)	0	
1998	21	94 (2)	28	89 (1)	0	
1996	92	90 (1)	5	87 (2)	0	
1991	36	91 (1)	47	84 (1)	4	81 (4)

nwd1gn.d20

Table 13. Population assessment for walleye based on fall gill netting at Nolin River Lake from 1991-2020 (scoring based on statewide assessment).

Year	CPUE (excluding age-0)	Mean length age-2+ at capture	CPUE $\geq$ 20.0 in	CPUE age-1	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020	5.0 (3)	17.2 (1)	0.3 (2)	0.6 (1)	-	-	7	Fair
2015	2.5 (2)	15.6 (1)	0.0 (1)	1.4 (2)			6	Poor
2013	5.0 (3)	16.0 (1)	0.3 (2)	2.5 (3)			9	Fair
2011	3.8 (2)	16.3 (1)	0.1 (1)	1.5 (2)	0.543	41.9	6	Poor
2009	7.6 (4)	16.6 (1)	0.5 (2)	3.7 (4)	0.599	45.1	11	Good
2007	2.0 (1)	15.9 (1)	0.2 (2)	1.0 (2)	0.532	41.3	6	Poor
2006	6.3 (3)	16.6 (1)	0.0 (1)	1.7 (3)	1.152	68.4	8	Fair
2003	1.9 (1)	16.9 (1)	0.6 (3)	0.4 (1)			6	Poor
2002	2.6 (2)	17.5 (2)	0.4 (2)	0.3 (1)			7	Fair
2001	1.0 (1)	17.8 (2)	0.3 (2)	0.0 (1)			6	Poor
2000	1.3 (1)	16.2 (1)	0.1 (1)	0.8 (1)			4	Poor
1998	6.3 (3)	15.5 (1)	0.0 (1)	1.7 (3)			8	Fair
1996	3.0 (2)	15.0 (1)	0.0 (1)	2.1 (3)			7	Fair
1991	5.7 (3)	15.8 (1)	0.5 (2)	2.2 (3)			9	Fair

Table 14. Length frequency and CPUE (fish/nn) for channel catfish collected in 9 net-nights of gill netting at Nolin River Lake during October 2020.

	Inch class																							
Species	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	CPUE	Std. error
Channel catfish	1	1		4	2	2		4	2	2	2	4	5	3	7	5	1	4	3	1	2	55	6.1	1.3
Flathead catfish													1			1		1				3	0.3	0.2

nwd1gn.d20

Table 15. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Nolin River Lake during October 2020. Standard errors are in parentheses.

Length group					
11.0-15.9 in		16.0-23.9 in		≥24.0 in	
No.	Wr	No.	Wr	No.	Wr
10	81 (2)	31	84 (1)	6	91 (5)

nwd1gn.d20

Table 16. Fishery statistics derived from creel survey at Nolin River Lake (5,800 acres) during April 01 - Oct. 31, 2020, 2015 and 2008, and March 01 - Oct. 31, 2004.

	2020	2015	2008	2004
Fishing trips				
No. of fishing trips (per acre)	42,953 (7.42)	25,177 (4.35)	26,686 (4.61)	44,371 (7.66)
Fishing pressure				
Total man-hours (S.E.)	197,265 (4,194.39)	152,950 (4,248.75)	122,543 (2,706.55)	146,796 (1,968.0)
Man-hours/acre	34.07	26.42	21.16	25.40
Catch/harvest				
No. of fish caught (S.E.)	648,323 (36,565.81)	155,584 (14,843.21)	125,754 (9,324.31)	245,073 (15,549.0)
No. of fish harvested (S.E.)	188,625 (12,809.09)	64,205 (7,835.48)	29,048 (3,276.22)	103,253 (8,510.0)
Lb. of fish harvested	97,783	43,829	14,771	43,397
Harvest rates				
Fish/hour	0.98	0.40	0.25	0.65
Fish/acre	32.58	11.09	5.02	17.8
Lb/acre	16.89	7.57	2.55	7.5
Catch rates				
Fish/hour	3.29	1.00	1.03	1.67
Fish/acre	111.78	26.87	21.71	42.3
Miscellaneous characteristics (%)				
Male	89.2%	88.5%	88.7%	81.9%
Female	10.8%	11.5%	11.3%	18.1%
Resident	97.2%	94.2%	96.2%	93.9%
Non-resident	2.8%	5.8%	3.8%	6.1%
Method (%)				
Still fishing	29.2%	28.7%	35.5%	26.0%
Casting	63.6%	60.4%	59.6%	68.5%
Trolling	4.5%	5.0%	4.5%	5.3%
Spider-Rig	1.4%	2.3%	-	-
Jugging\Trotline	1.2%	2.9%	-	-
Noodling/Hand grabbing	0.1%	0.3%	-	-
Noodling/Hooking	0.1%	-	-	-
Fly fishing	-	0.5%	0.5%	0.1%
Mode (%)				
Boat	90.6%	96.5%	93.0%	81.8%
Bank	3.0%	2.7%	5.3%	9.0%
Dock	5.3%	0.8%	1.7%	9.2%
Kayak	1.2%	-	-	-

[a]S.E. = standard error

Table 17. Relevant fishery statistics derived from creel surveys at Nolin River Lake (5,800 acres) 1991 to 2020.

	2020	2015	2008	2004	1995	1991
Fishing trips						
Total number of fishing trips	42,953	25,177	26,686	44,371	53,592	72,987
Black Bass fishing trips	22,517	12,230	12,568	14,190	17,356	36,026
Crappie fishing trips	9,969	5,703	6,596	10,994	10,915	14,723
Fishing pressure						
Total man-hours	197,265	152,950	122,543	146,796	292,425	320,331
Black bass man-hours	103,411	74,300	57,714	46,945	94,705	158,115
Crappie man-hours	45,785	34,647	30,288	36,372	59,557	64,616
Catch/harvest						
No. of fish caught	648,323	155,584	125,754	245,073	367,635	329,660
No. of black bass caught	203,891	79,601	49,198	43,199	102,841	124,719
No. crappie caught	241,355	42,515	32,852	94,223	122,973	35,312
No. of fish harvested	188,625	64,205	29,048	103,253	144,118	170,148
No. of black bass harvested	9,962	6,221	1,290	4,477	22,812	29,645
% of black bass harvested	4.9%	7.8%	2.6%	10.4%	22.2%	23.8%
No. crappie harvested	97,136	33,257	24,465	53,387	52,117	27,616
% of crappie harvested	40.2%	78.2%	74.5%	56.7%	42.4%	78.2%
Lb. of fish harvested	97,783	43,829	14,771	43,397	87,709	66,858
Lb. of black bass harvested	15,977	9,256	2,038	5,340	21,436	26,116
Lb. crappie harvested	42,793	16,804	10,937	25,114	21,740	11,126
Avg length of largemouth bass	14.4	15.1	15.9	14.3	13.1	13.0
Avg length of w hite crappie	9.9	10.3	9.8	9.9	9.7	9.5
% black bass fishing success	12.5%	4.5%	12.9%	8.9%	24.0%	24.0%
% crappie fishing success	87.9%	68.2%	46.3%	61.0%	51.0%	35.0%

*all data has associated standard error, not reported here

Table 18. Fish harvest statistics derived from a creel survey at Nolin River Lake (5,800 acres) during April 07 through October 27, 2020.

	Black bass group	Largemouth bass	Spotted bass	Crappie group	White crappie	Black crappie	Panfish group	Bluegill	Longear sunfish	Catfish group	Channel catfish	Flathead catfish	Walleye	White bass
No. caught	203,891	166,831	37,060	241,355	227,292	14,063	141,064	137,702	3,361	11,752	10,423	1,330	3,484	44,921
(per acre)	35.21	28.81	6.40	41.68	39.26	2.43	24.36	23.78	0.58	2.03	1.80	0.23	0.60	7.76
No. harvested	9,962	9,422	541	97,136	83,766	13,350	57,104	53,941	3,164	7,446	6,434	1,013	1,421	15,237
(per acre)	1.72	1.63	0.09	16.78	14.47	2.31	9.86	9.31	0.55	1.29	1.11	0.17	0.35	1.81
% of total no. harvested	5.28	5.00	0.29	51.50	44.42	7.08	30.27	28.60	1.68	6.05	3.41	0.54	0.96	8.08
Lb harvested	15,977	15,554	423	42,793	35,853	6,940	7,601	7,205	396	18,623	13,265	5,359	2,029	10,471
(per acre)	2.76	2.68	0.07	7.39	6.19	1.20	1.31	1.24	0.07	3.22	2.29	0.93	0.35	1.81
% of total lb harvested	16.34	15.91	0.43	43.76	36.67	7.10	7.77	7.37	0.41	19.05	13.57	5.48	2.08	10.71
Mean length (in)	-	14.40	12.33	-	9.89	10.02	-	5.87	5.94	-	18.65	21.67	16.96	11.78
Mean w eight (lb)	-	1.54	0.80	-	0.44	0.53	-	0.13	0.12	-	2.05	4.35	1.58	0.70
No. of fishing trips for that species	22,517	-	-	9,969	-	-	4,048	-	-	1,654	-	-	1,187	920
% of all trips	52.40	-	-	23.20	-	-	5.79	-	-	3.85	-	-	2.76	2.14
Hours fished for that species	103,411	-	-	45,785	-	-	18,592	-	-	7,595	-	-	5,453	4,226
(per acre)	17.86	-	-	7.91	-	-	3.21	-	-	1.31	-	-	0.94	0.73
No. harvested fishing for that species	8,703	-	-	94,528	-	-	48,618	-	-	5,623	-	-	1,021	9,106
Lb harvested fishing for that species	14,319	-	-	41,561	-	-	6,692	-	-	15,483	-	-	1,514	5,668
No./hour harvested fishing for that species	0.08	-	-	2.02	-	-	3.26	-	-	0.59	-	-	0.19	2.18
% success fishing for that species	12.50	-	-	87.90	-	-	81.80	-	-	82.70	-	-	40.00	83.70

Table 18 (cont.)

	Anything group	Drum	Illegal Walleye	Illegal black crappie	Illegal bass
No. caught		1,210		80.84	
(per acre)		0.21		0.01	
No. harvested		179		80.84	
(per acre)		0.03		0.01	
% of total no. harvested		0.09	-	0.04	-
Lb harvested		270	-	17	-
(per acre)		0.05		0.002	
% of total lb harvested		0.28		0.02	
Mean length (in)		15.2		8	
Mean weight (lb)		1.54		0.21	
No. of fishing trips for that species	2,657				
% of all trips	6.19				
Hours fished for that species	12,204				
(per acre)	2.11				
No. harvested fishing for that species					
Lb harvested fishing for that species					
No./hour harvested fishing for that species					
% success fishing for that species	43.20				

Table 19. Length distribution for each species of fish harvested or released at Nolin River Lake (5,800 a) during April 07 - October 27, 2020.

	Inch class																															
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	39	42
Largemouth bass																																
Harvested								490		1,016	1,296	1,401	2,207	1,576	806	315	140	35	105	34												
Released						7,379		78,037	386	25,052	2,741	17,849	15,600	6,008	2,284	1,230	281	141		34												
Spotted bass																																
Harvested									64	318	158																					
Released		172	103	1,755		5,748	172	24,989	241	2,513	413	310	69		34																	
White crappie																																
Harvested							33,794	40,226	5,895	2,620	774	417	60																			
Released				1,180	71,039	68,026	1,274	1,553	155	124	124	31																				
Black crappie																																
Harvested							2,892	9,027	826	572	32																					
Released					68	136	170	306	33																							
White bass																																
Harvested							646	4,966	340	6,190	510	1,905	442	204	33																	
Released				1,332	1,612	16,086	526	7,149	35	1,857		421	491	35	140																	
Walleye																																
Harvested												112	411	336	262	187		37		75												
Released				117		428	156	857		389	39	39	39																			
Channel catfish																																
Harvested										253	36	181	687	723	904	831	506	470	470	325	361	108	108	361	109							
Released				72	36	647	36	1,078		683		36	503	108		323		323			36	72		36								
Flathead catfish																																
Harvested												72		108	145		72	72	72	72					108	36	72	36	36	36	36	39
Released								35		70			35					106				35	36									
Bluegill																																
Harvested	625	5,479	1,691	37,689	6,104	2,316	36																									
Released	580	73,246	6,599	2,973	290	73																										
Longear sunfish																																
Harvested			109	3,054																												
Released		141		56																												
Drum																																
Harvested										36		36		36	70																	
Released								33		399		133	233	133	33	67																
Carp																																
Harvested																																
Released																38		153				152										
Illegal Black crappie																																
Harvested						80																										
Released																																
Other																																
Harvested				29										29																		
Released							32	32														32						65				

Table 20. Black bass catch and harvest statistics derived from a creel survey at Nolin River Lake (5,800 a) from April 07 - October 27, 2020.

	Largemouth Bass						Spotted Bass			
	Harvest			Catch and Release			Harvest	Catch and Release		
	<15.0 in	≥15.0 in	Total	<15.0 in	≥15.0 in	Total	Total	8.0-14.9 in	≥15.0 in	Total
Total no. of bass	4,203	5,218	9,421	25,578	131,444	166,443	540	34,386	103	37,059
% of black bass harvested by no.			94.57				5.43			
Total weight of fish (lb)			15,554				423			
% of bass harvested by weight			97.35				2.65			
Mean length			14.40				12.33			
Mean weight			1.54				0.80			
Rate (f/hr)			0.046				0.003			

Table 21. Monthly black bass angling success at Nolin River Lake (5,800 a) from April 07 - October 27, 2020 creel survey period; data does not include bass < 8.0 in that were caught and released.

Month	Total no. of bass caught	Total no. of bass harvested	No. of black bass fishing trips	Hours fished by bass anglers	Bass caught by bass anglers	Bass caught/hour by bass anglers	Bass harvested by bass anglers	Bass harvested/hour by bass anglers
Apr	25,563	367	2,785	12,792	23,793	1.80	92	0.007
May	69,357	1,980	5,757	26,441	64,344	2.33	1,535	0.056
Jun	37,136	3,055	3,605	16,558	33,565	2.13	2,737	0.173
Jul	20,458	2,116	2,973	13,655	19,153	1.52	1,975	0.146
Aug	21,174	601	2,816	12,933	19,513	1.46	601	0.045
Sep	17,718	1,042	2,677	12,292	16,225	1.32	986	0.080
Oct	12,484	801	1,903	8,739	11,448	1.27	777	0.086
Total	203,891	9,962	22,517	103,411	188,041	1.74	8,703	0.081
Mean	29,127	1,423	3,217	14,773	26,863		1,243	

Table 22. Black bass angling success at Nolin River Lake (5,800 a) during April 01 - Oct 31, 2008, 2015, and 2020, and March 01 - Oct. 31, 2004 creel survey periods. (Mean = monthly average)

Year		Total no. of bass caught	Total no. of bass harvested	No. of black bass fishing trips	Hours fished by bass anglers	Bass caught by bass anglers	Bass caught/hour by bass anglers	Bass harvested by bass anglers	Bass harvested/hour by bass anglers
2020	Total	203,891	9,962	22,517	103,411	188,041	1.74	8,703	0.08
	Mean	29,127	1,423	3,217	14,773	26,863		1,243	
2015	Total	79,601	6,220	12,230	74,300	71,770	0.99	3,937	0.06
	Mean	11,372	889	1,747	10,614	10,253		562	
2008	Total	49,198	1,290	12,568	57,714	43,528	0.72	809	0.02
	Mean	7,028	184	1,795	8,245	6,218		116	
2004	Total	43,199	4,477	14,190	46,945	35,753	0.70	3,161	0.06
	Mean	5,400	559	1,774	5,868	4,469		395	

Table 23. Monthly crappie angling success at Nolin River Lake (5,800 a) from April 07 - October 27, 2020 creel survey period.

Month	Total no. of crappie caught	Total no. of crappie harvested	No. of crappie fishing trips	Hours fished by crappie anglers	Crappie caught by crappie anglers	Crappie caught/hour by crappie anglers	Crappie harvested by crappie anglers	Crappie harvested/hour by crappie anglers
April	70,429	26,602	3,111	14,287	68,963	4.74	26,113	1.80
May	30,475	10,549	1,740	7,991	26,231	3.28	9,377	1.71
June	23,131	8,530	645	2,964	21,663	5.81	7,975	2.14
July	16,543	5,044	769	3,533	16,014	3.72	5,009	1.16
Aug	21,810	9,049	754	3,461	21,740	5.97	9,050	2.49
Sept	29,690	14,113	1,107	5,084	29,352	5.29	13,944	2.51
Oct	49,277	23,249	1,843	8,464	48,758	5.49	23,060	2.60
Total	241,355	97,136	9,969	45,785	232,721	4.87	94,528	2.02
Mean	34,479	13,877	1,424	6,541	33,246		13,504	

Table 24. Crappie angling success at Nolin River Lake (5,800 a) during April 01 - Oct 31, 2008, 2015, and 2020, and March 01 - Oct. 31, 2004 creel survey periods. (Mean = monthly average).

Year		Total no. of crappie caught	Total no. of crappie harvested	No. of crappie fishing trips	Hours fished by crappie anglers	Crappie caught by crappie anglers	Crappie caught/hour by crappie anglers	Crappie harvested by crappie anglers	Crappie harvested/hour by crappie anglers
2020	Total	241,355	97,136	9,969	45,785	232,721	4.87	94,528	2.02
	Mean	34,479	13,877	1,424	6,541	33,246		13,504	
2015	Total	42,515	33,375	5,703	34,647	40,176	1.10	31,916	0.91
	Mean	6,074	4,768	814	4,949	5,739		4,559	
2008	Total	32,852	24,465	6,596	30,288	30,793	0.89	23,592	0.69
	Mean	4,693	3,495	942	4,327	4,399		3,370	
2004	Total	94,223	53,387	10,994	36,372	86,333	2.30	48,816	1.28
	Mean	11,778	6,673	1,374	4,547	10,792		6,102	

Table 25. Monthly white bass angling success at Nolin River Lake (5,800 a) from 07 April - 27 October 2020 creel survey period.

Month	Total no. of white bass caught	Total no. of white bass harvested	No. of white bass fishing trips	Hours fished by white bass anglers	White bass caught by WB anglers	White bass caught/hour by WB anglers	White bass harvested by WB anglers	White bass harvested/hour by WB anglers
April	4,246	1,313	90	415	1,558	2.68	550	0.95
May	6,426	2,142	0	0	0	0.00	0	0
June	9,006	2,460	134	613	3,769	7.31	1,428	2.77
July	7,372	3,245	146	668	5,396	5.46	3,033	3.07
Aug	11,206	2,934	258	1,184	5,232	5.29	1,202	1.21
Sept	5,606	2,648	248	1,138	4,817	5.03	2,563	2.68
Oct	1,060	495	45	206	518	3.67	330	2.33
Total	44,921	15,237	920	4,226	21,290	5.00	9,106	2.18
Mean	6,417	2,177	132	603	3,041		1,301	

Table 26. White bass angling success at Nolin River Lake (5,800 a) during April 01 - Oct 31, 2008, 2015, and 2020, and March 01 - Oct. 31, 2004 creel survey periods. (Mean = monthly average)

Year		Total no. of white bass caught	Total no. of white bass harvested	No. of white bass fishing trips	Hours fished by white bass anglers	White bass caught by white bass anglers	White bass caught/hour by white bass anglers	White bass harvested by white bass anglers	White bass harvested/hour by white bass anglers
2020	Total	44,921	15,237	920	4,226	21,290	5.00	9,106	2.18
	Mean	6,417	2,177	132	603	3,041		1,301	
2015	Total	5,370	3,724	538	3,268	2,233	0.58	2,146	0.56
	Mean	767	532	77	467	319		307	
2008	Total	3,065	303	735	3,374	2,020	0.56	250	0.09
	Mean	438	43	105	482	289		36	
2004	Total	13,506	6,200	755	2,498	9,211	4.00	4,105	2.30
	Mean	1,688	775	94	555	1,151		513	

Table 27. Monthly walleye angling success at Nolin River Lake (5,800 a) from April 07 - October 27, 2020 creel survey period.

Month	Total no. of walleye caught	Total no. of walleye harvested	No. of walleye fishing trips	Hours fished by walleye anglers	Walleye caught by walleye anglers	Walleye caught/hour by walleye anglers	Walleye harvested by walleye anglers	Walleye harvested/hour by walleye anglers
April	367	275	90	415	275	0.66	183	0.44
May	1,617	687	589	2,703	1,374	0.51	525	0.19
June	1,190	317	289	1,329	913	0.69	278	0.21
July	106	35	83	382	35	0.09	35	0.09
Aug	177	106	59	273	0	0.00	0	0.00
Sept	28	0	17	76	0	0.00	0	0.00
Oct	0	0	60	275	0	0.00	0	0.00
Total	3,484	1,421	1,187	5,453	2,597	0.48	1,021	0.19
Mean	498	203	170	779	371		146	

Table 28. Walleye angling success at Nolin River Lake (5,800 a) during April 01 - Oct 31, 2008, 2015, 2020, and March 01 - Oct. 31, 2004 creel survey periods. (Mean = monthly average)

Year		Total no. of walleye caught	Total no. of walleye harvested	No. of walleye fishing trips	Hours fished by walleye anglers	Walleye caught by walleye anglers	Walleye caught/hour by walleye anglers	Walleye harvested by walleye anglers	Walleye harvested/hour by walleye anglers
2020	Total	3,484	1,421	1,187	5,453	2,597	0.48	1,021	0.19
	Mean	498	203	170	779	371		146	
2015	Total	1,457	614	588	3,573	892	0.29	343	0.11
	Mean	208	88	67	410	127		49	
2008	Total	2,132	597	1,174	5,390	1,617	0.50	528	0.16
	Mean	305	85	168	770	231		75	
2004	Total	1,631	205	643	2,129	489	0.26	130	0.10
	Mean	204	26	80	266	61		16	

Table 29. Dissolved oxygen (ppm) and temperature profile conducted on 07 July 2020 at five sites on Nolin River Lake: Dam, State Park, Long Fall Creek, Big Island, and Barton Run, respectively.

	Location									
	Site: 1	9:23am	Site: 2	9:44am	Site: 3	10:06am	Site: 4	10:35am	Site: 5	11:00am
Depth	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**
Surface	85.0	9.55	85.7	9.52	86.0	11.75	86.3	14.67	86.9	16.00
2	84.8	9.76	85.3	9.70	85.6	12.22	86.1	15.10	86.0	16.40
4	84.7	9.83	85.0	9.83	85.1	12.42	85.3	14.70	85.0	15.35
6	84.6	9.74	84.9	9.52	84.9	11.96	85.1	13.80	83.7	10.20
8	84.6	9.63	84.4	8.62	84.7	10.74	83.2	7.20	82.9	9.58
10	83.6	8.95	82.0	8.54	82.1	6.59	82.2	4.59	81.2	7.99
12	81.0	7.52	79.8	5.24	80.2	4.42	80.6	3.28	77.6	7.61
14	78.6	5.45	78.7	3.24	78.4	2.70	79.3	0.93	73.0	5.54
16	77.3	1.86	77.6	0.72	78.1	2.30	77.1	0.41	72.1	5.30
18	76.5	0.35	76.8	0.39	75.9	0.32	75.5	0.51	70.8	4.59
20	75.4	0.30	75.6	0.31	74.9	0.32	74.5	0.62	70.6	4.40
22									70.4	4.32
24									70.3	4.20
26									70.1	4.01
28									69.9	3.58
30									69.4	2.75
32									69.1	2.26
34									68.4	0.84
36									68.3	0.71
38										
40	82' deep		52' deep		60' deep		48' deep		36' deep	
Secchi	30"		32"		36"		32"		30"	

Table 30. Length frequency and CPUE (fish/nn) for hybrid striped bass collected in 11 net-nights of sampling at Rough River Lake during November 2020.

Species	Inch class																	Total	CPUE	SE
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Hybrid striped bass	27	52	8				10	45	56	20	67	63	33	10	9	3	2	405	36.8	4.74

nwd2gn.d20

Table 31. Number of fish and the relative weight (Wr) for each length group of hybrid striped bass collected at Rough River Lake during fall samples 2006 - 2020. Standard errors are in parentheses.

Year	Length group					
	8.0 - 11.9 in		12.0 - 14.9 in		≥ 15.0 in	
	No.	Wr	No.	Wr	No.	Wr
2020	60	87 (1)	55	87 (1)	263	83 (1)
2019	225	95 (1)	16	87 (1)	162	83 (1)
2018	156	93 (1)	176	87 (1)	179	86 (1)
2017	172	93 (1)	2	88 (5)	201	86 (1)
2016	31	90 (2)	8	86 (7)	126	81 (1)
2014	56	95 (1)	51	88 (1)	142	82 (1)
2012	3	88 (2)	70	81 (1)	170	82 (1)
2010	14	83 (2)	124	90 (6)	223	83 (1)
2008	38	91 (1)	51	78 (1)	149	85 (4)
2006	21	96 (2)	65	89 (1)	108	81 (1)

nwd2gn.d20

Table 32. Mean back calculated lengths (in) at each annulus for hybrid striped bass collected at Rough River Lake in November 2020.

		Age									
Year class	No.	1	2	3	4	5	6	7	8	9	10
2019	94	10.9									
2018	77	10.7	15.9								
2017	67	10.8	15.9	17.8							
2016	13	11.3	16.5	18.1	19.1						
2015	3	11.7	16.0	18.1	18.9	19.8					
2014	4	8.3	13.4	15.9	18.3	19.4	20.7				
2013	2	8.2	13.4	15.9	17.5	19.0	20.3	21.4			
2012	3	8.2	14.8	17.4	18.9	20.2	20.7	21.1	21.5		
2010	1	9.9	10.8	12.4	13.0	14.2	15.5	16.4	17.3	18.3	19.2
Mean		10.8	15.8	17.7	18.6	19.2	20.1	20.4	20.5	18.3	19.2
No.		264	170	93	26	13	10	6	4	3	1
Smallest		6.7	10.7	12.2	13.0	14.2	15.5	16.4	17.3	18.3	19.2
Largest		14.6	17.9	20.0	20.8	21.5	22.2	22.3	22.8	18.3	19.2
SE		0.1	0.1	0.1	0.3	0.5	0.6	0.9	1.2		
95% CI (±)		0.2	0.2	0.3	0.7	0.8	0.7	1.7	2.3		

nwd2hsba.d20

Table 33. Age-frequency and CPUE (fish/nn) per inch class of hybrid striped bass collected in 11 net-nights of sampling at Rough River Lake during November 2020.

	Inch class																				
Age	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	No.	CPUE	SE	Age (%)
0	27	52	8															87	7.9	3.5	21.5
1							10	45	55	8								118	10.6	1.6	29.1
2									1	11	48	32						92	8.4	1.2	22.7
3										1	19	30	26	3	1			80	7.3	1.5	19.8
4												1	6	5	3			15	1.3	0.4	3.5
5													1	1	1			3	0.3	0.1	0.7
6														1	2	1		4	0.4	0.2	1.0
7															1		1	2	0.2	0.1	0.5
8															1	1	1	3	0.3	0.1	0.7
10																1		1	0.1	0.1	0.3
Total	27	52	8				10	45	56	20	67	63	33	10	9	3	2	405			
(%)	6.7	12.8	2.0				2.5	11.1	13.8	5.0	16.5	15.6	8.2	2.5	2.2	0.3	0.2				

nwd2gn.d20, nwd2hsba.d20

Table 34. Population assessment for hybrid striped bass based on fall gill net sampling at Rough River Lake from 1999-2020 (scoring based on statewide assessment).

Year	CPUE (excluding age 0)	Mean length age 2+ at capture	CPUE ≥ 15.0 in	CPUE age 1	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020	28.9 (4)	17.7 (3)	23.9 (4)	29.1 (4)	0.597	45.0	15	Excellent
2019	12.7 (3)	17.2 (2)	11.6 (3)	3.2 (2)	0.738	52.2	10	Good
2018	35.5 (4)	18.2 (3)	17.9 (4)	31.1 (4)	1.698	81.7	15	Excellent
2017	16.8 (3)	18.5 (3)	16.7 (4)	8.2 (4)	0.635	47.0	14	Excellent
2016	22.3 (3)	17.6 (3)	21.0 (4)	4.8 (3)	0.523	40.7	13	Good
2014	43.8 (4)	16.8 (2)	32.6 (4)	14.2 (4)	0.457	36.7	14	Excellent
2012	35.1 (4)	16.7 (2)	25.1 (4)	11.6 (4)	0.717	51.2	14	Excellent
2010	60.2 (4)	16.8 (2)	34.5 (4)	28.9 (4)	0.525	40.8	14	Excellent
2008	25.1 (4)	16.3 (1)	19.3 (4)	6.3 (3)	0.544	42.0	12	Good
2006	23.7 (4)	16.9 (2)	14.5 (4)	8.9 (4)	0.447	36.1	14	Excellent
2003	33.9 (4)	16.5 (2)	30.9 (4)	3.1 (2)	0.680	49.8	12	Good
2001	29.9 (4)	15.9 (1)	16.8 (4)	13.1 (4)			13	Good
1999	26.4 (4)	16.5 (2)	18.5 (4)	8.1 (4)			14	Excellent

Table 35. Length frequency and CPUE (fish/nn) for catfish collected in 11 net-nights of sampling at Rough River Lake during November 2020.

	Inch class																					
Species	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Total	CPUE	SE
Channel catfish	1	1	3	1	3	5	6	2	2	9	3	6	4	6	5	1	2		1	61	5.6	1.6
Flathead catfish																	1			1	0.1	0.1

nwd2gn.d20

Table 36. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Rough River Lake during samples 2006 - 2020. Standard errors are in parentheses.

	Length group					
	11.0-15.9 in		16.0-23.9 in		≥ 24.0 in	
Year	No.	Wr	No.	Wr	No.	Wr
2020	18	80 (2)	37	91 (5)	4	95 (8)
2019	9	87 (4)	66	88 (1)	8	92 (3)
2018	4	78 (4)	64	85 (1)	6	94 (5)
2017	12	83 (3)	41	90 (1)	2	103 (3)
2016	8	86 (3)	104	95 (1)	13	93 (2)
2014	4	79 (1)	12	91 (3)	3	75 (3)
2012	2	82 (1)	1	88 (0)	2	93 (7)
2010	14	76 (1)	19	79 (2)	14	86 (3)
2008	15	82 (1)	31	87 (2)	2	94 (6)
2006	18	89 (2)	23	96 (1)	0	-

nwd2gn.d20

Table 37. Dissolved oxygen (ppm) and temperature profile conducted at three sites on Rough River Lake on June 16, 2020. Lake level 495.0.

	Location							
	Site: 1	12:44pm	Site: 2	11:03am	Site: 5	1:43pm	Site: 6	2:11pm
Depth	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**
Surface	80.0	8.86	81.0	8.56	80.4	9.36	80.7	9.60
2	79.9	8.89	80.7	8.70	80.4	9.40	80.5	9.59
4	79.9	8.90	80.3	8.70	80.3	9.41	80.1	9.54
6	79.9	8.90	79.7	7.65	80.3	9.42	79.9	9.63
8	79.8	8.92	79.5	8.14	80.3	9.42	79.3	9.66
10	79.5	8.96	79.4	7.57	78.9	8.13	79.0	9.16
12	78.6	7.80	79.2	5.60	76.7	4.22	77.6	3.80
14	78.0	7.20	76.9	1.05	74.1	1.35	74.1	0.66
16	76.0	3.07	71.9	0.46	73.3	0.90	70.4	0.39
18	74.2	1.42	69.0	0.33	70.2	0.47	67.5	0.33
20	68.5	0.48	67.7	0.30	68.2	0.38	66.7	0.31
22								
24								
25								
26							26' deep	
27								
28			28' deep					
30					30' deep			
35								
40	40' deep							
Secchi	60"		32"		60"		54"	

	Temp, F	D.O.
Optimal	70.7 - 77.9	≥ 4.5
Suboptimal	< 70.7, 77.9 - 80.6	2.0 - 4.4
Poor	> 80.6	< 2.0

Table 38. Dissolved oxygen (ppm) and temperature profile conducted at six sites on Rough River Lake on July 8, 2020. Lake level 501.63.

	Location											
	Site: 1	10:49am	Site: 2	10:22am	Site: 3	9:47am	Site: 4	11:29am	Site: 5	11:56am	Site: 6	12:14pm
Depth	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**
Surface	89.0	8.14	89.0	9.62	87.6	10.65	89.4	8.57	89.0	8.25	88.5	8.85
2	88.2	8.20	87.5	10.41	86.4	10.40	88.0	8.82	88.9	8.28	87.8	9.11
4	87.2	8.37	87.0	10.50	85.9	9.93	87.1	9.01	87.6	8.70	87.1	9.19
6	86.8	8.49	85.4	8.54	84.5	10.26	86.7	8.94	86.3	8.64	86.3	9.08
8	85.1	8.02	84.2	6.60	83.0	8.64	86.3	8.83	85.2	8.06	84.5	7.32
10	83.0	6.00	82.5	3.95	80.3	6.30	84.0	9.90	83.5	6.57	82.5	4.74
12	80.0	3.01	80.2	1.22	74.7	5.00	79.3	6.70	79.6	2.58	80.4	1.52
14	77.7	1.13	78.3	0.44	73.3	5.40	77.5	4.65	78.0	1.23	78.2	0.47
16	76.3	0.47	76.3	0.36	72.1	3.89	76.2	2.25	76.8	0.52	76.2	0.34
18	75.5	0.34	74.1	0.31	69.4	2.12	75.2	1.52	75.8	0.37	75.0	0.30
20	74.4	0.30	71.2	0.29	68.8	1.60	74.3	0.57	74.3	0.32	74.3	0.27
22												
24												
25												
26												
27												
28												
30					30' deep				31' deep			
35			35' deep								32' deep	
40												
45	45' deep											
50							51' deep					
55												
Secchi	106"		73"		46"		95"		74"		75"	

	Temp, F	D.O.
Optimal	70.7 - 77.9	≥ 4.5
Suboptimal	< 70.7, 77.9 - 80.6	2.0 - 4.4
Poor	> 80.6	< 2.0

Table 39. Dissolved oxygen (ppm) and temperature profile conducted at six sites on Rough River Lake on August 5, 2020. Lake level 496.9.

	Location											
	Site: 1	10:43am	Site: 2	9:33am	Site: 3	9:05am	Site: 4	11:04am	Site: 5	11:55am	Site: 6	12:27pm
Depth	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**
Surface	83.0	6.97	82.6	6.62	81.0	8.33	83.1	6.95	83.8	6.87	84.2	6.82
2	82.7	6.94	82.6	6.60	81.0	8.39	82.5	6.81	83.6	6.87	83.9	6.79
4	82.5	6.79	82.5	6.25	81.0	7.93	82.3	6.82	83.5	6.90	83.8	6.89
6	82.4	6.71	82.5	6.02	80.9	7.75	82.2	6.83	83.4	6.88	83.6	5.60
8	82.2	6.08	82.5	5.79	80.8	7.57	82.0	6.64	83.1	6.65	82.7	4.77
10	82.2	6.17	82.5	5.61	80.4	7.22	81.9	6.60	82.7	6.17	82.6	4.63
12	82.2	6.21	82.5	5.61	76.0	2.47	81.8	6.59	82.4	5.68	82.5	4.14
14	82.1	6.29	82.5	5.66	75.0	2.16	81.7	6.19	82.2	5.11	82.3	4.21
16	81.4	1.49	82.4	5.49	74.5	2.04	81.6	6.26	80.6	0.42	80.5	0.42
18	80.3	0.34	80.4	0.76	74.3	2.00	81.1	5.35	79.3	0.31	79.4	0.33
20	79.2	0.30	78.6	0.36	74.2	1.96	79.3	0.46	78.9	0.29	78.5	0.31
22												
24					24' deep							
25												
26												
27												
28											28' deep	
30			30' deep						30' deep			
35												
40												
45	46' deep											
50												
55							60' deep					
Secchi	60"		36"		25"		71"		58"		36"	

	Temp, F	D.O.
Optimal	70.7 - 77.9	≥ 4.5
Suboptimal	< 70.7, 77.9 - 80.6	2.0 - 4.4
Poor	> 80.6	< 2.0

Table 40. Length frequency and CPUE (fish/hr) of largemouth bass collected during 2.5 hours of 30-minute diurnal electrofishing runs at Lake Malone in October 2020.

	Inch class																						
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	SE
Largemouth bass	8	61	46	14	5	38	48	42	37	40	41	28	27	16	15	11	17	7	1	1	503	201.2	10.6

nwd3lmb.d20

Table 41. Number of fish and relative weight (Wr) for length groups of largemouth bass collected in fall electrofishing samples at NWFD state-owned lakes during 2020; 95% confidence intervals are in parentheses.

	Length group					
Lake	8.0-11.9 in		12.0-14.9 in		≥ 15.0 in	
	No.	Wr	No.	Wr	No.	Wr
Malone	87	88 (1)	63	86 (1)	68	93 (1)
Carpenter	58	89 (2)	24	94 (2)	26	96 (2)
New Kingfisher	13	93 (3)	7	85 (5)	29	99 (2)
Old Kingfisher	27	96 (2)	15	89 (2)	5	101 (8)
Washburn	58	85 (1)	2	96 (1)	2	102 (3)

nwd3lmb.d20
nwd5lmb.d20
nwd6lmb.d20
nwd7lmb.d20
nwd8lmb.d20

Table 42. Dissolved oxygen (ppm) and temperature profile conducted at Lake Malone on 12 September 2019.

	Location					
	Site 1	10:24 AM	Site 2	12:10 PM	Site 3	12:32 PM
Depth (ft)	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**
Surface	84.1	7.89	84.6	7.99	86.2	9.09
2	83.4	8.02	83.7	8.45	80.0	9.15
4	83.1	7.04	82.7	7.22	84.2	9.49
6	83.1	7.34	82.5	6.65	83.4	8.85
8	82.8	6.11	82.2	4.95	82.8	7.77
10	81.7	0.52	81.2	0.49	81.7	4.87
12	78.8	0.41	78.7	0.35	77.0	0.05
14	72.9	0.33	74.4	0.30	73.2	0.34
16	67.8	0.28	14' deep		67.3	0.29
18	18' deep				62.7	0.26
20					59.4	0.23
22						
24						
25						
26						
28					28' deep	
Secchi	30"		24"		32"	

Table 43. Length frequency and CPUE (fish/hr) of largemouth bass collected during 1.0 hour of 15-minute diurnal electrofishing runs at Lake Mauzy in May 2020.

	Inch class																				
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	SE
Largemouth bass	3	35	24	11	23	123	73	131	86	31	14	4		1	1	1		2	1	564	564.0	79.4

nwd4psd.d20

Table 44. PSD and RSD_{15} values obtained for largemouth bass collected in spring electrofishing samples at NWFD state-owned lakes during 2020; 95% confidence intervals are in parentheses.

Lake	Species	No. ≥ 8.0 in	PSD	RSD_{15}
Mauzy	Largemouth bass	468	12 (± 3)	1 (± 2)
Carpenter	Largemouth bass	125	60 (± 9)	41 (± 9)
New Kingfisher	Largemouth bass	58	71 (± 12)	38 (± 13)
Old Kingfisher	Largemouth bass	19	53 (± 22)	26 (± 20)
Washburn	Largemouth bass	30	27 (± 15)	13 (± 12)

nwd4psd.d20
nwd5psd.d20
nwd6psd.d20
nwd7psd.d20
nwd8psd.d20

Table 45. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Mauzy Lake during spring 2003-2020.

	Length group										Total	
	< 8.0 in		8.0-11.9 in		12.0-14.9 in		≥ 15.0 in		≥ 20.0 in			
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	96.0	18.0	413.0	59.5	49.0	7.6	6.0	2.6	3.0	1.0	564.0	79.4
2018	35.0	2.5	162.0	10.4	18.0	1.2	19.0	3.0	8.0	3.3	234.0	11.5
2017	110.7	17.3	212.0	14.0	40.0	4.6	12.0	2.3	5.3	1.3	374.7	34.7
2015	40.0	12.1	133.0	21.8	20.0	7.8	15.0	1.9	5.0	3.8	208.0	37.1
2014	65.0	7.2	110.0	3.5	21.0	3.4	35.0	5.7	13.0	6.8	231.0	8.4
2013	80.0	24.3	98.7	19.6	13.3	4.8	34.7	4.8	4.0	2.3	226.7	25.3
2012	96.0	16.5	42.0	2.6	20.0	4.9	40.0	9.1	15.0	3.4	198.0	12.8
2011	48.0	11.6	21.3	3.5	58.7	2.7	40.0	4.6	10.7	3.5	168.0	8.0
2010	26.7	3.5	78.7	13.1	21.3	2.7	44.0	10.1	17.3	8.1	170.7	26.7
2009[a]												
2008	104.0	31.4	147.0	16.3	21.0	5.0	83.0	9.3	7.0	1.9	355.0	48.2
2007	46.0	5.3	49.0	12.3	40.0	2.8	64.0	17.5	0.0		199.0	31.0
2006	68.0	14.1	40.0	4.0	24.0	4.0	60.0	4.6	0.0		192.0	21.2
2005	52.0	8.6	25.0	6.6	147.0	11.5	21.0	7.9	4.0	1.6	245.0	22.3
2004	20.0	9.2	132.0	2.3	5.3	1.3	6.7	1.3	0.0		164.0	10.6
2003[b]	98.6	18.7	163.2	31.9	73.6	6.1	20.8	6.4	2.8	2.8	356.3	58.7

[a] Lake drawn down for repairs in 2009

[b] Lake renovated in 2003

nwd4psd.d20

Table 46. Population assessment for largemouth bass based on spring electrofishing at Mauzy Lake from 2003-2020 (scoring based on statewide assessment).

Year	Mean length age-3 at capture	CPUE age-1	CPUE 12.0-14.9 in	CPUE ≥ 15.0 in	CPUE ≥ 20.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020		71.0 (4)	49.0 (4)	6.0 (2)	3.0 (3)			≥ 14	Good
2018	9.8 (1)*	27.0 (2)	18.0 (1)	19.0 (3)	8.0 (4)			11	Fair
2017		78.7 (4)	40.0 (3)	12.0 (2)	5.3 (4)			≥ 14	G - E
2015	10.2 (2)*		20.0 (2)	15.0 (2)	5.0 (4)			≥ 13	Good
2014		40.0 (2)	21.0 (2)	35.0 (4)	13.0 (4)			≥ 13	Good
2013		63.1 (3)	13.3 (1)	34.7 (4)	4.0 (4)			≥ 13	Good
2012	13.6 (4)[a]	74.0 (3)	20.0 (2)	40.0 (4)	15.0 (4)	0.965	61.9	17	Excellent
2011		61.3 (3)	56.7 (4)	40.0 (4)	10.7 (4)			≥ 16	G - E
2010			21.3 (2)	44.0 (4)	17.3 (4)			≥ 11	F -G
2009[b]									
2008	12.2 (4)	99.0 (4)	21.0 (2)	83.0 (4)	7.0 (4)	0.466	37.3	18	Excellent
2007	12.2 (4)	21.0 (2)	40.0 (3)	64.0 (4)	0.0 (0)	0.374	31.2	13	Good
2006	10.3 (2)	24.0 (2)	24.0 (2)	60.0 (4)	0.0 (0)	0.755	53.0	10	Fair
2005	10.3 (2)	34.0 (2)	147.0 (4)	21.0 (3)	4.0 (4)			15	Good
2004	10.3 (2)	2.7 (1)	5.3 (1)	6.7 (2)	0.0 (0)	0.884	58.7	6	Poor
2003[c]	10.3 (2)	86.8 (4)	73.6 (4)	20.8 (3)	2.8 (3)			16	Good

[a] Only one age-3 fish

[b] Lake drawn down for repairs in 2009

[c] Lake renovated in 2003

* Back calculated from age table

Table 47. Length frequency and CPUE (fish/hr) of largemouth bass collected during 1.0 hour of 15-minute diurnal electrofishing runs at Carpenter Lake in April 2020.

	Inch class																			
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	SE
Largemouth bass	2	7	5	12	28	5	10	7	5	6	13	9	14	12	10	4	2	151	151.0	32.2

nwd5psd.d20

Table 48. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Carpenter Lake 2003-2020.

	Length group											
	< 8.0 in		8.0-11.9 in		12.0-14.9 in		≥ 15.0 in		≥ 20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	26.0	6.2	50.0	13.1	24.0	6.7	51.0	9.6	2.0	2.0	151.0	32.2
2019	37.0	10.4	29.0	12.3	21.0	9.3	65.0	3.4	6.0	1.2	152.0	30.1
2018	40.0	9.2	17.3	7.4	108.0	12.0	49.3	13.1	1.3	1.3	214.7	10.4
2017	32.0	2.3	44.0	12.9	100.0	20.8	24.0	4.6	5.3	2.7	200.0	38.6
2016	97.3	31.5	57.3	5.8	65.3	11.4	33.3	5.3	12.0	6.1	254.3	41.9
2015	21.3	5.8	86.7	3.5	12.0	2.3	17.3	2.7	0.0		137.3	4.8
2014	16.0	6.7	131.2	17.6	48.0	13.2	30.4	5.9	12.8	5.4	225.6	37.0
2013	80.0	26.2	138.7	9.6	20.0	4.0	22.7	1.3	5.3	1.3	261.3	38.5
2012	40.0	16.7	74.7	15.0	46.7	7.4	22.7	12.7	1.3	1.3	184.0	46.7
2011	182.7	15.4	166.7	9.6	73.3	13.1	9.3	3.5	4.0	4.0	432.0	30.2
2010	73.3	19.4	198.7	39.6	10.7	5.8	12.0	4.6	2.7		294.7	34.7
2009	102.7	18.7	166.7	26.3	18.7	4.8	8.0	2.3	0.0		296.0	27.2
2008	136.0	17.7	229.0	28.8	9.0	2.5	11.0	4.1	1.0	1.0	385.0	50.3
2007	45.3	7.4	128.0	24.3	12.0	2.3	10.7	3.5	1.3		196.0	31.8
2006	97.3	12.0	134.7	8.7	24.0	1.3	9.3	2.3	0.0		265.3	55.4
2005	157.3	3.5	165.3	48.6	30.7	3.5	2.7	1.3	0.0		356.0	54.6
2004	80.0	16.7	128.0	28.0	22.7	3.5	21.3	8.7	2.7		252.0	47.7
2003	181.3	49.3	97.3	11.4	18.7	4.8	36.0	12.2	1.3		333.3	63.4

nwd5psd.d20

Table 49. Length frequency and CPUE (fish/hr) of largemouth bass collected during 1.25 hours of 15-minute diurnal electrofishing runs at Carpenter Lake in October 2020.

	Inch class																				
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	SE
Largemouth bass	4	8	1		3	16	21	18	5	8	12	11	3	3	5	2	1	1	122	97.6	18.8

nwd5lmb.d20

Table 50. Population assessment for largemouth bass based on spring electrofishing at Carpenter Lake from 2001-2020 (scoring based on statewide assessment).

Year	Mean length age-3 at capture	CPUE age-1	CPUE 12.0-14.9 in	CPUE ≥ 15.0 in	CPUE ≥ 20.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020		12.0 (2)	24.0 (2)	51.0 (4)	2.0 (3)			≥ 12	F - G
2019		37.0 (3)	21.0 (2)	65.0 (4)	6.0 (4)			≥ 14	Good
2018	11.3 (3)*	40.0 (3)	108.0 (4)	49.3 (4)	1.3 (2)			16	Good
2017		34.7 (3)	100.0 (4)	24.0 (3)	5.3 (4)			≥ 15	G - E
2016		97.3 (4)	65.3 (4)	33.3 (4)	12.0 (4)			≥ 17	Excellent
2015	10.6 (2)*		12.0 (1)	17.3 (3)	0.0 (1)			≥ 8	P - F
2014		16.0 (2)	48.0 (4)	30.4 (4)	12.8 (4)			≥ 15	G - E
2013		69.3 (4)	20.0 (2)	22.7 (3)	5.3 (4)			≥ 14	Good
2012		12.0 (2)	46.7 (4)	22.7 (3)	1.3 (2)			≥ 12	F - G
2011		182.7 (4)	73.3 (4)	9.3 (2)	4.0 (4)			≥ 15	G - E
2010	10.1 (1)	72.0 (4)	10.7 (1)	12.0 (2)	2.7 (3)	0.438	35.5	11	Fair
2009	10.3 (2)	97.9 (4)	18.7 (2)	8.0 (2)	0.0 (1)			11	Fair
2008	10.3 (2)	120.3 (4)	9.0 (1)	11.0 (2)	1.0 (2)	0.561	42.9	11	Fair
2007	10.3 (2)	39.9 (3)	12.0 (1)	10.7 (2)	1.3 (2)	0.560	42.9	10	Fair
2006	11.6 (4)	78.7 (4)	24.0 (2)	9.3 (2)	0.0 (1)	1.160	68.7	13	Good
2005	11.6 (4)	132.0 (4)	30.7 (3)	2.7 (1)	0.0 (1)			13	Good
2004	11.6 (4)	56.0 (4)	22.7 (2)	21.3 (3)	2.7 (3)	1.155	68.5	16	Good
2003	11.6 (4)	162.7 (4)	54.7 (4)	36.0 (4)	1.3 (2)	0.943	61.1	18	Excellent
2002	11.6 (4)	12.0 (2)	12.0 (1)	21.3 (3)	0.0 (1)			11	Fair
2001	11.6 (4)	8.0 (2)	90.7 (4)	66.7 (4)	1.3 (2)			16	Good

* Back calculated from age table

Table 51. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected during 0.75 hours of electrofishing at Carpenter Lake in May 2020.

	Inch class											
Species	1	2	3	4	5	6	7	8	9	Total	CPUE	SE
Bluegill	9	29	43	157	202	102	6	1		549	732.0	156.0
Redear sunfish			1	3	7	13	13	30	7	74	98.7	29.1

nwd5bg.d20

Table 52. Spring electrofishing CPUE (fish/hr) for each length group of bluegill (2001-2020) and redear sunfish (2010-2020) collected at Carpenter Lake.

Bluegill	Length group											
	< 3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 8.0 in		≥ 10.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	50.7	16.2	536.0	112.3	144.0	53.2	1.3	1.3	0.0		732.0	156.0
2019	5.3	4.0	249.3	51.8	104.0	34.8	0.0		0.0		358.7	81.9
2018	17.3	6.0	528.0	85.3	49.3	8.1	0.0		0.0		594.7	93.9
2017	89.3	27.9	348.0	38.8	170.7	22.0	0.0		0.0		608.0	84.3
2016	8.0	3.6	133.3	30.5	156.0	25.0	0.0		0.0		297.3	52.5
2015	2.7	1.7	125.3	17.9	220.0	52.9	0.0		0.0		348.0	65.5
2014	5.3	4.0	352.0	34.6	332.0	34.1	1.3	1.3	0.0		690.7	49.7
2013	20.0	9.2	138.7	27.1	312.0	42.5	0.0		0.0		470.7	70.8
2012	1.6	1.6	144.0	31.9	147.2	22.3	0.0		0.0		292.8	49.7
2011	16.0	10.4	400.0	157.5	180.8	50.5	0.0		0.0		596.8	214.4
2010	10.7	6.4	100.0	18.6	101.3	19.0	0.0		0.0		212.0	30.8
2009	17.3	9.6	124.0	24.4	140.0	17.9	0.0		0.0		281.3	42.9
2008	0.0		88.0	18.8	150.0	50.7	0.0		0.0		238.0	68.5
2007	2.7	2.7	61.3	17.7	168.0	38.5	1.3	1.3	0.0		233.3	9.1
2006	1.3	1.3	57.3	10.0	102.7	12.1	0.0		0.0		161.3	21.3
2005	12.1	9.8	190.1	17.1	98.9	6.8	18.7	9.0	0.0		319.8	23.1
2004	12.3	4.6	26.2	7.1	46.2	11.4	1.5	1.5	0.0		86.2	20.4
2003	7.7	2.8	102.6	23.0	47.4	13.2	3.9	1.7	0.0		161.5	34.1
2002	2.3		8.1		17.2		1.2		0.0		28.7	0.0
2001			198.7	74.7	152.0	22.7	41.3	12.7	0.0		392.0	108.9

nw d5bg.d20

Redear	Length group											
	< 3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 8.0 in		≥ 10.0 in		Total	
Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2020	0.0		14.5	6.7	34.7	11.4	49.3	17.0	0.0		98.7	29.1
2019	0.0		10.7	4.9	73.3	22.7	18.7	3.4	0.0		102.7	27.3
2018	0.0		21.3	3.4	16.0	4.1	16.0	2.9	1.3	1.3	53.3	6.4
2017	0.0		29.3	19.0	17.3	5.2	22.7	10.0	1.3	1.3	69.3	19.8
2016	0.0		1.3	1.3	8.0	2.9	12.0	6.4	2.7	1.7	21.3	7.9
2015	0.0		2.7	2.7	10.7	3.4	40.0	9.9	1.3	1.3	53.3	11.4
2014	0.0		0.0		10.7	4.0	72.0	11.7	0.0		82.7	11.4
2013	0.0		1.3	1.3	9.3	2.5	12.0	2.7	0.0		22.7	2.5
2012	0.0		8.0	3.6	41.6	20.3	6.4	3.0	0.0		56.0	25.2
2011	0.0		32.0	24.4	28.8	17.6	16.0	5.7	0.0		76.8	43.1
2010	0.0		2.7	2.7	16.0	4.6	9.3	2.5	0.0		28.0	6.5

nw d5bg.d20

Table 53. PSD and RSD values obtained for bluegill and redear sunfish collected in spring electrofishing samples at NWFD state-owned lakes during 2020; 95% confidence intervals are in parentheses.

Lake	Species	No.	PSD	RSD[a]
Carpenter	Bluegill	511	21 (± 3)	0
	Redear sunfish	73	68 (± 11)	10 (± 6)
New Kingfisher	Bluegill	238	32 (± 5)	0
	Redear sunfish	15	80 (± 20)	20 (± 20)
Old Kingfisher	Bluegill	322	38 (± 5)	0
	Redear sunfish	12	82 (± 16)	8 (± 16)
Washburn	Bluegill	98	32 (± 9)	2 (± 3)
	Redear sunfish	104	67 (± 10)	5 (± 4)

[a] Bluegill = RSD_8, Redear = RSD_9

nwd5bg.d19

nwd6bg.d19

nwd7bg.d19

nwd8bg.d20

Table 54. Population assessment for bluegill based on spring electrofishing at Carpenter Lake from 2001-2020 (scoring based on statewide assessment).

Year	Mean length age-2 at capture	Years to 6.0 in	CPUE ≥ 6.0 in	CPUE ≥ 8.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020			145.3 (4)	1.3 (2)			≥ 8	F - G
2019			104.0 (4)	0.0 (1)			≥ 7	F - G
2018	4.8 (4)*	3-3+ (3)	49.3 (2)	0.0 (1)			10	Good
2017			170.7 (4)	0.0 (1)			≥ 7	F - G
2016			156.0 (4)	0.0 (1)			≥ 7	F - G
2015	4.9 (4)	4-4+ (2)	220.0 (4)	0.0 (1)			11	Good
2014			333.3 (4)	1.3 (2)			≥ 8	F - E
2013			312.0 (4)	0.0 (1)			≥ 7	F - G
2012			147.2 (4)	0.0 (1)			≥ 7	F - G
2011			180.8 (4)	0.0 (1)			≥ 7	F - G
2010	4.9 (4)	3-3+ (3)	101.3 (4)	0.0 (1)	0.615	45.9	12	Good
2009	4.6 (3)	3-3+ (3)	140.0 (4)	0.0 (1)			11	Good
2008	4.6 (3)	3-3+ (3)	150.0 (4)	0.0 (1)	0.571	43.9	11	Good
2007	4.6 (3)	3-3+ (3)	169.3 (4)	1.3 (2)	0.386	32.0	12	Good
2006	5.6 (4)	2-2+ (4)	84.6 (3)	0.0 (1)	1.657	80.9	12	Good
2005	5.6 (4)	2-2+ (4)	117.6 (4)	18.7 (4)			16	Excellent
2004	5.6 (4)	2-2+ (4)	47.7 (2)	1.5 (2)			12	Good
2003	5.6 (4)	2-2+ (4)	53.3 (2)	4.0 (3)	1.427	76.0	13	Good
2002	5.6 (4)	2-2+ (4)	18.4 (1)	1.2 (2)			11	Good
2001			145.7 (4)	41.3 (4)			≥ 10	G - E

* Back calculated from age table

Table 55. Dissolved oxygen (ppm) and temperature profiles conducted at Carpenter and Kingfisher Lakes on 13 July 2020.

	Location									
	Carpenter Lake				New Kingfisher Lake				Old Kingfisher Lake	
	Site: 1	12:49 PM	Site: 2	1:09 PM	Site: 1	10:46 AM	Site: 2	11:01 AM	Site: 1	12:21 PM
Depth	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**	**Temp**	**DO**
Surface	87.5	8.27	89.6	9.96	85.4	9.74	85.0	10.68	88.1	12.83
1	86.0	7.80	89.1	9.69	84.5	8.95	84.7	10.55	84.7	10.35
2	85.1	6.62	85.9	5.97	83.4	8.60	83.9	9.19	83.9	7.79
3	84.3	5.30	84.9	4.57	83.2	8.22	83.7	8.32	83.6	5.85
4	84.2	4.90	84.4	3.76	83.0	7.30	83.3	7.51	83.2	3.22
5	84.1	4.34	84.1	2.90	82.6	5.65	83.0	5.92	82.6	0.74
6	84.0	3.78	84.0	2.47	81.6	2.00	81.9	0.50	81.8	0.46
7	83.9	3.50	83.8	1.80	80.9	0.55	80.5	0.35	78.3	0.34
8	83.7	3.30	83.6	1.12			78.5	0.32		
9	83.4	1.87	83.5	0.83			76.3	0.29		
10	82.9	0.40	83.4	0.45			74.4	0.27		
11	82.4	0.29	79.2	0.30			74.0	0.25		
12	82.1	0.25	77.0	0.24						
13			76.4	0.24						
Secchi	17"		22"		12"		11"		11"	

Table 56. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.375 hours of 7.5-minute diurnal electrofishing at New Kingfisher Lake in April 2020.

	Inch class																				
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	SE
Largemouth bass	47	11	4	1	8	3	5	1	4	7	8	8	2	2	5	2	1	2	121	322.7	41.9

nwd6psd.d20

Table 57. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at New Kingfisher Lake during 2003-2020.

	Length group											
	< 8.0 in		8.0 - 11.9 in		12.0 - 14.9 in		≥ 15.0 in		≥ 20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	168.0	62.1	45.3	14.1	50.7	7.1	58.7	22.8	8.0	4.6	322.7	41.9
2019	48.0	24.4	21.3	9.6	5.3	2.7	61.3	2.7	10.7	7.1	136.0	12.2
2018	10.7	5.3	32.0	4.6	10.7	10.7	104.0	12.2	5.3	2.7	157.3	29.7
2017[b]	56.0	21.2	2.7	2.7	26.7	2.7	61.3	30.1			146.7	43.7
2012-2016	No sampling - Renovation											
2011	213.3	75.9	128.0	28.1	24.0	4.6	16.0	8.0			381.3	99.6
2010	178.7	48.5	112.0	25.5	34.7	9.6	16.0	8.0			341.3	84.2
2009	109.3	37.3	24.7	2.7	21.3	2.7	0.0				165.3	37.3
2008[a]	282.7	37.3	240.0	33.3	56.0	9.2	0.0				578.7	71.8
2007	98.7	27.8	392.0	92.7	21.3	2.7	2.7	2.7			514.7	112.8
2006	189.3	14.1	333.3	46.3	10.7	2.7	0.0				533.3	62.9
2005	287.2	97.4	428.2	53.5	41.0	6.8	12.8	5.1			769.2	141.2
2004	161.5	45.1	243.6	45.6	12.8	6.8	2.6	2.6			420.5	92.5
2003	105.6	28.2	425.0	55.5	8.3	4.8	0.0				538.9	59.8

[a] Major fish kill 9/5/08

[b] First standardized sample since renovation

nwd6psd.d19

Table 58. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.5 hours of 7.5-minute diurnal electrofishing runs at New Kingfisher Lake in October 2020.

	Inch class																			
Species	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	SE
Largemouth bass	2	3	9	6	3	1	3	2	3	2	3	7	3	8	5	2	1	63	126.0	35.2

nwd6lmb.d20

Table 59. Population assessment for largemouth bass based on spring electrofishing at New Kingfisher Lake from 2003-2020 (scoring based on statewide assessment).

Year	Mean length age-3 at capture	CPUE age 1	CPUE 12.0-14.9 in	CPUE ≥ 15.0 in	CPUE ≥ 20.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020		154.7 (4)	50.7 (4)	58.7 (4)	8.0 (4)			≥ 17	Excellent
2019			5.3 (1)	61.3 (4)	10.7 (4)			≥ 11	F - G
2018		10.7 (2)	10.7 (1)	104.0 (4)	5.3 (4)			≥ 12	F - G
2017[b]			26.7 (3)	61.3 (4)	0.0 (1)			≥ 10	F - G
2012-2016				No sampling - Renovation					
2011		192.0 (4)	24.0 (2)	16.0 (2)	0.0 (1)			≥ 10	F - G
2010			34.7 (2)	16.0 (2)	0.0 (1)			≥ 7	P - G
2009	10.5 (2)	77.3 (4)	21.3 (2)	0.0 (1)	0.0 (1)			10	Fair
2008[a]	10.5 (2)	250.7 (4)	56.0 (4)	0.0 (1)	0.0 (1)	0.562	43.0	12	Fair
2007	10.5 (2)	96.0 (4)	21.3 (2)	2.7 (1)	0.0 (1)	0.608	39.2	10	Fair
2006	11.0 (3)	149.3 (4)	10.7 (1)	0.0 (1)	0.0 (1)	1.335	73.7	10	Fair
2005	11.0 (3)	248.7 (4)	41.0 (3)	12.8 (2)	0.0 (1)			13	Good
2004	11.0 (3)	94.9 (4)	12.8 (1)	2.6 (1)	0.0 (1)	1.230	70.8	10	Fair
2003	11.0 (3)	100.0 (4)	8.3 (1)	0.0 (1)	0.0 (1)	1.330	73.6	10	Fair

[a] Major fish kill 9/5/08

[b] First standardized sample since renovation

Table 60. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected in 0.375 hours of 7.5-minute diurnal electrofishing runs at New Kingfisher Lake in May 2020.

	Inch class										
Species	2	3	4	5	6	7	8	9	Total	CPUE	SE
Bluegill	9	19	56	85	75	3			247	658.7	166.7
Redear sunfish					3	1	8	3	15	40.0	8.0

nwd6bg.d20

Table 61. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at New Kingfisher Lake during 2003-2020.

	Length group											
	< 3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 8.0 in		≥ 10.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	24.0	16.7	426.7	72.2	208.0	90.9	0.0		0.0		658.7	166.7
2019	42.7	13.3	448.0	48.0	138.7	34.7	2.7	2.7	0.0		632.0	72.2
2018	21.3	17.5	885.3	314.5	72.0	12.2	2.7	2.7	0.0		981.3	335.4
2017[b]	18.7	5.3	853.3	203.7	85.3	28.2	0.0		0.0		957.3	222.3
2012-2016						No sampling						
2011	8.0	4.6	338.7	37.3	413.3	97.6	0.0		0.0		760.0	92.3
2010	130.7	27.1	274.7	30.8	80.0	21.2	0.0		0.0		485.3	47.2
2009	194.7	21.3	338.7	35.3	74.7	30.1	0.0		0.0		608.0	53.3
2008[a]	42.7	5.3	242.7	65.5	37.3	14.9	0.0		0.0		322.7	85.2
2007	5.3	2.7	69.3	26.3	45.3	5.3	0.0		0.0		120.0	33.3
2006	16.0	13.5	104.0	33.8	14.0	2.0	0.0		0.0		134.0	44.0
2005	0.0		53.9	7.7	12.8	6.8	10.3	6.8	0.0		76.9	8.9
2004	0.0		15.4	8.9	23.1	11.8	0.0		0.0		38.5	4.4
2003	12.8	6.8	56.4	2.6	15.4	7.7	5.1	2.6	0.0		89.7	5.1

[a] Major fish kill 9/5/08

[b] First standardized sample since renovation

nwd6bg.d20

Table 62. Population assessment for bluegill based on spring electrofishing at New Kingfisher Lake from 2003-2020 (scoring based on statewide assessment).

Year	Mean length age-2 at capture	Years to 6.0 in	CPUE ≥ 6.0 in	CPUE ≥ 8.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020			208.0 (4)	0.0 (1)			≥ 7	F - G
2019			141.3 (4)	2.7 (3)			≥ 9	F-E
2018			74.7 (3)	2.7 (3)			≥ 8	F - G
2017[b]			85.3 (3)	0.0 (1)			≥ 6	P - G
2012-2016				No sampling				
2011			413.3 (4)	0.0 (1)			≥ 7	F - G
2010			80.0 (4)	0.0 (1)			≥ 7	F - G
2009	4.3 (2)	3-3+ (3)	74.7 (3)	0.0 (1)			9	Fair
2008[a]	4.3 (2)	3-3+ (3)	37.3 (2)	0.0 (1)	2.140	88.2	8	Fair
2007	4.3 (2)	3-3+ (3)	45.3 (2)	0.0 (1)	0.574	42.6	8	Fair
2006	5.7 (4)	2-2+ (4)	14.0 (1)	0.0 (1)	1.587	79.5	10	Good
2005	5.7 (4)	2-2+ (4)	23.1 (1)	10.3 (3)			12	Good
2004	5.7 (4)	2-2+ (4)	23.1 (1)	0.0 (1)			10	Good
2003	5.7 (4)	2-2+ (4)	21.6 (1)	5.4 (2)	0.865	57.9	11	Good

[a] Major fish kill 9/5/08

[b] First standardized sample since renovation

Table 63. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.341 hours of diurnal electrofishing at Old Kingfisher Lake in April 2020.

	Inch class																		
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE	SE
Largemouth bass	11	12	6	3	2	1	2	4	3		2	1	1	1	1	1	51	149.6	0.0

nwd7psd.d20

Table 64. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Old Kingfisher Lake during April 2020.

	Length group											
	< 8.0 in		8.0-11.9 in		12.0-14.9 in		≥ 15.0 in		≥ 20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	93.8	0.0	26.4	0.0	14.7	0.0	14.7	0.0	0.0	0.0	149.6	0.0
2019	8.0	0.0	34.9	0.0	2.7	0.0	32.2	0.0	2.7	0.0	77.8	0.0
2018	58.1	0.0	9.7	0.0	9.7	0.0	35.5	0.0	3.2	0.0	112.9	0.0
*2017	148.3	0.0	3.2	0.0	28.4	0.0	47.3	0.0	3.2	0.0	227.1	0.0

*First standardized sample since renovation

nwd7psd.d20

Table 65. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.323 hours of diurnal electrofishing runs at Old Kingfisher Lake in October 2020.

	Inch class																			
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	SE
Largemouth bass	3	2	1	9	16	8	1	2	3	6	6	1	1		1	1	1	62	192.0	0.0

nwd7lmb.d20

Table 66. Population assessment for largemouth bass based on spring electrofishing at Old Kingfisher Lake 2017-2020 (scoring based on statewide assessment).

Year	Mean length age-3 at capture	CPUE age 1	CPUE 12.0-14.9 in	CPUE ≥ 15.0 in	CPUE ≥ 20.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020		67.1 (4)	14.7 (2)	14.7 (3)	0.0 (1)			≥ 11	F - G
2019			2.7 (1)	32.2 (4)	2.7 (3)			≥ 10	F - G
2018			9.7 (1)	35.5 (4)	3.2 (3)			≥ 10	F - G
2017*			28.4 (3)	47.3 (4)	3.2 (3)			≥ 12	F - E

*First standardized sample since renovation

Table 67. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected in 0.375 hours of 7.5-minute diurnal electrofishing at Old Kingfisher Lake in May 2020.

	Inch class										
Species	2	3	4	5	6	7	8	9	Total	CPUE	SE
Bluegill	6	49	40	111	116	6			328	874.7	204.5
Redear sunfish				1		2	8	1	12	32.0	18.5

nwd7bg.d20

Table 68. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Old Kingfisher Lake during 2017-2020.

	Length group											
	< 3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 8.0 in		≥ 10.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	16.0	9.2	533.3	59.6	325.3	159.5	0.0		0.0		874.7	204.5
2019	10.7	5.3	466.7	44.4	149.3	50.9	0.0		0.0		626.7	82.7
2018	6.8	0.0	952.4	0.0	190.5	0.0	0.0		0.0		1149.7	0.0
2017*	58.7	14.1	965.3	100.6	309.3	72.2	0.0		0.0		1333.3	178.0

*First standardized sample since renovation
nwd7bg.d20

Table 69. Population assessment for bluegill based on spring electrofishing at Old Kingfisher Lake for 2017-2020 (scoring based on statewide assessment).

Year	Mean length age-2+ at capture	Years to 6.0 in	CPUE ≥ 6.0 in	CPUE ≥ 8.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020			325.3 (4)	0.0 (1)			≥ 7	F - G
2019			149.3 (4)	0.0 (1)			≥ 7	F - G
2018			190.5 (4)	0.0 (1)			≥ 7	P - G
2017			309.3 (4)	0.0 (1)			≥ 7	F - G

*First standardized sample since renovation
nwd7bg.d20

Table 70. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.375 hours of diurnal electrofishing at Washburn Lake in April 2020.

	Inch class																				
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	SE
Largemouth bass	3	32	24	11	1	7	12	2	3		1		1			2		1	100	266.7	58.7

nwd8psd.d20

Table 71. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Washburn Lake during spring samples 2001-2020.

	Length group											
	< 8.0 in		8.0-11.9 in		12.0-14.9 in		≥ 15.0 in		≥ 20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	186.7	48.5	58.7	21.8	10.7	7.1	10.7	10.7	2.7	2.7	266.7	58.7
2018	69.3	14.1	269.3	48.5	77.3	14.9	18.7	7.1	0.0		434.7	44.4
2017	258.7	31.4	306.7	9.6	42.7	7.1	5.3	2.7	5.3	2.7	613.3	46.3
2015	66.7	22.8	253.3	61.5	8.0	4.6	10.7	2.7	8.0	4.6	338.7	44.9
2014	90.7	7.1	333.3	30.8	8.0	4.6	10.7	2.7	5.3	2.7	442.7	23.3
2012	213.3	39.8	218.7	46.3	16.0	0.0	8.0	0.0	5.3	2.7	456.0	77.7
2011	205.3	44.9	133.3	35.3	2.7	2.7	5.3	2.7	0.0		346.7	78.6
2010	96.0	28.1	80.0	16.7	5.3	5.3	2.7	2.7	2.7	2.7	184.0	45.5
2009	104.0	60.0	82.7	39.8	0.0		10.7	5.3	0.0		197.3	104.3
2008	170.7	42.9	61.3	21.8	16.0	0.0	13.3	9.6	0.0		261.3	59.6
2007	133.3	35.3	80.0	4.6	16.0	4.6	21.3	9.6	0.0		250.7	30.8
2006	96.0	9.2	98.7	39.3	64.0	0.0	18.7	5.3	2.7	2.7	277.3	25.4
2005	43.6	11.2	146.2	16.0	28.2	5.1	2.6	2.6	2.6	2.6	220.5	25.3
2004	46.2	4.4	353.9	49.5	0.0		0.0		0.0		400.0	51.2
2003	123.1	33.5	438.5	49.5	0.0		0.0		0.0		561.5	52.4
2002	50.0		321.4		0.0		0.0		0.0		371.4	0.0
2001	260.0		8.0		0.0		0.0		0.0		268.0	0.0

* Washburn Lake renovated summer 1999 and restocked spring 2000

nwd8psd.d20

Table 72. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.375 hours of 7.5-minute diurnal electrofishing runs at Washburn Lake in October 2020.

	Inch class															
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	Total	CPUE	SE
Largemouth bass	4	27	25	4	28	33	10	8		2		1	1	143	381.3	73.7

nwd8lmb.d20

Table 73. Population assessment for largemouth bass based on spring electrofishing at Washburn Lake 2003-2020 (scoring based on statewide assessment).

Year	Mean length age-3 at capture	CPUE age-1	CPUE 12.0-14.9 in	CPUE ≥ 15.0 in	CPUE ≥ 20.0 in	Instantaneous Mortality (z)	Annual Mortality (A)%	Total score	Assessment Rating
2020		165.3 (4)	10.7 (1)	10.7 (2)	2.7 (3)			≥ 11	F - G
2018			77.3 (4)	18.7 (3)	0.0 (1)			≥ 10	F - G
2017	10.4 (2)	258.7 (4)	42.7 (3)	5.3 (1)	5.3 (4)	0.939	60.9	14	Good
2015			8.0 (1)	10.7 (2)	8.0 (4)			≥ 9	F - G
2014		90.7 (4)	8.0 (1)	10.7 (2)	5.3 (4)			≥ 12	F - G
2012			16.0 (1)	8.0 (2)	5.3 (4)			≥ 9	F - G
2011			2.7 (1)	5.3 (2)	0.0 (1)			≥ 6	P - F
2010	10.7 (2)	96.0 (4)	5.3 (1)	0.0 (1)	0.0 (1)	0.819	55.9	9	Fair
2009	13.1 (4)	99.7 (4)	0.0 (1)	10.7 (2)	0.0 (1)			12	Fair
2008	13.1 (4)	165.9 (4)	16.0 (1)	13.3 (2)	0.0 (1)	1.117	67.3	12	Fair
2007	13.1 (4)	131.2 (4)	16.0 (1)	21.3 (3)	0.0 (1)	0.944	61.1	13	Good
2006	11.2 (3)	94.7 (4)	64.0 (4)	18.7 (3)	2.7 (3)	0.669	48.8	17	Excellent
2005	11.2 (3)	41.0 (3)	28.2 (2)	2.6 (1)	2.6 (3)			12	Good
2004	11.2 (3)	48.3 (3)	0.0 (1)	0.0 (1)	0.0 (1)			9	Fair
2003	11.2 (3)	131.6 (4)	0.0 (1)	0.0 (1)	0.0 (1)			10	Fair

Table 74. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected in 0.5 hours of 7.5-minute diurnal electrofishing at Washburn Lake in May 2020.

	Inch class										
Species	2	3	4	5	6	7	8	9	Total	CPUE	SE
Bluegill	5	29	19	19	7	22	2		103	206.0	49.5
Redear sunfish		1	4	15	15	39	26	5	105	210.0	25.6

nwd8bg.d20

Table 75. Spring electrofishing CPUE (fish/hr) for each length group of bluegill (2001-2020) and redear sunfish (2012-2020) collected at Washburn Lake during spring samples.

Bluegill	Length group											
	< 3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 8.0 in		≥ 10.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	10.0	6.0	134.0	38.8	58.0	12.8	4.0	2.3	0.0		206.0	49.5
2018	24.0	12.2	258.7	27.8	101.3	33.4	29.3	16.2	0.0		413.3	55.7
2017	72.0	25.7	144.0	25.7	42.7	19.2	37.3	20.8	0.0		296.0	8.0
2015	26.0	13.6	152.0	18.2	122.0	17.4	8.0	4.6	0.0		308.0	20.8
2014	0.0		181.3	64.1	133.3	9.6	8.0	4.6	0.0		322.7	55.9
2013	10.7	7.1	101.3	16.2	109.3	58.5	2.7	2.7	0.0		224.0	46.2
2012	30.0	11.9	158.0	27.6	64.0	23.3	22.0	6.8	0.0		274.0	49.1
2011	24.0	10.7	93.3	16.5	33.3	10.4	5.3	2.7	0.0		156.0	19.6
2010	53.3	16.2	152.0	57.9	32.0	0.0	0.0		0.0		237.3	41.7
2009	60.0	15.1	80.0	19.0	138.0	10.0	0.0		0.0		278.0	20.8
2008	2.7	2.7	152.0	37.8	168.0	48.7	0.0		0.0		322.7	69.5
2007	58.7	14.1	245.3	37.1	40.0	12.2	0.0		0.0		344.0	54.5
2006	58.7	50.7	138.7	39.3	32.0	16.0	0.0		0.0		229.3	81.6
2005	161.5	31.9	155.8	18.9	9.6	3.7	0.0		0.0		326.9	39.3
2004	80.8	7.4	48.1	3.7	11.5	5.0	21.2	10.6	0.0		161.5	13.0
2003	7.7	3.1	71.2	12.7	113.5	39.9	0.0		0.0		192.3	39.9
2002			46.5		102.3		0.0		0.0		148.8	0.0
2001			28.0		64.0		4.0		0.0		96.0	0.0

* Washburn Lake renovated summer 1999 and restocked spring 2000

nw d8bg.d20

Redear	Length group											
	< 3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 8.0 in		≥ 10.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	0.0		40.0	13.9	108.0	9.5	62.0	8.9	0.0		210.0	25.6
2018	0.0		133.3	18.7	154.7	63.7	144.0	50.8	0.0		432.0	127.6
2017	0.0		178.7	57.8	45.3	9.6	53.3	29.3	0.0		227.3	29.7
2015	0.0		44.0	12.4	74.0	23.0	94.0	29.5	0.0		212.0	55.1
2014	0.0		5.3	2.7	85.3	14.9	98.7	30.8	0.0		189.3	39.8
2013	0.0		96.0	20.1	85.3	2.7	0.0		0.0		181.3	22.8
2012	0.0		28.0	12.4	2.0	2.0	0.0		0.0		30.0	11.0

nw d8bg.d20

Table 76. Population assessment for bluegill based on spring electrofishing at Washburn Lake 2003-2020 (scoring based on statewide assessment).

Year	Mean length age-2 at capture	Years to 6.0 in	CPUE ≥ 6.0 in	CPUE ≥ 8.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020			62.0 (3)	4.0 (3)			≥ 8	F - G
2018	3.5 (1)	4-4+ (2)	130.7 (4)	29.3 (4)			11	Good
2017			80.0 (3)	37.3 (4)			≥ 9	F - G
2015			130.0 (4)	8.0 (4)			≥ 10	F - G
2014			141.3 (4)	8.0 (4)			≥ 10	F - G
2013			112.0 (4)	2.7 (3)			≥ 9	F - G
2012			86.0 (3)	22.0 (4)			≥ 9	F - G
2011			38.7 (2)	5.3 (4)			≥ 8	P - G
2010			32.0 (2)	0.0 (1)			≥ 5	P - F
2009	4.7 (3)	3-3+ (3)	138.0 (4)	0.0 (1)	0.599	45.1	11	Good
2008	5.3 (4)	2-2+ (4)	168.0 (4)	0.0 (1)	2.046	87.1	13	Good
2007	5.3 (4)	2-2+ (4)	40.0 (2)	0.0 (1)	1.050	65.0	11	Good
2006	5.3 (4)	2-2+ (4)	32.0 (2)	0.0 (1)			11	Good
2005	5.4 (4)	2-2+ (4)	9.6 (1)	0.0 (1)			10	Good
2004	5.4 (4)	2-2+ (4)	32.7 (2)	22.0 (4)			14	Excellent
2003	5.4 (4)	2-2+ (4)	118.0 (4)	0.0 (1)			13	Good

Table 77. Population assessment for redear sunfish based on spring electrofishing at Washburn Lake 2012-2020 (scoring based on statewide assessment).

Year	Mean length age-3 at capture	Years to 8.0 in	CPUE ≥ 8.0 in	CPUE ≥ 10.0 in	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2020			62.0 (4)	0.0 (1)			≥ 7	F - G
2018	8.4 (4)	3-3+ (4)	144.0 (4)	0.0 (1)			13	Good
2017			53.3 (4)	0.0 (1)			≥ 7	F - G
2015			94.0 (4)	0.0 (1)			≥ 7	F - G
2014			98.7 (4)	0.0 (1)			≥ 7	F - G
2013			0.0 (1)	0.0 (1)			≥ 4	P - F
2012			0.0 (1)	0.0 (1)			≥ 4	P - F

Table 78. Length frequency and CPUE (fish/nn) for catfish collected in tandem hoop net sets in Washburn Lake during October 2020. Nets were set on two different occasions, 10/07 and 10/20, and fished for two nights each time using Zote soap for bait.

		Inch class																		
Species	Date	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	CPUE
Channel catfish	10/7 - 10/9	1	1	8	19	13	4				1	1	1			1		2	52	17.3
	10/20 - 10/22	1	2	10	21	6	2						1						43	14.3

nwd8hn.d20

SOUTHWESTERN FISHERY DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Lake sampling conditions are summarized in Table 1.

Barren River Lake (10,000 acres)

Black Bass

Spring black bass were not sampled due to high water levels (10- to 20-ft above summer pool) and Covid19 restrictions.

Fall young of year sampling (Tables 2 and 3) suggests a moderate 2020 year-class. Age-0 CPUE (244.0 fish/hr; Table 3) was the second highest catch rate recorded over the past 10 years despite a later sampling date. Age-0 CPUE $\geq$5.0 in (32.7 fish/hr) was slightly lower than the average from the past 10 years. Age-0 largemouth bass mean length (3.8 in) was one of the lowest recorded in the past 10 years; again despite a later sampling date. Age-0 largemouth bass production and growth was highest in the upper reaches of lake arms (Walnut and Beaver creeks.). Poorer growth and numbers characterized the lower ends of the lake (Peter Creek and the Peninsula sites). Largemouth bass made up the majority of the fall sample (95%), while spotted bass made up 5% of the sample (Table 2). Smallmouth bass were nearly nonexistent in these samples.

Hybrid Striped Bass

Gillnet sampling for hybrids in mid-September and early December yielded a very good catch rate (21.9 fish/nn) overall, with mostly larger (≥13.0 in) sizes represented (Table 4). The earlier sample collected a smaller size range, while the later sample was dominated by larger fish. The double stocking rate (n=400,000) year classes of 2014, 2016 and 2018 (age-2+, 4+ and 6+) have performed well in the fishery; however, the similarly-stocked 2015 year class did not perform as well (Tables 5 and 6). The assessment rating for the fishery dipped to "Good" due to a decrease in the growth rate (which returned to previous levels) and the catch rate of age-1 fish (1.6 fish/nn). Larger-sized fish were in better condition (Wr=92; Table 7) compared to the 2017 sample (Wr=88) and were closer to the average relative weights (mid- to upper-90's) from prior years. The length-weight equation for hybrid striped bass (n=175) was:

$$\mathrm{Log}_{10}\,(\mathrm{weight}) = -5.0888+3.0841^{*}\,\mathrm{Log}_{10}\,(\mathrm{Length})$$

Green River Lake (8,210 Acres)

Late-winter muskie sampling and spring bass sampling were circumvented by high water levels ($\geq$ 5-ft above summer pool until late-April) and Covid19 restrictions

Black Bass

Fall YOY sampling (Tables 9 and 10) suggests a "moderate" largemouth bass 2020 year class. Age-0 CPUE $\geq$5.0 in (19.7 fish/hr) was similar to the average over the last 10 years, with a weaker showing of age-0 fish in the lower reaches (Lone Valley and Ramp 1) of each lake arm. The higher overall catch rate of age-0 largemouth (79.5 fish/hr) was bolstered by larger age-0 fish from the upper sites of the lake, giving better odds for the 2020 year-class to be stronger than average. Largemouth and spotted bass relative weight metrics (Table 11) were good, with larger fish showing better condition, similar to previous years.

Crappie

Trap netting for crappie was conducted during mid-November (Table 12). The white crappie population remains strongly dominated by 6.0- to 7.0-in fish from multiple persisting year classes (Tables 14 and 15). White crappie size structure index (PSD = 32; Table 13) dipped noticeably from prior years (PSD=47 in 2018 and PSD=49 in

2014) due to subpar year classes in 2016 and 2017. The mean age-2+ length (8.3 in) of white crappie is reflective of a slower growing, mildly crowded population (Table 16). Age-2+ crappie lengths in years prior to 2006, before moderate crowding began, were typically 9.0-in plus. The white crappie population assessment remained “Good”; similar to most years (Table 16). The length-weight equation for white crappie in 2020 was similar to previous years:

$$\text{Log}_{10}\text{ (weight)} = -3.79155 + 3.44721 \text{ x Log (length)}$$

Black crappie remain low density in trap net samples (n=15; Table 12), but are now showing up regularly in sampling data across multiple gears (creel, netting and electrofishing).

Walleye/White bass

Experimental gill net sampling for white bass and walleye was conducted in mid-November (Table 1). White bass CPUE (5.4 fish/nn; Table 17) continues to slide from a high in 2015, with diminished contribution from the good 2014 and 2015 year classes (ages 5+ and 6+; Table 18). The moderate 2017 year class currently props up this fishery (27% of catch; Table 18). Condition indices for all length groups (Wr = 94-96; Table 19) and growth rates (mean length age-2+ = 14.2 in; Table 20) of white bass remains excellent. The white bass population assessment slipped to “Fair” due to lower fish numbers across all length groups. The length-weight equation for white bass (n=81) was similar to previous years:

$$\text{Log}_{10}\text{ (weight)} = -3.42911 + 3.09391^{*}\text{ Log}_{10}\text{ (Length)}$$

Walleye CPUE (0.8 fish/nn) slid further down from prior years’ samples and only the 3 most recent year classes were represented (Table 17). Condition indices for all length groups (Wr = 91-102; Table 21) and growth rate (20.2 inches by age-2+; Table 22) remain excellent. The walleye population assessment fell to “Poor” due to low CPUE of larger fish. The high water years of 2018, 2019 and 2020 afforded greater opportunities for walleye emigration via lake discharges and perhaps explains some of the decrease in walleye numbers. The length-weight equation for walleye (n=23) was similar to previous years:

$$\text{Log}_{10}\text{ (weight)} = -3.65988+3.18484^{*}\text{ Log}_{10}\text{ (Length)}$$

Metcalfe County Lake (22 acres)

Black Bass

Largemouth bass were sampled by diurnal electrofishing on May 20 (Table 1); two- to four-weeks later than the normal sampling window due to persisting muddy water from above average spring rainfall. Bass CPUE (220.0 fish/hr; Table 23) was similar to most of the prior 10 years (Table 24). The size structure remains diverse (PSD = 35, RSD = 21; Table 25) and similar to previous years. CPUE of 20.0-in plus fish dipped dramatically to an all-time low (2.0 fish/hr), likely due to the later sample date and larger bass having spawned and moved out/off shore. The lake consistently averages 6.0-8.0 fish/hr for this length group, which is well above any waterbody in the Southwest District.

Channel Catfish

Channel catfish were sampled with tandem set hoop nets in mid-September of 2020, which was an off-year for catfish stocking (Table 1). The sample was dominated by 2019 stocked fish (9.0-11.0 in; 85% of sample; Table 26). In 2014, catfish were stocked the same year as the sample (couple of months prior to sampling), which resulted in double the catch rate (12.5 fish/nn). Condition (Wr = 88; Table 27) was fair for intermediate sizes (11.0-15.9 in).

Mill Creek Lake (109 acres)

Black Bass

Bass were sampled by nocturnal electrofishing on May 1 (Table 1). Catch rates of larger fish remained similar to previous years, while catch rates for smaller largemouth bass length groups were well below average (Tables 28 and 29). This necessitated the stocking of 589 largemouth bass (5.4 fish/acre; 6.0-11.0 in) in mid-May to bolster the poorer year classes of 2018 and 2019 and increase predation pressure on overly abundant forage. Size structure indices (PSD = 79; RSD = 46; Table 30) remain excellent. Age data has not been collected from this population.

Table 1. Lake sampling conditions in the Southwestern Fisheries District in 2020.

Lake	Date	Species	Weather	Water temp. surface (F)	Conductivity (umhos)	Secchi (in.)	Comments
Barren River	11/2	YOY bass	sunny/calm	60	185	18	6-ft below summer pool & falling with 2640 cfs outflow
	11/4	YOY bass	sunny/calm	57-59	168	15-24	7-ft below summer pool & falling with 3025 cfs outflow
	11/5	YOY bass	cloudy/calm	60	173	24	8-ft below summer pool & falling with 3000 cfs outflow
	11/5	YOY bass	cloudy/calm	64	137	32	8-ft below summer pool & falling with 3000 cfs outflow
	9/16-9/17	Hybrids/white bass	cloudy/calm and cloudy/windy				1-ft above summer pool & falling with 3200 cfs outflow
	12/8-12/9	Hybrids/white bass	cloudy/calm	47			24-ft below summer pool & falling with 1175 cfs outflow
Green River	11/9	YOY bass	cloudy/windy	62-63		41	1/2-ft below summer pool & falling with 888 cfs outflow
	11/9	YOY bass	cloudy/windy	66-68		48	1/2-ft below summer pool & falling with 888 cfs outflow
	11/12	YOY bass	sunny/calm	62	80	46	1-ft below summer pool & falling with 888 cfs outflow
	11/16	YOY bass	sunny/windy	60-61	84	38	2-ft below summer pool & falling with 840 cfs outflow
	11/17	Walleye/white bass	cloudy/windy	58-57			2-ft below summer pool & falling with 840 cfs outflow
	11/19	Walleye/white bass	cloudy/windy				2-ft below summer pool & falling with 840 cfs outflow
	11/20	Walleye/white bass	cloudy/windy				2-ft below summer pool & falling with 840 cfs outflow
	11/24-11/25	Crappie	cloudy/calm & rainy/windy	47-52			3-ft below summer pool & falling with 830 cfs outflow
Metcalfe	5/20	Bass	cloudy/windy	63-65		24	Normal
	9/11	Channel catfish	cloudy/calm	79-82		18	Normal
Mill Creek	5/1	Bass	calm	62-64	132		Normal

Table 2. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 6.0 hours (12- 0.50-hour runs) of diurnal electrofishing at Barren River Lake on November 2-5, 2020.

		Inch class																					
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	Std err
Peninsula	Smallmouth bass											1									1	0.7	0.7
	Spotted bass		1			3	1	2	2	1		5	3	3	5	1					27	18.0	3.5
	Largemouth bass	25	15		6	4	11	26	9	10	10	6	14	7	8	11	8	1	1		172	114.7	25.3
Beaver Creek	Smallmouth bass																				0		
	Spotted bass		3	2	3	3		1	4	3	1	1	1	2							24	16.0	12.0
	Largemouth bass	7	68	80	49	32	28	17	35	40	20	27	29	22	9	4	6	1			474	316.0	44.6
Peter Creek	Smallmouth bass																				0		
	Spotted bass	19	9				1		1		1	1									32	21.3	10.4
	Largemouth bass	107	619	45	3	5	2	9	8	10	4	7	11	9	6	6	1	2		1	855	570.0	173.0
Walnut Creek	Smallmouth bass																				0		
	Spotted bass		2	2			1		1		3	2		3							14	9.3	9.3
	Largemouth bass	12	210	80	28	16	7	12	26	26	14	14	15	23	11	5	8		1		508	338.7	75.7
TOTAL	Smallmouth bass											1									1	0.2	0.2
	Spotted bass	19	15	4	3	6	3	3	8	4	5	9	4	8	5	1					97	16.2	4.2
	Largemouth bass	151	912	205	86	57	48	64	78	86	48	54	69	61	34	26	23	4	2	1	2009	334.8	64.1

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Table 3. Indices of year-class strength at age-0 and age-1 and mean length (in) of largemouth bass collected during diurnal fall electrofishing at Barren River Lake 2010-2020.

	Age-0[A]		Age-0[A]		Age-0 ≥5.0 in[A]		Age-1[B]	
Year-class	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	3.8	<0.1	244.0	66.9	32.7	9.1		
2019	4.2	<0.1	116.8	20.7	27.8	6.0	ND	
2018	3.9	0.1	215.2	24.1	48.8	13.2	ND	
2017	4.0	<0.1	150.2	36.3	23.5	3.8	ND	
2016	4.3	<0.1	191.8	38.9	46.5	13.9	39.5	12.1
2015	3.8	<0.1	167.7	23.5	18.7	3.4	8.0	1.7
2014	4.4	0.1	108.5	27.5	33.0	6.3	19.2	na
2013	3.9	<0.1	369.3	92.2	61.5	10.0	44.5	13.1
2012	5.1	0.1	70.0	16.7	32.7	11.0	ND	
2011	4.5	0.1	175.5	33.7	65.7	10.8	43.8	9.4
2010	5.7	0.1	166.6	19.1	105.0	18.7	ND	

[A] Data collected by fall (September-November) diurnal electrofishing. Mean lengths were determined by analysis of otoliths removed from a subsample of LMB <10.0 in, and extrapolated to the entire catch of the fall sample.

[B] Data collected during the following spring (April/May) diurnal electrofishing sample.

ND = no data available

swdbrlbb.d02 - d17
swdbrlag. d02 - d20
swdbrlyy. d02 - d20

Table 4. Length frequency and CPUE (fish/nn) for blue catfish, white bass, and hybrid striped bass collected by experimental gill nets (8 net-nights) in mid-September and early December at Barren River Lake, KY 2020.

	Inch class																												Std.
Species	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total	CPUE	error
Blue catfish								1	1				1	1	3	5	5		1			1	1	1	1	1	23	2.9	1.6
White bass	1	7	1		6	6	3	5	7	3	1		2														42	5.3	2.4
Hybrid striped bass	1	4	1		1	4	1	2	7		2	12	24	18	16	18	16	22	14	8	3	1					175	21.9	10.7

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Table 5. Age frequency and CPUE (fish/nn) of hybrid striped bass collected from experimental gill nets in mid-September and early December at Barren River Lake, 2020.

	Inch class																							Std.
Age	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Total	Percent	CPUE	error
0	4																					4	2	0.5	0.3
1				1	4	1		7														13	7	1.6	0.6
2										2	12	24	18	10	4							70	40	8.8	4.3
3														4	4	3						11	6	1.4	0.7
4														2	10	8	11					31	18	3.9	2.1
5																		2				2	1	0.3	0.1
6																5	6	4	3			18	10	2.3	1.3
7																	6	7	3	3		19	11	2.4	1.5
8																		2	3			5	3	0.6	0.4
9																					1	1	1	0.1	0.1
Total	4	0	0	1	4	1	0	7	0	2	12	24	18	16	18	16	23	15	9	3	1	174	100		
%	2	0	0	1	2	1	0	4	0	1	7	14	10	9	10	9	13	9	5	2	1	100			

swdbrlgn.D20; swdbrlag.D20

Table 6. Hybrid striped bass population assessment from experimental gill netting at Barren River Lake 2012-2020 (scoring based on statewide assessment).

	Year							
	2012		2015		2017		2020	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score
Population density								
CPUE age-1 and older	18.0	3	10.1	3	15.5	3	21.3	3
Growth rate								
Mean length age-2+ at capture	18.4	3	18.5	3	19.5	4	18.5	3
Size structure								
CPUE ≥15.0 in	12.2	3	8.0	3	13.0	4	19.3	4
Recruitment								
CPUE age-1	7.0	3	2.4	2	9.3	4	1.6	2
Instantaneous mortality (z)	-0.308							
Annual mortality (A)%	26.5							
Total score		12		11		15		12
Assessment rating		Good		Good		Excellent		Good

swdbrlag.d12-20
swdbrlgn.d12-20

Table 7. Relative weight (Wr) for each length group of hybrid striped bass collected by gill nets (8 net-nights) at Barren River Lake in mid-September and early December, 2020. Standard errors are in parentheses.

	Length group		
	8.0-11.9 in	12.0-14.9 in	≥15.0 in
Wr	88 (1)	92 (2)	92 (1)
N	6	10	154

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Table 8. Mean back calculated length (in) at each annulus for hybrid striped bass collected from Barren River Lake in mid-September to early December 2020, including the range of hybrid sriped bass at each age and the 95% confidence interval for each age.

		Age								
Year class	No.	1	2	3	4	5	6	7	8	9
2019	9	7.0								
2018	31	9.2	16.4							
2017	5	7.3	15.4	19.5						
2016	13	10.4	17.5	20.1	21.6					
2015	1	9.1	18.2	21.4	22.8	23.8				
2014	7	8.8	15.7	19.1	21.2	22.5	23.3			
2013	8	8.7	16.4	19.5	21.6	22.9	23.7	24.2		
2012	2	7.4	16.2	19.5	21.3	22.5	23.3	23.9	24.3	
2011	1	9.8	16.4	19.1	21.2	22.7	23.7	24.7	25.7	26.7
Mean		8.9	16.5	19.7	21.5	22.7	23.5	24.2	24.8	26.7
No.		13	70	11	31	2	18	19	5	1
Smallest		5.8	13.1	18.0	19.6	20.9	21.9	22.6	23.9	26.7
Largest		14.3	19.8	21.6	23.6	24.7	25.6	26.2	25.7	26.7
Std error		0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	
95% CI (+/-)		0.5	0.3	0.3	0.4	0.5	0.4	0.6	1.0	

Otoliths were used for age-growth determinations; intercept = 0
swdbrlag.d20

Table 9. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 6.0 hours (12- 0.50-hour runs) of diurnal electrofishing at Green River Lake from mid-November 2020.

		Inch class																						
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	Std err
Green River Arm																								
Holmes Bend	Smallmouth bass			7		1		2	2	2												14	9.3	3.3
	Spotted bass		46	13	5	7	2	1	1	1			1	1								78	52.0	21.2
	Largemouth bass	1	93	86	31	10	2	3	3	1		7	1	1		2	4	2	1	1		249	167.3	18.0
Ramp 1	Smallmouth bass	2	68	6	5	10	6		1	1	2	1										102	68.0	27.2
	Spotted bass	5	49	9	8	10	1		1	3												86	57.3	5.5
	Largemouth bass	7	58	14	5	6	5	5	3	3	1	3	3	8	4	1	5	1	1	1	1	135	90.0	9.5
Robinson Creek Arm																								
Smith Ridge	Smallmouth bass		2	1				1				1	1									6	4.7	2.9
	Spotted bass		38	26	1	5	19	7	4	3	1	1				2						107	71.3	23.6
	Largemouth bass		25	48	39	28	10	9	14	18	11	6	7	7	2	2	3	2	1	1		233	155.3	13.8
Lone Valley	Smallmouth bass		37	5	3	5	5	2	1	2	3		2	1		1		1	1			69	46.0	9.2
	Spotted bass	8	51	5	11	3	2	4	2	2	1	2	1	2	2	2	1					99	66.0	2.3
	Largemouth bass		14	11	3	2	2	4	2	1		3	3	2	1	2	6	3	3			62	41.3	11.4
TOTAL	Smallmouth bass	2	107	19	8	16	11	5	4	5	5	2	3	1		1		1	1			191	32.0	10.0
	Spotted bass	13	184	53	25	25	24	12	8	9	2	3	2	3	2	4	1					370	61.7	7.2
	Largemouth bass	8	190	159	78	46	19	21	22	23	12	19	14	18	7	7	18	8	6	3	1	679	113.5	16.4

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Table 10. Largemouth bass mean length (in) at age-0 and catch rates at age 0 and age 1 collected at Green River Lake since 2010.

	Age 0[A]		Age 0[A]		Age 0 $\geq$5.0 in[A]		Age 1[B]	
Year class	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	4.3	<0.1	79.5	15.3	19.7	4.9	ND	
2019	3.5	<0.1	108.0	20.3	9.8	3.4	ND	
2018	5.2	0.1	72.2	9.4	36.8	6.9	34.3	5.6
2017	4.8	0.1	19.0	6.6	7.0	2.5	17.7	4.5
2016	5.1	0.1	55.3	8.7	30.3	7.9	34.7	8.8
2015	5.7	0.1	65.0	22.6	44.7	15.8	17.5	4.2
2014	data collected too late for comparision to other years							
2013	5.9	0.1	26.0	15.4	19.3	12.9	ND	
2012	4.2	0.1	16.5	4.2	5.0	2.0	3.8	0.8
2011	3.9	0.1	28.8	7.5	5.8	1.5	15.5	4.0
2010	4.8	0.1	45.0	8.1	18.3	4.9	ND	

[A] Data collected by fall (late-Sept through early November) diurnal electrofishing. Mean lengths were determined by otolith taken from a subsample of LMB <9.0 in and extrapolated to the entire catch of the fall sample.

[B] Data collected during the following spring (May) nocturnal electrofishing.

swdgrlbb.D10 - D20
swdgrlag. D10 - D20
swdgrlyy. D10 - D13, 15-

ND = no data due to spring flooding

Table 11. Relative weight (Wr) for each length group of black bass collected by diurnal electrofishing from Green River Lake during mid-November 2020 . Standard errors are in parentheses.

Species	Area	Mean Wr by Length group					
		8.0-11.9 in		12.0-14.9 in		≥15.0 in	
		No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Holmes Bend	7	86 (3)	9	85 (2)	10	101 (3)
	Ramp 1	12	79 (2)	14	91 (3)	14	95 (3)
	Lone Valley	6	83 (3)	8	94 (4)	15	101 (1)
	Smiths Ridge	52	89 (1)	20	98 (2)	11	102 (3)
	Total	77	87 (1)	51	93 (1)	50	99 (1)
		7.0-10.9 in		11.0-13.9 in		≥14.0 in	
		No.	Wr	No.	Wr	No.	Wr
Spotted Bass	Holmes Bend	5	85 (4)	0		0	
	Ramp 1	5	85 (3)	0		0	
	Lone Valley	8	86 (4)	4	99 (2)	7	102 (3)
	Smiths Ridge	32	94 (2)	2	99 (5)	2	112 (9)
	Total	50	91 (1)	7	97 (3)	10	102 (3)

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Table 12. Length frequency and CPUE (fish/nn) for each inch class of crappie collected by trap net (51 net-nights) at Green River Lake on November 24-25, 2020 .

Species	Inch class											Total	CPUE	Std. error
	3	4	5	6	7	8	9	10	11	12	13			
White crappie	44	39	17	288	210	90	76	37	22	10	3	836	16.4	3.9
Black crappie	3		2	6	3					1		15	0.3	0.1

swdgrltn.d20

Table 13. Proportional stock density (PSD) and relative stock density (RSD_{10}) of white crappie collected by trap nets (51 net-nights) at Green River Lake in late-November 2020. Numbers in parentheses represent 95% confidence intervals.

Species	N	PSD	RSD_{10}
White crappie	753	32 (4)	10 (2)

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Table 14. Age frequency and CPUE (fish/nn) of white crappie collected during 51 net-nights at Green River Lake in late-November 2020.

	Inch class														
	3	4	5	6	7	8	9	10	11	12	13	Total	Percent	CPUE	Std. error
Age															
0	44	39										83	9.9	1.6	0.6
1			17	258	123							398	47.6	7.8	2.0
2				30	36	65	45	20	1			197	23.6	3.9	1.0
3					7	3	8	5	5	4		32	3.8	0.6	0.1
4						12	3	5	2	3	1	26	3.1	0.5	0.1
5					7	9	17	6	10	3	1	53	6.3	1.0	0.2
6					7				2	1		10	1.2	0.2	<0.1
7							3		1		1	5	0.6	0.1	<0.1
8									1			1	0.1	<0.1	<0.1
9					22			2	1			25	3.0	0.5	0.1
10					7							7	0.8	0.1	<0.1
Total	44	39	17	288	210	90	76	37	22	10	3	836			
%	5	5	2	34	25	11	9	4	3	1	0	100			

swdgrltn.d20; swdgrlag.d20

Table 15. Mean back calculated length (in) at each annulus for white crappie collected from Green River Lake in late-November 2020, including the range of white crappie at each age and the 95% confidence interval for each age.

		Age									
Year class	No.	1	2	3	4	5	6	7	8	9	10
2019	53	4.9									
2018	64	5.6	7.7								
2017	18	5.1	7.7	9.6							
2016	15	4.9	6.9	8.3	9.4						
2015	29	4.9	6.7	7.7	8.6	9.7					
2014	4	4.3	6.4	7.6	8.4	9.5	10.2				
2013	3	4.8	6.7	7.8	8.3	9.2	10.1	10.8			
2012	1	2.3	5.3	6.6	7.6	8.5	9.2	9.8	11.0		
2011	6	2.8	4.3	5.0	5.7	6.3	6.8	7.3	7.8	8.4	
2010	1	2.1	2.8	3.3	3.9	4.4	5.0	5.6	6.1	6.7	7.2
Mean		5.0	7.1	8.0	8.4	9.0	8.4	8.3	8.0	8.2	7.2
No.	194										
Smallest		2.1	2.8	3.3	3.9	4.4	5.0	5.6	6.1	6.7	
Largest		7.3	10.9	12.0	12.7	12.3	11.8	12.5	11.0	10.7	
Std error		0.1	0.1	0.2	0.2	0.3	0.6	0.7	0.6	0.6	
95% CI (+)		0.3	0.5	0.8	0.8	0.9	2.4	2.6	2.4	2.3	

Otoliths were used for age-growth determinations; intercept = 0
swdgrlag.d20

Table 16. White crappie assessment from fall trap net samples at Green River Lake from 2007-2020 (scoring based on statewide assessment).

Year	CPUE excluding age 0		CPUE age 1		CPUE age 0		CPUE ≥8.0 in		Mean length age-2 at capture		Mortality			
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Instantaneous (z)	Annual (A)	Score	Rating
2020	14.8	4	7.8	4	1.6	3	4.7	3	8.3	2	-0.680	49.4	16	G
2018	21.0	4	5.7	3	3.6	3	10.0	4	8.7	2	NA		16	G
2016	16.8	4	2.2	2	2.3	3	4.5	3	7.5	1	NA		13	G
2014	23.1	4	8.8	4	2.6	3	11.2	4	8.5	2	-0.590	44.6	17	E
2012	18.2	4	3.8	3	0.1	1	8.8	4	8.1	2	NA		14	G
2011	22.9	4	8.3	4	2.6	3	10.0	4	7.9	1	NA		16	G
2010	17.8	4	0.7	1	1.3	2	11.1	4	7.5	1	-1.101	66.8	12	F
2009	20.1	4	4.1	3	0.9	2	9.7	4	ND	1	ND		14	G
2008	9.0	3	0.7	1	0.9	2	4.7	3	7.8	1	-0.729	51.7	10	F
2007*	15.9	4	10.5	4	4.4	4	6.7	4	8.9	2	NA		18	E

* Age assessment data extrapolated from previous years' age data
NA - catch data not amenable to mortality estimates
ND - no age data collected
swdgltn.D86 - D16
swdgrlag.d86-16

Table 17. Length frequency and CPUE (f/nn) for white bass and walleye collected by experimental gill nets (16 net-nights) on November 16-20 2020 at Green River Lake, KY.

Species	Inch class 6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	Std. error
White bass	1	4	3	1		4	5	17	18	18	9	6	1					87	5.4	1.8
Walleye					1			1	1	4	2	2	2		1		1	15	0.9	0.3

swdgrlgn.d20

Table 18. Age frequency and CPUE (fish/nn) of white bass collected from experimental gill nets (16 net-nights) during November 16-20 at Green River Lake in 2020.

	Inch class															Std.
Age	6	7	8	9	10	11	12	13	14	15	16	17	Total	Percent	CPUE	error
0	1	4	3	1									9	10.5	0.6	0.2
1						4	5	11	3				23	24.4	1.3	0.4
2								6	3	3			12	14.0	0.8	0.2
3									11	10	2		23	26.7	1.4	0.6
4									1	1		1	3	3.5	0.2	0.1
5										3	3	2	8	9.3	0.5	0.3
6										1	4	3	8	9.3	0.5	0.4
Total	1	4	3	1		4	5	17	18	18	9	6	86		5.44	1.83
%	1	5	3	1		5	6	20	21	21	10	7	100			

swdgrlgn.D20, swdgrlag.D20

Table 19. Relative weight (Wr) for each length group of white bass collected by gill nets (16 net-nights) at Green River Lake from November 16-20, 2020. Standard errors are in parentheses.

	Length group		
	6.0-8.9 in	9.0-11.9 in	≥12.0 in
Wr	94 (3)	95 (3)	96 (1)
N	5	3	51

swdgrlgn.D20

Table 20. White bass population assessment from fall experimental gill netting at Green River Lake 2002-2007, 2015, 2017-2018, 2020.

Year	CPUE age-1 and older Value	CPUE age-1 and older Score	Mean length age-2+ at capture Value	Mean length age-2+ at capture Score	CPUE ≥ 12.0 in Value	CPUE ≥ 12.0 in Score	CPUE age-1 Value	CPUE age-1 Score	Instantaneous mortality (z)	Annual mortality (A)	Score	Rating
2020	4.9	2	14.2	4	4.6	3	1.3	1	NA		8	F
2018	8.0	3	13.9	4	7.7	3	2.9	2	NA		11	G
2017	9.4	3	14.3	4	9.4	4	0.7	1	NA		9	F
2015	24.8	4	NA	4	23.8	4	24.0	4	NA		16	E
2007	3.2	1	14.0	4	2.6	2	1.1	1	0.575	43.7	8	F
2006	5.8	2	13.8	4	4.1	3	2.1	2	0.341	28.9	11	G
2005	7.4	3	12.4	1	3.5	2	5.8	3	NA		9	F
2004	5.8	2	12.8	2	0.5	1	3.5	3	1.320	73.3	8	F
2003	18.9	4	12.5	2	1.3	2	2.3	2	0.660	48.3	10	G
2002	10.2	3	13.8	4	4.4	3	5.4	3	0.735	52	13	G

NA - data not available or not amenable for mortality estimates
swdgrlgn. d02-d07, 15, 17-18, 20
swdgrlag.d02-07, 15, 17-18, 20

Table 21. Relative weight (Wr) for each length group of walleye collected by gill nets (16 net-nights) at Green River Lake from November 16-20, 2020. Standard errors are in parentheses.

	Length group 10.0-14.9 in	15.0-19.9 in	≥20.0 in
Wr	91 (1)	96 (2)	102 (11)
N	3	9	2

swdgrlgn.D20

Table 22. Walleye population assessment from fall experimental gill netting at Green River Lake 2009-2020 (scoring based on statewide assessment).

Year	CPUE excluding age-0 Value	CPUE excluding age-0 Score	Mean length age-2+ at capture Value	Mean length age-2+ at capture Score	CPUE $\geq$20.0 in Value	CPUE $\geq$20.0 in Score	CPUE age 1 Value	CPUE age 1 Score	Mortality: Instantaneous mortality (z)	Mortality: Annual mortality (A)	Score	Rating
2020	0.9	1	20.2	4	0.1	1	0.8	1	NA		6	P
2018	1.9	1	19.5	4	0.4	2	1.0	2	NA		9	F
2017	2.1	1	19.5	4	0.8	3	1.1	2	NA		9	F
2015	2.1	1	19.5	4	1.1	4	0.8	1	NA		10	G
2014	1.0	1	20.1	4	0.7	3	0.1	1	NA		9	F
2013	2.8	2	19.2	4	0.9	3	1.1	2	NA		11	G
2012	3.1	2	19.2	4	0.9	3	1.3	2	-0.479	38.1	11	G
2011	1.8	1	19.3	4	0.8	3	0.4	1	-0.409	33.5	9	F
2010	3.6	2	18.8	3	1.0	3	1.7	3	-0.566	43.2	11	G
2009	4.1	3	19.6	4	1.1	4	2.3	3	-0.657	48.2	14	E

NA - catch data not amenable to mortality estimates

swdgrlgn.d09-15, 17-18, 20

swdgrlag.d09-15, 17-18, 20

Table 23. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 0.50 hours (4-0.125-hour runs) of diurnal electrofishing at Metcalfe County Lake on 20 May 2020.

Species	Inch class: 5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	Std err
Largemouth bass	4	4	11	17	17	14	11	9	1	3	2	5	3	4	4	1	110	220.0	17.7

swdmetbb.d20

Table 24. Spring nocturnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Metcalfe Co. Lake during late-April or early May since 2001 (the 2020 sample occurred in late-May).

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	38.0	5.0	118.0	13.2	26.0	3.8	38.0	10.5	2.0	2.0	220.0	17.7
2016	26.0	8.9	74.0	6.0	18.0	3.8	30.0	3.8	10.0	3.8	148.0	44.7
2014	20.0	9.5	110.0	30.5	18.0	8.9	50.0	11.9	26.0	13.2	198.0	44.7
2013	24.0	16.3	142.0	28.4	12.0	5.2	56.0	10.3	14.0	6.8	234.0	29.5
2010	32.0	3.3	100.0	9.5	18.0	8.3	36.0	5.2	6.0	3.8	186.0	13.6
2006	10.0	2.0	76.0	12.0	26.0	5.0	30.0	6.0	6.0	3.8	142.0	12.4
2004	24.0	4.6	64.0	21.2	24.0	4.6	32.0	4.6	8.0	4.6	144.0	24.0
2002	80.5	16.8	84.5	27.0	6.0	3.5	54.6	8.9	6.0	6.0	226.0	51.2
2001	50.0	22.6	98.0	7.1	28.0	5.2	28.0	2.0	6.0	3.4	204.0	31.1

swdmetbb.D01 - D20

Table 25. PSD and RSD_{15} values obtained for largemouth bass collected during 0.5 hours (4- 0.125-hour runs) of spring diurnal electrofishing at Metcalfe Co. Lake on 20 May 2020. 95% confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	81	35 (10)	21 (9)

swdmetbb.D20

Table 26. Species composition, relative abundance, and CPUE (fish/set-night) of channel catfish collected in baited, tandem set hoopnets (3 set-nights; 3 nets per set w/ 3-day soak time) at Metcalfe County Lake from 8-11 September 2020.

Species	Inch class 6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	Std err
Channel catfish				1	1	14			2	1						1	20	6.7	2.9
White crappie	1	8	13														22	7.3	3.8

swdmetcc.d20

Table 27. Relative weight (Wr) for each length group of channel catfish collected by tandem set hoop nets (3 set-nights) at Metcalfe County Lake from 8-11 September 2020. Standard errors are in parentheses.

	Length group 11.0-15.9 in	16.0-23.9 in	≥24.0 in
Wr	88 (2)	85	
N	17	1	0

swdmetcc.D20

Table 28. Species composition, relative abundance, and CPUE (fish/hr) of largemouth bass collected during 1.5 hours (6- 0.25-hour runs) of nocturnal electrofishing at Mill Creek Lake on 1 May 2020.

Species	Inch class 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	Std err
Spotted bass	1	1		11	13	6	22	15	10	13	4	1									97	64.7	7.8
Largemouth bass	1	2	1	2	3	1	8	12	10	11	11	23	31	21	22	12	15	11	6	4	207	138.0	9.6

swdmilbb.D20

Table 29. Spring nocturnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Mill Creek Lake during mid-late April to mid-May, 2006-2020.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in			
Year	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	Total CPUE	Std. error
2020	6.7	3.5	27.3	6.2	43.3	6.0	60.7	5.3	6.7	2.0	138.0	9.6
2017	12.7	4.2	41.3	5.1	24.7	5.7	50.7	9.8	8.7	3.5	129.3	14.8
2014	2.0	1.4	36.7	6.7	56.7	5.4	46.0	6.1	6.0	2.7	141.3	11.5
2011	42.0	9.3	49.3	4.3	32.7	3.8	64.0	9.6	4.7	1.2	188.0	9.6
2006	42.7	6.8	124.0	6.8	36.7	3.8	29.3	8.4	6.0	2.7	232.7	16.5

swdmilbb.D06 - D20

Table 30. PSD and RSD_{15} values from spring nocturnal electrofishing (1.5 hours; 6-0.25-hour runs) for largemouth bass at Mill Creek Lake on 20 May 2020. 95% confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD (± 95% CI)	RSD_{15} (± 95% CI)
Spotted bass	51	25 (10)	0
Largemouth bass	197	79 (6)	46 (7)

swdmilbb.D20

CENTRAL FISHERIES DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Lake sampling conditions for 2020 are summarized in Table 1.

Taylorsville Lake (3,050 acres)

** Due to COVID-19 restrictions no spring sampling was completed at Taylorsville Lake in 2020.

Length frequency, relative weights, and index for year class strength at age-0 and age-1 for largemouth bass based on September electrofishing are presented in Tables 2–4. Average body condition for largemouth bass in 2020 (W_r =90; Table 3) was acceptable, but lower than the lake's historic average (W_r =96). Catch rate of age-0 largemouth bass in the fall of 2020 (9.8 fish/hr) was lower than the lake's historic average of 38.4 fish/hr (Table 4). The year class strength model indicated below-average recruitment for young-of-the-year largemouth bass in 2020. This was the third straight year of below average recruitment.

Trap netting effort for crappie (Table 5) resulted in the collection of 570 white crappie and 34 black crappie. Crappie were sampled with trap nets during 48 net-nights. PSD and RSD_{10} values are shown in Table 6. Age and growth determinations and age frequency for black and white crappie were completed using otoliths (Tables 7-10). Age studies indicated both white and black crappie reach the 10.0-in size limit between age-3 and age-4. The crappie population assessment scores (Tables 11 and 12) rated white crappie as "Excellent" and black crappie as "Poor". Historically, the crappie population at Taylorsville Lake has been very cyclic with peaks occurring every 7 to 9 years. Significant spawns have occurred in 2013, 2015 and 2019 based off trap net data. Body condition of white and black crappie in the fall of 2020 was very good (Table 13).

Fall gill netting for hybrid striped bass, white bass, and saugeye was conducted in October 2020 (Tables 14–25). Hybrid striped bass were captured in 8 net-nights (nn) for a CPUE of 7.9 fish/nn. Age and growth studies were completed for hybrid striped bass using otoliths (Tables 15 and 16). Data indicate hybrid striped bass have good growth, reaching 15.0 in between age-1 and age-2. The relative weight (W_r) index for hybrid striped bass was 92 in 2020 which is an above-average body condition (W_r = 86) at Taylorsville Lake (Table 17). The population assessment for hybrid striped bass was rated at "Good" (Table 18). Taylorsville Lake was stocked with 54,904 (18.0 fish/acre; 1.3 in) reciprocal-cross hybrid striped bass in June 2020. No original-cross hybrid striped bass were stocked in 2020. Data for white bass collected during fall 2020 gill netting studies are presented in Tables 14 and 19-22. Age and growth studies indicate white bass reach 11.7 in by age 2 and good year classes were produced in 2018, 2019, and 2020 (Tables 19 and 20). Relative weight values (W_r=96) revealed acceptable body conditions for all sizes of white bass (Table 21). The white bass population assessment was rated "Good"; an above average rating for white bass at Taylorsville Lake (Table 22). Saugeye were collected during fall gill netting conducted in October 2020. A total of 120 saugeye were collected ranging from the 10.0- to 24.0-in size class (Table 14). Age and growth studies were completed using otoliths. Calculations indicated, on average, saugeye reach the 14.0-in size limit between age-1 and age-2, and 20.0 in between age-3 and age-4 (Table 23). Five year classes were represented during the sample (Table 24). The relative weight (W_r) index for saugeye (95) showed good body condition (Table 25). Taylorsville Lake was stocked with 8,840 saugeye (2.9 fish/acre; 1.25 in) in May 2020.

Summer diurnal low-pulse electrofishing was completed in July 2020 to assess the blue catfish population. Two sections (Lower Lake: Big Beech Creek and Ashes/Jacks Creek, and Upper Lake: Chowning Lane area) of Taylorsville Lake were sampled for 3.0 hours (12- 15-minute runs). Two hundred and eighteen blue catfish were collected in the lower section compared to 156 blue catfish collected in the upper section of the lake (Table 26). The number of blue catfish collected in 2020 (124.7 fish/hr) was slightly lower than the lake's historic average of 126.1fish/hr (Table 27). Relative weight values revealed good body condition for all sizes of blue catfish (Table 28). A subsample of blue catfish were collected for age determination during the July sample. Additionally, the creel clerk collected fish greater than 30.0 in from anglers throughout the year. Blue catfish, on average, reached

25.0 in between age-8 and age-9, and 30.0 in by age-11 (Table 29). Blue catfish were represented in the sample up to age-18+, which represent the second year class (2003 stocking) stocked at Taylorsville Lake. The majority of the sample (78.0%) was comprised of age-3 to age-5 fish (Table 30). No blue catfish were stocked in 2020 in an effort to evaluate natural reproduction.

A roving daytime angler creel survey was conducted at Taylorsville Lake from mid-March through October. The last creel survey conducted at Taylorsville Lake was in 2016. Table 31 provides descriptive statistical parameters of the lake fishery over the past 5 creel surveys. The number of fishing trips in 2020 (51,147 trips) significantly increased, almost doubling, from 2016 (26,303 trips), but was fairly similar to the 2003 survey. Overall, the number of fishing trips in 2020 was slightly lower than the lake's historical average of 53,019 trips. The increase from recent years was probably due the Covid19 pandemic. Many people were off due to work closures and people had the time to go fishing. Many people utilized public lakes as an outlet for something to do during this shutdown. Likewise, total fishing pressure (man-hours), number of fish caught, number of fish harvested, and pounds of fish harvested all significantly increased from the 2016 and recent past creel surveys. Other parameters such as gender, residency and mode have remained about the same as past surveys. However, there was a notable increase in trolling on the lake in 2020.

Numbers of largemouth bass caught in 2020 (61,052 fish) increased by 8,875 fish from numbers seen in 2016 (Tables 32 and 33), while numbers of largemouth bass harvested in 2020 (1,112 fish) was the lowest observed during any of the 14 creel surveys completed at Taylorsville Lake since 1986. Mean length of largemouth bass harvested was 15.6 in which was the smallest average size recorded in the history of the 14 creel surveys completed at Taylorsville Lake (Table 32). The number of fishing trips for black bass in 2020 was 12,253; less than the historic average of 21,788 trips annually recorded during past creel surveys. In 2020, black bass continue to be the second most sought-after group fished for in Taylorsville Lake. The catch rate of bass by bass anglers in 2020 (1.01 fish/hr) was lower than the catch rates in 2009 (1.19 fish/hr) and 2016 (1.49 fish/hr). Bass angler success rate for harvesting a bass declined to 5.1% from 9.7% in 2016. Largemouth bass continue to dominate the black bass population with only incidental catches of smallmouth bass, which are mainly caught in the upper reaches of the lake. Black bass catch, harvest and monthly angling success are shown in Tables 34 and 35.

Numbers of crappie caught (350,573) in 2020 was significantly higher than any crappie numbers caught in recent years (Tables 32 and 33). However, it is lower than the highest catch of crappie in a year at Taylorsville Lake which was 387,495 crappie back in 1989. Additionally, the number of crappie harvested (225,604) was significantly higher than recent years; however, lower than the highest number of crappie in a year at Taylorsville Lake (299,715 fish in 1989). Mean length of white and black crappie harvested were both 10.6 in (Tables 32 and 36). Like 2016, crappie were the most sought-after group fished for at Taylorsville Lake in 2020. The number of fishing trips for crappie was 21,982 trips in 2020, which is significantly higher than average number of trips (11,360 trips) for crappie during creel surveys at Taylorsville Lake. Harvest rates by crappie anglers improved to 1.80 fish/hr, which almost doubled rates from 2016 (0.94 fish/hr). Percent success of crappie anglers increased from 58.2% in 2016 to 81.1% in 2020. White crappie represented 94.9% of the crappie caught (80.2% in 2016) and 92.0% of the crappie harvested (69.8% in 2016). Crappie catch, harvest and monthly angling success are shown in Tables 36 and 37.

The third most sought-after group was catfish with 5,455 trips by catfish anglers compared to the historical average of 2,900 trips. Overall, 23,398 catfish were caught in 2020, an increase from 15,040 catfish in 2016, but slightly lower than the historical average of 25,655 (Table 32). Blue catfish contributed 44.7% of the catfish caught, compared to 52.6% in 2016 and 47.0% in 2009. Pounds of channel catfish harvested was 7,604 lbs which was lower than the lake average of 11,355 lbs. In 2020, 12,246 lbs of blue catfish were harvested which was less than the amount harvested in the 2016 (25,970 lbs) and 2009 (19,182 lbs) creel surveys. Mean length of channel catfish harvested by catfish anglers was 14.4 in (14.9 in 2016); blue catfish was 16.6 in (20.9 inches in 2016) and flathead catfish was 16.2 in (25.5 inches in 2016). Harvest rate by catfish anglers in 2020 (0.63 fish/hr) was nearly identical to the harvest rate in 2016 (0.64 fish/hr). Success rate for catfish anglers has decreased from 80.0% in 2009, to 66.1% in 2016 and 61.0% in 2020. Catfish catch, harvest and monthly angling success are shown in Tables 38 and 39.

The *Morone* group (hybrid striped bass and white bass) accounted for 3.4% of all trips at Taylorsville Lake in 2020 (Table 32). The number of hybrid striped bass (HSB) caught increased from 1,461 fish (357 harvested) in 2016 to 2,030 fish (265 harvested) in 2020. White bass (WB) caught increased to 5,721 fish in 2020 (4,209 harvested) from 904 caught in 2016 (737 harvested). Pounds of HSB harvested in 2020 totaled 816 lbs (0.3 lbs/a), whereas in 2016 it was 286 lbs (0.09 lbs/a). WB harvest in 2020 totaled 2,360 lbs (0.8 lbs/a) while in 2016 it was 327 lbs (0.11 lbs/a). Mean length of HSB harvested in 2020 was 18.3 in while in 2016 it was 12.2 in. Mean length of WB harvested in 2020 was 11.7 in, with 8.5 in being the average in 2016. The number of trips for *Morones* increased from 476 trips in 2016 to 1,723 trips in 2020. Hours spent fishing for these fish also increased from 2,144 hrs (0.7 hrs/a) in 2016 to 7,780 hrs (2.6 hrs/a) during 2020. Harvest rate for *Morone* anglers decreased from 2016 (0.63 fish/hr) to 2020 (0.44 fish/hr). Success rate for these anglers increased from 31% in 2016 to 38% in 2020. *Morone* catch, harvest and monthly angling success are shown in Tables 40 and 41.

Panfish, primarily bluegill, accounted for 3.4% of all trips with a total of 124,468 fish caught during the 2020 season. Pounds harvested in 2020 was higher than that seen in 2016—going from 2,415 lbs (0.79 lbs/a) in 2016 to 13,063 lbs (4.3 lbs/a) in 2020. The average length of bluegill harvested in 2020 (5.8 in) was exactly the same as in 2016. Trips for panfish increased from 1,106 trips in 2016 to 1,723 trips in 2020. The harvest rate for panfish in 2020 (5.5 fish/hr) increased from that recorded in 2016 (2.4 fish/hr). The percentage of successful panfish anglers was 89% while in 2016 it was 88%. Length distribution and numbers of species caught and harvested are shown in Table 33.

An angler attitude survey was conducted at Taylorsville Lake during the creel survey. Surveys were completed in the field by the creel clerk. A total of 469 surveys were completed in 2020 (212 surveys in 2016 and 278 surveys in 2009). The attitude survey reflected that 28.8% of all anglers fished for bass, compared to 34.4% in 2016 and 26.3% in 2009. Crappie continues to be most sought-after species at Taylorsville Lake. In 2020, 44.3% of all anglers fished for crappie, compared to 84.0% in 2016 and 57.6% in 2009. Channel catfish and blue catfish are targeted by 17.7% and 17.3% of all anglers, respectively. Saugeye, hybrid striped bass, bluegill and white bass were each targeted by less than 10% of all anglers at Taylorsville in 2020. Bass anglers (97.0%) and crappie anglers (99.5%) in 2020, expressed high levels of satisfaction, which increased from the 2009 and 2016 surveys. Eighty percent of crappie anglers were satisfied with the current 10.0-in size limit. Black bass, white bass, hybrid striped bass, and catfish anglers were all satisfied with the current size and creel limits for those species.

Herrington Lake (2,410 acres)

** Due to Covid19 restrictions no spring sampling was completed at Herrington Lake in 2020.

Length frequency, age and growth, relative weights and index of year class strength at age-0 for largemouth bass based on September electrofishing at Herrington Lake are presented in Tables 42-46. The growth rates of largemouth bass at Herrington Lake are very good. Largemouth bass growth rates indicated bass are reaching harvestable size (12.0 in) during their third growing season and 15.0 inches in four growing seasons (Table 43). Largemouth bass condition (W_r =93) was higher than the lake's historic average (W_r =92; Table 44) and spotted bass condition was very good (W_r = 96; Table 45). Age-0 CPUE for largemouth bass (16.4 fish/hr) was less than the lake average (35.0 fish/hr; Table 46). No largemouth bass were stocked in 2020.

Gill netting for hybrid striped bass and white bass was completed in October 2020. During the 14 net-night sampling period, 158 hybrid striped bass and 170 white bass were collected (Table 47). Otoliths were taken from both species for age and growth determinations. Results of these studies indicated excellent growth rates for both hybrids (Tables 48 and 49) and white bass (Tables 52 and 53). Hybrid striped bass reached 15.0 in between age-1 and age-2 (Table 48), as they have historically. Of the hybrid striped bass sampled, 89% were age-1+ or older (Table 49). Condition of hybrid striped bass in 2020 (W_r =95) was higher than the lake's historic average (W_r =93; Table 50). The population assessment for hybrid striped bass indicated a "Good" population (Table 51). White bass age and growth determinations showed that white bass reached 12.0 in between age-1 and age-2 (Table 52). Of the white bass sampled, 98% were age-1+ and older (Table 53). The white bass population assessment indicated an "Excellent" population (Table 54). Body condition of white bass (W_r=97) was higher than the lake's historic average (W_r=96; Table 55). Herrington Lake was stocked with 44,098 (18.3 fish/acre; 1.4 in) reciprocal-cross hybrid striped bass in June 2020. No original-cross hybrid striped bass were stocked in 2020.

Guist Creek Lake (317 acres)

** Due to COVID-19 restrictions no spring sampling was completed at Guist Creek Lake in 2020.

Fall largemouth bass sampling was conducted for length frequency, relative weights and index of year class strength at age-0 (Tables 56-58). Relative weights indicated good body condition for bass, especially for bass over 15.0 in (Table 57). The catch rate of age-0 largemouth bass (32.0 fish/hr) was lower than the average recruitment (avg. = 47.3 fish/hr; Table 58). No largemouth bass were stocked into Guist Creek Lake in 2020.

An attempt was also made to survey saugeye during the fall bass sample, but no saugeye were collected (Table 56). Due to the limited number of saugeye available from the hatchery, no saugeye were stocked in Guist Creek Lake in 2020. Prior to 2020, saugeye have been stocked annually since 2013.

Guist Creek Lake was stocked with 9,502 (30.0 fish/acre; 1.6 in) reciprocal-cross hybrid striped bass in June 2020.

Beaver Lake (158 acres)

A spring diurnal electrofishing sample was completed in May 2020 to assess the black bass population (Table 59). The CPUE for all sizes was 354.5 fish/hr, greater than the lake average of 255.0 fish/hr (Table 60). The PSD and RSD_{15} for largemouth bass were 17 and 4, respectively, compared to the current lake average of 27 and 4 (Table 61). The population assessment score indicated a "Good" bass population (Table 62), which is the average assessment rating for Beaver Lake. Fall diurnal electrofishing was conducted for relative weights and index of age-0 year class strength of largemouth bass (Tables 63-65). The overall relative weight indicates acceptable condition (W_r = 87); the lake average is 85 (Table 64). Fall sampling indicated above-average numbers of age-0 bass, (232.0 fish/hr; average = 137.8 fish/hr) and the average size of largemouth bass (3.7 in) was lower than the lake's average of 4.3 in (Table 65).

During September and October an effort was made to reduce the crowded largemouth bass population at Beaver Lake. One thousand eight hundred and five (11.4 fish/acre) largemouth bass were removed from Beaver Lake during three separate events. Largemouth bass removed ranged in size from 4.0 to 11.0 in (<8.0 in = 673 (37.2%); 8.0-10.9 in = 902 (50.1%); 11.0 in = 230 (12.7%)).

Relative weights for bluegill and redear sunfish were collected during the fall diurnal electrofishing sample. Overall, relative weight data for bluegill was "fair" while the body condition of redear sunfish was "excellent" (Table 66). Redear sunfish (31,600 fish; 200.0 fish/acre) were stocked in September 2020 at an average size of 1.2 in.

Channel catfish (3,700 fish; 23.4 fish/acre) averaging 9.5 in were stocked into Beaver Lake in September 2020.

In May, 675 lbs of granular 10-52-4 fertilizer was applied in Beaver Lake. One application of aquatic herbicide was applied in June 2020 to maintain bank fishing areas, the boat ramp and fishing pier at Beaver Lake.

A time-lapse camera was installed at Beaver Lake at the boat ramp access from March 2020-February 2021 to estimate total usage (trips) and pressure (hours) at this public access area. This approach differs from previous daytime roving creel surveys in that these counts capture all usage types (boat anglers, bank anglers and recreational boaters). However, the primary usage of this site was by anglers. The time-lapse camera recorded a picture of the entire fishing area (parking lot, boat ramp and fishing pier) every 10 minutes during daylight hours throughout the study period. Images were analyzed by randomly selecting 16 days each month, which included an a.m. or p.m. period. During those selected dates and times, individual vehicles were selected for each fishing type (trailered boat, carry-down boat, bank), party size per vehicle and total trip lengths were recorded. A total individual vehicle count was also collected for the entire day. From these counts, monthly averages were calculated.

Overall, it was estimated that 11,229 trips (71.1 trips/acre) were taken to Beaver Lake from March 2020-February 2021 (Table 67). Monthly trip totals ranged from 21 trips in February 2021 to 2,516 trips in May 2020 (Figure 1). Eighty-four percent of the trips to Beaver Lake occurred from April-September 2020. The average trip length for the year was 3.3 hours. Average trip lengths ranged from 2.2 hours in February 2021 to 3.9 hours in September 2020. May (9,512 hours), June (5,408 hours) and July (5,007 hours) recorded the highest usage rates (Figure 2). It was estimated that Beaver Lake received 39,049 hours (247.1 hours/acre) of recreational pressure during this 12-month study period (Table 67).

An angler attitude survey was conducted at Beaver Lake from March-October 2020. The district's seasonal creel clerk and district staff conducted these surveys. A total of 222 surveys were completed by individual anglers. The attitude survey reflected the largest majority of anglers fished for bluegill (41.4%) and largemouth bass (27.9%). The majority of anglers expressed satisfaction for their species of preference in 2020. Overall, anglers were 98.1% satisfied with the current regulations at Beaver Lake. However, anglers were also asked if they would support regulation changes that would allow for the harvest of largemouth bass less than 12.0 in. Eighty-two percent of all anglers stated they would support this regulation. Of those anglers, 72.7% stated they would also harvest these fish. Overall, anglers (77.4%) were satisfied with the facilities (parking lot, boat ramp, fishing pier, courtesy dock and restroom) at Beaver Lake. Of those anglers that were not satisfied with the facilities, 85.7% stated it was due to the condition and grade of the boat ramp.

Benjy Kinman Lake (88 acres)

A spring nocturnal electrofishing sample was completed in May 2020 at Benjy Kinman Lake to assess the black bass population (Table 68). The CPUE for all sizes was 151.0 fish/hr, compared to the lake average of 145.3 fish/hr (Table 69). The PSD and RSD_{15} for largemouth bass were 21 and 11, respectively (Table 70). The population assessment score indicated a "Fair" bass population (Table 71). Fall largemouth bass sampling was conducted for relative weights and index of year class strength at age-0 in September 2020 (Tables 72-74). Overall, relative weights indicated below-average body condition for bass (W_r = 87) with larger fish exhibiting better condition compared to smaller length groups (Table 73). The better condition of larger fish is due to the gizzard shad forage base. Fall sampling indicated above-average numbers of age-0 bass, (104.0 fish/hr; average = 76.0 fish/hr) and the average size of largemouth bass (4.8 in) was higher than the lake's average of 4.6 in (Table 74).

A spring diurnal electrofishing sample was completed at Benjy Kinman Lake in May 2020 to assess the panfish populations (Tables 75-78). Length frequency results showed a good distribution of bluegill through the 7.0-in size range (Tables 75 and 77). The PSD and RSD_8 for bluegill was 57 and 0, respectively (Table 76). Length frequency results showed the majority of the redear sunfish were in the 6.0- to 7.0-in size range (Tables 75 and 78). Redear sunfish PSD and RSD_9 was 49 and 2, respectively (Table 76). Relative weights for bluegill and redear sunfish were collected during the fall bass sample at Benjy Kinman Lake (Table 79). Overall, relative weights were "fair" for bluegill and "good" for redear sunfish.

Channel catfish were sampled in October and December 2020 using tandem hoop nets. Length frequency results for channel catfish showed a size distribution between the 10.0-in and 28.0-in size class (Table 80). PSD and RSD_{24} were 26 and 3, respectively (Table 81). Size distribution has improved since the initial sample in 2015 (Table 82). Relative weights indicated a good body condition for channel catfish (W_r = 92; Table 83). Additionally, an age and growth sample was collected during the December sample of channel catfish less than 15.0 in. Twenty-one fish were aged and all were age-1+, representing the 2019 year class. The significance of this finding was documenting channel catfish recruitment. No channel catfish stockings have occurred at Benjy Kinman Lake since February 2017, which represent 2016-year class fish. Additionally, 15 wooden catfish spawning boxes were installed during May 2020 in an effort to promote channel catfish spawning. All boxes were evaluated for usage weekly beginning on June 9th through July 14th. Of the 15 boxes, fish were observed using two of these boxes. One box was observed with a spawning pair and one with adult catfish and fry.

Six rough fish removal events took place from March 2020- March 2021 resulting in a total of 94 bigmouth buffalo, smallmouth buffalo, common carp, freshwater drum and longnose gar being removed from Benjy Kinman Lake. The average weight of rough fish removed in 2020-21 was 10.0 lbs. Therefore, it was estimated that 940 lbs of rough fish were removed. The seven-year total for rough fish removed from Benjy Kinman Lake is 4,239 fish

(48.2 fish/acre) at an estimated weight of 32,561 lbs (370.0 lbs/acre). In March 2021, the Kentucky River overtopped the dam on Benjy Kinman Lake and additional sampling will be conducted to evaluate the effects on this fishery.

Three hundred and fifty pounds of granular fertilizer (10-52-4) was applied in April 2020 at Benjy Kinman Lake. A second treatment of 350 pounds was applied in May 2020. One application of aquatic herbicides in May 2020 was applied to maintain areas around the parking lot, boat ramp and courtesy dock.

A few habitat projects were completed at Benjy Kinman Lake in 2020-2021. Water willow collected from the spillway at Elmer Davis and Boltz lakes were transplanted into Benjy Kinman Lake to create 7 new water willow beds during the summer 2020. Eight rock piles were constructed using 85 tons of shot rock.

Boltz Lake (92 acres)

** Due to Covid19 restrictions no spring sampling was completed at Boltz Lake in 2020.

Fall diurnal electrofishing was conducted for relative weights, index of age-0 year class strength and age and growth in September 2020 (Tables 84-87). Age and growth studies indicate that largemouth bass reach 12.0 in by age 3 and 15.0 in at age 5+ (Table 85). Relative weights indicated acceptable body condition (W_r = 93), higher than the lake's average relative weight of 90 (Table 86). Fall sampling indicated above average numbers of age-0 bass, (239.3 fish/hr; average= 51.9 fish/hr) but the average size (3.6 in) was smaller than the lake's average size of 4.2 in (Table 87). No bass were stocked into Boltz Lake in 2020.

Saugeye were collected during fall largemouth bass sampling at a rate of 4.7 fish/hr with fish ranging from the 19.0- to 21-in size class (Table 84). Saugeye (9,200 fish; 100 fish/acre) averaging 1.3 in were stocked into Boltz Lake in May 2020.

Spring diurnal electrofishing for bluegill and redear sunfish was conducted in June 2020 (Table 88). The overall catch rate for bluegill (532.0 fish/hr) continues to be higher than the lake average (498.6 fish/hr; Table 89). The PSD for bluegill was 51 compared to the lake average of 24 (Table 90). The RSD_8 was 3 compared to the lake average of 1. The population assessment for bluegill indicated an "Excellent" population, which has been the rating since 2018 (Table 91). The relative weight index reflected acceptable body condition for bluegill (W_r = 94) at Boltz Lake in 2020 (average W_r = 90; Table 92).

Three treatments of aquatic herbicides were applied to the spillway area at Boltz Lake in May, June and July 2020.

Bullock Pen Lake (134 acres)

** Due to Covid19 restrictions no spring sampling was completed at Bullock Pen Lake in 2020.

Fall diurnal electrofishing was conducted in September 2020 to determine length frequency, relative weights and index of age-0 year class strength for largemouth bass (Tables 93-95). Relative weights indicated fair body condition for bass (W_r = 88), lower than the lake's average (W_r = 94; Table 94). Larger fish exhibited better condition compared to smaller length groups, which is a function of the shad forage base. Age-0 CPUE (30.0 fish/hr) was higher than the lake average (21.7 fish/hr); therefore, no largemouth bass were stocked in 2020 (Table 95).

Saugeye were collected during the fall largemouth bass sample. Only three saugeye (2.0 fish/hr) were collected ranging from the 12.0- to 22.0-in size class (Table 93).

Channel catfish were sampled in October 2020 using tandem hoop nets. Length frequency results for channel catfish showed a range from the 8.0- to 24.0-in size class (Table 96). The PSD and RSD_{24} for channel catfish were 29 and 2, respectively (Table 97). Relative weights of channel catfish were acceptable (W_r = 92; Table

98). Overall, catch rates at Bullock Pen Lake (36.3 fish/set) remained lower than the lake average of 71.4 fish/set (Table 99).

A time-lapse camera was installed at Bullock Pen Lake, at the boat ramp access, from March 2020-February 2021 to estimate total usage (trips) and pressure (hours) at this public access area. However, due to a camera malfunction no data was collected during March and November 2020. Therefore, those two months are not included in the trip and pressure estimates. This approach differs from previous daytime roving creel surveys in that these counts capture all usage types (boat anglers, bank anglers and recreational boaters). However, the primary usage of this site was by anglers. The time-lapse camera recorded a picture of the entire fishing area (parking lot and boat ramp) every 10-minutes during daylight hours throughout the study period. Images were analyzed by randomly selecting 16 days each month, which included an a.m. or p.m. period. During those selected dates and times, individual vehicles were selected for each fishing type (trailered boat, carry-down boat, bank), party size per vehicle and total trip lengths were recorded. A total individual vehicle count was also collected for the entire day. From these counts, monthly averages were calculated.

Overall, it was estimated that 6,840 trips (51.0 trips/acre) were taken to Bullock Pen Lake from March 2020-February 2021, which does not include March and November 2020 due to camera malfunction (Table 100). Monthly trip totals ranged from 4 trips in February 2021 to 1,329 trips in July 2020 (Figure 3). Eighty-three percent of the trips to Bullock Pen Lake occurred from April-August 2020. The average trip length for the year was 3.5 hours. Average trip lengths ranged from 2.3 hours in February 2021 to 4.6 hours in May 2020. May (5,545 hours), June (4,332 hours) and July (4,227 hours) recorded the highest usage rates (Figure 4). It was estimated that Bullock Pen Lake received 25,467 hours (190.1 hours/acre) of recreational pressure during this 12-month study period (Table 100). This total does not include data for March and November 2020 due to camera malfunction.

Corinth Lake (96 acres)

Fall diurnal electrofishing for largemouth bass was conducted to determine length frequency, relative weight and year class strength (Tables 101-103). Relative weights of largemouth bass continue to be below average across the 8.0- to 11.9-in and 12.0- to 14.9-in length groups. The overall relative weight in 2020 (W_r = 85) was higher than the historic average relative weight at Corinth Lake (W_r = 84; Table 102). Age-0 CPUE (82.7 fish/hr) was similar to the lake average (87.7 fish/hr); therefore, no largemouth bass were stocked in 2020 (Table 103).

Spring diurnal electrofishing for bluegill and redear sunfish was completed in June 2020 to obtain length frequency, CPUE and population assessment data (Table 104). Bluegill PSD (39) was higher than the lake average of 33 (Table 105). The bluegill catch rate (300.8 fish/hr) continued to increase and was higher than the lake average (243.0 fish/hr; Table 106). The population assessment indicated a “Good” population, which is the average rating (Table 107). The redear sunfish catch rate (156.8 fish/hr) continues to be higher than the lake’s average (80.8 fish/hr; Table 108). Redear sunfish PSD was 80, higher than the lake average of 56 (Table 105). Catch rate for redear sunfish ≥8.0 in was 43.2 fish/hr; remaining higher than the lake average of 28.7 fish/hr (Table 108). The population assessment for redear sunfish was rated as “Fair” (Table 109). Fall diurnal electofishing for bluegill and redear sunfish was conducted for age and growth and relative weights. Age and growth studies show that bluegill reach 6.0 in between age-3 and age-4 and redear sunfish reach 8.0 in between age-5 and age-6 (Tables 110 and 111) Relative weights indicated fair condition for bluegill (87) and good condition for redear sunfish (93; Table 112).

Channel catfish were sampled in October at Corinth Lake using tandem hoop nets. Length frequency results for channel catfish showed a size distribution between the 17.0 and 25.0-in size classes (Table 113). The PSD and RSD_{24} for channel catfish was 100 and 20, respectively (Table 114). Relative weights indicated “Excellent” body condition for channel catfish (W_r = 104; Table 115). Overall, catch rates at Corinth Lake remain lower than the lake average of 53.4 fish/set (Table 116).

No fertilizer was applied at Corinth Lake due to adequate water clarities throughout the spring 2020.

Elmer Davis Lake (149 acres)

Fall electrofishing evaluated largemouth bass age and growth, relative weight and index of year class strength at age-0 (Tables 117-120). Age and growth data indicate that largemouth bass reach 12.0 in between age-3 and age-4 and 15.0 in between age-7 and age-8 (Table 118). Largemouth bass relative weight (W_r =82) was less than the historical lake average (W_r =87; Table 119). The year class strength model indicated that 2020 was an above-average year for young-of-year largemouth bass. Age-0 CPUE (176.0 fish/hr) was higher than the lake average (140.9 fish/hr; Table 120). Therefore, no largemouth bass were stocked during 2020.

Relative weight index reflects good condition for bluegill (W_r = 93) and redear sunfish (W_r = 101; Table 121). Elmer Davis Lake was stocked with 26,200 (175.8 fish/acre) redear sunfish in September 2020.

Kincaid Lake (183 acres)

Diurnal fall electrofishing for largemouth bass was completed in October 2020 to collect length frequency, relative weight values, and to index the year class strength at age-0 (Tables 122-124). Relative weights were acceptable (W_r = 94) and higher than the lake average (W_r = 89; Table 123). CPUE for age-0 bass (56.7 fish/hr) was higher than the lake average of 37.9 fish/hr (Table 124). Largemouth bass (1,161 fish; 6.3 fish/acre) were stocked into Kincaid Lake in October 2020. These fish ranged from 6.0-11.0 in and came from the Beaver Lake bass removal project.

Channel catfish were sampled in October using tandem hoop nets at Kincaid Lake. Channel catfish collected were distributed from the 7.0- to 26.0-in size classes (Table 125). The PSD and RSD_{24} for channel catfish were 53 and 10, respectively (Table 126). Relative weights of channel catfish were acceptable (W_r = 93; Table 127). Channel catfish were collected at 14.0 fish/set-night in 2020, which is lower than the lake average of 62.0 fish/set-night (Table 128).

McNeely Lake (51 acres)

Diurnal fall electrofishing for largemouth bass was completed in September 2020 to collect length frequency, relative weight values, and to index the year class strength at age-0 (Table 129-131). Relative weights (87) were less than the lake average (W_r = 89) in fall 2020 (Table 130). CPUE for age-0 bass (73.0 fish/hr) was lower than the lake average of 125.9 fish/hr (Table 131).

Bluegill and redear sunfish were sampled in June 2020 for length frequency, CPUE, and population assessment (Table 132). The bluegill PSD was 46 compared the lake average of 42 (Table 133). RSD_8 was 1, compared to the lake average of 0.4. Catch rate for bluegill (249.3 fish/hr) was lower than the lake average catch rate of 336.0 fish/hr (Table 134). The population assessment rating for bluegill was “Good” (Table 135). The total catch rate for redear sunfish (45.3 fish/hr) was lower than the lake average (56.6 fish/hr; Table 136). The PSD for redear sunfish was 69 compared to the lake average of 48 and the RSD_9 was 6 compared to the lake average of 8 (Table 133). The redear sunfish population assessment rated this fishery as “Good” in 2020 (Table 137). Relative weights for bluegill and redear sunfish were collected during the fall diurnal electrofishing sample. Overall, condition for bluegill (87) was fair and good for redear sunfish (92; Table 138).

McNeely Lake was stocked with 1,275 (25.0 fish/acre; 9.2 in) channel catfish in September 2020.

General Butler State Park Lake

A rough fish removal was completed in November 2020 at General Butler State Park Lake. During this event, 174 bigmouth buffalo, common carp and smallmouth buffalo were removed with an average weight of 9.42 lbs. Therefore, it was estimated that 1,639 lbs of fish were removed in 2020. In total, since 2019, 550 fish (19.4 fish/acre) have been removed for an estimated total weight of 5,937 lbs (209.0 lbs/acre).

Kentucky River WMA (Boone Tract: Prather Pond and 6-acre pond)

In December 2019, a low concentration (0.2 ppm) of rotenone was applied to both of these ponds in an effort to eradicate the gizzard shad population. In April 2020, sampling was completed on each pond to evaluate the sport fish populations and the success of the rotenone treatment.

Prather Pond

Length frequency, relative abundance, and CPUE of fishes collected in April 2020 by electrofishing at Prather Pond are shown in Table 139. Largemouth bass were collected from the 4.0- to 18.0-in size classes. Bluegill and redear sunfish were collected up to the 7.0-in and 8.0-in size classes, respectively. White and black crappie were also collected. A total of 0.5 hours of electrofishing was completed for the presence of gizzard shad. Two gizzard shad were collected and removed. No other gizzard shad were observed.

In May 2020, two weeks after the initial survey, a total of 204 redear sunfish (3.0-7.0 in) were moved from Prather Pond and relocated to the Boone Tract 15-acre lake. During this event an additional 0.5 hours of electrofishing was completed for gizzard shad and none were collected or observed.

Boone Tract 6-acre pond

Length frequency, relative abundance, and CPUE of fishes collected in April 2020 by electrofishing at the Boone Tract 6-acre pond are shown in Table 140. Largemouth bass were collected from the 4.0- to 15.0-in size classes. Bluegill were collected up to the 8.0-in size class. Black crappie and redear sunfish were also collected. A total of 0.6 hours of electrofishing was complete for the presence of gizzard shad. No gizzard shad were collected or observed during this survey.

Table 1. Yearly summary of sampling conditions by waterbody, species sampled and date.

Water body	Species	Date	Time (24hr)	Gear	Weather	Water temp. F	Water level	Secchi (in)	Conditions	Pertinent sampling comments
KY River WMA Prather Pond	LMB/BLG/RES	4/20	1000	Shock	Sunny	59	Full	-	Good	Good sample
KY River WMA 6 acre pond	LMB/BLB/RES	4/20	1000	Shock	Sunny	59	Full	-	Good	Good sample
Beaver Lake	LMB	5/13	1000	Shock	Overcast, light rain	60	Full	72	Good	Good sample
Benjy Kinman Lake	LMB	5/14	1800	Shock	Clear/warm	65	Full	-	Good	Good sample
Benjy Kinman Lake	BLG/RES	5/28	**1000**	Shock	Sunny/warm	77	Full	-	Good	Good sample
Corinth Lake	BLG/RES	6/2	1000	Shock	Sunny/warn	77	Full	50	Good	Good sample
Boltz Lake	BLG/RES	6/3	1000	Shock	Sunny/warn/breezy	77	Full	42	Good	Good sample
McNeely Lake	BLG/RES	6/10	1100	Shock	Mostly cloudy	80	Full	36	Good	Good sample
Taylorsville Lake (Upper Lake)	Blue catfish	7/7	0800	Shock	Mostly sunny	85	547.6	24	Good	Good sample
Taylorsville Lake (Lower Lake)	Blue catfish	7/8	0800	Shock	Mostly sunny	85	547.3	-	Good	Good sample
Boltz Lake	LMB/BG/RES	9/8	1100	Shock	Sunny, light breeze	80	Full	-	Good	Good sample
Corinth Lake	LMB/BG/RES	9/9	1000	Shock	Sunny	80	Full	40	Good	Good sample
McNeely Lake	LMB/BG/RES	9/14	1000	Shock	Mostly sunny	77	Full	40	Good	Good sample
B. Kinman Lake	LMB/BG/RES	9/15	1000	Shock	Sunny	77	Full	48	Good	Good sample
Beaver Lake	LMB/BG/RES	9/16	1030	Shock	Mostly sunny	74	Full	28	Good	Good sample
Bullock Pen Lake	LMB/Saugeye	9/18	1030	Shock	Mostly sunny	-	~ 18 in. down	28	Good	Good sample
Herrington Lake (Cane Run)	Black bass	9/21	1030	Shock	Sunny	74	745.8	60	Good	Good sample
Herrington Lake (Gwinn Island)	Black bass	9/22	1045	Shock	Sunny	74	744.8	-	Good	Good sample
Elmer Davis Lake	LMB/BG/RES	9/23	1000	Shock	Overcast	69	0.5 ft low	30	Good	Good sample
Herrington Lake (Kings Mill)	Black bass	9/25	1100	Shock	Partly cloudy	74	741.5	28	Good	Good sample
Taylorsville Lake (Big Beech)	LMB/Saugeye	9/28	1000	Shock	Overcast, rain	76	547.1	40	Good	Good sample
Taylorsville Lake (Ashes/Jacks)	LMB/Saugeye	9/29	0900	Shock	Mostly sunny	72	547.1	60	Good	Good sample
Taylorsville Lake (Van Buren)	LMB/Saugeye	9/29	1300	Shock	Mostly sunny	70	547.1	28	Good	Good sample
Guist Creek Lake	LMB	9/30	0930	Shock	Mostly sunny	68	Full	34	Good	Good sample
Kincaid Lake	LMB	10/5	1100	Shock	Sunny	66	Full	20	Good	Good sample
Kincaid Lake	Channel catfish	10/9	1100	Hoop net	Mostly cloudy	-	-	-	Good	Good sample
Bullock Pen Lake	Channel catfish	10/9	1000	Hoop net	Mostly cloudy	-	~18 in low	-	Good	Good sample
Corinth Lake	Channel catfish	10/12	1000	Hoop net	Overcast	67	Full	-	Good	Good sample
Herrington Lake (Dunn Island)	LMB	10/14	1000	Shock	Sunny	70	730.5	-	Good	Good sample: Wr's only

Table 1 (cont.).

Water body	Species	Date	Time (24hr)	Gear	Weather	Water temp. F	Water level	Secchi (in)	Conditions	Pertinent sampling comments
Benjy Kinman Lake	Channel catfish	10/15	1000	Hoop net	Major cold front – overcast	65	Full	42	Good	Good sample
Benjy Kinman Lake	LMB	10/15	1200	Shock	Major cold front – overcast	65	Full	42	Good	Good sample: Wr's only
Herrington Lake (Lower lake)	LMB	10/19	1000	Shock	Overcast/rain	68	725.2	-	Good	Good sample: Wr's only
Herrington Lake	Morones	10/20 10/21	1100	Gillnet	Overcast Mostly cloudy	- -	725.2 725.1	- -	Good	Good sample
Taylorsville Lake	Morones/ crappie	10/27 10/28 10/29 10/30	1030	Gillnet Trapnet	Cloudy/cool Partly cloudy Rain/Hurricane Zeta Mostly cloudy/cool	63 60 60 62	547.2 546.9 547.8 549.4	---	Good	Good sample
Elmer Davis Lake	LMB/BG/RESF	11/10	1000	Shock	Suny/warm/breezy	60	Full	-	Good	Good sample: Wr's only
Taylorsville Lake	LMB	11/12	1000	Shock	Sunny/cool	60	547.4	65	Good	Good sample: Wr's only
Benjy Kinman Lake	LMB/RES	11/19	1000	Shock	Sunny	51	Full		Good	Good sample: Wr's only
Bullock Pen Lake	LMB	11/19	1000	Shock	Sunny/windy	51	2 ft down	25	Good	Good sample: Wr's only – completed by Habitat Branch
Boltz Lake	LMB	12/2	1000	Shock	Sunny	47	Full	36	Good	Good sample: Wr's only – completed by Habitat Branch
Benjy Kinman Lake	Channel catfish	12/4	1000	Hoop Net	Overcast, drizzle	45	Full	-	Good	Good sample

Table 2. Length distribution and CPUE (fish/hr) of largemouth bass and saugeye collected in 4.5 hours of 15-minute electrofishing runs for black bass at Taylorsville Lake in September 2020; numbers in parentheses are standard errors.

	Inch class																			
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Van Buren																				
Largemouth bass	1	5	1	1	1	3	3	3	7	10	11	3	1						50	33.3 (5.2)
Saugeye										1	1								2	1.3 (0.8)
Ashes Creek																				
Largemouth bass	6	9	12	4	1	5	10	6	7	15	16	1			1				93	62.0 (7.9)
Saugeye											1	1				3	3	1	9	6.0 (1.7)
Big Beech Creek																				
Largemouth bass	1	2		2		3	6	5	2	10	7	8	3		2		1		52	34.7 (5.0)
Saugeye											3	1			1	2	2		9	6.0 (3.7)
Total																				
Largemouth bass	8	16	13	7	2	11	19	14	16	35	34	12	4		3		1		195	43.3 (4.6)
Saugeye										1	5	2			1	5	5	1	20	4.4 (1.4)

Dataset = cfdwrtvl.d20

Table 3. Numbers of fish and the relative weight (W_r) for each length group of largemouth bass collected at Taylorsville Lake in September and November 2020; standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Van Buren	10	97 (3)	23	92 (2)	4	96 (4)	37	94 (1)
	Ashes	22	87 (1)	38	89 (1)	2	98 (5)	62	88 (1)
	Big Beech	14	97 (2)	19	91 (2)	14	92 (4)	47	93 (2)
	Main Lake	48	91 (1)	73	86 (1)	25	96 (2)	146	89 (1)
	Total	94	92 (1)	153	88 (1)	45	95 (2)	292	90 (1)

Dataset = cfdwrtvl.d20

Table 4. Indices of year class strength at age-0 and age-1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at Taylorsville Lake. Age-1 CPUE and standard error could not be calculated for 2019 year class due to COVID-19 work restrictions.

		Age-0		Age-0		Age-0 ≥5.0 in		Age-1 (natural)	
Year class	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	5.9	0.1	9.8	2.6	8.0	2.2		
2019	Total	6.1	0.1	18.0	2.5	15.1	2.5	-	-
2018*	Total	6.3	0.1	23.7	3.2	22.0	2.9	42.8	6.0
2017	Total	5.2	0.1	46.2	3.9	26.2	3.7	27.7	3.7
2016	Total	5.0	0.1	49.3	7.1	21.3	2.7	25.1	2.6
2015	Total	6.0	0.1	14.4	2.1	12.7	2.1	24.6	3.0
2014	Total	5.5	0.1	21.1	4.3	15.4	3.0	16.8	3.7
2013	Total	4.9	0.1	50.0	6.0	23.8	4.3	23.6	3.7
2012	Total	5.1	0.1	54.4	5.3	27.8	3.3	17.2	2.2
2011	Total	4.8	0.1	40.4	2.8	17.8	1.6	27.5	3.8

Dataset = cfdwrtvl.d20

*Data only collected at Van Buren and Ashes Creek due to YOY stocking

Table 5. Length distribution and CPUE (fish/nn) of each species of crappie collected at Taylorsville Lake in 48 net-nights in October 2020.

	Inch class														Std.
Species	2	3	4	5	6	7	8	9	10	11	12	13	Total	CPUE	error
White crappie	1	19	29	4	18	101	166	187	28	12	4	1	570	11.9	2.4
Black crappie		1		1	5	8	13	3		3			34	0.7	0.2

Dataset = cfdtntvl.d20

Table 6. PSD and RSD_{10} values calculated for crappie collected at Taylorsville Lake in 48 net-nights during October 2020.

Species	No. $\geq$ 5.0 in	PSD	RSD_{10}
White crappie	521	76 ($\pm$ 4)	9 ($\pm$ 2)
Black crappie	33	58 ($\pm$ 17)	9 ($\pm$ 10)

Dataset = cfdtntvl.d20

Table 7. Mean back calculated lengths (in) at each annulus for otoliths from white crappie trap netted at Taylorsville Lake in 2020.

Year		Age					
class	No.	1	2	3	4	5	6
2019	62	5.4					
2018	3	6.0	10.1				
2017	1	5.2	9.3	10.6			
2016	1	6.0	8.5	10.0	10.9		
2015	12	5.2	7.8	9.0	10.1	11.1	
2014	1	5.8	8.2	9.5	10.2	10.6	11.3
Mean	80	5.4	8.4	9.2	10.2	11.0	11.3
Smallest		3.8	6.9	8.2	8.9	10.0	11.3
Largest		7.3	10.5	10.6	11.4	12.2	11.3
Std error		0.1	0.2	0.2	0.2	0.2	
95% ConLo		5.2	7.9	8.9	9.8	10.6	
95% ConHi		5.6	8.8	9.6	11.5	11.5	

Intercept value = 0.00
Dataset = cfdagtvl.d20

Table 8. Age frequency and CPUE (fish/nn) per inch class of white crappie trap netted for 48 net-nights at Taylorsville Lake in 2020.

	Inch class														
Age	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std err
0+	19	29	4									52	9	1.1	0.3
1+				18	101	166	187	19	1			492	86	10.2	2.2
2+								2	2			4	1	0.1	<0.1
3+									1			1	0	0.0	0.0
4+									1			1	0	0.0	0.0
5+								7	5	4	1	17	3	0.4	0.1
6+									1			1	0	0.0	0.0
Total	19	29	4	18	101	166	187	28	11	4	1	568	100	11.9	2.4
(%)	3	5	1	3	18	29	33	5	2	1	0	100			

Dataset = cfdtntvl.d20 and cfdagtvl.d20

CPUE of ≥8.0 in white crappie = 8.3 ± 1.8 fish/nn; ≥10.0 in = 0.9 ± 0.2 fish/nn

Table 9. Mean back calculated lengths (in) at each annulus for otoliths from black crappie trap netted at Taylorsville Lake in 2020.

Year		Age					
class	No.	1	2	3	4	5	6
2019	25	4.7					
2018	3	4.8	8.2				
2017	2	5.0	8.0	9.8			
2014	1	5.1	7.9	9.3	10.1	10.6	11.2
Mean	31	4.7	8.1	9.6	10.1	10.6	11.2
Smallest		3.8	6.8	9.3	10.1	10.6	11.2
Largest		7.3	9.2	10.3	10.1	10.6	11.2
Std error		0.1	0.4	0.3			
95% ConLo		5.2	7.3	9.0			
95% ConHi		5.6	8.9	10.3			

Intercept value = 0.00

Dataset = cfdagtvl.d20

Table 10. Age frequency and CPUE (fish/nn) per inch class of black crappie trap netted for 48 net-nights at Taylorsville Lake in 2020.

	Inch class												
Age	3	4	5	6	7	8	9	10	11	Total	%	CPUE	Std err
0+	1									1	3	<0.1	<0.1
1+			1	5	8	12	1			27	79	0.6	0.2
2+						1	2			3	3	0.1	<0.1
3+									2	2	2	<0.1	<0.1
4+										0	0	0.0	0.0
5+										0	0	0.0	0.0
6+									2	2	4	<0.1	<0.1
Total	1	0	1	5	8	13	3	0	4	35	100	0.7	0.2
%	3	0	3	15	24	38	9	0	9	100			

Dataset = cfdtntvl.d20 and cfdagtvl.d20

CPUE of ≥8.0-in black crappie = 0.4 ± 0.1 fish/nn; ≥10.0 in = 0.1 ± 0.1 fish/nn

Table 11. Population assessment for white crappie collected during fall trap netting at Taylorsville Lake from 2011-2020 (scoring based on statewide assessment).

Year		CPUE age-1 and older	Mean length age-2+ at capture	CPUE ≥ 8.0 in	CPUE age-1+	CPUE age-0+	Total score	Assessment rating
2020	Value	10.8	11.0	8.3	10.2	1.1		
	Score	3	4	4	4	2	17	Excellent
2019*	Value	7.5	9.7*	7.3	0.9*	8.8		
	Score	3	3	4	1	4	15	Good
2018	Value	11.0	9.7	11.0	0.9	0.6		
	Score	3	3	4	1	2	13	Good
2017	Value	12.5	9.3	10.8	2.2	0.3		
	Score	3	2	4	2	1	12	Fair
2016	Value	16.8	11.3	7.9	16.4	0.4		
	Score	4	4	4	4	1	17	Excellent
2015	Value	5.6	10.5	3.5	4.4	16.9		
	Score	2	4	3	3	4	16	Good
2014	Value	2.9	10.9	2.2	2.5	0.4		
	Score	2	4	2	2	1	11	Fair
2013	Value	1.7	10.2	1.4	1.3	6.7		
	Score	1	3	1	2	4	11	Fair
2012	Value	0.7	10.1	0.6	0.5	1.1		
	Score	1	3	1	1	2	8	Poor
2011	Value	0.7	11.0	0.6	0.6	1.0		
	Score	1	4	1	1	2	9	Fair

* Age data not collected

Table 12. Population assessment for black crappie collected during fall trap netting at Taylorsville Lake from 2011-2020 (scoring based on statewide assessment).

Year		CPUE age-1 and older	Mean length age-2 at capture	CPUE ≥8.0 in	CPUE age-1+	CPUE age-0+	Total score	Assessment rating
2020	Value	0.7	9.2	0.4	0.6	0.0		
	Score	1	3	1	1	1	7	Poor
2019*	Value	1.2	9.8*	0.9	0.8*	0.1		
	Score	1	4	2	2	1	10	Fair
2018	Value	2.3	9.8	2.4	0.8	0.1		
	Score	2	4	3	2	1	12	Fair
2017	Value	3.8	9.4	3.4	0.7	0		
	Score	3	3	3	2	1	12	Fair
2016	Value	4.8	9.0	3.0	2.1	0.1		
	Score	3	2	3	3	1	12	Fair
2015	Value	8.6	9.2	2.0	6.0	1.2		
	Score	3	3	3	4	3	16	Good
2014	Value	6.3	9.3	2.4	5.2	0.9		
	Score	3	3	3	4	2	15	Good
2013	Value	4.5	9.1	4.1	0.9	2.2		
	Score	3	3	4	2	4	16	Good
2012	Value	9.8	9.6	1.7	9.3	0..9		
	Score	4	3	3	4	2	16	Good
2011	Value	0.8	9.8	0.5	0.5	2.5		
	Score	1	4	1	1	4	11	Fair

* Age data not collected

Table 13. Number of fish and the relative weight (Wr) for each length group of crappie at Taylorsville Lake in October 2020.

Species	Area	Length group 5.0–7.9 in		Length group 8.0–9.9 in		Length group ≥10.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
White crappie	Total	116	96 (1)	332	100 (1)	45	95 (2)	493	99 (1)
Black crappie	Total	14	91 (2)	16	93 (2)	3	92 (3)	33	92 (1)

Dataset = cfdtntvl.d20

Table 14. Length distribution and CPUE (fish/nn) of white bass, hybrid striped bass, and saugeye collected during 8 net-nights of gill netting in Taylorsville Lake in October 2020: numbers in parentheses are standard errors.

Species	Inch class 6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Total	CPUE
White bass	2	34	14		7	41	32	11	1														142	17.8 (9.8)
Hybrid striped bass							1	3	27	16			1	2		1		2	2	3	4	1	63	7.9 (2.5)
Reciprocal							1	1	16	6						1		1	1	1	3	1	32	4.0 (1.2)
Original								2	11	10			1	2				1	1	2	1		31	3.9 (1.4)
Saugeye					2			2	7	25	28	16	7	9	4	7	9	2	2				120	15.0 (5.7)

Dataset = cfdgntvl.d20

Table 15. Mean back calculated lengths (in) at each annulus for otoliths from hybrid striped bass gill netted at Taylorsville Lake in 2020.

		Age							
Year class	No.	1	2	3	4	5	6	7	8
2019	45	10.7							
2018	1	12.9	18.5						
2017	3	7.9	14.5	17.9					
2016	2	11.6	17.3	20.7	22.8				
2015	3	14.0	19.6	22.0	23.7	24.8			
2013	4	11.9	16.9	20.7	22.4	23.7	24.4	25.2	
2012	3	10.5	16.5	19.2	21.6	22.9	23.7	24.6	25.3
Mean	61	10.8	17.0	20.1	22.6	23.8	24.1	24.9	25.3
Smallest		6.3	13.7	17..1	20.7	22.1	22.8	23.7	24.7
Largest		15.0	21.5	24.0	24.8	25.7	25.8	26.7	25.9
Std error		0.2	0.5	0.5	0.4	0.4	0.4	0.4	0.4
95% ConLo		10.4	16.0	19.1	21.7	23.0	23.3	24.2	24.6
95% ConHi		11.2	18.1	21.1	23.4	24.6	24.8	25.6	26.0

Intercept Value = 0.00
Dataset = cfdagtvl.d20

Table 16. Age frequency and CPUE (fish/nn) per inch class of hybrid striped bass gill netted for 8 net-nights at Taylorsville Lake in 2020.

	Inch class																			Std
Age	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Total	%	CPUE	err
1+	1	3	27	16													47	75	5.9	2.2
2+								1									1	2	0.1	0.1
3+							1	1		1							3	5	0.4	0.2
4+												1	1				2	3	0.3	0.2
5+												1			2		3	5	0.4	0.2
6+																	0	0	0.0	0.0
7+													1	1	1	1	4	6	0.5	0.3
8+														2	1		3	5	0.4	0.2
Total	1	3	27	16			1	2		1		2	2	3	4	1	63	100	7.9	2.5
%	2	5	43	25			2	3		2		3	3	5	6	2	100			

Dataset = cfdagtvl.d20 and cfdgntvl.d20

Table 17. Number of fish and the relative weight (W_r) for each length group of hybrid striped bass collected at Taylorsville Lake in October 2020.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Hybrid striped bass	Total			31	92 (1)	32	92 (1)	63	92 (1)

Dataset = cfdgntvl.d20

Table 18. Population assessment for hybrid striped bass collected during fall gill netting at Taylorsville Lake from 2011-2020 (scoring based on statewide assessment).

Year		CPUE (excluding age-0)	Mean length age-2+ at capture	CPUE ≥15.0 in	CPUE age-1+	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2020	Value	7.9	19.5	4.0	5.9	-	-		
	Score	2	4	2	3			11	Good
2019	Value	4.9	18.4	3.6	1.8	-	-		
	Score	2	3	2	2			9	Fair
2018	Value	6.7	17.9	2.9	5.1	-	-		
	Score	2	3	2	3			10	Good
2017	Value	10.0	18.0	7.8	2.8	-	-		
	Score	3	3	3	2			11	Good
2016	Value	12.2	16.8	9.5	3.2	-	-		
	Score	3	2	3	2			10	Good
2015	Value	5.1	18.0	3.4	1.8	-	-		
	Score	2	3	2	2			9	Fair
2014	Value	10.9	17.5	3.0	8.4	-	-		
	Score	3	3	2	4			12	Good
2013	Value	3.5	18.3	1.5	2.0	-	-		
	Score	2	3	1	2			8	Fair
2012	Value	2.2	17.0	0.8	1.3	-	-		
	Score	1	2	1	2			6	Poor
2011	Value	11.5	16.4	3.1	7.9	-	-		
	Score	3	2	2	3			10	Good

Table 19. Mean back calculated lengths (in) at each annulus for otoliths from white bass gill netted at Taylorsville Lake in 2020.

		Age		
Year class	No.	1	2	3
2019	39	9.0		
2018	29	9.1	11.6	
2017	5	9.0	12.0	13.2
Mean	73	9.0	11.7	13.2
Smallest		6.0	10.4	12.3
Largest		10.4	12.7	13.9
Std error		0.1	0.1	0.3
95% ConLo		8.9	11.5	12.7
95% ConHi		9.2	11.8	13.7

Intercept Value = 0.00
Dataset = cfdagtvl.d20

Table 20. Age frequency and CPUE (fish/nn) per inch class of white bass gill netted for 8 net-nights at Taylorsville Lake in 2020.

	Inch class												
Age	6	7	8	9	10	11	12	13	14	Total	%	CPUE	Std err
0+	2	34	14							50	35	6.3	2.6
1+					7	39	7			53	38	6.7	4.1
2+						2	24	8		34	23	4.2	2.8
3+							1	3	1	5	4	0.7	0.5
Total	2	34	14		7	41	32	11	1	142	100	17.8	9.8
%	1	24	10		5	29	23	8	1	100			

Dataset = cfdagtvl.d20 and cfdgntvl.d20

Table 21. Number of fish and the relative weight (W_r) for each length group of white bass collected at Taylorsville Lake in October 2020.

		Length group							
Species	Area	6.0–8.9 in		9.0–11.9 in		≥12.0 in		Total	
		No.	W_r	No.	W_r	No.	W_r	No.	W_r
White bass	Total	50	97 (1)	48	96 (1)	44	97 (1)	142	96 (1)

Dataset = cfdgntvl.d20

Table 22. Population assessment for white bass collected during fall gill netting at Taylorsville Lake from 2011-2020 (scoring based on statewide assessment).

Year		CPUE (excluding age-0)	Mean length age-2+ at capture	CPUE ≥12.0 in	CPUE age-1+	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2020	Value	11.5	12.7	5.5	6.7				
	Score	3	2	3	3			11	Good
2019	Value	5.7	12.7	0.6	5.2				
	Score	2	2	1	3			8	Fair
2018	Value	2.4	13.0	0.8	1.8				
	Score	1	2	1	2			6	Poor
2017	Value	1.4	10.5	0.3	1.1				
	Score	1	1	1	1			4	Poor
2016	Value	3.4	12.0	1.5	1.0				
	Score	2	1	2	1			6	Poor
2015	Value	3.2	12.5	0.8	1.3				
	Score	1	2	1	1			5	Poor
2014	Value	4.5	11.3*	0.5	4.5				
	Score	2	1	1	3			7	Fair
2013	Value	1.4	11.3*	0.0	1.4	-	-		
	Score	1	1	1	1			4	Poor
2012	Value	3.3	11.3	0.5	2.2	1.037	64.5		
	Score	2	1	1	2			6	Poor
2011	Value	18.4	11.9	5.0	8.9	1.506	77.8		
	Score	4	1	3	4			12	Good

* Age data not collected because no fish were captured at this age

Table 23. Mean back calculated lengths (in) at each annulus for otoliths from saugeye gill netted at Taylorsville Lake in 2020.

		Age			
Year class	No.	1	2	3	4
2019	35	12.3			
2018	17	11.5	16.0		
2017	16	11.6	16.5	19.6	
2016	2	14.4	18.7	21.3	22.8
Mean	70	12.0	16.4	19.8	22.8
Smallest		8.1	12.7	13.6	22.2
Largest		14.5	19.1	21.8	23.3
Std error		0.2	0.3	0.5	0.6
95% ConLo		11.7	15.9	18.8	21.7
95% ConHi		12.3	16.9	20.7	23.9

Intercept Value = 0.00
Dataset = cfdagtvl.d20

Table 24. Age frequency and CPUE (fish/nn) per inch class of saugeye gill netted for 13 net-nights at Taylorsville Lake in 2020.

	Inch class																		Std
Age	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	%	CPUE	err
0+	2															2	2	0.3	0.2
1+				2	6	25	26	4	1							65	54	8.1	3.1
2+							2	10	6	8	3					28	23	3.5	1.3
3+					1			1		1	1	7	8	2		21	18	2.8	1.3
4+													1		2	3	3	0.4	0.2
Total	2			2	7	25	28	15	7	9	4	7	9	2	2	119	100	15.0	5.7
%	2			2	6	21	23	13	6	8	3	6	8	2	2	100			

Dataset = cfdagtvl.d20 and cfdgntvl.d20

Table 25. Number of fish and the relative weight (W_r) for each length group of saugeye collected at Taylorsville Lake in October 2020.

		Length group							
Species	Area	10.0–14.9 in		15.0–19.9 in		≥20.0 in		Total	
		No.	W_r	No.	W_r	No.	W_r	No.	W_r
Saugeye	Total	11	98 (3)	85	94 (1)	24	98 (2)	120	95 (1)

Dataset = cfdgntvl.d20

Table 26. Length distribution and CPUE (fish/hr) of blue catfish collected in 3.0 hours of 15-minute electrofishing runs for blue catfish in Taylorsville Lake in July 2020; numbers in parentheses are standard errors.

	Inch class																											
Area	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	35	37	39	40	Total	CPUE
Upper	1		1	12	36	43	25	7	10	1	8	2		1	2	2	1				1			1	1	1		156	104.0 (18.2)
Lower	1	12	8	29	37	46	26	18	16	6	7	1	3	1	2	1			1				1	1			1	218	145.3 (27.7)
Total	2	12	9	41	73	89	51	25	26	7	15	3	3	2	4	3	1		1		1		1	2	1	1	1	374	124.7 (17.0)

Dataset = cfdpstvl.d20

Table 27. Electrofishing CPUE (fish/hr) for each length group of blue catfish collected from Taylorsville Lake from 2011-2020; numbers in parentheses are standard errors.

	Length group				
Year	<12.0 in	12.0-19.9 in	20.0-29.9 in	≥30.0 in	Total
2020	0.7 (0.5)	108.7 (16.8)	13.0 (1.4)	2.3 (1.2)	124.7 (17.0)
2019	7.0 (3.5)	92.3 (17.5)	12.0 (3.3)	0.7 (0.5)	112.0 (21.7)
2018	45.7 (8.5)	111.7 (16.1)	15.7 (3.4)	2.3 (0.9)	175.3 (21.8)
2017	87.3 (23.7)	118.0 (21.2)	9.0 (5.5)	2.3 (1.3)	216.7 (30.8)
2016	35.3 (15.4)	53.0 (21.5)	6.7 (2.7)	1.7 (1.2)	96.7 (31.5)
2015	31.4 (16.0)	47.1 (16.6)	4.6 (2.1)	1.9 (1.0)	84.9 (24.6)
2014	31.1 (11.3)	119.4 (21.1)	11.4 (2.5)	5.2 (1.7)	167.1 (27.5)
2013	4.0 (1.6)	42.0 (6.5)	11.0 (2.6)	3.0 (0.9)	60.0 (8.2)
2012	28.3 (9.1)	58.3 (15.7)	15.0 (4.7)	2.3 (1.2)	104.0 (22.8)
2011	3.9 (3.1)	14.0 (2.9)	8.1 (5.0)	1.1 (0.6)	27.1 (5.9)

Dataset = cfdpstvl.d20-.d10

Table 28. Numbers of fish and the relative weight (W_r) for each length group of blue catfish collected at Taylorsville Lake on 7 and 8 July 2020; standard errors are in parentheses.

		Length group							
Species	Area	12.0-19.9 in		20.0–29.9 in		≥30.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Blue catfish	Upper	134	95 (1)	17	94 (2)	4	113 (8)	155	95 (1)
	Lower	192	95 (1)	22	96 (1)	3	122 (7)	217	95 (1)
	Total	326	95 (1)	39	95 (1)	7	117 (5)	372	95 (1)

Dataset = cfdpstvl.d20

Table 29. Mean length at capture of blue catfish sampled from Taylorsville Lake in 2020.

Year Class	Age	Number of fish	Mean length (in)	Std err	Smallest (in)	Largest (in)
2019	1+	6	12.4	0.2	11.7	12.9
2018	2+	4	14.3	0.3	13.5	14.9
2017	3+	7	14.7	0.3	13.3	16.1
2016	4+	6	16.6	0.4	15.6	17.7
2015	5+	13	19.2	0.4	17.0	22.4
2014	6+	5	20.9	0.6	19.0	22.5
2013	7+	4	21.2	0.5	20.3	22.3
2012	8+	7	24.6	0.5	22.9	26.4
2011	9+	5	26.5	1.3	24.2	31.1
2010	10+	1	27.4	-	27.4	27.4
2009	11+	1	34.0	-	34.0	34.0
2008	12+	0	-	-	-	-
2007	13+	0	-	-	-	-
2006	14+	1	36.5	-	36.5	36.5
2005	15+	1	41.5	-	41.5	41.5
2004	16+	2	37.0	0.0	37.0	37.0
2003	17+	1	42.0	-	42.0	42.0
2002	18+	1	43.0	-	43.0	43.0

Table 30. Age frequency and CPUE (fish/nn) per inch class of blue catfish collected during electrofishing at Taylorsville Lake in 2020.

	Inch class																																	Std
Age	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Total	%	CPUE	err
1+	2	12																													14	4	4.7	2.4
2+			6	14																											20	5	6.6	2.6
3+			3	27	24	30																									84	22	28.1	6.1
4+					49	59	26																								134	36	44.5	5.9
5+							25	25	19	2	4																				75	20	25.5	3.6
6+									7	2	7	1																			17	5	5.5	0.8
7+										3	4	1																			8	2	2.7	0.5
8+												1	3		3	3															10	3	3.3	0.8
9+														2	1						1										4	1	1.3	0.5
10+																	1		1												2	0	0.7	0.4
11+																															0			
12+																							1								1	0	0.3	0.3
13+																									1						1	0	0.3	0.3
14+																															0			
15+																													1		1	0	0.3	0.3
16+																											1			1	2	1	0.7	0.4
17+																															0			
18+																									1						1	0	0.3	0.3
Total	2	12	9	41	73	89	51	25	26	7	15	3	3	2	4	3	1		1		1		1		2		1		1	1	374	100	124.7	17.0
%	1	3	2	11	20	24	14	7	7	2	4	1	1	1	1	1	0		0		0		0		1		0		0	0	100			

Dataset = cfdagtvl.d20 and cfdgntvl.d20

Table 31. Fishery statistics derived from a daytime creel survey at Taylorsville Lake (3,050 acres) during 17 March through 30 October 2020.

Fishing Trips	2020 (3/17 to 10/30)		2016 (4/2 to 10/31)		2009 (4/6 to 10/31)		2006 (3/14 to 10/31)		2003 (3/3 to 10/30)	
No. of fishing trips (per acre)	51,147	(16.8)	26,303	(8.6)	25,895	(8.5)	28,253	(9.3)	50,855	(16.7)
Fishing Pressure										
Total man-hours (S.E.)[a]	230,924	(9,729)	118,363	(2,660)	133,217	(2,990)	142,230	(4,753)	234,388	(5,735)
Man-hours/acre	75.7		38.8		43.7		46.6			
Catch / Harvest										
No. of fish caught (S.E.)	572,095	(62,923)	187,575	(12,646)	162,089	(12,795)	173,169	(7,586)	254,797	(20,533)
No. of fish harvested (S.E.)	357,910	(45,518)	86,018	(7,295)	76,075	(6,611)	68,836	(8,970)	81,352	(8,008)
Lb of fish harvested	165,867		68,401		49,876		36,031		37,541	
Harvest Rates										
Fish/hour	1.4		0.7		0.6		0.5		0.3	
Lb/hour	1.3		1.0		0.6		0.5		0.4	
Fish/acre	117.4		28.2		24.9		22.6		26.7	
Lb/acre	54.4		22.4		16.4		11.8		12.3	
Catch Rates										
Fish/hour	2.4		1.5		1.2		1.2		1.1	
Fish/acre	187.6		61.5		53.1		56.8		83.5	
Miscellaneous Characteristics										
Male	85.7		88.2		87.5		89.6		89.6	
Female	14.3		11.8		12.5		10.4		10.4	
Resident	99.9		98.2		98.9		99.5		98.6	
Non-resident	0.1		1.8		1.1		0.5		1.4	
Method (%)										
Still fishing	43.9		44.5		49.6		58.0		51.4	
Casting	43.9		46.9		36.9		41.4		43.9	
Fly	t		0		0.3		0.1		t	
Trolling	7.0		0.1		3.5		0.5		4.8	
Jugging/Trotline	5.2		1.0		9.7					
Spider Rig			7.5							
Mode (%)										
Boat	88.3		87.9		85.1		87.0		95.1	
Bank	11.7		10.9		13.9		12.9		14.9	
Dock			1.2		1.0		0.1		0.0	

[a] S.E. = Standard Error

t = < 0.05

Table 32. Fish harvest derived from a creel survey on Taylorsville Lake (3,050 acres) from 17 March to 30 October 2020.

	Black bass group	Largemouth bass	Smallmouth bass	Crappie group	White crappie	Black crappie	Catfish group	Channel catfish	Blue catfish	Flathead catfish	Bullhead catfish
No. caught (per acre)	61,052 (20.0)	60,950 (20.1)	102 (t)	350,573 (114.9)	332,674 (109.1)	17,899 (5.8)	23,398 (7.7)	12,205 (4.0)	10,450 (3.4)	559 (0.2)	184 (0.1)
No. harvested (per acre)	1,112 (0.4)	1,112 (0.4)		225,604 (74.0)	209,511 (68.7)	16,093 (5.3)	16,832 (5.5)	7,912 (2.6)	7,912 (2.6)	423 (0.1)	
% of total no. harvested	0.3	0.3		63.0	58.5	4.5	4.7	2.2	2.4	0.1	
Lb harvested (per acre)	2,262 (0.7)	2,262 (0.7)		124,515 (40.8)	114,533 (37.6)	9,982 (3.3)	20,606 (6.8)	7,604 (2.5)	12,246 (4.0)	756 (0.2)	
% of total lb harvested	1.4	1.4		75.1	69.1	6.0	12.4	4.5	7.4	0.5	
Mean length (in)		15.6			10.6	10.6		14.4	16.6	16.2	
Mean weight (lb)		1.97			0.55	0.65		0.97	1.57	1.92	
No. of fishing trips for that species	12,253			21,982			5,455				
% of all trips	24.0			43.0			10.7				
Hours fished for that species (per acre)	55,323 (18.1)			99,247 (32.5)			24,630 (8.1)				
No. harvested fishing for that species	1,088			222,124			15,213				
Lb harvested fishing for that species	2,220			122,709			19,178				
No./hour harvested fishing for that species	0.019			1.798			0.630				
% success fishing for that species	5.1			81.1			61.0				

Table 32 (cont).

	Panfish group	Bluegill	Green sunfish	Longear sunfish	Redear sunfish	Rock bass	Warmouth	Morone group	Hybrid striped bass	White bass
No. caught (per acre)	124,468 (40.8)	112,101 (36.7	6,207 (2.0)	1,259 (0.4)	1,392 (0.5)	1,679 (0.6)	1,830 (0.6)	7,751 (2.6)	2,030 (0.7)	5,721 (1.9)
No. harvested (per acre)	107,899 (35.4)	98,262 (32.2)	5,212 (1.7)	720 (0.2)	1,235 (0.4)	851 (0.3)	1,618 (0.5)	4,474 (1.5)	265 (0.1)	4,209 (1.4)
% of total no. harvested	30.1	27.5	1.5	0.2	0.3	0.2	0.5	1.3	0.1	1.2
Lb harvested (per acre)	13,063 (4.3)	11,699 (3.8)	491 (0.2)	66 (t)	260 (0.1)	305 (0.1)	242 (0.1)	3,176 (1.0)	816 (0.3)	2,360 (0.8)
% of total lb harvested	7.9	7.1	0.3	t	0.2	0.2	0.1	1.9	0.5	1.4
Mean length (in)		5.8	5.2	5.4	6.3	6.9	6.2		18.3	11.7
Mean weight (lb)		0.12	0.10	0.10	0.18	0.25	0.16		3.16	0.79
No. of fishing trips for that species	1,723							1,723		
% of all trips	3.4							3.4		
Hours fished for that species (per acre)	7,780 (2.6)							7,780 (2.6)		
No. harvested fishing for that species	46,019							2,600		
Lb harvested fishing for that species	5,578							2,087		
No./hour harvested fishing for that species	5.534							0.445		
% success fishing for that species	89.0							37.7		

Table 32 (cont).

	Saugeye	Carp	Redhorse	Drum	Illegal largemouth bass	Illegal white crappie	Anything
No. caught (per acre)	1,811 (0.7)	96 (t)	195 (0.1)	1,602 (0.5)	362 (0.1)	785 (0.3)	
No. harvested (per acre)	816 (0.3)			25.0 (t)	362 (0.1)	785 (0.3)	
% of total no. harvested	0.2			t	0.1	0.2	
Lb harvested (per acre)	1,503 (0.5)			59 (t)	390 (0.1)	294 (0.1)	
% of total lb harvested	0.9			t	0.2	0.2	
Mean length (in)	18.1			18.0	13.0	9.0	
Mean weight (lb)	1.95			2.34	1.12	0.37	
No. of fishing trips for that species	343						7,666
% of all trips	0.7						15.0
Hours fished for that species (per acre)	1,551 (0.5)						34,613 (11.3)
No. harvested fishing for that species	463						
Lb harvested fishing for that species	887						
No./hour harvested fishing for that species	0.253						
% success fishing for that species	53.8						44.9

Table 33. Length distribution (lengths of released fish are estimated) for each species of fish harvested at Taylorsville Lake from 17 March – 30 October 2020.

	Inch class																				
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Largemouth bass																					
Harvested										(28)	(167)	(56)	(111)	627	243	81	142	19			
Released							878	2,429	4,388	5,245	20,653	9,265	10,674	3,225	1,000	653	898	224	224	61	21
Smallmouth bass																					
Released												61	41								
White crappie																					
Harvested								(785)	106,949	90,407	8,523	2,553	899	144	36						
Released	61	203	100	4,763	2,793	19,077	21,570	72,740	923	598	75	50	25	199		25					
Black crappie																					
Harvested									9,582	4,365	1,628	444	74								
Released							433	1,373													
Bluegill																					
Harvested			533	47,777	37,931	9,806	2,215														
Released		264	2,618	8,015	2,516	406	19														
Green sunfish																					
Harvested				4,195	1,017																
Released			190	805																	
Longear sunfish																					
Harvested				486	234																
Released			46	493																	
Redear sunfish																					
Harvested				39	695	270	154	77													
Released					110	31			16												
Rock bass																					
Harvested				74	148	130	19	278	202												
Released				191	541	64	32														
Warmouth																					
Harvested				331	877	410															
Released				61	106	15	30														

() = illegally harvested fish

Table 33 (cont).

	Inch class																															
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	40	41
Hybrid striped bass																																	
Harvested									38	57	38		76		19	19			18														
Released			17	87	225	260	260	208	398	173	17	17	69	17		18																	
White bass																																	
Harvested			415	638	829	393	893	319	478	223			31																				
Released	198	252	72	36	360	144	324		108	18																							
Yellow bass																																	
Harvested					13		26		13	13																							
Flathead catfish																																	
Harvested							37	55	110	18	37		37	37	37	37								18									
Released							39	39		20		20														19							
Channel catfish																																	
Harvested							1,214	2,220	1,404	1,613	588	190	342	133	76	38	19		57	18													
Released	20		161	202	705	1,310	1,230	544	101				20																				
Blue catfish																																	
Harvested							196	1,018	2,212	1,860	744	215	999	294	313	176	78	39	137	59	20		59		20					20	20	18	
Released				60	319	239	717	339	40	60			20				20		20	20	20		20					20				20	18
Bullhead																																	
Released		13	171																														
Saugeye																																	
Harvested									42	188	63	21	251	84	42	84	21	19															
Released				28		83	138	387	166	83	83			28																			
Carp																																	
Released										19			38		19	20																	
Redhorse																																	
Released			195																														
Drum																																	
Harvested													25																				
Released					67	22	22	178	133	422	222	44	155	89	133	44			46														

Table 34. Black bass catch and harvest statistics derived from a creel survey at Taylorsville Lake (3,050 acres) for black bass caught and released by all anglers from 17 March to 30 October 2020.

	Largemouth bass				Smallmouth bass			
		Catch and Release				Catch and Release		
	Harvest	12.0-14.9 in	≥15.0 in	Total	Harvest	12.0-14.9 in	≥15.0 in	Total
Total no of bass	1,112	40,592	6,306	60,950	0	102	0	102
*Total no of bass	(*268)		(*7,163)					
% of black bass harvested by no.	100.0				0.0			
Total weight of fish (lbs)	2,262	39,772	6,178	60,889	0	114	0	114
*Total weight of fish (lbs)	(*519)		(*7,101)					
% of black bass harvest by weight	100.0				0.0			
Mean length	15.6							
Mean weight	1.975							
Harvest Rate (fish/h)	0.006							
*Harvest Rate (fish/h)	(*0.001)							

* Harvest which excluded bass kept in a livewell, but which the angler stated they intended to release

Table 35. Monthly black bass angling success at Taylorsville Lake during the 2020 creel survey.

Month	Total no. of black bass caught by all anglers	Total no. of black bass harvested by all anglers	*Total no. of black bass harvested by all anglers	No. of fishing trips for black bass	Hours fished by black bass anglers	Black bass caught by black bass anglers	Black bass caught/hr by black bass anglers	Black bass harvested by black bass anglers	*Black bass harvested by black bass anglers	Black bass harvested/ hr by black bass anglers	*Black bass harvested /hr by black bass anglers
Mar	2,101			1,472	6,646	1,898	0.33				
Apr	7,872	44	44	1,257	5,677	7,120	1.19	44	44	<0.01	<0.01
May	10,012	18	18	1,355	6,119	9,327	1.12	18	18	<0.01	<0.01
Jun	17,343	626	100	2,349	10,606	16,718	1.60	601	75	<0.01	<0.01
Jul	6,536	104	21	1,357	6,126	6,204	0.93	104	21	<0.01	<0.01
Aug	4,454	57	57	1,540	6,954	4,327	0.64	57	57	<0.01	<0.01
Sep	7,161	108	15	1,665	7,519	6,866	0.88	108	15	<0.01	<0.01
Oct	5,573	156	13	1,257	5,676	5,417	0.99	156	13	<0.01	<0.01
Total	61,052	1,112	268	12,253	55,323	57,877		1,088	243		
Mean							1.01			<0.01	<0.01

*harvest which excluded bass kept in a livewell, but which the angler state they intended to release

Table 36. Crappie catch and harvest statistics derived from a creel survey at Taylorsville Lake (3,050 acres) for crappie caught and released by all anglers from 17 March to 30 October 2020.

	White crappie				Black crappie			
		Catch and Release				Catch and Release		
	Harvest	<10.0 in	≥10.0 in	Total	Harvest	<10.0 in	≥10.0 in	Total
Total no of crappie	209,511	121,267	1,895	332,674	16,093	1,806		17,899
% of crappie harvested by no.	92.9				7.1			
Total weight of fish (lbs)	114,533	31,028	484	146,045	9,982	628		10,610
% of crappie harvest by weight	92.0				8.0			
Mean length	10.6				10.6			
Mean weight	0.55				0.65			
Rate (fish/h)	0.617				0.046			

Table 37. Monthly crappie angling success at Taylorsville Lake during the 2020 creel survey.

Month	Total no. of crappie caught by all anglers	Total no. of crappie harvested by all anglers	No. of fishing trips for crappie	Hours fished by crappie anglers	Crappie caught by crappie anglers	Crappie caught/hr by crappie anglers	Crappie harvested by crappie anglers	Crappie harvested/hr by crappie anglers
March	119,007	92,102	7,851	35,445	118,871	3.06	91,966	2.37
April	113,528	75,759	6,613	29,859	112,998	3.34	75,494	2.23
May	28,736	19,374	1,979	8,935	27,103	3.12	18,513	2.13
June	26,728	17,018	1,529	6,901	24,700	3.60	15,641	2.28
July	9,420	4,855	699	3,156	8,444	2.56	4,440	1.34
August	9,306	4,114	649	2,930	9,064	2.88	4,085	1.30
September	19,064	5,719	1,093	4,936	18,025	3.61	5,425	1.09
October	24,784	6,664	1,569	7,084	24,174	3.18	6,560	0.86
Total	350,573	225,604	21,982	99,247	343,379		222,124	
Mean						3.22		1.80

Table 38. Catfish catch and harvest statistics derived from a creel survey at Taylorsville Lake (3,050 acres) for catfish caught and released by all anglers from 17 March to 30 October 2020.

	Channel catfish				Blue catfish				Flathead catfish				Bullhead catfish			
		Catch and Release				Catch and Release				Catch and Release				Catch and Release		
	Harvest	8.0-11.9 in	≥12.0 in	Total	Harvest	8.0-11.9 in	≥12.0 in	Total	Harvest	8.0-11.9 in	≥12.0 in	Total	Harvest	8.0-11.9 in	≥12.0 in	Total
Total no of catfish	7,912	2,378	1,335	12,205	8,497	618	1,335	10,450	423	-	137	559	-	171	-	184
% of catfish harvested by no.	47.0				50.5				2.5				-			
Total weight of fish (lbs)	7,604	1,095	1,014	9,580	12,246	469	1,014	13,729	756	-	317	1,073	-	45	-	49
% of catfish harvest by weight	36.9				59.4				3.7				-			
Mean length	14.4				16.6				16.2				-			
Mean weight	0.97				1.57				1.92				-			
Rate (fish/h)	0.044				0.046				0.002				-			

Table 39. Monthly catfish angling success at Taylorsville Lake during the 2020 creel survey.

Month	Total no. of catfish caught by all anglers	Total no. of catfish harvested by all anglers	No. of fishing trips for catfish	Hours fished by catfish anglers	Catfish caught by catfish anglers	Catfish caught/hr by catfish anglers	Catfish harvested by catfish anglers	Catfish harvested/hr by catfish anglers
March	271	271	245	1,108	204	0.30	204	0.30
April	2,167	1,592	956	4,314	2,034	0.49	1,503	0.37
May	3,355	2,617	720	3,249	2,793	0.87	2,231	0.69
June	6,206	3,954	1,368	6,175	5,481	0.80	3,629	0.53
July	3,756	2,635	606	2,738	3,216	1.12	2,469	0.86
August	4,227	3,149	746	3,367	3,716	0.98	2,822	0.75
September	2,247	1,860	552	2,491	1,951	0.62	1,705	0.54
October	1,169	753	263	1,188	767	0.71	650	0.60
Total	23,399	16,832	5,455	24,630	20,162		5,455	
Mean						0.82		0.63

Table 40. Temperate bass (*Morones*) catch and harvest statistics derived from a creel survey at Taylorsville Lake (3,050 acres) for fish that were caught and released by all anglers from 17 March to 30 October 2020.

	Hybrid striped bass				White bass			
		Catch and Release				Catch and Release		
	Harvest	12.0–14.9 in	≥15.0 in	Total	Harvest	12.0–14.9 in	≥15.0 in	Total
Total no of *Morones*	265	866	311	2,031	4,209	432	18	5,721
% of *Morones* harvested by no.	5.9				94.1			
Total weight of fish (lbs)	816	893	322	2,638	2,360	197	9	3,052
% of *Morones* harvest by weight	25.7				74.3			
Mean length	18.3				11.7			
Mean weight	3.16				0.79			
Rate (fish/h)	0.001				0.014			

Table 41. Monthly *Morone* angling success at Taylorsville Lake during the 2020 creel survey.

Month	Total no. of Morones caught by all anglers	Total no. of Morones harvested by all anglers	No. of fishing trips for Morones	Hours fished by Morones anglers	Morones caught by Morone anglers	Morones caught/hr by Morone anglers	Morones harvested by Morone anglers	Morones harvested/hr by Morone anglers
March	1,220	1,084	736	3,323	1,220	0.81	1,084	0.72
April	2,521	2,256	578	2,611	707	0.43	707	0.43
May	123	-	48	217	53	0.25	-	-
June	50	25	-	-	-	-	-	-
July	1,058	62	154	696	539	0.62	41	0.05
August	979	0	48	219	752	1.66	-	-
September	852	449	51	231	310	1.05	248	0.84
October	948	598	107	484	780	1.60	520	1.07
Total	7,751	4,474	1,723	7,780	4,361		2,600	
Mean						0.97		0.44

TAYLORSVILLE LAKE ANGLER ATTITUDE SURVEY 2020

(Based on 469 surveys)

16. Have you been surveyed this year? Yes - stop survey No – continue

17. Name ___________________________________ and Zip Code ____________________

18. On average, how many times do you fish Taylorsville Lake in a year? (n=455)
First time **4.0%** 1 to 4 **5.7%** 5 to 10 **24.0%** More than 10 **66.3%**

19. Which species of fish do you fish for at Taylorsville Lake (**check all that apply**)? (n=469)
Bass **28.8%** Crappie **44.3%** Hybrid Striped Bass **7.7%** White Bass **4.9%** Channel Catfish **17.7%**
Blue Catfish **17.3%** Bluegill **6.8%** Saugeye **8.3%** Other **4.3%**

20. Which one species do you fish for most at Taylorsville Lake (**check only one**)? (n=469)
Bass **26.0%** Crappie **40.9%** Hybrid Striped Bass **4.7%** White Bass **1.1%** Channel Catfish **8.3%**
Blue Catfish **6.8%** Bluegill **4.7%** Saugeye **2.8%** Other **4.7%**

-Answer the following questions for <u>each species you fish for</u> – (see question 4)

Bass Anglers

21. In general, what level of satisfaction or dissatisfaction do you have with bass fishing at Taylorsville Lake? (n=132)
Very satisfied **93.9%** Somewhat satisfied **3.1%** Neutral **3.0%** Somewhat dissatisfied **0.0%**
Very dissatisfied **0.0%**

6a. If you responded with very or somewhat satisfied in question (6) - What is the single most important reason for your <u>Satisfaction</u>? (n=124)
Number of fish **74.2%** Size of fish **25.8%**

6b. If you responded with somewhat or very dissatisfied in question (6) - What is the single most important reason for your <u>Dissatisfaction</u>? (n=0)

22. Do you fish in any bass tournaments on Taylorsville Lake? (n=129) Yes **48.1%** No **51.9%**

Crappie Anglers

23. In general, what level of satisfaction or dissatisfaction do you have with crappie fishing at Taylorsville Lake? (n=205)
Very satisfied **99.0%** Somewhat satisfied **0.5%** Neutral **0.5%** Somewhat dissatisfied **0.0%**
Very dissatisfied **0.0%**

8a. If you responded with very or somewhat satisfied in question (8) - What is the single most important reason for your <u>Satisfaction</u>? (n=204)
Number of fish **55.9%** Size of fish **44.1%**

8b. If you responded with somewhat or very dissatisfied in question (8) - What is the single most important reason for your <u>Dissatisfaction</u>? (n=0)

White Bass Anglers

24. In general, what level of satisfaction or dissatisfaction do you have with white bass fishing at Taylorsville Lake? (n=22)
Very satisfied **31.8%** Somewhat satisfied **31.8%** Neutral **36.4%** Somewhat dissatisfied **0.0%**
Very dissatisfied **0.0%**

9a. If you responded with very or somewhat satisfied in question (9) - What is the single most important reason for your <u>Satisfaction</u>? (n=14)
Number of fish **92.9%** Size of fish **7.1%**

9b. If you responded with somewhat or very dissatisfied in question (9) - What is the single most important reason for your <u>Dissatisfaction</u>? (n=0)

Hybrid Striped Bass Anglers

25. In general, what level of satisfaction or dissatisfaction do you have with hybrid striped bass fishing at Taylorsville Lake? (n=34)
Very satisfied **23.5%** Somewhat satisfied **67.7%** Neutral **2.9%** Somewhat dissatisfied **0.0%**
Very dissatisfied **5.9%**

10a. If you responded with very or somewhat satisfied in question (10) - What is the single most important reason for your Satisfaction? (n=30)
Number of fish **56.7%** Size of fish **40.0%** Other **3.3%**

10b. If you responded with somewhat or very dissatisfied in question (10) - What is the single most important reason for your Dissatisfaction? (n=2)
Number of fish **100.0%**

Channel Catfish Anglers

26. In general, what level of satisfaction or dissatisfaction do you have with channel catfish fishing at Taylorsville Lake? (n=82)
Very satisfied **97.6%** Somewhat satisfied **2.4%** Neutral **0.0%** Somewhat dissatisfied **0.0%**
Very dissatisfied **0.0%**

11a. If you responded with very or somewhat satisfied in question (11) - What is the single most important reason for your Satisfaction? (n=79)
Number of fish **48.1%** Size of fish **51.9%**

11b. If you responded with somewhat or very dissatisfied in question (11) - What is the single most important reason for your Dissatisfaction? (n=0)

Blue Catfish Anglers

27. In general, what level of satisfaction or dissatisfaction do you have with blue catfish fishing at Taylorsville Lake? (n=79)
Very satisfied **93.7%** Somewhat satisfied **2.5%** Neutral **3.8%** Somewhat dissatisfied **0.0%**
Very dissatisfied **0.0%**

12a. If you responded with very or somewhat satisfied in question (12) - What is the single most important reason for your Satisfaction? (n=76)
Number of fish **43.4%** Size of fish **56.6%**

12b. If you responded with very or somewhat dissatisfied in question (12) - What is the single most important reason for your Dissatisfaction? (n=0)

All Anglers

28. In general, are you satisfied with the current size and creel limits on Taylorsville Lake? (n=448) Yes **79.9%** No **20.1%**

13a. If "no", which species are you dissatisfied with and what size and creel limits would you prefer?
Crappie Size Limit (n=90) 9 inches **1.1%** 10 inches **7.8%** 11 inches **91.1%**
Crappie Creel Limit (n=90) 10 fish **28.8%** 15 fish **64.4%** 20 fish **6.8%**

Table 42. Length distribution and CPUE (fish/hr) of black bass collected in 4.5 hours of 15-minute electrofishing runs in Herrington Lake in September 2020 numbers in parentheses are standard errors.

	Inch class																				
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Lower																					
Largemouth bass			5	3	1	2	3	1	1	1		1	1	1	1	1				22	14.7 (4.9)
Spotted bass								1				1								2	1.3 (0.8)
Middle																					
Largemouth bass	1	2	7	7	5	2	2	5	2	3	6	3	5	5	1	3	2			61	40.7 (9.4)
Spotted bass					1			1		2	1									5	3.3 (1.2)
Upper																					
Largemouth bass	1	5	15	16	5	1	1	4	7	3	3	1	3	1	1	3	2	1	1	74	49.3 (5.0)
Spotted bass										1	1									2	1.3 (0.8)
Total																					
Largemouth bass	2	7	27	26	11	5	6	10	10	7	9	5	9	7	3	7	4	1	1	157	34.9 (5.1)
Spotted bass					1			2		3	2	1								9	2.0 (0.6)

Dataset = cfdwrher.d20

Table 43. Mean back calculated lengths (in.) at each annulus for otoliths from largemouth bass collected in the fall from Herrington Lake in 2020.

		Age								
Year	No.	1	2	3	4	5	6	7	8	9
2019	40	6.7								
2018	13	6.5	10.9							
2017	7	5.7	11.3	13.6						
2016	9	7.2	11.5	13.6	14.9					
2015	7	6.9	11.7	14.0	15.5	16.4				
2014	3	5.7	11.0	13.9	15.9	16.9	17.7			
2011	1	5.1	10.2	12.6	14.0	15.2	16.6	17.3	18.7	19.7
Mean	80	6.6	11.2	13.7	15.2	16.4	17.4	17.3	18.7	19.7
Smallest		3.4	8.4	11.6	13.7	14.6	16.6	17.3	18.7	19.7
Largest		10.1	13.9	15.9	17.4	18.0	18.5	17.3	18.7	19.7
Std error		0.2	0.2	0.2	0.3	0.3	0.5			
95% ConLo		6.2	10.8	13.3	14.7	15.8	16.5			
95% ConHi		7.0	11.7	14.1	15.7	17.1	18.3			

Intercept value = 0.00
Dataset = cfdagher.d20

Table 44. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Herrington Lake on 21-22 and 25 September as well as 14 and 19 October, 2020. Standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Lower	19	93 (2)	12	90 (2)	18	93 (2)	49	92 (1)
	Middle	68	91 (1)	51	96 (1)	48	95 (1)	167	94 (1)
	Upper	15	89 (2)	7	89 (4)	7	99 (3)	29	91 (2)
	Total	102	91 (1)	70	94 (1)	73	95 (1)	245	93 (1)

Dataset = cfdwrher.d20

Table 45. Number of fish and the relative weight (Wr) for each length group of spotted bass collected at Herrington Lake on 21-22 and 25 September as well as 14 and 19 October, 2020. Standard errors are in parentheses.

		Length group							
Species	Area	7.0–10.9 in		11.0–13.9 in		≥14.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Spotted bass	Lower	9	95 (2)	4	99 (5)			13	96 (2)
	Middle	10	92 (2)	19	98 (1)	2	96 (8)	31	96 (1)
	Upper			2	94 (0)			2	94 (0)
	Total	19	93 (1)	25	98 (1)	2	96 (8)	46	96 (1)

Dataset = cfdwrher.d20

Table 46. Indices of year class strength at age-0 and age-1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at Herrington Lake. Age-1 CPUE and standard error could not be calculated for the 2019 year class due to COVID-19 work restrictions

		Age-0		Age-0		Age-0 ≥5.0 in		Age-1 (natural)	
Year class	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	5.0	0.1	16.4	2.8	8.4	1.5		
2019	Total	4.9	0.1	23.6	4.3	11.8	2.0	-	-
2018	Total	5.8	0.1	11.6	1.6	9.3	1.5	20.5	3.8
2017	Total	5.0	0.1	26.0	4.2	13.3	3.5	42.5	7.7
2016	Total	5.4	0.1	24.9	3.6	16.7	2.8	39.1	4.2
2015	Total	5.2	0.1	67.8	10.3	44.8	7.9	59.7	7.8
2014	Total	4.7	0.1	36.9	6.0	20.0	3.5	38.4	3.9
2013	Total	4.5	0.1	49.1	4.9	19.3	3.1	33.9	4.3
2012	Total	5.4	0.1	33.6	6.2	21.8	4.9	11.3	2.1
2011	Total	5.8	0.1	54.5	7.8	43.8	6.7	111.7	17.7

Dataset = cfdwrher.d20

Table 47. Length distribution and CPUE (fish/nn) of white bass and hybrid striped bass collected during 14 net-nights of gill netting in Herrington Lake in October 2020; numbers in parentheses are standard errors.

	Inch class																				
Species	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total	CPUE
White bass	1	3	1	13	44	48	21	14	11	11	3									170	12.1 (5.2)
Hybrid striped bass	4	3	10						4	26	39	9	16	19	17	7	2	1	1	158	11.3 (1.9)
Reciprocal	4	3	10						2	12	15	5	13	12	12	4	2	1	1	96	6.9 (1.2)
Original									2	14	24	4	3	7	5	3				62	4.4 (1.0)

Dataset = cfdgnher.d20

Table 48. Mean back calculated lengths (in) at each annulus for otoliths from hybrid striped bass gill netted at Herrington Lake in 2020.

		Age					
Year class	No.	1	2	3	4	5	6
2019	74	13.7					
2018	33	14.0	18.9				
2017	24	14.0	18.6	20.3			
2016	1	13.9	19.5	20.3	20.9		
2015	3	14.3	20.0	22.0	23.1	23.7	
2014	1	15.7	20.2	22.6	23.4	23.8	24.2
Mean	136	13.9	18.9	20.5	22.7	23.8	24.2
Smallest		8.8	16.1	19.1	20.9	23.2	24.2
Largest		15.9	20.6	22.7	24.0	24.8	24.2
Std error		0.1	0.1	0.2	0.5	0.4	
95% ConLo		13.7	18.7	20.2	21.7	23.0	
95% ConHi		14.0	19.1	20.9	23.7	24.5	

Intercept Value = 0.00
Dataset = cfdagher.d20

Table 49. Age frequency and CPUE (fish/nn) per inch class of hybrid striped bass gill netted for 14 net-nights at Herrington Lake in 2020.

	Inch class																						
Age	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total	%	CPUE	Std err
0+	4	3	10																	17	11	1.2	0.5
1+									4	26	39	7								76	48	5.4	1.1
2+												2	13	11	9	1				36	22	2.5	0.7
3+													3	8	7	6				24	15	1.8	0.5
4+															1					1	1	0.1	<0.1
5+																	2		1	3	2	0.2	0.1
6+																		1		1	1	0.1	0.1
Total	4	3	10						4	26	39	9	16	19	17	7	2	1	1	158	100	11.3	1.9
%	3	2	6						3	16	25	6	10	12	11	4	1	1	1	100			

Dataset = cfdagher.d20 and cfdgnher.d20

Table 50. Number of fish and the relative weight (W_r) for each length group of hybrid striped bass collected at Herrington Lake in October 2020.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Hybrid striped bass	Total	16	99 (2)	2	90 (2)	142	95 (1)	160	95 (1)

Dataset = cfdgnher.d20

Table 51. Population assessment for hybrid striped bass collected during fall gill netting at Herrington Lake from 2011-2020 (scoring based on statewide assessments).

Year		CPUE (excluding age-0)	Mean length age-2+ at capture	CPUE ≥15.0 in	CPUE age-1+	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2020	Value	11.1	20.3	10.1	5.4				
	Score	3	4	3	3			13	Good
2019	Value	2.0	20.0	2.0	1.0				
	Score	1	4	1	1			7	Fair
2018	Value	8.6	21.4	8.5	7.4				
	Score	3	4	3	3			13	Good
2017	Value	3.1	21.1	3.1	0.7				
	Score	1	4	2	1			8	Fair
2016	Value	4.3	20.1	4.2	4.0				
	Score	2	4	2	3			11	Good
2015	Value	2.8	21.2	1.9	1.1				
	Score	1	4	1	2			8	Fair
2014	Value	2.8	20.9	2.8	1.6				
	Score	1	4	2	2			9	Fair
2013	Value	1.8	20.6	1.8	0.8	-	-		
	Score	1	4	1	1			7	Fair
2012	Value	1.1	19.6	1.0	0.8	-	-		
	Score	1	4	1	1			7	Fair
2011	Value	5.3	19.7	5.3	3.7	-	-		
	Score	2	4	3	3			12	Good

Table 52. Mean back calculated lengths (in) at each annulus for otoliths from white bass gill netted at Herrington Lake in 2020.

		Age					
Year class	No.	1	2	3	4	5	6
2019	88	9.5					
2018	1	11.2	14.3				
2017	11	10.2	13.2	14.6			
2016	6	10.4	13.5	14.8	15.4		
2015	8	10.2	13.1	14.1	14.8	15.3	
2014	11	9.1	13.1	13.8	14.6	15.0	15.4
Mean	125	9.6	13.2	14.3	14.8	15.2	15.4
Smallest		6.3	11.6	12.5	13.2	13.7	14.0
Largest		12.1	14.5	15.6	16.4	16.6	16.7
Std error		0.1	0.1	0.1	0.2	0.2	0.3
95% ConLo		9.4	13.0	14.0	14.5	14.7	14.8
95% ConHi		9.8	13.5	14.6	15.2	15.6	15.9

Intercept Value = 0.00
Dataset = cfdagher.d20

Table 53. Age frequency and CPUE (fish/nn) per inch class of white bass gill netted for 14 net-nights at Herrington Lake in 2020.

	Inch class														Std
Age	7	8	9	10	11	12	13	14	15	16	17	Total	%	CPUE	err
0+		3	1									4	2	0.3	0.2
1+	1			13	44	48	21	1				128	75	9.1	3.8
2+									1			1	1	0.1	<0.1
3+								5	4	2		11	6	0.8	0.4
4+								1	2	3		6	4	0.4	0.2
5+								4	2	1	2	9	5	0.6	0.3
6+								3	2	5	1	11	6	0.8	0.4
Total	1	3	1	13	44	48	21	14	11	11	3	170	100	12.1	5.2
%	1	2	1	8	26	28	12	8	6	6	2	100			

Dataset = cfdagher.d20 and cfdgnher.d20

Table 54. Population assessment for white bass collected during fall gill netting at Herrington Lake from 2011-2020 (scoring based on statewide assessment).

Year		CPUE (excluding age-0)	Mean length age-2+ at capture	CPUE ≥12.0 in	CPUE age-1+	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2020	Value	11.8	15.5	7.7	9.1				
	Score	3	4	3	4			14	Excellent
2019	Value	0.9	13.9	0.8	0.1				
	Score	1	4	1	1			7	Fair
2018	Value	2.9	14.2	2.8	0.7				
	Score	1	4	2	1			8	Fair
2017	Value	2.3	14.1	2.3	0.4				
	Score	1	4	2	1			8	Fair
2016	Value	5.2	13.3	4.4	1.0				
	Score	2	2	3	1			8	Fair
2015	Value	5.7	13.9	4.8	5.3				
	Score	2	4	3	3			12	Good
2014	Value	0.9	14.0	0.8	0.3				
	Score	1	4	1	1			7	Fair
2013	Value	2.2	14.1	2.2	0.3	-	-		
	Score	1	4	2	1			8	Fair
2012	Value	9.8	13.7	5.9	5.4	0.975	62.3		
	Score	3	4	3	3			13	Good
2011	Value	10.8	13.7	9.2	4.4	0.877	58.4		
	Score	3	4	4	3			14	Excellent

Table 55. Number of fish and the relative weight (Wr) for each length group of white bass collected at Herrington Lake in October 2020.

		Length group							
Species	Area	6.0–8.9 in		9.0–11.9 in		≥12.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
White bass	Total	4	97 (4)	55	98 (1)	105	97 (1)	164	97 (1)

Dataset = cfdgnher.d20

Table 56. Length distribution and CPUE (fish/hr) of largemouth bass and saugeye collected in 1.5 hours of 15-minute electrofishing runs for black bass in Guist Creek Lake in September 2020; numbers in parentheses are standard errors.

	Inch class																					
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Largemouth bass	1	14	19	13	3	5	16	25	12	19	18	14	9	8	9	4	5	2		1	197	131.3 (6.5)
Saugeye																					0	0.0

Dataset = cfdwrgcl.d20

Table 57. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Guist Creek Lake on 30 September and 16 November, 2020. Standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	102	89 (1)	76	92 (1)	117	98 (1)	295	93 (1)

Dataset = cfdwrgcl.d20

Table 58. Indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected in the fall in electrofishing samples at Guist Creek Lake.

Year class	Area	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
		Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	4.4	0.1	32.0	5.8	9.3	3.2		
2019	Total	No Sample							
2018	Total	4.8	0.1	29.3	6.6	10.7	3.4	15.3	4.5
2017	Total	4.1	0.1	75.3	20.3	18.7	4.3	7.0	1.8
2016	Total	5.0	0.1	56.0	8.6	29.3	7.4	11.0	3.0
2015	Total	5.0	0.1	49.3	5.1	28.0	2.3	---	
2014	Total	4.0	0.1	27.3	5.2	3.3	0.7	13.0	6.4
2013	Total	4.0	0.1	38.7	7.0	6.7	2.7	3.7	1.0
2012	Total	4.1	0.1	46.0	7.9	7.3	3.2	21.3	7.0
2011	Total	4.4	0.1	34.7	13.2	7.3	3.9	13.3	4.2

Table 59. Length frequency, relative abundance, and CPUE (fish/hr) of largemouth bass collected in 2.0 hours of 15-minute electrofishing runs in Beaver Lake, May 2020; numbers in parentheses are standard errors.

Species	Inch class																	Total	CPUE
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Largemouth bass	14	120	102	36	60	160	88	56	33	14	7	7	3	1	1	3	4	709	354.5 (24.3)

Dataset = cfdpsbvr.d20

Table 60. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Beaver Lake from 2010-2020; numbers in parentheses are standard errors.

Year	Length group <8.0 in	8.0-11.9 in	12.0-14.9 in	≥15.0 in	≥20.0 in	Total
2020	136.0 (13.2)	182.0 (14.6)	27.0 (6.5)	9.5 (1.3)	2.0 (1.1)	354.5 (24.3)
2019	117.5 (16.8)	118.0 (11.8)	20.0 (4.9)	9.5 (2.1)	1.5 (0.7)	265.0 (22.5)
2018	130.0 (12.1)	223.0 (18.4)	30.0 (5.4)	3.5 (1.6)	0.0 (0.0)	386.5 (23.7)
2017	279.0 (37.2)	160.5 (16.5)	35.5 (5.1)	5.0 (1.8)	0.5 (0.5)	480.0 (45.1)
2016	106.5 (21.4)	104.0 (13.2)	38.0 (2.4)	15.0 (2.9)	4.5 (1.8)	263.5 (31.0)
2015	64.8 (9.5)	126.5 (19.9)	22.8 (4.1)	12.5 (1.8)	2.8 (0.8)	226.5 (31.3)
2014	73.5 (10.7)	116.0 (12.5)	21.0 (3.3)	14.5 (2.7)	2.0 (1.1)	225.0 (21.2)
2013	60.0 (8.8)	137.3 (12.3)	48.7 (9.3)	16.7 (2.4)	1.3 (0.8)	262.7 (16.4)
2012	97.0 (11.6)	81.5 (6.4)	73.5 (6.8)	14.0 (2.9)	2.5 (1.1)	266.0 (12.5)
2011	23.5 (5.8)	56.0 (8.2)	70.5 (5.9)	6.5 (1.5)	0.0 (0.0)	156.5 (13.7)

Dataset = cfdpsbvr.d11 - .d20

Table 61. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in Beaver Lake in 2020; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	437	17 (± 4)	4 (± 2)

Dataset = cfdpsbvr.d20

Table 62. Population assessment for largemouth bass collected during spring electrofishing at Beaver Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	CPUE age-1	CPUE 12.0-14.9 in	CPUE ≥15.0 in	CPUE ≥20.0 in	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2020	Value	11.3*	131.5	27.0	9.5	2.0				
	Score	3	4	3	2	3			15	Good
2019	Value	11.3*	117.5	20.0	9.5	1.5				
	Score	3	4	2	2	2			13	Good
2018	Value	11.3	126.5	30.0	3.5	0.0				
	Score	3	4	3	1	1			12	Fair
2017	Value	10.8*	279.0	35.5	5.0	0.5				
	Score	3	4	3	1	2			13	Good
2016	Value	10.8*	103.0	38.0	15.0	4.5				
	Score	3	4	3	3	4			17	Excellent
2015	Value	10.8*	46.3	22.8	12.5	2.8				
	Score	3	3	2	2	3			13	Good
2014	Value	10.8	47.3	21.0	14.5	2.0				
	Score	3	3	2	3	3			14	Good
2013	Value	10.7*	50.0	48.7	16.7	1.3				
	Score	2	3	4	3	2			14	Good
2012	Value	10.7*	94.5	73.5	14.0	2.5				
	Score	2	4	4	3	3			16	Good
2011	Value	10.7*	23.4	70.5	6.5	0.0				
	Score	2	3	4	2	1			12	Fair

* Age data not collected
^Calculations based on age data gathered in previous years
-Instantaneous and annual mortality not calculated in years where age and growth data are not collected

Table 63. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.5 hours of 15-minute electrofishing runs for black bass in Beaver Lake in September 2020; numbers in parentheses are standard errors.

	Inch class																				
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Largemouth bass	40	200	82	22	5	6	49	50	35	38	16	7	3	2	1	1	2		3	562	374.7 (29.3)

Dataset = cfdwrbvr.d20

Table 64. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Beaver Lake in fall 2020; standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	100	83 (1)	97	88 (1)	59	91 (3)	256	87 (1)

Dataset = cfdwrbvr.d20

Table 65. Indices of year class strength at age-0 and age-1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at Beaver Lake.

Year class	Area	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
		Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	3.7	0.1	232.0	26.1	17.3	2.2		
2019	Total	5.1	0.1	209.3	29.7	119.3	20.3	131.5	13.5
2018	Total	5.2	0.1	196.0	31.6	118.7	26.8	117.5	16.8
2017	Total	4.8	0.1	227.3	23.1	84.0	13.0	126.5	11.8
2016	Total	5.6	0.1	370.0	34.9	320.0	25.8	279.0	37.2
2015	Total	4.2	0.1	184.5	23.6	28.5	4.4	103.0	20.9
2014	Total	4.1	0.1	94.7	15.0	14.0	3.5	46.3	7.6
2013	Total	3.8	0.1	78.7	6.2	3.3	2.2	47.3	7.4
2012	Total	4.3	0.1	124.6	24.6	17.7	4.0	50.0	7.1
2011	Total	4.2	0.1	142.0	23.9	18.0	4.1	94.5	11.1

Table 66. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Beaver Lake during September 2020; standard errors are in parentheses.

Species	Length group									
	No.	Wr	No.	Wr	No.	Wr	No.	Wr	No.	Wr
	3.0–5.9 in		6.0–7.9 in		≥8.0 in				Total	
Bluegill	70	92 (2)	54	82 (1)					124	87 (1)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish			102	101 (2)	113	102 (1)	18	101 (2)	233	102 (1)

Dataset = cfdwrbvr.d20

Table 67. Trail camera counts used to derive usage statistics in 2020-2021 at Beaver Lake (158 acres).

Total Trips*	
No. of trips	11,229
Trips/acre	71.1
Pressure*	
Total man-hours	39,049
Man-hours/acre	247.1

*Usage hours (angler and non-angler usage combined)

Figure 1. Number of trips per month at Beaver Lake from March 2020 through February 2021.

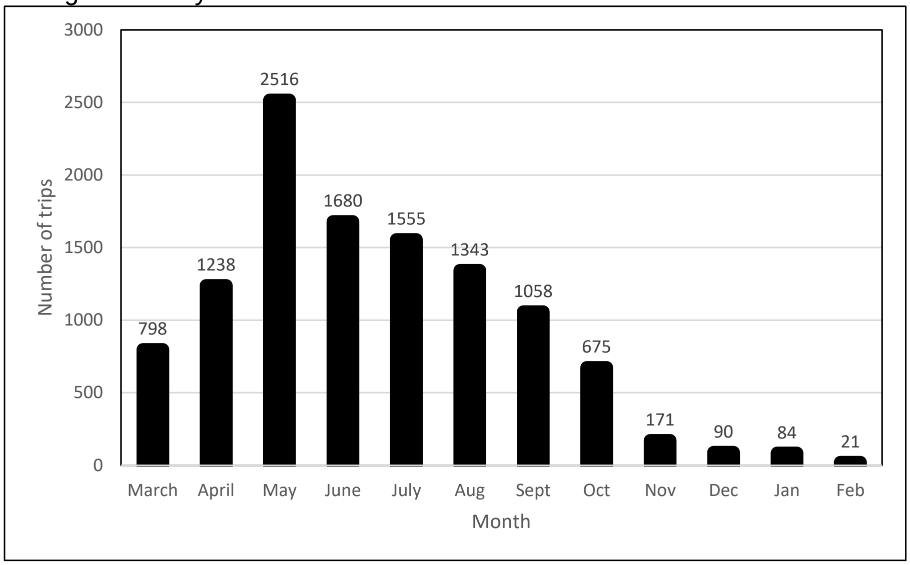
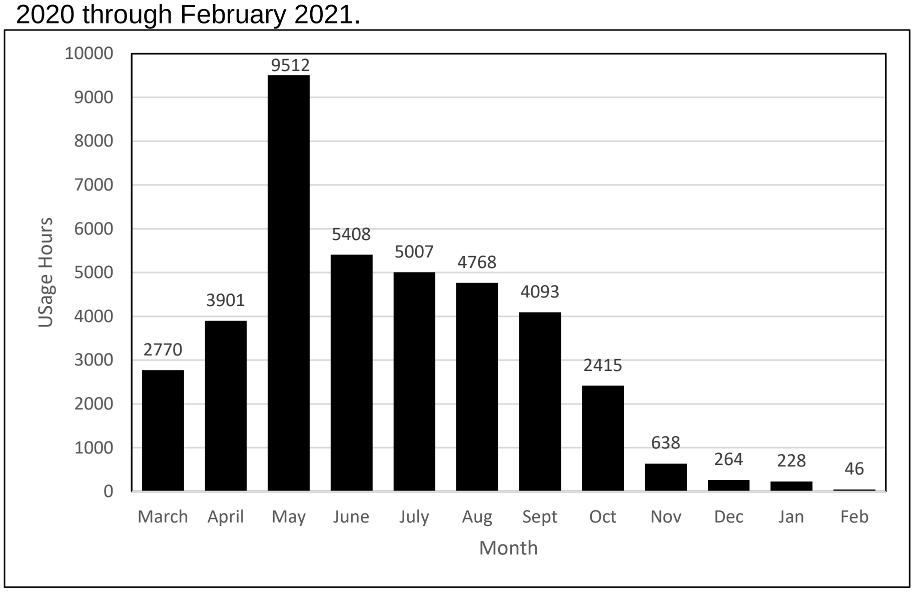


Figure 2. Number of usage hours by month at Beaver Lake from March 2020 through February 2021.



Beaver Lake Angler Attitude Survey 2020

(based on 222 surveys)

1. On average how many times do you fish at Beaver Lake in a year? (n=212)
   First time: **8.5%** 1 to 4: **15.1%** 5 to 10: **31.6%** More than 10: **44.8%**

2. Which species of fish do you fish for at Beaver Lake (**circle all that apply**)? (n=222)
   Bass **32.4%** Crappie **18.5%** Bluegill **46.0%** Redear Sunfish **24.3%** Catfish **23.9%** Other **5.0%**

3. Which one species do you fish for the most at Beaver Lake (**circle only one**)? (n=222)
   Bass **27.9%** Crappie **8.1%** Bluegill **41.4%** Redear Sunfish **1.8%** Catfish **16.2%** Other **4.5%**

-Answer the following questions for <u>each species you fish for</u> – (see question 2)

Bass Anglers

4. In general, what level of satisfaction or dissatisfaction do you have with bass fishing at Beaver Lake? (n=71)
   Very satisfied **53.5%** Somewhat satisfied **29.6%** Neutral **15.5%** Somewhat dissatisfied **1.4%** Very dissatisfied **0.0%**

4a. If you responded with very or somewhat satisfied in question (4) - What is the single most important reason for your <u>Satisfaction</u>? (n=59)
Number of fish **93.2%** Size of fish **6.8%**

4b. If you responded with somewhat or very dissatisfied in question (4) - What is the single most important reason for your <u>Dissatisfaction</u>? (n=1)
Size of fish **100.0%**

Crappie Anglers

5. In general, what level of satisfaction or dissatisfaction do you have with crappie fishing at Beaver Lake? (n=37)
   Very satisfied **21.6%** Somewhat satisfied **59.5%** Neutral **13.5%** Somewhat dissatisfied **5.4%** Very dissatisfied **0.0%**

5a. If you responded with very or somewhat satisfied in question (5) - What is the single most important reason for your <u>Satisfaction</u>? (n=30)
Number of fish **46.7%** Size of fish **50.0%** Other **3.3%**

5b. If you responded with somewhat or very dissatisfied in question (5) - What is the single most important reason for your <u>Dissatisfaction</u>? (n=2)
Number of fish **50.0%** Size of fish **50.0%**

Bluegill Anglers

6. In general, what level of satisfaction or dissatisfaction do you have with bluegill fishing at Beaver Lake? (n=98)
   Very satisfied **68.4%** Somewhat satisfied **23.5%** Neutral **8.1%** Somewhat dissatisfied **0.0%** Very dissatisfied **0.0%**

6a. If you responded with very or somewhat satisfied in question (6) - What is the single most important reason for your <u>Satisfaction</u>? (n=90)
Number of fish **94.4%** Size of fish **5.6%**

6b. If you responded with somewhat or very dissatisfied in question (6) - What is the single most important reason for your <u>Dissatisfaction</u>? (n=0)

Redear Sunfish Anglers

7. In general, what level of satisfaction or dissatisfaction do you have with redear sunfish fishing at Beaver Lake? (n=52)
   Very satisfied **59.6%** Somewhat satisfied **30.8%** Neutral **9.6%** Somewhat dissatisfied **0.0%** Very dissatisfied **0.0%**

7a. If you responded with very or somewhat satisfied in question (7) - What is the single most important reason for your Satisfaction? (n=46)
   Number of fish **60.9%** Size of fish **39.1%**

7b. If you responded with somewhat or very dissatisfied in question (7) - What is the single most important reason for your Dissatisfaction? (n=0)

Catfish Anglers

8. In general, what level of satisfaction or dissatisfaction do you have with catfish fishing at Beaver Lake? (n=51)
   Very satisfied **70.6%** Somewhat satisfied **17.6%** Neutral **7.8%** Somewhat dissatisfied **3.9%** Very dissatisfied **0.0%**

8a. If you responded with very or somewhat satisfied in question (8) - What is the single most important reason for your Satisfaction? (n=45)
   Number of fish **46.7%** Size of fish **53.3%**

8b. If you responded with somewhat or very dissatisfied in question (8) - What is the single most important reason for your Dissatisfaction? (n=2)
   Number of fish **100.0%**

All Anglers

9. In general, are you satisfied with the current size and creel limits at Beaver Lake? (n=208)
   Yes **98.1%** No **1.9%**

9a. If "no", which species are you dissatisfied with and what size and creel limits would you prefer?
   Largemouth bass slot limit (n=2) **Crappie 10 inch size limit (n=1)**

10. Would you support a regulation change at Beaver Lake that would allow the harvest of largemouth bass less than 12 inches? (n=208) Yes **82.2%** No **10.6%** Neutral **7.2%**

11. If it was legal, would you harvest largemouth bass less than 12 inches at Beaver Lake? (n=205) Yes **72.7%** No **19.0%** Neutral **8.3%**

12. In general, what level of satisfaction or dissatisfaction do you have with the current facilities (parking lot, boat ramp, fishing pier, courtesy dock) at Beaver Lake? (n=208)
   Very satisfied **40.9%** Somewhat satisfied **36.5%** Neutral **12.5%** Somewhat dissatisfied **7.2%** Very dissatisfied **2.9%**

12a. If you responded with somewhat or very dissatisfied in question (12) - What is the single most important reason for your Dissatisfaction? (n=21)
   Parking **4.8%** Boat Ramp **85.7%** Other **9.5%**

Table 68. Length distribution and CPUE (fish/hr) of largemouth bass collected in 2.0 hours of 15-minute electrofishing runs for black bass in Benjy Kinman Lake during May 2020; numbers in parentheses are standard errors.

	Inch class																			
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Largemouth bass	1	27	53	18	5	40	60	33	23	9	8	3	6	5	2	3	2	4	302	151.0 (23.0)

Dataset = cfdpsbkl.d20

Table 69. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Benjy Kinman Lake during 2015-2020; numbers in parentheses are standard errors.

	Length group					
Year	<8.0 in	8.0-11.9 in	12.0-14.9 in	≥15.0 in	≥20.0 in	Total
2020	52.0 (13.9)	78.0 (12.6)	10.0 (2.1)	11.0 (2.0)	2.0 (0.8)	151.0 (23.0)
2019	74.0 (13.2)	130.0 (15.5)	9.5 (3.4)	6.0 (1.5)	0.5 (0.5)	219.5 (25.2)
2018	31.5 (6.3)	73.5 (11.0)	13.5 (1.1)	9.5 (2.7)	1.0 (0.7)	128.0 (14.1)
2017	27.0 (7.0)	66.0 (10.7)	22.5 (3.5)	4.5 (1.8)	1.0 (0.7)	120.0 (18.6)
2016	23.0 (7.0)	82.0 (11.5)	15.0 (2.9)	7.0 (2.4)	1.0 (0.7)	127.0 (18.6)
2015	12.0 (2.4)	84.2 (5.1)	17.4 (1.7)	12.9 (1.8)	4.7 (1.0)	126.6 (7.8)

Dataset = cfdpsbkl.d20-.d15

Table 70. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing sample in Benjy Kinman Lake in 2020; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	198	21 (± 5)	11 (± 4)

Dataset = cfdpsbkl.d20

Table 71. Population assessment for largemouth bass collected during spring electrofishing at Benjy Kinman Lake from 2015-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	CPUE age-1	CPUE 12.0-14.9 in	CPUE ≥15.0 in	CPUE ≥20.0 in	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2020	Value	10.7*	50.0	10.0	11.0	2.0				
	Score	2	3	1	2	3			11	Fair
2019	Value	10.7*	70.5	9.5	6.0	0.5				
	Score	2	4	1	2	2			11	Fair
2018	Value	10.7*	29.5	13.5	9.5	1.0				
	Score	2	3	2	2	2			11	Fair
2017	Value	10.7	24.0	22.5	4.5	1.0				
	Score	2	3	2	1	2			10	Fair
2016	Value	10.1*	51.1	15.0	7.0	1.0				
	Score	1	3	2	2	2			10	Fair
2015	Value	10.1*	11.1	17.4	12.9	4.7				
	Score	1	2	2	2	4			11	Fair

-Instantaneous and annual mortality not calculated in years where age and growth data are not collected

* Age data not collected (data collected in 2014)

Table 72. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.5 hours of 15-minute electrofishing runs for black bass in Benjy Kinman Lake in September 2020; numbers in parentheses are standard errors.

	Inch class																		
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE
Largemouth bass	24	63	63	6	14	52	55	8	6	1	3						1	296	197.3 (17.2)

Dataset = cfdwrbkl.d20

Table 73. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Benjy Kinman Lake during September and November 2020. Standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	92	82 (1)	29	85 (1)	32	100 (2)	153	87 (1)

Dataset = cfdwrbkl.d20

Table 74. Indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected in the fall in electrofishing samples at Benjy Kinman Lake.

Year class	Area	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
		Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	4.8	0.1	104.0	20.2	46.0	7.7		
2019	Total	5.1	0.1	124.7	37.5	75.3	30.7	50.0	12.9
2018	Total	4.9	0.1	73.3	3.8	39.3	4.7	70.5	13.7
2017	Total	4.7	0.1	92.7	13.8	38.7	7.4	29.5	6.4
2016	Total	4.7	0.1	43.3	6.0	15.3	3.2	24.0	5.9
2015	Total	4.0	0.1	78.0	16.2	8.7	2.4	51.1	9.1
2014	Total	4.2	0.1	16.0	5.4	2.5	1.3	11.1	2.2

Table 75. Species composition, relative abundance, and CPUE (fish/hr) of bluegill and redear sunfish collected in 1.25 hours of 7.5-minute electrofishing runs in Benjy Kinman Lake, May 2020; numbers in parentheses are standard errors.

	Inch class									
Species	2	3	4	5	6	7	8	9	Total	CPUE
Bluegill	34	65	61	87	185	98			530	424.0 (33.4)
Redear sunfish			5	1	17	17	4	1	45	36.0 (9.6)

Dataset = cfdpsbkl.d20

Table 76. PSD and RSD values calculated for sunfish collected during 1.25 hours of electrofishing at Benjy Kinman Lake during May 2018. Fish were collected in 7.5-minute runs.

Species	No. ≥stock size	PSD	RSD[a]
Bluegill	496	57 (± 4)	0 (± 0)
Redear sunfish	45	49 (±15)	2 (± 2)

[a]Bluegill = RSD_8; Redear = RSD_9

Dataset = cfdpsbkl.d20

Table 77. Electrofishing CPUE (fish/hr) for each length group of bluegill collected from Benjy Kinman Lake; numbers in parentheses are standard errors.

	Length group				
Year	<3.0 in	3.0–5.9 in	6.0-7.9 in	≥8.0 in	Total
2020	27.2 (8.3)	170.4 (19.9)	226.4 (40.5)	0.0 (0.0)	424.0 (33.4)
2018	35.2 (8.4)	177.6 (17.2)	96.8 (11.9)	0.0 (0.0)	309.6 (22.1)
2016	56.8 (13.4)	225.6 (30.9)	81.6 (15.6)	1.6 (1.1)	365.5 (30.9)

Dataset = cfdpsbkl.d20-.d16

Table 78. Electrofishing CPUE (fish/hr) for each length group of redear sunfish collected from Benjy Kinman Lake; numbers in parentheses are standard errors.

	Length group					
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	≥10.0 in	Total
2020	0.0	4.8 (2.1)	27.2 (9.4)	4.0 (1.8)	0.0	36.0 (9.6)
2018	0.0	8.8 (2.8)	13.6 (3.8)	0.0	0.0	22.4 (3.3)
2016	0.0	27.2 (6.4)	22.4 (6.2)	12.0 (3.4)	0.0	61.6 (10.4)

Dataset = cfdpsbkl.d20-.d16

Table 79. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Benjy Kinman Lake during September 2020; standard errors are in parentheses.

	Length group									
Species	No.	Wr	No.	Wr	No.	Wr	No.	Wr	No.	Wr
	3.0–5.9 in		6.0–7.9 in		≥8.0 in				Total	
Bluegill	76	90 (2)	51	82 (1)					127	87 (1)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish			30	94 (1)	46	94 (1)	1	97 (-)	77	94 (1)

Dataset = cfdwrbkl.d20

Table 80. Length composition, relative abundance, and CPUE (fish/set) of channel catfish at Benjy Kinman Lake. Channel catfish were collected using baited, tandem hoop nets (72 hours soak time) that were set on 12 October and 4 December 2020. Nets were pulled three days after setting them, and 3 sets of tandem nets were used in October and 6 sets of tandem nets were used in December.

	Inch class																	Total	Average per set
Date	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	28		
12 October			12		4				1					1		1		19	6.3 (4.4)
4 December	1	8	21	15	7		1			3	3	5	5	1	1		1	72	12.0 (3.5)
Total	1	8	33	15	11		1		1	3	3	5	5	2	1	1	1	91	10.1 (2.8)

Dataset = cfdhnbkl.d20

Table 81. PSD and RSD_{24} values obtained for channel catfish from tandem hoop net samples in Benjy Kinman Lake in 2020; confidence intervals are in parentheses.

Species	No. $\geq$stock size	PSD	RSD_{24}
Channel catfish	90	26 ($\pm$ 9)	3 ($\pm$ 3)

Dataset = cfdhnbkl.d20

Table 82. CPUE (fish/set) for each length group of channel catfish collected by hoop net from Benjy Kinman Lake from 2015-2020; numbers in parentheses are standard errors.

	Length group			
Year	$\geq$12.0 in	$\geq$15.0 in	$\geq$20.0 in	Total
2020	9.1 (2.4)	2.6 (1.2)	2.0 (1.0)	10.1 (2.8)
2019	6.7 (3.7)	6.7 (3.7)	4.0 (2.5)	6.7 (3.7)
2018	14.3 (8.4)	13.0 (7.0)	3.7 (2.3)	14.3 (8.4)
2015	3.3 (2.0)	0.0	0.0	7.3 (3.7)

Dataset = cfdhnbkl.d15-.d20

Table 83. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Benjy Kinman Lake in October 2020; standard errors are in parentheses.

	Length group							
Species	11.0–15.9 in		16.0–23.9 in		$\geq$24.0 in		Total	
	No.	Wr	No.	Wr	No.	Wr	No.	Wr
Channel catfish	67	88 (1)	20	104 (3)	3	113 (11)	90	92 (1)

Dataset = cfdhnbkl.d20

Table 84. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.5 hours of 15-minute electrofishing runs for black bass in Boltz Lake in September 2020; numbers in parentheses are standard errors.

	Inch class																					
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Largemouth bass	69	193	67	30	5	16	9	8	11	17	18	12	10	6	8	3					482	321.3 (45.1)
Saugeye																		3	2	2	7	4.7 (1.2)

Dataset = cfdwrbol.d20

Table 85. Mean back calculated lengths (in.) at each annulus for otoliths from largemouth bass collected in the fall from Boltz Lake in 2020.

		Age							
Year	No.	1	2	3	4	5	6	7	8
2019	33	4.8							
2018	26	5.8	9.5						
2017	14	6.1	10.2	12.2					
2016	8	5.8	10.0	12.3	13.6				
2015	4	5.6	9.7	11.9	13.6	14.4			
2014	5	5.3	9.1	11.2	12.9	14.5	15.5		
2012	2	5.0	9.1	11.2	12.2	13.4	14.2	15.1	15.8
Mean	92	5.4	9.7	12.0	13.2	14.3	15.1	15.1	15.8
Smallest		3.1	7.9	10.4	11.3	12.2	13.2	14.4	15.1
Largest		7.9	12.4	13.9	14.9	15.6	16.3	15.8	16.5
Std error		0.1	0.1	0.2	0.2	0.3	0.4	0.7	0.7
95% ConLo		5.2	9.5	11.7	12.8	13.7	14.4	13.7	14.4
95% ConHi		5.7	10.0	12.3	13.7	14.9	15.8	16.5	17.2

Intercept value = 0.00
Dataset = cfdagbol.d20

Table 86. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Boltz Lake in September and December 2020. Standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	67	91 (1)	58	94 (1)	25	93 (2)	150	93 (1)

Dataset = cfdwrbol.d20

Table 87. Indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected in the fall in electrofishing samples at Boltz Lake.

		Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	No. of fish	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	359	3.6	<0.1	239.3	41.4	20.0	6.0		
2019				No Sample					
2018	287	4.3	0.1	191.3	24.7	37.3	4.5	10.0	1.9
2017	246	4.3	0.1	164.0	18.9	40.7	8.9	14.0	3.2
2016	104	4.1	0.1	69.3	7.8	15.3	2.8	20.5	5.3
2015	71	4.1	0.1	47.3	3.6	6.0	1.4	---	
2014	58	4.0	0.1	38.7	10.9	4.0	3.3	29.5	5.2
2013*	102	4.4	0.1	68.0	16.2	20.0	6.7	4.0	0.8
2012	127	4.4	0.1	84.7	12.2	18.7	5.6	21.5	4.3
2011	91	4.7	0.1	60.7	6.7	23.3	4.2	3.5	1.2

*Only includes wild largemouth bass CPUE for age-1 year class; stocked largemouth bass were marked by fin clip and removed from dataset.

Table 88. Species composition, relative abundance, and CPUE (fish/hr) of bluegill and redear sunfish collected in 1.25 hours of 7.5-minute electrofishing runs in Boltz Lake, June 2020; numbers in parentheses are standard errors.

	Inch class									
Species	2	3	4	5	6	7	8	9	Total	CPUE
Bluegill	58	187	43	68	112	178	19		665	532.0 (55.7)
Redear sunfish				2	1	2	1	1	7	5.6 (1.7)

Dataset = cfdpsbol.d20

Table 89. Electrofishing CPUE (fish/hr) for each length group of bluegill collected from Boltz Lake from 2011-2020; numbers in parentheses are standard errors.

	Length group				
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	Total
2020	46.4 (11.7)	238.4 (29.9)	232.0 (31.1)	15.2 (4.2)	532.0 (55.7)
2018	18.4 (4.6)	96.0 (15.4)	383.2 (41.0)	24.8 (7.9)	522.4 (43.2)
2016	29.6 (10.7)	392.8 (36.7)	85.6 (15.4)	0.8 (0.8)	508.8 (38.4)
2014	11.2 (3.0)	144.8 (21.1)	164.0 (28.2)		320.0 (37.6)
2013	36.8 (11.5)	162.4 (20.0)	117.6 (19.7)		316.8 (33.8)
2012	63.2 (21.8)	401.6 (54.5)	119.2 (21.1)		584.0 (62.2)
2011	331.2 (46.3)	237.6 (34.0)	164.0 (42.4)		732.8 (78.4)

Dataset = cfdpsbol.d20-.d10

Table 90. PSD and RSD_8 values calculated for bluegill collected during 1.25 hours of electrofishing at Boltz Lake during June 2020. Fish were collected in 7.5-minute runs.

Species	No. ≥3.0 in	PSD	RSD_8
Bluegill	607	51 (± 4)	3 (± 1)

Dataset = cfdpsbol.d20

Table 91. Population assessment for bluegill collected during spring electrofishing at Boltz Lake from 2011-2020 (scoring based on statewide assessments).

Year		Mean length age-2 at capture	Years to 6.0 in	CPUE ≥6.0 in	CPUE ≥8.0 in	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2020	Value	4.6*	3-3+*	247.2	15.2	-	-		
	Score	3	3	4	4			14	Excellent
2018	Value	4.6*	3-3+*	408.0	24.8	-	-		
	Score	3	3	4	4			14	Excellent
2016	Value	4.6	3-3+	86.4	0.8	-	-		
	Score	3	3	3	2			11	Good
2014	Value	4.6	3-3+	164.0	0.0	-	-		
	Score	3	3	4	1			11	Good
2013	Value	4.5*	2-2+*	117.6	0.0	-	-		
	Score	3	4	4	1			12	Good
2012	Value	4.5	2-2+	119.2	0.0	-	-		
	Score	3	4	4	1			12	Good
2011	Value	4.7	2-2+	164.0	0.0	0.522	40.7		
	Score	3	4	4	1			12	Good

Dataset = cfdpsbol.d20-.d10
* Age data not collected

Table 92. Number of fish and the relative weight Wr) for each length group of bluegill collected at Boltz Lake on 8 September 2020. Standard errors are in parentheses.

	Length group							
Species	No.	Wr	No.	Wr	No.	Wr	No.	Wr
	3.0–5.9 in		6.0–7.9 in		≥8.0 in		Total	
Bluegill	77	97 (2)	19	82 (1)			96	94 (2)

Dataset = cfdwrbol.d20

Table 93. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.5 hours of 15-minute electrofishing runs for black bass in Bullock Pen Lake in September 2020; numbers in parentheses are standard errors.

	Inch class																						
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE
Largemouth bass	7	15	18	5	8	30	18	22	21	15	13	12	12	5	4	7	9	3	6			230	153.3 (13.1)
Saugeye											1								1		1	3	2.0 (0.9)

Dataset = cfdwrblp.d20

Table 94. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Bullock Pen Lake in September and November 2020; standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	103	84 (1)	58	87 (1)	55	97 (1)	216	88 (1)

Dataset = cfdwrblp.d20

Table 95. Indices of year class strength at age 0 and age 1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at Bullock Pen Lake. Age-1 CPUE and standard error could not be calculated for the 2019 year class due to COVID-19 work restrictions

Year class	Area	Age 0 Mean length	Age 0 Std. error	Age 0 CPUE	Age 0 Std. error	Age 0 ≥5.0 in CPUE	Age 0 ≥5.0 in Std. error	Age 1 CPUE	Age 1 Std. error
2020	Total	3.9	(0.1)	30.0	(5.9)	3.3	(1.2)		
2019	Total	4.3	(0.1)	46.7	(10.7)	7.3	(3.2)	---	
2018	Total	4.2	(0.1)	34.0	(6.0)	2.0	(1.4)	17.2	(2.9)
2017	Total	4.0	(0.1)	32.7	(6.4)	6.0	(2.5)	15.5	(3.9)
2016					No Sample				
2015					No Sample				
2014	Total	4.0	(0.2)	16.0	(3.1)	4.0	(1.5)	---	
2013	Total	4.0	(0.2)	14.7	(2.0)	1.3	(0.8)	2.5	(0.7)
2012	Total	4.0	(0.1)	22.7	(5.2)	1.3	(0.8)	NS	NS
2011	Total	3.8	(0.1)	38.0	(4.2)	5.3	(2.0)	9.5	(1.1)

Table 96. Species composition, length composition, relative abundance, and CPUE (fish/set) of catfish species at Bullock Pen Lake. Catfish were collected using baited, tandem hoop nets (72 hours soak time) that were set on 6 October 2020. Nets were pulled three days after setting them and 3 sets of tandem nets were used for the sampling event.

Species	Inch class 8	9	10	11	12	13	14	15	16	17	18	19	21	22	24	32	Total	Average per set
Channel catfish	1	25	41	15	2	2	5	6	4	1	1	2	1	2	1		109	36.3 (22.4)
Blue catfish			1	2													3	1.0 (1.0)
Flathead catfish																1	1	0.3 (0.3)

Dataset = cfdhnbpl.d20

Table 97. PSD and RSD_{24} values obtained for channel catfish from tandem hoop net samples in Bullock Pen Lake in 2020; confidence intervals are in parentheses.

Species	No. ≥stock size	PSD	RSD_{24}
Channel catfish	42	29 (± 14)	2 (± 5)

Dataset = cfdhnbpl.d20

Table 98. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Bullock Pen Lake in October 2020; standard errors are in parentheses.

Species	Area	Length group 11.0–15.9 in		16.0–23.9 in		≥24.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Channel catfish	Total	30	91 (2)	11	93 (4)	1	94	42	92 (2)

Dataset = cfdhnbpl.d20

Table 99. CPUE (fish/set) for each length group of channel catfish collected by hoop net from Bullock Pen Lake from 2007-2020; numbers in parentheses are standard errors.

Year	Length group ≥12.0 in	≥15.0 in	≥20.0 in	Total
2020	9.0 (4.9)	6.0 (3.2)	1.3 (0.9)	36.3 (22.4)
2014	36.0 (8.7)	9.3 (1.9)	1.3 (0.3)	84.3 (13.6)
2012	5.0 (1.5)	1.3 (0.3)	0.0 (0.0)	31.7 (11.7)
2010	36.2 (5.6)	15.2 (2.1)	1.2 (1.0)	69.0 (20.4)
2009	25.0 (12.1)	6.0 (2.9)	0.6 (0.4)	64.6 (39.9)
2008	10.8 (3.2)	2.8 (1.1)	0.4 (0.4)	43.0 (11.0)
2007	44.0 (24.6)	6.2 (4.3)	1.0 (0.6)	170.8 (102.7)

Dataset = cfdhnbpl.d20 - .d07

Table 100. Trail camera counts used to derive usage statistics in 2020-2021 at Bullock Pen Lake (134 acres).

Total Trips*	
No. of trips	6,840
Trips/acre	51.0
Pressure*	
Total man-hours	25,467
Man-hours/acre	190.1

*Usage hours (angler and non-angler usage combined)

Figure 3. Number of trips per month at Bullock Pen Lake from March 2020 through February 2021.

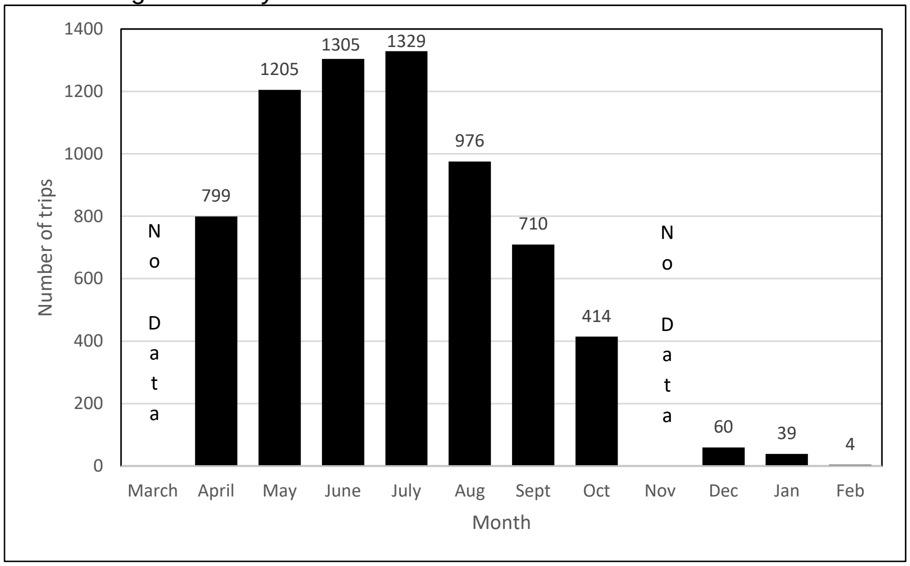


Figure 4. Number of usage hours by month at Bullock Pen Lake from March 2020 through February 2021.

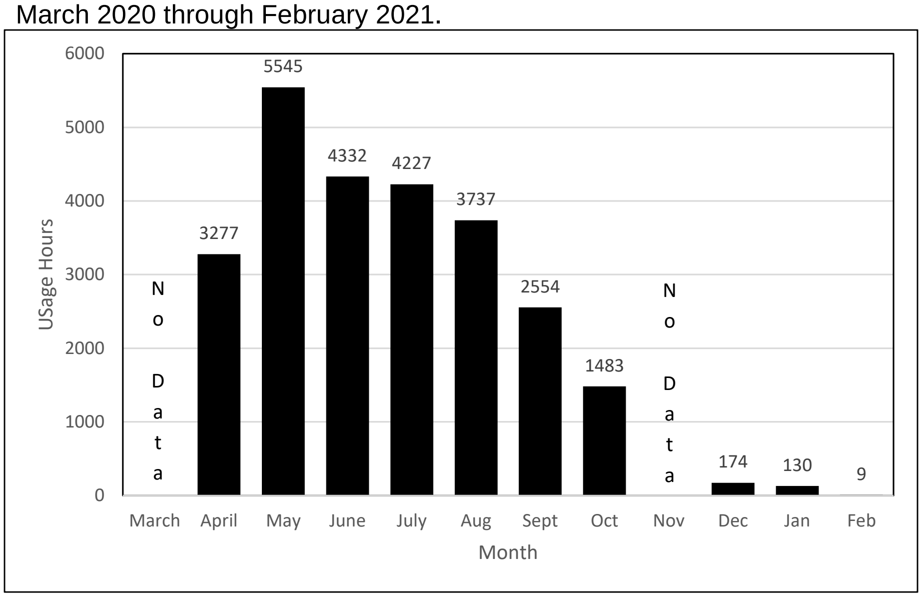


Table 101. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.5 hours of 15-minute electrofishing runs for black bass in Corinth Lake on 9 October 2020; numbers in parentheses are standard errors.

	Inch class																			
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Largemouth bass	67	47	10		6	18	22	31	29	28	23	6	3	1		2		1	294	196.0 (12.1)

Dataset = cfdwrcor.d20

Table 102. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Corinth Lake on 9 October 2020; standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	89	85 (1)	56	83 (2)	7	92 (4)	152	85 (1)

Dataset = cfdwrcor.d20

Table 103. Indices of year class strength at age-0 and age-1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at Corinth Lake.

Year class	Area	Age-0 Mean length	Age-0 Std. error	Age-0 CPUE	Age-0 Std. error	Age-0 ≥5.0 in CPUE	Age-0 ≥5.0 in Std. error	Age-1 CPUE	Age-1 Std. error
2020	Total	4.0	0.1	82.7	9.5	6.7	1.3		
2019	Total	4.9	0.1	107.3	20.0	50.7	9.9	-	
2018	Total	4.1	0.1	62.7	8.1	4.7	1.9	11.0	2.6
2017	Total	4.1	0.1	35.3	3.9	1.3	0.8	4.0	0.8
2016	Total	4.1	0.1	30.0	3.5	1.3	0.8	19.5	4.0
2015	Total	4.4	0.1	35.3	5.7	2.0	1.4	NS	
2014	Total	3.4	<0.1	56.7	8.9	0.0		29.9	2.5
2013	Total	4.2	0.1	170.7	18.6	34.7	7.4	29.0	4.3
2012	Total	5.0	0.1	52.9	5.0	26.2	3.0	13.0	4.6
2011	Total	4.3	0.1	116.7	22.0	22.0	3.7	24.5	4.9

Dataset = cfdwrcor.d11-.d20

Table 104. Species composition, relative abundance, and CPUE (fish/hr) of bluegill and redear sunfish collected in 1.25 hours of 7.5-minute electrofishing runs in Corinth Lake, June 2020; numbers in parentheses are standard errors.

	Inch class									
Species	2	3	4	5	6	7	8	9	Total	CPUE
Bluegill	41	99	79	27	59	70	1		376	300.8 (25.3)
Redear sunfish	1	1	2	17	20	101	50	4	196	156.8 (14.9)

Dataset = cfdpscor.d20

Table 105. PSD and RSD values calculated for sunfish collected during 1.25 hours of electrofishing at Corinth Lake during June 2020. Fish were collected in 7.5-minute runs.

Species	No. ≥stock size	PSD	RSD[a]
Bluegill	335	39 (± 5)	0 (± 1)
Redear sunfish	194	80 (± 6)	2 (± 2)

[a]Bluegill = RSD_8; Redear = RSD_9

Dataset = cfdpscor.d20

Table 106. Electrofishing CPUE (fish/hr) for each length group of bluegill collected from Corinth Lake from 2011-2020; numbers in parentheses are standard errors.

	Length group				
Year	<3.0 in	3.0–5.9 in	6.0-7.9 in	≥8.0 in	Total
2020	32.8 (8.5)	164.0 (22.0)	103.2 (12.4)	0.8 (0.8)	300.8 (25.3)
2019			No sample		
2018	5.6 (2.1)	161.6 (11.5)	148.8 (21.3)	4.8 (2.1)	320.8 (22.9)
2017	29.6 (14.9)	82.4 (17.3)	142.4 (22.8)	9.6 (2.9)	264.0 (32.6)
2016	5.6 (1.7)	60.0 (9.2)	135.2 (13.4)	4.0 (2.2)	204.8 (11.2)
2015	4.0 (1.3)	106.4 (16.4)	115.2 (24.1)	4.8 (3.2)	230.4 (16.5)
2014	4.8 (2.1)	89.6 (14.4)	64.8 (10.4)	4.0 (1.3)	163.2 (23.1)
2013	0.8 (0.8)	60.0 (4.7)	106.4 (13.3)	0.0	167.2 (15.7)
2012	2.4 (1.2)	240.0 (24.6)	56.8 (6.1)	0.0	299.2 (27.7)
2011	32.0 (6.9)	222.8 (16.4)	60.0 (10.5)	0.0	314.8 (27.0)

Dataset = cfdpscor.d11-.d20

Table 107. Population assessment for bluegill collected during spring electrofishing at Corinth Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-2 at capture	Years to 6.0 in	CPUE ≥6.0 in	CPUE ≥8.0 in	Total score	Assessment rating
2020	Value	4.5	3-3+*	104.0	0.8		
	Score	3	3	4	2	12	Good
2019	Value			No Sample			
	Score						
2018	Value	3.6	2-2+*	153.6	4.8		
	Score	1	4	4	4	13	Good
2017	Value	3.8*	2-2+*	152.0	9.6		
	Score	1	4	4	4	13	Good
2016	Value	3.8	2-2+	139.2	4.0		
	Score	1	4	4	3	12	Good
2015	Value	5.5*	3-3+*	120.0	4.8		
	Score	4	3	4	4	15	Excellent
2014	Value	5.5	3-3+	68.8	4.0		
	Score	4	3	3	3	13	Good
2013	Value	4.7*	3-3*	106.4	0.0		
	Score	3	3	4	1	11	Good
2012	Value	4.7	3-3+	56.8	0.0		
	Score	3	3	3	1	10	Good
2011	Value	4.4	3-3+	60.0	0.0		
	Score	3	3	3	1	10	Good

* Age data not collected
^Calculations based on age data gathered in previous years
-Instantaneous and annual mortality not calculated in years where age and growth data are not collected

Table 108. Electrofishing CPUE (fish/hr) for each length group of redear sunfish collected from Corinth Lake from 2011-2020; numbers in parentheses are standard errors.

	Length group					
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	≥10.0 in	Total
2020	0.8 (0.8)	16.0 (4.5)	96.8 (8.8)	43.2 (11.3)	0.0 (0.0)	156.8 (14.9)
2019				Sample		
2018	0.0 (0.0)	56.8 (7.5)	157.6 (20.2)	36.8 (8.9)	0.0 (0.0)	251.2 (26.4)
2017	0.0 (0.0)	44.8 (12.7)	115.2 (16.3)	43.2 (5.7)	0.0 (0.0)	203.2 (26.9)
2016	0.0 (0.0)	16.8 (4.7)	84.8 (15.5)	33.6 (7.1)	0.0 (0.0)	135.2 (21.4)
2015	0.0 (0.0)	22.4 (3.5)	53.6 (14.6)	42.4 (7.4)	1.6 (1.1)	118.4 (20.0)
2014	0.0 (0.0)	0.8 (0.8)	10.4 (3.8)	33.6 (15.2)	0.8 (0.8)	44.8 (16.0)
2013	0.0 (0.0)	1.6 (1.1)	25.6 (3.7)	29.6 (7.0)	0.8 (0.8)	56.8 (8.6)
2012	0.0 (0.0)	4.8 (2.1)	38.4 (8.4)	24.0 (5.1)	0.0 (0.0)	67.2 (14.2)
2011	1.6 (0.7)	26.0 (4.5)	36.8 (3.0)	20.0 (3.0)	0.0 (0.0)	84.4 (8.0)

Dataset = cfdpscor.d11-.d20

Table 109. Population assessment for redear sunfish collected during spring electrofishing at Corinth Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	Years to 8.0 in	CPUE ≥8.0 in	CPUE ≥10.0 in	Total score	Assessment rating
2020	Value	7.2	5-5+	43.2	0.0		
	Score	2	2	4	1	9	Fair
2019	Value		No Sample				
	Score						
2018	Value	6.1	5-5+	36.8	0.0		
	Score	1	2	4	1	8	Fair
2017	Value	7.2*	4-4+*	43.2	0.0		
	Score	2	3	4	1	10	Good
2016	Value	7.2	4-4+	33.6	0.0		
	Score	2	3	4	1	10	Good
2015	Value	8.1*	3-3+*	42.4	1.6		
	Score	4	4	4	3	15	Excellent
2014	Value	8.1	3-3+	33.6	0.8		
	Score	4	4	4	2	14	Excellent
2013	Value	7.8*	3-3+*	29.6	0.8		
	Score	3	4	4	2	13	Good
2012	Value	7.8	3-3+	24.0	0.0		
	Score	3	4	4	1	12	Good
2011	Value	7.8	3-3+	20.0	0.0		
	Score	3	4	3	1	11	Good

* Age data not collected

Table 110. Mean back calculated lengths (in) at each annulus for otoliths from bluegill collected from Corinth Lake in fall 2020.

		Age					
Year	No.	1	2	3	4	5	6
2019	22	2.6					
2018	9	2.8	4.5				
2017	3	2.7	4.7	6.1			
2016	13	2.2	3.8	5.4	6.4		
2015	2	1.8	3.4	4.9	6.1	6.6	
2014	2	2.3	3.9	5.4	6.0	6.3	6.6
Mean	48	2.5	4.1	5.5	6.3	6.5	6.6
Smallest		1.5	3.0	4.7	5.6	6.1	6.3
Largest		4.1	5.7	6.5	7.5	7.1	6.9
Std error		0.1	0.1	0.1	0.1	0.2	0.3
95% ConLo		2.3	3.8	5.2	6.1	6.0	6.1
95% ConHi		2.6	4.3	5.7	6.6	6.9	7.2

Intercept value = 0.00
Dataset = cfdagcor.d20

Table 111. Mean back calculated lengths (in) at each annulus for otoliths from redear sunfish collected from Corinth Lake in fall 2020.

		Age						
Year	No.	1	2	3	4	5	6	7
2019	20	2.8						
2018	11	3.0	5.4					
2017	2	2.9	5.7	7.2				
2016	7	2.6	4.3	6.2	7.3			
2015	4	2.7	5.0	6.2	7.1	7.8		
2014	2	2.9	5.2	6.2	7.0	7.6	8.1	
2013	2	2.9	5.2	6.7	7.3	8.0	8.6	9.1
Mean	48	2.8	5.1	6.4	7.2	7.8	8.4	9.1
Smallest		2.2	3.8	5.5	6.6	7.3	7.8	9.1
Largest		4.0	6.1	7.3	7.6	8.3	8.7	9.2
Std error		0.1	0.1	0.1	0.1	0.1	0.2	0.1
95% ConLo		2.7	4.8	6.2	7.1	7.6	8.0	9.0
95% ConHi		2.9	5.3	6.6	7.4	8.1	8.7	9.3

Intercept value = 0.00
Dataset = cfdagcor.d20

Table 112. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Corinth Lake on 9 October 2020; standard errors are in parentheses.

	Length group									
Species	No.	Wr	No.	Wr	No.	Wr	No.	Wr	No.	Wr
	3.0–5.9 in		6.0–7.9 in		≥8.0 in				Total	
Bluegill	74	90 (2)	52	81 (1)	0				126	87 (1)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	0		44	92 (2)	37	94 (1)	2	93 (2)	83	93 (1)

Dataset = cfdwrcor.d20

Table 113. Length composition, relative abundance, and CPUE (fish/set-night) of channel catfish at Corinth Lake collected on 12 October 2020. Channel catfish were collected using 3 set-nights of baited tandem hoop nets (72 hours soak time).

	Inch class										
Species	17	18	19	20	21	22	23	24	25	Total	Average per set
Channel catfish	1			1	2				1	5	1.7 (0.9)

Dataset = cfdhncor.d20

Table 114. PSD and RSD_{24} values obtained for channel catfish from tandem hoop net samples in Corinth Lake in October 2020; confidence intervals are in parentheses.

Species	No. $\geq$stock size	PSD	RSD_{24}
Channel catfish	5	100 (± 0)	20 (± 20)

Dataset = cfdhncor.d20

Table 115. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Corinth Lake in October 2020; standard errors are in parentheses.

		Length group							
Species	Area	11.0–15.9 in		16.0–23.9 in		≥24.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Channel catfish	Total	0		4	100 (3)	1	120	5	104 (4)

Dataset = cfdhncor.d20

Table 116. CPUE (fish/set) for each length group of channel catfish collected by hoop net from Corinth Lake from 2010-2020; numbers in parentheses are standard errors.

	Length group			
Year	$\geq$12.0 in	$\geq$15.0 in	$\geq$20.0 in	Total
2020	1.7 (0.9)	1.7 (0.9)	1.3 (0.7)	1.7 (0.9)
2017	12.3 (6.6)	7.0 (2.9)	1.3 (1.3)	38.0 (12.2)
2015	0.0	0.0	0.0	0.0
2013	3.7 (2.3)	2.3 (1.5)	0.0	6.0 (3.1)
2012	41.0 (13.6)	14.7 (4.1)	0.3 (0.3)	97.7 (38.1)
2011	25.0 (12.9)	5.7 (4.2)	0.3 (0.3)	85.7 (59.4)
2010	21.0 (9.0)	1.7 (0.3)	0.0	92.7 (46.8)

Dataset = cfdhncor.d20 - .d10

Table 117. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.50 hours of 15-minute electrofishing runs for black bass in Elmer Davis Lake in September 2020; numbers in parentheses are standard errors.

	Inch class																				
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Largemouth bass	27	127	89	20	2	26	60	33	42	30	34	11	10	6	2				1	520	346.7 (54.2)

Dataset = cfdwrelm.d20

Table 118. Mean back calculated lengths (in.) at each annulus for otoliths from largemouth bass collected in the fall from Elmer Davis Lake in 2020.

		Age									
Year	No.	1	2	3	4	5	6	7	8	9	10
2019	28	5.8									
2018	13	5.6	9.1								
2017	21	5.4	9.1	11.0							
2016	12	5.5	9.4	11.7	13.0						
2015	6	5.2	9.0	11.0	12.4	13.5					
2014	1	5.1	8.4	10.6	12.0	13.1	13.9				
2013	2	4.8	8.8	10.5	11.5	13.2	14.1	14.7			
2012	3	5.1	8.2	10.3	11.8	12.8	13.4	14.3	15.1		
2011	1	5.4	8.0	9.9	11.2	12.2	12.9	13.8	14.2	14.8	
2010	1	7.5	10.5	12.9	13.9	15.2	16.6	17.6	18.4	19.2	19.8
Mean	88	5.5	9.1	11.1	12.5	13.3	14.0	14.8	15.6	17.0	19.8
Smallest		3.9	7.9	9.4	10.7	11.4	12.0	13.0	13.5	14.8	19.8
Largest		7.5	10.5	12.9	14.3	15.2	16.6	17.6	18.4	19.2	19.8
Std error		0.1	0.1	0.1	0.2	0.2	0.5	0.6	0.9	2.2	
95% ConLo		5.4	8.9	10.9	12.2	12.8	13.0	13.7	13.9	12.8	
95% ConHi		5.7	9.3	11.3	12.9	13.8	14.9	15.9	17.3	21.3	

Intercept value = 0.00
Dataset = cfdagelm.d20

Table 119. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Elmer Davis Lake on 23 September and 10 November 2020; standard errors are in parentheses.

Species	Area	Length group 8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	102	83 (1)	75	79 (1)	29	85 (2)	206	82 (1)

Dataset = cfdwrelm.d20

Table 120. Indices of year class strength at age-0 and age-1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at Elmer Davis Lake.

Year class	Area	Age-0 Mean length	Age-0 Std. error	Age-0 CPUE	Age-0 Std. error	Age-0 ≥5.0 in CPUE	Age-0 ≥5.0 in Std. error	Age-1 CPUE	Age-1 Std. error
2020	Total	3.8	(0.1)	176.0	(35.6)	14.0	(1.7)		
2019	Total	4.6	(0.1)	151.3	(16.6)	50.0	(8.1)		
2018	Total	3.9	(0.1)	100.7	(23.3)	8.7	(1.9)	60.0	(8.6)
2017	Total	3.9	(0.1)	366.4	(74.7)	71.2	(15.9)	91.0	(10.4)
2016	Total	4.4	(0.1)	80.0	(7.6)	24.7	(4.9)	60.5	(10.8)
2015	Total	4.0	(0.1)	77.3	(9.1)	11.3	(3.5)	46.5	(6.2)
2014	Total							28.0	(5.3)
2013	Total	3.5	(0.1)	20.0	(6.9)	0.0	(0.0)	8.0	(2.3)
2012	Total	3.4	(0.1)	56.0	(7.5)	6.0	(1.7)	NS	NS
2011	Total	4.0	(0.1)	74.0	(13.8)	14.7	(3.2)	78.0	(8.9)

Dataset= cfdwrelm.d11 - .d20

Table 121. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Elmer Davis Lake on 23 September and 10 November 2020; standard errors are in parentheses.

Species	Length group No.	Wr	No.	Wr	No.	Wr	No.	Wr	No.	Wr
	3.0–5.9 in		6.0–7.9 in		≥8.0 in				Total	
Bluegill	72	95 (2)	52	91 (1)	25	91 (2)			149	93 (1)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	3	97 (15)	75	99 (1)	35	105 (1)	13	105 (2)	126	101 (1)

Dataset = cfdwrelm.d20

Table 122. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.5 hours of 15-minute electrofishing runs in Kincaid Lake in October 2020; numbers in parentheses are standard errors.

	Inch class																				
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Largemouth bass	53	19	9	4	3	23	14	5	18	16	9	11	8	14	6	5	7	1	5	230	153.3 (12.8)

Dataset = cfdwrkin.d20

Table 123. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Kincaid Lake on 5 October 2020; standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	52	88 (1)	28	93 (2)	38	103 (1)	118	94 (1)

Dataset = cfdwrkin.d20

Table 124. Indices of year class strength at age 0 and age 1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at Kincaid Lake.

Year class	No. of fish	Age 0 Mean length	Age 0 Std. error	Age 0 CPUE	Age 0 Std. error	Age 0 ≥5.0 in CPUE	Age 0 ≥5.0 in Std. error	Age 1 CPUE	Age 1 Std. error
2020	85	3.2	(0.1)	56.7	(7.5)	2.7	(1.3)		
2019				No Sample					
2018	72	3.5	(0.1)	48.0	(8.1)	4.0	(2.1)	8.0	(2.3)
2017	44	3.5	(0.1)	29.3	(8.2)	0.0		NS	
2016	51	3.8	(0.1)	34.0	(6.4)	3.3	(1.9)	2.0	(1.3)
2015				No Sample					
2014	37	2.6	(0.1)	24.7	(7.4)	0.0		1.3	(0.5)
2013	56	3.6	(0.1)	37.3	(13.8)	0.0		NS	
2012	71	3.4	(0.1)	47.3	(9.1)	0.7	(0.7)	1.0	(0.7)
2011	112	3.8	(0.1)	74.7	(28.8)	7.3	(4.2)	4.5	(1.4)

Dataset = cfdwrkin.d20

Table 125. Length composition, relative abundance, and CPUE (fish/set-night) of channel catfish at Kincaid Lake on 9 October 2020. Channel catfish were collected using 3 set-nights of baited tandem hoop nets (72 hours soak time).

Species	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	Average per set
Channel catfish	2	1	4	5	4	2	1	4	3	1	2	5	1	1	1	1	1	1	1	1	42	14.0 (2.7)

Dataset = cfdhnkin.d20

Table 126. PSD and RSD_{24} values obtained for channel catfish from tandem hoop net samples in Kincaid Lake in 2020; confidence intervals are in parentheses.

Species	No. ≥stock size	PSD	RSD_{24}
Channel catfish	30	53 (± 18)	10 (± 10)

Dataset = cfdhnkin.d20

Table 127. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Kincaid Lake in October 2020; standard errors are in parentheses.

		Length group							
Species	Area	11.0–15.9 in		16.0–23.9 in		≥24.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Channel catfish	Total	14	93 (2)	13	92 (3)	3	103 (4)	30	93 (2)

Dataset = cfdhnkin.d20

Table 128. CPUE (fish/set-night) for each length group of channel catfish collected by hoop net from Kincaid Lake from 2009-2020; numbers in parentheses are standard errors.

	Length group			
Year	≥12.0 in	≥15.0 in	≥20.0 in	Total
2020	8.7 (3.0)	6.3 (3.0)	2.3 (1.9)	14.0 (2.7)
2017	31.7 (5.7)	16.7 (3.7)	6.0 (2.3)	71.3 (16.8)
2015	10.0 (4.7)	6.7 (3.5)	1.7 (0.7)	16.7 (7.5)
2013	17.7 (5.8)	5.3 (2.3)	1.7 (1.2)	42.0 (14.6)
2012	20.7 (4.7)	9.0 (3.8)	3.3 (1.5)	40.0 (8.5)
2011	8.3 (4.3)	1.3 (0.3)	0.0	48.7 (23.3)
2010	21.0 (9.0)	9.0 (4.6)	1.0 (0.6)	131.0 (53.5)
2009	44.7 (19.3)	21.0 (9.0)	9.7 (4.8)	84.0 (31.29)

Dataset = cfdhnkin.d20 - .d09

Table 129. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.0 hour of 15-minute electrofishing runs in McNeely Lake in September 2020; numbers in parentheses are standard errors.

	Inch class																		
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE
Largemouth bass	17	52	3	2	24	13	15	21	18	13	4	1	1	3	3	1	1	192	192.0 (15.4)

Dataset = cfdwrmcl.d20

Table 130. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at McNeely Lake on 14 September 2020; standard errors are in parentheses.

		Length group							
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	66	84 (1)	18	91 (2)	9	98 (2)	93	87 (1)

Dataset = cfdwrmcl.d20

Table 131. Indices of year class strength at age-0 and age-1 and mean length (in) of largemouth bass collected in the fall in electrofishing samples at McNeely Lake.

		Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	4.2	(<0.1)	73.0	(10.4)	4.0	(0.0)		
2019	Total	5.0	(<0.1)	171.3	(16.0)	88.0	(17.3)	NS	
2018	Total	NS						94.0	(30.4)
2017	Total	4.4	(0.1)	177.6	(11.6)	32.8	(4.1)	70.0	(26.1)
2016	Total	5.0	(0.1)	96.0	(21.1)	56.8	(14.3)	NS	
2015	Total	4.2	(<0.1)	126.4	(14.9)	12.0	(4.2)	38.0	(13.1)
2014	Total	NS						109.0	(27.8)
2013	Total	4.2	(<0.1)	86.0	(11.5)	7.3	(2.8)	18.0	(7.8)
2012	Total	5.0	(<0.1)	242.0	(10.0)	124.0	(11.0)	NS	
2011	Total	4.3	(0.1)	116.0	(12.8)	20.8	(6.6)	15.2	(6.4)

Dataset = cfdwrmcl.d20-.d11

Table 132. Species composition, relative abundance, and CPUE (fish/hr) of bluegill and redear sunfish collected in 0.75 hours of 7.5-minute electrofishing runs in McNeely Lake, June 2020; numbers in parentheses are standard errors.

	Inch class									
Species	2	3	4	5	6	7	8	9	Total	CPUE
Bluegill	3	20	58	21	33	51	1		187	249.3 (36.9)
Redear sunfish			1	2	10	9	10	2	34	45.3 (8.9)

Dataset = cfdpsmcl.d20

Table 133. PSD and RSD values calculated for sunfish collected during 0.75 hours of electrofishing at McNeely Lake during June 2020. Fish were collected in 7.5-minute runs.

Species	No. ≥stock size	PSD	RSD[a]
Bluegill	184	46 (± 7)	1 (± 1)
Redear sunfish	34	69 (± 17)	6 (± 6)

[a]Bluegill = RSD_8; Redear = RSD_9

Dataset = cfdpsmcl.d20

Table 134. Electrofishing CPUE (fish/hr) for each length group of bluegill collected from McNeely Lake from 2011-2020; numbers in parentheses are standard errors.

Year	Length group <3.0 in	3.0–5.9 in	6.0-7.9 in	≥8.0 in	Total
2020	4.0 (1.8)	132.0 (28.5)	112.0 (12.0)	1.3 (1.3)	249.3 (36.9)
2019	1.0 (1.0)	163.0 (31.4)	286.0 (16.2)	2.0 (1.3)	452.0 (42.2)
2018			No Sample		
2017	2.4 (1.2)	87.2 (12.0)	166.4 (25.4)	4.8 (1.3)	260.8 (29.5)
2016			No Sample		
2015	1.6 (1.1)	97.6 (22.1)	118.4 (19.9)	8.0 (2.7)	225.6 (32.6)
2014			No Sample		
2013	5.6 (2.9)	137.6 (16.7)	276.8 (30.1)	0.8 (0.8)	420.8 (33.4)
2012	4.0 (2.1)	325.0 (47.6)	203.0 (21.5)	1.0 (1.0)	533.0 (61.8)
2011	9.6 (3.1)	318.4 (39.4)	156.8 (27.0)	1.6 (1.6)	486.4 (43.5)

Dataset = cfdpsmcl.d11- .d20

Table 135. Population assessment for bluegill collected during spring electrofishing at McNeely Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-2 at capture	Years to 6.0 in	CPUE ≥6.0 in	CPUE ≥8.0 in	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2020	Value	4.6*	2-2+*	113.3	1.3	-	-		
	Score	3	4	4	2			13	Good
2019	Value	4.6	2-2+*	288.0	2.0	-	-		
	Score	3	4	4	3			14	Excellent
2018					No Sample				
2017	Value	5.4*	2-2+*	171.2	4.8	-	-		
	Score	4	4	4	4			16	Excellent
2016					No Sample				
2015	Value	5.4	2-2+	126.4	8.0	-	-		
	Score	4	4	4	4			16	Excellent
2014					No Sample				
2013	Value	5.8	2-2+	277.6	0.8	-	-		
	Score	4	4	4	2			14	Excellent
2012	Value	4.6	2-2+	204.0	1.0	0.922	60.2		
	Score	3	4	4	2			13	Good
2011	Value	4.5	2-2+	158.4	1.6	1.001	63.3		
	Score	3	4	4	3			14	Excellent

* Age and growth data was not collected.

Table 136. Electrofishing CPUE (fish/hr) for each length group of redear sunfish collected from McNeely Lake from 2011-2020; numbers in parentheses are standard errors.

	Length group					
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	≥10.0 in	Total
2020	0.0	4.0 (1.8)	25.3 (6.3)	16.0 (4.1)	0.0	45.3 (8.9)
2019	0.0	26.0 (2.9)	82.0 (13.0)	63.0 (12.2)	1.0 (1.0)	171.0 (16.4)
2018			No Sample			
2017	0.0	9.6 (3.5)	34.4 (5.1)	30.4 (8.3)	0.0	74.4 (13.2)
2016			No Sample			
2015	0.0	3.2 (2.4)	16.8 (4.4)	13.6 (4.6)	2.4 (1.7)	33.6 (6.7)
2014			No Sample			
2013	0.0	13.6 (3.8)	27.2 (6.3)	52.8 (10.6)	2.4 (1.7)	93.6 (14.3)
2012	0.0	21.0 (5.4)	62.0 (7.1)	34.0 (6.0)	0.0	117.0 (13.2)
2011	0.8 (0.8)	20.8 (5.9)	16.8 (3.0)	21.6 (4.6)	0.0	60.0 (9.0)

Dataset = cfdpsmcl.d11 - .d20

Table 137. Population assessment for redear sunfish collected during spring electrofishing at McNeely Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	Years to 8.0 in	CPUE ≥8.0 in	CPUE ≥10.0 in	Total score	Assessment rating
2020	Value	7.8*	3-3+*	16.0	0.0		
	Score	3	4	3	1	11	Good
2019	Value	7.8	3-3+	63.0	1.0		
	Score	3	4	4	3	14	Excellent
2018				No Sample			
2017	Value	8.2*	3-3+*	30.4	0.0		
	Score	4	4	4	1	13	Good
2016				No Sample			
2015	Value	8.2	3-3+	13.6	2.4		
	Score	4	4	3	4	15	Excellent
2014				No Sample			
2013	Value	8.2	2-2+	52.8	2.4		
	Score	4	4	4	4	16	Excellent
2012	Value	8.1	3-3+	34.0	0.0		
	Score	4	4	4	1	13	Good
2011	Value	8.0	3-3+	21.6	0.0		
	Score	3	4	3	1	11	Good

* Age data not collected

Table 138. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at McNeely during September 2020; standard errors are in parentheses.

	Length group									
Species	No.	Wr	No.	Wr	No.	Wr	No.	Wr	No.	Wr
	3.0–5.9 in		6.0–7.9 in		≥8.0 in				Total	
Bluegill	72	87 (2)	35	86 (2)					107	87 (2)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	1	142	34	95 (3)	20	91 (1)			55	95 (2)

Dataset = cfdwrmcl.d20

Table 139. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.25 hours of electrofishing in Prather Pond on the Boone Tract of the Kentucky River WMA, April 2020.

	Inch class																	CPUE
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	(fish/hr)
Largemouth bass		1	4	2		4	4	5	3	2	3	2	1	1	3	2	37	148.0
Bluegill	5	6	5	5	2												23	92.0
Redear sunfish	2	13	15	11	8	4											53	212.0
Black crappie						2	1			1				1			5	20.0
White crappie						4	1	1	1								7	28.0

Table 140. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.25 hours of electrofishing in 6-acre Pond on the Boone Tract of the Kentucky River WMA, April 2020.

	Inch class														CPUE
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	(fish/hr)
Largemouth bass		3	10	13	6	1	5	6	4	3			1	52	208.0
Bluegill		8	3	2	14	4								31	124.0
Redear sunfish	1	2					2							5	20.0
Black crappie			1				1	1	2					5	20.0

NORTHEASTERN FISHERY DISTRICT

Project 1: Lake and Tailwaters Fishery Surveys

FINDINGS

All sampling conditions can be found in Table 1.

Cave Run Lake (8,720a)

Muskellunge sampling
On March 24-25, the upper, middle and lower sections of Cave Run Lake were diurnally electrofished for assessment of the muskellunge population. In total, 77 fish were collected ranging in size from 13.0 to 48.0 in (Table 2). Relative weights (W_r) ranged from the lower 80's to low 90's and all values were within the normal historical range with the exception of the larger-sized fish which were slightly less than the historical average (Table 3). Muskellunge clip information was also collected in order to determine length and weight at age values (Table 4). Of the 77 fish collected, 66 had clip marks. Clip data indicated that fish cross into the 36.0-in size range by age 4 or 5, which is similar to previous studies done on length at age relationships. The total assessment rating of muskellunge on Cave Run Lake in 2020 was "Poor" (Table 5).

Black bass sampling (Spring)
Black bass were not sampled in 2020 because of Covid19 personnel restrictions at the time of the sampling.

Crappie sampling
Over the last week of October, crappie were sampled in the upper third (8 nets for 3 nights) and lower two-thirds (7 nets for 3 nights) of Cave Run Lake with trap nets. In 45 net-nights, 1377 crappie were collected (Table 6). Of these fish, 91% came from the upper section and the remaining 9% came from the lower two-thirds of the lake. PSD and RSD_{10} showed the vast majority of the fish over 5.0 in were of smaller size (Table 7). W_r values were slightly higher in the lower two-thirds of the lake (Table 8). In 2020, a subsample of fish were collected to show age and growth characteristics of both black and white crappie. On average, white crappie reached 10.0 in by their 6th year (Table 9), but some fish could reach this mark by their 3rd year (Table 10). Black crappie showed slightly slower growth, reaching 10.0 in on average in their 8th year (Table 11), but the age frequency table (Table 12) showed significant variability in these trends. The overall assessment rating for white crappie on Cave Run Lake was "Good" (Table 13).

Grayson Lake (1,512a)

Black bass sampling (Spring/Fall)
Black bass were not sampled in 2020 because of Covid19 personnel restrictions at the time of the sampling.

In September, Grayson Lake was nocturnally electrofished for determination of spawning strength of largemouth bass. Indices of year class strength for largemouth bass continue to be on the high end (Table 14) and the lake continued to show no need for stocking of young of year largemouth bass in 2020.

Crappie sampling
On 22 October, the upper end of Grayson Lake was diurnally electrofished for assessment of the crappie population. In 1.5 hours of sampling, 187 fish were sampled, of which 89% were white crappie and 11% were black crappie (Table 15). Similar to Cave Run Lake, the majority of the fish over 5.0 in. were of smaller size (Table 16) and W_r values ranged from the mid-70 to mid-80's (Table 17). A subsample of fish were collected for determination of age and growth characteristics, which showed a slower growing population (Table 18) with the majority of the fish under 10.0 in (Table 19). The overall assessment rating of the white crappie population at Grayson Lake was "Fair" (Table 20).

Hybrid Striped Bass Sampling

Towards the end of October, Grayson Lake was sampled for assessment of the hybrid striped bass population. In 11 net-nights, 69 fish were sampled (Table 21). W_r values were all in the low to mid 80s and were within the historical range of previous samples (Table 22). On average, the fish reach 20.0 in by their 4th year (Table 23) and exhibit a good spread in terms of age frequency (Table 24). The overall assessment of the hybrid striped bass population at Grayson Lake was "Good" (Table 25). Assessment ranges used were specifically developed (and regularly updated) for Grayson Lake, and sampling was conducted with 125-foot, five-panel gill nets.

Greenbo Lake (181a)

Black bass sampling (Fall)

On 24 September, Greenbo Lake was nocturnally electrofished to assess the bass population. In total, 214 largemouth bass were collected ranging from 2.0 to 19.0 in (Table 26). Relative weights (W_r) were in line with the average since 2007 in every size class (Table 27). The year class strength is down from recent years (Table 28), but stocking could not take place due to restrictions from Covid19.

Miscellaneous

The spring sample was not attempted due to Covid19 and personnel restrictions. Hydrilla and Elodea are still present at Greenbo Lake. However, the grass carp have significantly cut back the amount of vegetation. Staff opted out of stocking grass carp in 2020. Reevaluation will take place before deciding if grass carp should be stocked in 2021.

Lake Carnico (114a)

Black bass sampling (Spring)

On 28 April, Lake Carnico was diurnally electrofished to assess the largemouth bass population. A total of 114 fish were collected ranging from 2.0 to 19.0 in (Table 29). The total catch rate has been on a downward trend for the past few years. The largest length group is still the $\geq$15.0-in group (Table 30). The PSD and RSD_{15} values are down from the last two years but are still high in comparison to the past 15 years (Table 31). The overall largemouth bass assessment was rated as "Fair" (Table 32).

Sunfish sampling (Summer)

On 26 May, Lake Carnico was diurnally electrofished to assess the sunfish population. A total of 242 bluegill were collected ranging from 2.0 to 6.0 in (Table 33). Bluegill overall numbers are high, however, the total catch is carried by the 3.0- to 5.9-in class (Table 34). Bluegill PSD was extremely low (Table 35). Bluegill age and growth data showed slower growth rates, with it taking five years to reach 5.0 in on average (Table 36). The bluegill assessment was rated at "Poor" (Table 38). Redear sunfish were also collected and ranged in size from 2.0 to 7.0 in (Table 33). Although the number of stock-size redear that were caught was nearly double previous values, the PSD remained very low (Table 40). The redear showed slightly better growth than the bluegill, reaching almost 5.0 in on average in four years (Table 41). The overall redear assessment was rated as "Poor" this year (Table 43).

Lake Reba (76a)

Black bass sampling (Spring/Fall)

On 12 May, Lake Reba was diurnally electrofished for assessment of the largemouth bass population. While this date was 2-4 weeks later than our normal sampling time, temperatures were still within boundaries set in KDFWR's Standard Methods for Sampling. In total, 500 largemouth bass were sampled ranging in size from 3.0 to 21.0 in (Table 44). All size classes of fish sampled were above average with the exception of catch rates of fish $\geq$15.0 in (Table 45). The PSD and RSD_{15} values were below average for the lake indicating a large number of smaller-sized fish (Table 46). In September, a subsample of largemouth bass were collected for an assessment of the age and growth structure of the fishery. This data showed strong growth with fish potentially reaching 12.0 inches in their third year (Table 47). While growth rates and catch rates of smaller-sized bass were excellent, sub-par catch rates of larger-sized fish kept the assessment of this fishery in the "Good" range (Table 48).

Lake Reba was once again diurnally electrofished in the fall to collect indices related to spawning class strength, W_r values and collection of fish for age and growth assessment. In total, 444 fish were collected (Table 49), and W_r values were within historical ranges for the lake (Table 50). Additionally, a strong 2020 year class of fish was observed so the lake was not stocked in 2020 (Table 51).

Smoky Valley (36a)

Black bass sampling (Spring/Fall)
On 11 May, Smoky Valley Lake was diurnally electrofished for assessment of the largemouth bass fishery. Similar to the largemouth bass sample on Lake Reba, the timing of this sample was 2-4 weeks later than normal, but temperatures were still within the range outlined by KDFWR's Standard Methods for Sampling. In total, 152 fish were captured ranging in size from 2.0 to 15.0 in (Table 52). Catch rates were almost across the board lower than the ten-year average for all length groups of largemouth bass (Table 53). PSD and RSD_{15} values for largemouth bass were similar to previous years indicating similar proportions of large to small fish (Table 54). In September, a subsample of largemouth bass was collected for an assessment of the age and growth structure of the fishery. This data showed moderate growth with fish reaching 12.0 inches in their 4^{th} year (Table 55). Lower catch rates of larger fish resulted in a "Fair" overall assessment of the largemouth bass population (Table 56).

Smoky Valley Lake was once again diurnally electrofished in the fall to collect indices related to W_r values and for collection of fish for age and growth assessment. In total, 168 fish were collected (Table 57), and W_r values were similar to historical averages for the lake or slightly higher (Table 58).

Lake Wilgreen (131a)

Sunfish sampling (Summer)
On 02 June, Lake Wilgreen was diurnally electrofished for assessment of the sunfish population. In total, 681 bluegill and 3 redear sunfish were sampled in 1.0 hour of electrofishing (Table 59). Catch rates were almost across the board higher than the 20-year average for all length groups of bluegill (the exception was the catch rate of fish over 8.0 in, which was lower; Table 60). PSD and RSD_8 values for bluegill indicated a lower number of bigger fish when compared to the number of small fish (Table 61). No fish were collected for determination of RSD_8. A subsample of bluegill were collected for an assessment of the age and growth structure of the fishery. This data showed moderate growth with fish reaching 6.0 inches in their 3^{rd} or 4^{th} year (Tables 62 and 63). Increases in the growth parameters resulted in a "Good" rating in the overall assessment of the bluegill population (Table 64).

Table 1: Yearly summary of sampling conditions by waterbody, species sampled and date.

Water body	Species	Date (2020)	Time 24hr	Gear	Weather	Water Temp (ºF)	Water level	Secchi (in)	Conditions	Pertinent sampling comments
Cave Run Lake	Muskie	3/24	900	electro	Clear	49	736.67	17	fair	Lower Section
Cave Run Lake	Muskie	3/25	900	electro	overcast	51	736.72	33	good	Beaver Creek Section
Cave Run Lake	Muskie	3/26	900	electro	Sunny/Clear	53	736.57	15	fair	Upper Sections
Cave Run Lake	BC/WC	11/2	900	trap net	sunny, cold	57	728.35	-	good	7 nets lower, 8 nets upper
Cave Run Lake	BC/WC	11/3	900	trap net	sunny, cold	53	727.62	-	good	7 nets lower, 8 nets upper
Cave Run Lake	BC/WC	11/4	900	trap net	sunny, cold	59	726.93	-	good	7 nets lower, 8 nets upper
Grayson Lake	LMB	9/21	2000	electro	nocturnal	69	-	-	good	upper section (Caney)/<10" fish only
Grayson Lake	LMB	9/22	2000	electro	nocturnal	74	-	58	good	middle section (Bruin)/<10" fish only
Grayson Lake	LMB	9/23	2000	electro	nocturnal	73	-	65	good	lower section (Dam/Deer Creek)/<10" fish only
Grayson Lake	BC/WC	10/22	900	electro	sunny/cool	62	-	-	good	upper section (Caney)
Grayson Lake	Hybrids	10/26	900	gill net	clouds/cool	62	-	>32	good	upper section (Caney)
Grayson Lake	Hybrids	10/27	900	gill net	clouds/cool	64	-	-	good	upper section (Caney)
Grayson Lake	Hybrids	10/28	900	gill net	rain	64	-	-	good	upper section (Caney)
Grayson Lake	Hybrids	10/29	900	gill net	rain	-	-	-	good	upper section (Caney)
Greenbo Lake	LMB	9/24	2000	electro	clear	73	normal	57	good	
Lake Carnico	LMB	4/28	10:30	electro	sunny	59	normal	72	good	
Lake Carnico	Sunfish	5/26	900	electro	sunny	78	normal	94	good	
Lake Reba	LMB	5/12	930	electro	sunny	59	normal	-	good	
Lake Reba	LMB	9/21	930	electro	sunny	70	normal	20	good	
Smoky Valley	LMB	5/11	900	electro	sunny	54	normal	24	good	
Smoky Valley	LMB	9/29	900	electro	sunny	69	normal	54	good	
Lake Wilgreen	LMB	6/2	930	electro	sunny	76	normal	-	good	

Table 2. Relative abundance and CPUE (fish/hour) of muskellunge collected in the upper, middle and lower sections during 18 hours of 30-minute runs spread across each area of Cave Run Lake (6 hours in each section: Upper, Middle and Lower; 24-26 March).

		Inch class																						
Species	Area	13	14	15	16	20	25	26	29	30	31	32	33	34	35	36	37	38	39	40	41	48	Total	CPUE	se
Muskellunge	Upper		2	1	2		1	1	1	1		1	1	1	1		1			1	1		16	2.7	0.8
	Middle	1	4	2	2		1			2			2		3	1		1					19	3.2	0.8
	Lower	6	10	7	1	1			1	1	1		2	2	1	3	1	1	2	1		1	42	7.0	1.2
	Total	7	16	10	5	1	2	1	2	4	1	1	5	3	5	4	2	2	2	2	1	1	77	4.3	0.6

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Table 3. Number of fish and mean relative weight (W_r) values for length groups of muskellunge collected across all lake units in Cave Run Lake from 2003-2020. Standard errors are in parentheses.

	Length group														
	≤20.0 in			20.1-30.0 in			30.1-38.0 in			≥38.1 in			Total		
Year	N	W_r	(se)	N	W_r	(se)	N	W_r	(se)	N	W_r	(se)	N	W_r	(se)
2020	15	80	(4)	6	90	(5)	25	89	(2)	8	82	(4)	54	86	(2)
2019															
2018	8	80	(1)	21	88	(2)	20	92	(2)	10	87	(3)	59	88	(1)
2017	4	88	(3)	31	92	(1)	54	88	(1)	18	87	(3)	107	89	(1)
2016	5	81	(1)	25	89	(2)	31	89	(1)	9	100	(4)	70	90	(1)
2015*															
2014	30	80	(1)	24	89	(1)	57	90	(1)	29	91	(2)	140	88	(1)
2013	11	79	(2)	4	95	(2)	41	94	(1)	17	92	(3)	73	91	(1)
2012	14	75	(1)	28	87	(2)	58	102	(12)	20	86	(1)	120	93	(6)
2011	23	83	(2)	29	93	(1)	40	91	(1)	27	88	(2)	119	89	(1)
2010	19	79	(1)	64	92	(1)	52	94	(2)	18	90	(1)	153	91	(1)
2009	12	88	(4)	11	97	(1)	36	93	(1)	23	93	(1)	82	93	(1)
2008	27	76	(1)	40	114	(17)	48	94	(1)	11	89	(1)	126	96	(6)
2007	35	84	(1)	9	102	(4)	18	95	(3)	14	92	(2)	76	90	(1)
2006	17	75	(1)	13	88	(2)	26	89	(1)	13	87	(1)	69	85	(1)
2005	26	81	(4)	23	91	(1)	38	89	(1)	22	85	(2)	109	87	(1)
2004	10	79	(2)	10	90	(3)	32	87	(1)	15	80	(1)	67	85	(1)
2003	22	82	(3)	16	96	(3)	33	92	(2)	9	87	(2)	80	90	(1)

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* = Lake w as not sampled due to high w ater

Table 4. Average length (in) and weight (lb) of known-age muskellunge (standard error in parentheses) in comparison to historical averages (collected from known-age muskie from 1989-2003).

		Age class									
		Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10
2011	N=	33									
	L=	14.9 (0.2)									
	W=	0.6 (0.0)									
2012	N=	61	15								
	L=	14.4 (0.1)	23.4 (0.5)								
	W=	0.5 (0.0)	2.8 (0.2)								
2013	N=	74	2	7							
	L=	13.9 (0.1)	22.3 (2.8)	31.0 (0.4)							
	W=	0.5 (0.0)	2.6 (1.4)	7.5 (0.5)							
2014	N=	73	23	9	15						
	L=	14.7 (0.1)	23.4 (0.4)	31.7 (0.4)	34.0 (0.8)						
	W=	0.6 (0.0)	2.9 (0.2)	8.1 (0.4)	10.2 (0.9)						
2015											
2016	N=	40	18	15	13	1	5				
	L=	14.0 (0.1)	23.2 (0.2)	31.0 (0.4)	34.2 (0.5)	39.1 (--)	38.5 (1.0)				
	W=	0.6 (0.1)	2.8 (0.1)	7.3 (0.3)	10.2 (0.6)	16.0 (--)	15.0 (2.2)				
2017	N=	59	17	23	17	9	5	4			
	L=	13.5 (0.1)	24.1 (0.7)	29.0 (0.9)	34.3 (0.4)	37.3 (0.5)	37.5 (0.5)	37.6 (0.4)			
	W=	0.4 (0.0)	3.4 (0.5)	6.1 (0.4)	10.2 (0.4)	13.5 (0.9)	12.8 (0.7)	13.2 (0.8)			
2018	N=	46	23	2	3	7	2	5	0		
	L=	13.9 (0.4)	21.9 (0.4)	32.7 (1.8)	32.9 (1.0)	35.1 (1.0)	36.2 (2.2)	38.2 (1.7)			
	W=	0.5 (0.0)	2.3 (0.2)	9.0 (1.6)	10.0 (0.4)	11.0 (0.9)	12.0 (1.5)	14.7 (1.5)			
2019											
2020	N=	37	1	4	11	3	4	1	4	1	0
	L=	14.8 (0.1)	20.0 -	30.2 (2.0)	33.2 (0.5)	35.3 (3.0)	36.9 (0.8)	38.2 -	38.3 (1.1)	39.2 -	
	W=	0.6 (0.0)	1.3 -	7.5 (1.4)	9.2 (0.5)	10.5 (2.1)	12.1 (0.6)	12.6 -	14.5 (1.9)	12.4 -	
Average	L=	14.3 (0.2)	22.6 (0.5)	30.9 (0.5)	33.7 (0.3)	36.7 (0.9)	37.3 (0.5)	38.0 (0.2)	38.3 -	39.2 -	
(Present)	W=	0.5 (0.0)	2.6 (0.2)	7.6 (0.5)	9.9 (0.1)	12.8 (1.4)	13.0 (0.9)	13.5 (0.8)	14.5 -	12.4 -	
Historical	L=	15.1	23.8	30.5	35.0	37.3	38.3	42.6	43.9	43.6	43.0
Average	W=	0.7	3.8	7.8	11.3	15.7	15.3	20.7	24.3	21.5	22.8

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Table 5. Population assessment for muskellunge based on samples collected during the spring at Cave Run Lake from 1997-2020 (scoring based on lake-specific assessment).

Year		CPUE age-1	Spring CPUE ≥20.0 in	Spring CPUE ≥30.0 in	Spring CPUE ≥36.0 in	Spring CPUE ≥40.0 in	Total score	Assessment rating
2020	Value	2.1	2.2	1.8	0.8	0.2	6	Poor
	Score	1	1	1	1	2		
2019*								
2018	Value	3.3	3.4	2.0	0.9	0.5	9	Fair
	Score	2	1	1	2	3		
2017	Value	3.8	5.9	4.1	2.2	0.7	17	Excellent
	Score	3	3	3	4	4		
2016	Value	2.4	3.8	2.4	0.9	0.2	9	Fair
	Score	1	2	2	2	2		
2015*								
2014	Value	4.1	6.1	4.8	2.8	1.1	18	Excellent
	Score	3	3	4	4	4		
2013	Value	4.2	3.4	3.2	1.6	0.6	13	Good
	Score	3	1	3	3	3		
2012	Value	3.5	5.9	4.3	1.9	0.6	16	Good
	Score	2	3	4	4	3		
2011	Value	1.9	5.3	3.7	2.2	0.9	14	Good
	Score	1	2	3	4	4		
2010	Value	6.8	7.4	3.9	1.9	0.6	18	Excellent
	Score	4	4	3	4	3		
2009	Value	2.6	3.9	3.3	1.7	0.7	14	Good
	Score	2	2	3	3	4		
2008	Value	2.7	5.5	3.3	1.3	0.3	13	Good
	Score	2	3	3	3	2		
2007	Value	3.6	2.5	1.8	1.2	0.4	9	Fair
	Score	2	1	1	2	3		
2006	Value	2.4	2.9	2.2	1.2	0.4	9	Fair
	Score	1	1	2	2	3		
2005	Value	2.9	5.5	4.0	2.0	0.8	16	Good
	Score	2	3	3	4	4		
2004	Value	1.3	3.2	2.6	1.3	0.4	10	Fair
	Score	1	1	2	3	3		
2003	Value	1.9	3.2	2.3	1.0	0.3	8	Poor
	Score	1	1	2	2	2		
2002*								
2001	Value	2.3	4.4	3.1	1.5	0.6	11	Fair
	Score	1	2	2	3	3		
2000	Value	1.7	2.8	1.8	0.9	0.3	7	Poor
	Score	1	1	1	2	2		
1999	Value	1.6	3.2	2.3	0.7	0.2	7	Poor
	Score	1	1	2	1	2		
1998	Value	3.8	2.8	2.8	1.0	0.3	10	Fair
	Score	3	1	2	2	2		
1997	Value	2.3	1.7	0.8	0.2	0.5	8	Poor
	Score	1	1	1	2	3		

nedmuscr.d20-09; nedMS2cr.d08; nedMK1cr.d07; nedmuscr.d06-95

* = Lake was not sampled due to high water

Table 6. Length frequency and CPUE (fish/nn) for black and white crappie collected in 45 net-nights (3 nights with 15 nets; 8 in upper (24 net nights), 7 in lower (21 net nights)) of sampling at Cave Run Lake from 30 October to 02 November.

		Inch class																Std.
Location	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	CPUE	error
Upper	White crappie	1	558	47	181	157	108	42	22	15	12	5	2	1	1	1152	48.0	10.2
	Black crappie	5	49	5	13	17	12	1	3	1		1				107	4.5	1.0
Lower & Middle	White crappie		10		1	18	16	23	15	1	1					85	4.0	0.9
	Black crappie		3		2	2	5	16	4		1					33	1.6	0.4
Total	White crappie	1	568	47	182	175	124	65	37	16	13	5	2	1	1	1237	27.5	6.3
	Black crappie	5	52	5	15	19	17	17	7	1	1	1				140	3.1	0.6

nedctncr.d20

Table 7. PSD and RSD_{10} values obtained for black and white crappie in Cave Run Lake; 95% confidence intervals are in parentheses.

Species	No. ≥ 5.0 in	PSD (± 95%)		RSD_{10} (± 95%)	
White crappie	621	23	(± 3)	6	(± 2)
Black crappie	27	35	(± 11)	4	(± 4)

nedctncr.d20

Table 8. Number of fish and mean relative weight (W_r) values for length groups of black and white crappie collected in Cave Run Lake by trap netting.

		Length group											
		5.0 - 7.9 in			8.0 - 9.9 in			≥ 10.0 in			Total		
Lake Section	Species	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.
Upper	White crappie	446	79	1	64	78	1	35	87	1	545	79	<1
	Black crappie	42	87	1	4	87	5	2	77	4	48	87	1
Middle/ Lower	White crappie	35	85	1	38	83	3	2	86	1	75	84	2
	Black crappie	9	91	3	20	87	1	1	92	-	30	88	1
Total	White crappie	481	79	1	102	80	1	37	87	1	620	80	<1
	Black crappie	51	888	1	24	87	1	3	82	6	78	87	1

nedctncr.d20

Table 9. Mean back calculated lengths (in) at each annulus for white crappie collected from Cave Run Lake in November 2020, includes 95% confidence interval (CI) for mean length for each age class.

		Age						
Year	No.	1	2	3	4	5	6	7
2019	29	3.8						
2018	34	4.0	6.4					
2017	20	3.7	6.0	7.5				
2016	22	4.1	6.1	7.6	8.8			
2015	8	4.0	6.0	7.1	8.2	9.3		
2014	11	3.9	5.9	7.2	8.1	9.0	10.0	
2013	3	4.2	6.5	7.9	9.1	10.1	11.1	12.1
Mean		3.9	6.1	7.4	8.5	9.3	10.2	12.1
Number		127	98	64	44	22	14	3
Smallest		2.7	4.2	5.4	6.3	6.7	7.0	11.6
Largest		5.0	8.3	9.9	10.8	10.9	12.0	12.8
Std. error		0.0	0.1	0.1	0.2	0.2	0.4	0.4
95% CI (±)		0.2	0.3	0.5	0.9	0.9	1.6	1.4

nedaagcr.d20

Table 10. Age frequency and CPUE (fish/nn) of white crappie sampled at Cave Run Lake in 2020.

	Inch class													
Age	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std. error
1	47	154	88	21							309	46	6.9	1.5
2		28	51	62	25	17					184	28	4.1	0.7
3			29	14	23	5	5				76	11	1.7	0.3
4			7	21	8	7	7	8			58	9	1.3	0.2
5					3	5	3	1	1		13	2	0.3	0.1
6				7	6	2	1	4	2	1	23	3	0.5	0.1
7									2	1	3	0	0.1	<0.1
Total	47	182	175	124	65	37	16	13	5	2	666	100		
%	7	27	26	19	10	6	2	2	1	0	100			

nedctncr.d20, nedaagcr.d20

Table 11. Mean back calculated lengths (in) at each annulus for black crappie collected from Cave Run Lake in November 2020, includes 95% confidence interval (CI) for mean length for each age class.

		Age							
Year	No.	1	2	3	4	5	6	7	8
2019	16	4.0							
2018	27	4.0	6.0						
2017	11	3.6	6.0	7.4					
2016	3	3.2	4.8	5.6	6.4				
2015	3	3.0	4.9	6.0	6.7	7.2			
2014	2	3.3	5.9	7.1	7.8	8.3	8.7		
2013	1	3.0	4.8	5.6	6.1	6.4	7.0	7.2	
2012	1	3.7	5.6	7.0	8.4	8.9	9.4	9.7	10.0
Mean		3.8	5.8	6.8	6.9	7.6	8.4	8.5	10.0
Number		64	48	21	10	7	4	2	1
Smallest		2.6	4.3	5.4	6.1	6.4	7.0	7.2	
Largest		5.5	8.6	10.5	8.4	8.9	9.4	9.7	
Std. error		0.1	0.1	0.3	0.3	0.4	0.6	1.3	
95% CI (±)		0.4	0.6	1.2	1.1	1.4	2.2	4.9	

nedaagcr.d20

Table 12. Age frequency and CPUE (fish/nn) of black crappie sampled at Cave Run Lake in 2020.

	Inch class												Std.
Age	4	5	6	7	8	9	10	11	12	Total	%	CPUE	error
1	5	8		4	3					20	24	0.4	0.1
2		8	9	4	11	5				36	44	0.8	0.1
3			7	3	2	1		1	1	15	18	0.3	0.1
4			3	1						5	5	0.1	<0.1
5				3						3	4	0.1	<0.1
6					2	1				3	3	0.1	<0.1
7					1					1	1	<0.1	<0.1
8							1			1	1	<0.1	<0.1
Total	5	16	19	15	19	7	1	1	1	84	100		
%	6	18	23	20	20	8	1	1	1	100			

nedctncr.d20, nedaagcr.d20

Table 13. Population assessment of white crappie based on samples collected at Cave Run Lake in 2020 compared to previous years (scoring based on statewide assessment). Location of the sample (U = Upper Lake, M = Middle Lake, L = Lower Lake) is also included.

Year	Location		Overall CPUE excluding age-0	Mean length age-2	Fall CPUE ≥8.0 in	CPUE age-1	CPUE age-0	Total score	Assessment rating
2020	All Sections	Value	14.8	6.6	3.1	6.9	12.6	14	Good
		Score	4	1	2	3	4		
2019	M/L Only	Value	1.4		1.2	0.1	0.3	5	Poor
		Score	1	1	1	1	1		
2018	U Only	Value	10.8		2.2	2.8	1.5	10	Fair
		Score	2	1	2	2	2		
2017		Value							
		Score							
2016	U Only	Value	2.7	7.4	1.1	0.4	0.1	6	Poor
		Score	2	1	1	1	1		
2015	U Only	Value	3.8	7.5	1.2	1.1	0.9	8	Poor
		Score	2	1	1	2	2		
2014		Value							
		Score							
2013	U Only	Value	4.6		2.0	1.4	1.5	9	Fair
		Score	2	1	2	2	2		
2012	All Sections	Value	5.8	7.9	0.7	2.2	2.8	9	Fair
		Score	2	1	1	2	3		
2011	U Only	Value	21.4		3.4	11.6	17.3	16	Good
		Score	4	1	3	4	4		
2010	U Only	Value	3.6		1.4	0.9	2.5	8	Poor
		Score	2	1	1	1	3		
2009	U Only	Value	106.4		3.3	59.2	56.0	16	Good
		Score	4	1	3	4	4		
2008	U Only	Value	2.0		0.6	0.6	1.3	6	Poor
		Score	1	1	1	1	2		
2007	U Only	Value	2.8	7.7	0.6	0.7	0.6	7	Poor
		Score	2	1	1	1	2		
2006	U Only	Value	6.9		0.7	5.1	3.8	11	Fair
		Score	3	1	1	3	3		
2005	U Only	Value	2.2		0.9	0.7	1.7	7	Poor
		Score	1	1	1	1	3		
2004	U Only	Value	9.3	7.9	3.0	4.2	6.4	13	Good
		Score	3	1	2	3	4		
2003	U Only	Value	1.6	7.8	0.7	0.2	0.1	5	Poor
		Score	1	1	1	1	1		
2002	U Only	Value	4.4	7.3	0.8	1.1	0.6	8	Poor
		Score	2	1	1	2	2		
2001	U Only	Value	1.7	6.9	0.4	0.6	0.1	5	Poor
		Score	1	1	1	1	1		
2000	U Only	Value	1.6	7.5	0.4	0.4	0.3	5	Poor
		Score	1	1	1	1	1		

nedctncr.d92-19; nedaagcr.d92-99, d01-04, 07, 12

Table 14. Indices of year class strength at age 0 and age 1 and mean lengths (in) of largemouth bass collected in September while nocturnal electrofishing at Grayson Lake.

		Age 0		Age 0		Age 0 ≥5.0 in		Age 1	
Year class	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	4.6	<0.1	121.6	29.2	37.8	12.8		
2019	Total	4.8	<0.1	167.7	36.5	67.7	14.3	*	*
2018	Total	4.9	<0.1	164.2	39.3	74.2	19.8	142.8	47.3
2017	Total	5.2	<0.1	91.1	20.1	63.1	15.3	126.9	28.0
2016	Total	4.7	<0.1	116.4	24.1	38.9	9.7	85.1	12.7
2015	Total	4.8	<0.1	126.0	16.7	48.7	8.6	169.3	15.1
2014	Total	4.6	<0.1	101.8	15.7	31.8	8.3	53.8	14.3
2013	Total	4.3	<0.1	81.3	11.2	15.3	3.3	46.9	9.5
2012	Total	4.5	<0.1	139.1	23.0	41.8	6.1	65.7	9.1
2011	Total	4.0	<0.1	83.6	15.0	11.1	2.6	48.5	12.0
2010	Total	4.8	<0.1	98.2	17.3	42.0	6.9	*	*
2009	Total	4.1	0.1	33.1	5.7	4.2	1.4	*	*
2008	Total	4.1	<0.1	66.0	16.4	8.7	2.8	19.9	3.8
2007	Total	4.3	0.1	44.9	9.2	12.9	2.8	29.8	10.0
2006	Total	4.1	<0.1	87.1	17.9	12.0	2.6	45.9	8.0
2005	Total	4.0	<0.1	72.3	17.0	11.7	2.2	17.3	2.8
2004	Total	4.3	0.1	40.4	5.7	11.3	2.1	46.8	7.8
2003	Total	4.3	<0.1	59.1	6.8	10.4	1.7	158.9	21.7

* No sample collected due to high water

nedbsigl.d20-d18, d16-d13 nedwrsgl.d17,d12 - d03; nedpsdgl.d19-d12, d09 - d04

nedaaggl.d03, d08, d17

Table 15. Length frequency and CPUE (fish/hr) of black and white crappie collected in 1.5 hours of diurnal electrofishing (6- 15-minute runs) on Grayson Lake on 22 October.

	Inch class												
Species	4	5	6	7	8	9	10	11	12	13	Total	CPUE	Std. error
White crappie	1	21	17	92	24	4	2	2	2	1	166	110.7	24.0
Black crappie		2	9	4	4	2					21	14.0	5.7

nedcwrgl.d20

Table 16. PSD and RSD_{10} values for crappie collected while electrofishing on Grayson Lake; 95% confidence limits are in parentheses.

Species	No. ≥5.0 in	PSD (± 95%)		RSD_{10} (± 95%)	
White crappie	165	21	(± 13)	4	(± 6)
Black crappie	21	29	(± 40)		

nedcwrgl.d20

Table 17. Number of fish and relative weight (Wr) for each length group of crappie collected at Grayson Lake in 2020. se = standard error.

	Length group											
	5.0-7.9 in			8.0-11.9 in			≥10.0 in			Total		
Year	No.	W_r	se	No.	W_r	se	No.	W_r	se	No.	W_r	se
White crappie	130	86	3	28	76	1	7	83	2	165	84	2
Black crappie	15	87	2	6	78	3				21	84	2

nedcwrgl.d20

Table 18. Mean back calculated lengths (in) at each annulus for white crappie collected from Grayson Lake in October 2020, includes 95% confidence interval (CI) for mean length for each age class.

		Age							
Year	No.	1	2	3	4	5	6	7	8
2019	15	3.8							
2018	7	3.6	5.6						
2017	3	3.5	5.5	6.5					
2016	11	3.6	5.4	6.6	7.4				
2015	6	3.6	5.5	6.9	7.9	8.8			
2014	6	3.6	5.3	6.8	7.7	8.6	9.4		
2013	3	3.5	5.4	6.7	7.3	8.1	8.6	9.2	
2012	1	4.3	5.9	7.5	8.1	8.7	9.4	10.2	10.8
Mean		3.6	5.4	6.7	7.6	8.6	9.1	9.5	10.8
Number		52	37	30	27	16	10	4	1
Smallest		2.8	4.3	5.6	6.1	6.5	6.9	7.2	
Largest		4.4	6.7	8.2	9.4	10.6	11.2	12.2	
Std. error		0.1	0.1	0.1	0.2	0.3	0.5	1.1	
95% CI (±)		0.2	0.3	0.6	0.7	1.2	1.9	4.3	

nedaaggl.d20

Table 19. Age frequency and CPUE (fish/nn) of white crappie sampled at Grayson Lake in 2020.

Age	Inch class												
	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std. error
1	21	5								26	16	17.4	6.1
2		10	9							19	12	12.9	4.7
3		2	18							20	12	13.4	2.5
4			46	13	1					60	36	40.1	8.0
5			9	3	2		1			15	9	10.2	1.8
6				5	1	2		2		10	6	6.8	2.6
7			9	3					1	13	8	8.6	1.8
8							1			1	1	0.7	0.4
Total	21	17	91	24	4	2	2	2	1	164	100		
%	13	10	56	15	2	1	1	1	1	100			

nedcwrgl.d20, nedaaggl.d20

Table 20. Population assessment for white crappie based on samples collected during the fall at Grayson Lake from 2005-2020 (scoring based on lake-specific assessment).

Year		CPUE age-1 and older	Mean length age-2	CPUE age-0	CPUE age-1	CPUE ≥8.0 in	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2020	Value	110.1	5.6	0.7	17.4	0.1	9	Fair	-0.785	54.4%
	Score	3	1	2	2	1				
2019	Value									
	Score									
2018	Value	137.5		1.0	64.5	16.0	16	Good		
	Score	3	4	3	4	2				
2017	Value									
	Score									
2016	Value	141.3	7.5	0.0	14.1	22.7	12	Good	-0.753	52.9%
	Score	3	4	0	2	3				
2015	Value									
	Score									
2014	Value	54.0	5.2	0.0	0.7	8.7	5	Poor	-0.752	52.8%
	Score	2	1	0	1	1				
2013	Value									
	Score									
2012	Value	125.2		2.0	11.5	27.3	14	Good		
	Score	3	1	4	2	4				
2011	Value									
	Score									
2010	Value	124.0	6.6	0.7	13.5	24.7	14	Good	-0.425	34.6%
	Score	3	4	2	2	3				
2009	Value	69.3	6.4	0.5	16.8	10.3	10	Fair	-0.384	56.6%
	Score	2	3	1	2	2				
2008	Value	104.6	6.4	1.7	27.6	16.0	15	Good	-0.754	53.0%
	Score	3	3	4	3	2				
2007	Value	21.6	5.6	0.3	1.3	6.0	5	Poor	-0.900	59.3%
	Score	1	1	1	1	1				
2006	Value	228.8	5.6	39.6	83.3	42.4	17	Excellent	-1.185	69.4%
	Score	4	1	4	4	4				
2005	Value	41.3	5.1	1.3	9.9	16.7	8	Poor	-0.233	20.8%
	Score	1	1	3	1	2				

nedcwrgl.d20, d18, d16, d14, d12, d10 - d05; nedaaggl.d05, d06, d08, d10, d16

Table 21. Length frequency and CPUE (fish/nn) for hybrid striped bass collected at Grayson Lake while gill netting (11 net-nights) 26-29 October.

	Inch class																		Std.
Species	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total	CPUE	error
Hybrid striped bass	1			2	20	18	3	1		4	3	3	3	6	4	1	69	6.3	1.2

nedhsbgl.d20

Table 22. Number of fish and relative weight (Wr) for each length group of hybrid striped bass collected at Grayson Lake. se = standard error

	Length group											
	8.0-11.9 in			12.0-14.9 in			≥15.0 in			Total		
Year	No.	Wr	se	No.	Wr	se	No.	Wr	se	No.	Wr	se
2020	3	82	5	41	85	1	25	86	2	69	85	1
2018	17	86	2	31	84	1	65	83	1	113	84	1
2016	21	85	1	26	79	1	27	81	1	74	81	1
2014	23	79	2	10	76	2	43	83	1	76	81	1
2011	4	72	1	26	81	1	43	85	1	71	83	1

nedhybgl.d20, d18, d16, d14, d11

Table 23. Mean back calculated lengths (in) at each annulus for hybrid striped bass collected from Grayson Lake in October 2020, includes 95% confidence interval (CI) for mean length for each age class.

		Age					
Year	No.	1	2	3	4	5	6
2020	0						
2019	44	8.2					
2018	6	10.4	16.0				
2017	5	9.6	14.9	17.6			
2016	7	10.2	15.5	18.1	20.2		
2015	4	10.0	15.0	17.8	20.0	21.6	
2014	2	9.3	14.6	17.5	19.6	20.6	21.7
Mean		8.9	15.3	17.8	20.0	21.4	21.7
Number		68	24	18	13	6	2
Smallest		6.9	13.8	16.0	18.6	20.0	20.8
Largest		11.5	16.6	18.9	20.8	22.8	22.5
Std. error		0.1	0.2	0.2	0.2	0.4	0.9
95% CI (±)		0.5	0.7	0.8	0.8	1.7	3.3

nedaaggl.d20

Table 24. Age frequency and CPUE (fish/nn) of hybrid striped bass sampled using gill nets for 11 net-nights at Grayson Lake in October 2020.

	Inch class																			
Age	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total	%	CPUE	Std. error
0	1																1	1	<0.1	<0.1
1					20	18	3	1									42	62	3.8	1.0
2										3	3	1					7	10	0.6	0.2
3										1		2	2				5	7	0.4	0.2
4													2	4	1		7	10	0.6	0.3
5														1	3	1	5	7	0.4	0.2
6														1		1	2	3	0.1	0.1
Total	1	0	0	0	20	18	3	1	0	4	3	3	4	6	4	2	69	100		
%	1	0	0	0	29	27	4	1	0	6	4	4	6	9	6	3	100			

nedhsbgl.d20, nedaaggl.d20

Table 25. Population assessment for hybrid striped bass based on samples collected during the fall at Grayson Lake (scoring based on lake-specific assessment for 125-foot nets).

Year		CPUE age-1 and older	Mean length age-2 at capture	CPUE age-1	CPUE ≥15.0 in	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2020	Value	6.0	16.0	2.3	3.8	10	Good	-0.454	36.5%
	Score	3	1	3	3				
2018	Value	8.7	15.1	2.7	5.9	11	Good	-0.675	49.1%
	Score	4	1	3	3				
2016	Value	2.6	17.5	1.4	1.4	9	Good	-0.415	34.0%
	Score	2	3	2	2				
2014	Value	3.2	14.4	2.5	0.7	7	Fair	-0.352	29.7%
	Score	2	1	3	1				
2011	Value	3.6	16.5	1.5	2.2	8	Fair		
	Score	2	2	2	2				

nedhybgl.d20

Table 26. Length frequency and CPUE (fish/hr) of black bass collected in 1.5 hours (6 - 15-minute runs) of nocturnal electrofishing largemouth bass in Greenbo Lake on 24 September.

Species	Inch class																		Total	CPUE	Std. error
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
Largemouth bass	10	37	11	3	10	10	14	23	26	17	17	10	8	11	4	1	1	1	214	142.7	33.3

nedwrsgb.d20

Table 27. Number of fish and relative weight (W_r) for each length group of largemouth bass collected at Greenbo Lake in 2020; s.e. = standard error.

	Length groups											
	8.0 - 11.9 in			12.0 - 14.9 in			≥ 15.0 in			Total		
Year	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.
2020	80	85	1	35	86	1	18	87	3	133	85	1
2016	47	86	1	35	83	1	7	83	3	89	84	1
2010	83	87	2	36	85	1	7	93	5	126	87	1
2009	52	82	1	23	85	1	10	87	1	85	84	1
2008	34	85	1	23	84	2	8	86	2	65	85	1
2007	30	88	2	29	88	1	5	96	5	64	89	1

nedwrsgb.d10 - d07, d16, d20

Table 28. Indices of year class strength at age 0 and age 1 and mean lengths (in) of largemouth bass collected in September while nocturnal electrofishing at Greenbo Lake.

		Age 0		Age 0		Age 0 ≥5.0 in		Age 1	
Year class	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	3.5	0.1	40.0	15.4	1.3	0.8		
2019		**						*	
2018		**						25.3	4.1
2017		**						26.7	5.0
2016		**						6.0	2.9
2015	Total	3.4	0.2	63.3	6.7	9.3	2.5	4.0	2.7
2014	Total	4.2	0.2	51.3	10.8	15.3	4.1	38.7	4.8
2013	Total	3.3	0.1	99.3	9.8	3.3	1.6	21.3	6.3
2012	Total	3.5	<0.1	219.3	35.0	13.3	5.9	3.8	1.4
2011	Total	3.5	0.2	44.0	11.9	6.0	1.7	2.0	0.9
2010	Total	3.9	0.1	40.7	9.2	8.7	2.6	9.5	2.8
2009	Total	5.1	0.2	48.0	6.0	26.0	4.8	5.3	0.4
2008	Total	3.5	0.1	82.0	7.6	2.0	1.4	3.2	1.3
2007	Total	3.9	0.1	44.7	11.3	3.3	1.2	1.0	0.9
2006	Total	3.6	0.1	45.3	9.2	2.7	1.7	2.1	1.0
2005	Total	3.8	0.1	32.0	7.0	4.0	1.0	35.6	5.5

* = No sample collected due to personnel restrictions (COVID-19)
** = No sample collected due to hydrilla restrictions
nedbsigb.d13-d15, nedwrsgb.d05- d12, d20; nedpsdgb.d05-d15,
nedaaggl.d05 - d10, d12

Table 29. Length frequency and CPUE (fish/hr) of black bass collected in 1.50 hours (6- 15-minute runs) of diurnal electrofishing for largemouth bass in Lake Carnico on 28 April.

	Inch class																				
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE	Std. error
Largemouth bass	3	2	11	6	1	6	3	9	5	5	4	5	8	17	16	7	5	1	114	76.0	8.8

nedpsdlc.d20

Table 30. Spring electrofishing CPUE (fish/hr) for various length groups of largemouth bass collected at Lake Carnico from 2005 to 2020.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.
2020	19.3	7.5	14.7	4.7	11.3	2.4	30.7	5.2	-		76.0	8.8
2019	23.3	6.2	7.3	3.5	21.3	5.0	44.0	5.6	0.0	0.0	96.0	6.0
2018[a]	-		-		-		-		-		-	
2017	10.0	0.9	18.0	3.7	38.7	6.1	54.7	5.5	0.7	0.7	121.3	13.8
2016[a]	-		-		-		-		-		-	
2015	7.3	1.6	21.3	2.2	22.0	3.5	22.0	4.2	2.7	1.3	72.7	8.2
2014[a]	-		-		-		-		-		-	
2013	40.0	6.2	77.3	8.6	34.7	4.7	22.0	4.7	2.0	1.4	174.0	13.4
2012	52.0	7.9	44.7	10.8	23.3	3.3	14.7	2.5	-		134.7	15.9
2011	22.0	3.7	24.0	5.8	24.0	2.3	9.3	2.0	-		79.3	8.9
2010	20.0	5.9	26.7	4.0	28.0	4.7	12.0	3.4	1.3	0.8	86.7	9.2
2009	38.7	7.0	29.3	5.2	18.7	2.9	8.7	1.6	1.3	0.8	95.3	10.8
2008	2.7	0.8	16.0	4.5	9.3	2.5	8.0	2.1	1.3	0.8	36.0	7.3
2007	40.0	8.1	108.7	9.0	31.3	3.9	14.7	2.5	1.3	1.3	194.7	10.3
2006	28.7	5.1	41.3	8.6	18.0	3.7	9.3	2.9	0.7	0.7	97.3	18.1
2005	24.0	5.6	64.7	8.5	24.7	3.3	14.0	1.7	0.7	0.7	127.3	12.6

nedpsdlc.d20 - d05

[a] = sample not collected

Table 31. Largemouth bass PSD and RSD_{15} values from spring electrofishing at Lake Carnico.

	No.	PSD		RSD_{15}	
	≥ 8.0 in	Value	± 95% CI	Value	± 95% CI
2020	85	74	± 9	54	± 11
2019	109	90	± 6	61	± 9
2018[a]					
2017	167	84	± 6	49	± 8
2016[a]					
2015	24	67	± 9	34	± 9
2014[a]					
2013	201	42	± 7	16	± 5
2012	124	46	± 9	18	± 7
2011	86	58	± 10	16	± 8
2010	100	60	± 19	18	± 15
2009	85	48	± 11	15	± 8
2008	50	52	± 14	24	± 12
2007	232	30	± 6	10	± 4
2006	103	40	± 10	14	± 7
2005	155	37	± 8	14	± 6

nedpsdlc.d20-d05

[a] = sample not collected

Table 32. Population assessment of largemouth bass based on samples collected at Lake Carnico from 2005 - 2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	Spring CPUE age-1	Spring CPUE 12.0-14.9 in	Spring CPUE ≥ 15.0 in	Spring CPUE ≥ 20.0 in	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2020	Value		4.5	11.3	30.7	0.0	11	Fair	-	-
	Score	4	1	1	4	1				
2019	Value		21.3	21.3	44.0	0.0	13	Good	-	-
	Score	4	2	2	4	1				
2018[a]	Value	-	-	-	-	-	-	-	-	-
	Score									
2017	Value	11.5	4.0	38.7	54.7	0.7	13	Good	-1.014	63.70%
	Score	4	1	3	4	1				
2016[a]	Value	-	-	-	-	-	-	-	-	-
	Score									
2015	Value		4.0	22.0	22.0	2.7	12	Fair	-	-
	Score	3	1	2	3	3				
2014[a]	Value	-	-	-	-	-	-	-	-	-
	Score									
2013	Value		20.0	34.7	22.0	2.0	13	Good	-	-
	Score	3	2	2	3	3				
2012	Value		16.0	23.3	14.7	0.0	9	Fair	-0.504	39.60%
	Score	3	2	2	2	0				
2011	Value		9.3	24.0	9.3	0.0	8	Fair	-0.419	34.20%
	Score	3	1	2	2	0				
2010	Value		18.7	28.0	12.0	1.3	11	Fair	-0.552	42.50%
	Score	3	2	2	2	2				
2009	Value		18.0	18.7	8.7	1.3	10	Fair	-0.599	45.10%
	Score	3	2	1	2	2				
2008	Value	11.0	2.7	9.3	8.0	1.3	9	Fair	-0.673	49.00%
	Score	3	1	1	2	2				
2007	Value		39.5	31.3	14.7	1.3	12	Fair	-0.679	49.30%
	Score	4	2	2	2	2				
2006	Value		27.5	18.0	9.3	0.7	10	Fair	-0.505	39.60%
	Score	4	2	1	2	1				
2005	Value		23.2	24.7	14.0	0.7	11	Fair	-0.511	40.00%
	Score	4	2	2	2	1				

nedpsdlc.d20 - d04; nedaaglc.d04,d08, d17

[a] = sample not collected

Table 33. Length frequency and CPUE (fish/hr) for sunfish collected in 1.0 hour of electrofishing (4- 15-minute runs) at Lake Carnico (Nicholas Co.) on 26 May.

	Inch class								Std.
	2	3	4	5	6	7	Total	CPUE	error
Bluegill	36	109	78	18	1		242	242.0	47.6
Redear sunfish	3	14	35	6	0	1	59	59.0	15.6

nedsunglc.d20

Table 34. Spring electrofishing CPUE (fish/hr) for various length groups of bluegill collected at Lake Carnico in 2006-2020.

	Inch class												
	<3.0 in		3.0-5.9 in		6.0-7.9 in		≥6.0 in		≥8.0 in		Total		Total
Year	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	(excluding < 3.0 in)
2020	36.0	11.5	205.0	46.2	1.0	1.0	1.0	1.0			242.0	47.6	206.0
2017	40.0	14.0	108.0	10.7	5.0	1.0	5.0	1.0			153.0	20.9	113.0
2012			74.0	11.9	8.0	2.1	8.0	2.1			82.0	12.6	82.0
2011	338.0	49.5	177.0	37.9	4.0	4.0	4.0	4.0			519.0	35.6	181.0
2010	446.0	71.4	520.0	65.4	60.0	26.1	57.7	25.1			1026.0	121.9	580.0
2009	214.0	42.6	109.0	23.2	59.0	20.9	59.0	20.9			382.0	79.9	168.0
2008	292.0	42.1	58.0	14.9	7.0	2.8	7.0	2.8			357.0	38.0	65.0
2007	140.8	27.4	54.4	14.0	0.8	0.8	55.2	13.8	0.80	0.80	196.0	38.3	56.0
2006	540.0	73.1	382.4	31.0	47.2	11.2	47.2	11.2			969.6	93.6	429.6

nedsunlc.d20, d17, d12 - d06,

* In 2012 <3.0 in were not collected.

Table 35. Bluegill PSD and RSD_8 values from spring electrofishing at Lake Carnico; 95% confidence limits are in parentheses.

Year	No. ≥3.0 in	PSD	RSD_8
2020	206	0 (± 1)	
2017	113	4 (± 4)	
2012	82	10 (± 6)	
2011	181	2 (± 2)	
2010	580	10 (± 5)	
2009	168	35 (± 7)	
2008	65	11 (± 8)	
2007	245	15 (± 5)	
2006	537	11 (± 3)	

nedsunlc.d20, d17, d12-d06,

Table 36. Mean back-calculated lengths (in) at each annulus for bluegill collected from Lake Carnico, including size range at each age and 95% confidence intervals.

		Age					
Year	No.	1	2	3	4	5	6
2019	1	3.0					
2018	7	2.6	3.5				
2017	3	2.2	3.2	3.9			
2016	9	2.5	3.4	4.0	4.7		
2015	9	2.5	3.5	4.2	4.8	5.3	
2014	1	2.5	3.6	4.6	5.4	5.9	6.4
Mean		2.5	3.4	4.1	4.8	5.4	6.4
Number		30	29	34	63	14	1
Smallest		1.9	2.9	3.6	4.1	5.0	6.4
Largest		3.1	4.1	4.7	5.4	5.9	6.4
Std error		0.1	0.1	0.1	0.1	0.1	
95% CI (±)		0.2	0.2	0.3	0.3	0.3	

Otoliths were used for age determination; Intercept = 0
nedaaglc.d20

Table 37. Age frequency and CPUE of bluegill sampled in 2020.

	Inch class							
Age	3	4	5	6	Total	%	CPUE	Std. error
1	12				12	6	12.1	2.5
2	73	10			83	40	82.4	17.1
3	24	10			34	16	34.0	7.1
4		59	5		64	31	63.0	15.3
5			14		14	7	13.5	5.0
6				1	1	0	1.0	1.0
Total	109	79	19	1	208	100		
%	53	38	9	0	100			

nedsunlc.d20; nedaaglc.d20

Table 38. Population assessment for bluegill based on samples collected at Lake Carnico from 2007-2020 (scoring based on statewide assessment).

Year		Mean length age-2 at capture	Years to 6.0 in	CPUE ≥6.0 in	CPUE ≥8.0 in	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2020	Value	3.4	6+	1.0	0.0	5	Poor	-0.970	65.10%
	Score	2	1	1	1				
2017	Value	3.5	5+	5.0	0.0	5	Poor	-0.648	47.70%
	Score	2	1	1	1				
2012	Value			8.0	0.0				
	Score			1	1				
2011	Value	4.1	3+	4.0	0.0	7	Fair	-1.221	70.50%
	Score	2	3	1	1				
2010	Value	4.1	3+	60.0	0.0	9	Fair	-1.088	66.30%
	Score	2	3	3	1				
2009	Value	5.3	3+	59.0	0.0	11	Good	-0.506	39.70%
	Score	4	3	3	1				
2008	Value	5.3	3+	7.0	0.0	9	Fair	-0.759	53.20%
	Score	4	3	1	1				
2007	Value	5.3	4+	0.8	0.0	8	Fair	-0.561	42.90%
	Score	4	2	1	1				

nedsunlc.d07-20; nedaaglc.d10, d17,d20

Table 39. Spring electrofishing CPUE (fish/hr) for various length groups of redear collected at Lake Carnico in 2006-2020.

	Inch class														
	< 3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 6.0 in		≥ 8.0 in		≥ 10.0 in		Total		Total
Year	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	CPUE	s.e.	(excluding < 3.0 in)
2020	3.0	1.9	55.0	14.5	1.0	1.0	1.0	1.0					59.0	15.6	56.0
2017	28.0	4.0	5.0	1.9			5.0	1.9					33.0	5.3	5.0
2012	*	*	5.0	2.1	7.0	5.1	7.0	5.1					12.0	6.4	12.0
2011	3.0	2.1	12.0	7.4	2.0	2.0	2.0	2.0					17.0	10.4	14.0
2010	3.0	1.5	8.0	4.0	4.0	2.1	3.9	2.1					15.0	3.8	12.0
2009			2.0	1.3	5.0	2.1	7.0	3.8	2.0	2.0			9.0	4.9	9.0
2008			1.0	1.0	3.0	2.1	5.0	3.0	2.0	1.3			6.0	2.9	6.0
2007			4.0	1.8	1.6	1.1	1.6	1.1					5.6	2.4	5.6
2006	2.4	1.2	4.8	2.7	8.8	3.9	8.8	3.9					22.9	5.9	13.6

nedsunlc.d20, d17, d12 - d06,

* In 2012 <3.0 in were not collected.

Table 40. Redear PSD and RSD_9 values from spring electrofishing at Lake Carnico; 95% confidence limits are in parentheses.

Year	No. ≥ 3.0 in	PSD	RSD_9
2020	42	2 (± 5)	
2017	22	4 (± 9)	
2012	12	-	
2011	9	11 (± 20)	
2010	11	18 (± 24)	
2009	8	75 (± 32)	
2008	6	50 (± 44)	
2007	5	-	
2006	13	62 (± 28)	

nedsunlc.d20, d17,d12-d06

Table 41. Mean back-calculated lengths (in) at each annulus for redear collected from Lake Carnico, including size range at each age and 95% confidence intervals.

		Age					
Year	No.	1	2	3	4	5	6
2019	3	3.1					
2018	8	2.6	3.6				
2017	8	2.5	3.5	4.3			
2016	8	2.4	3.5	4.2	4.8		
2015	0						
2014	1	2.5	4.1	5.6	6.1	6.6	7.1
Mean		2.6	3.5	4.3	4.9	6.6	7.1
Number		28	25	17	9	1	1
Smallest		1.9	2.6	3.3	3.9	6.6	7.1
Largest		3.3	4.2	5.6	6.1	6.6	7.1
Std error		0.1	0.1	0.2	0.2		
95% CI (±)		0.3	0.3	0.7	1.0		

Otoliths were used for age determination; Intercept = 0

nedaaglc.d20

Table 42. Age frequency and CPUE of redear sampled in 2020.

	Inch class								
Age	3	4	5	6	7	Total	%	CPUE	Std. error
1	4					4	7	3.8	0.5
2	8	7				15	26	14.6	2.6
3	3	14	2			19	33	18.6	5.3
4		14	4			18	32	18.0	6.3
5									
6					1	1	2	1.0	1.0
Total	15	35	6		1	57	100		
%	25	63	11		2	100			

nedsunlc.d20; nedaaglc.d20

Table 43. Population assessment for redear based on samples collected at Lake Carnico from 2009-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	Years to 8.0 in	CPUE ≥8.0 in	CPUE ≥10.0 in	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2020	Value	4.3	6-6+	0.0	0.0	4	Poor	-0.716	51.10%
	Score	1	1	1	1				
2017	Value	5	6-6+	0.0	0.0	4	Poor	-0.811	55.60%
	Score	1	1	1	1				
2012	Value			0.0	0.0				
	Score			1	1				
2011	Value	6.1	6-6+	38.0	0.0	9	Fair		
	Score	3	1	4	1				
2010	Value	6.1	6-6+	6.0	0.0	7	Fair		
	Score	3	1	2	1				
2009	Value	6.1	5-5+	1.6	0.0	7	Fair	-1.495	77.60%
	Score	3	2	1	1				

nedsunlc.d09-12, d17, d20; nedaaglc.d06, d10,d17,d20

Table 44. Length frequency and CPUE (fish/hr) of black bass collected in 1.0 hour (4- 15-minute runs) of diurnal electrofishing for largemouth bass in Lake Reba on 12 May.

	Inch class																					Std.
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	error
Largemouth bass	5	74	73	65	34	7	20	64	100	44	5	5	1	1	1				1	500	500.0	37.0

nedpsdlr.d20

Table 45. Spring electrofishing CPUE (fish/hr) for various length groups of largemouth bass collected at Lake Reba from 1995-2020.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.
2020	251.0	34.1	191.0	24.9	54.0	4.2	4.0	1.6	1.0	1.0	500.0	37.0
2019	187.0	55.2	223.0	34.7	34.0	9.3	5.0	3.0	0.0	0.0	449.0	30.6
2018	193.0	45.5	56.0	8.2	29.0	6.8	8.0	8.0	0.0	0.0	286.0	28.3
2017	373.6	51.5	175.2	19.9	94.4	21.2	21.6	2.4	4.8	0.8	664.8	53.0
2016	108.0	15.8	102.0	23.7	41.0	10.0	13.0	1.9	2.0	1.2	264.0	19.5
2015	103.2	26.5	84.0	9.2	96.8	12.9	33.6	5.7	4.0	1.8	317.6	23.0
2014	56.0	11.0	144.0	12.4	95.0	10.8	75.0	18.1	7.0	5.7	370.0	22.7
2013	60.1	7.8	102.4	7.7	63.3	11.0	27.1	8.7	0.0		252.9	26.9
2012	103.3	16.5	90.7	9.0	68.0	8.2	16.7	4.2	1.3	0.8	278.7	13.5
2011	66.0	11.4	108.7	16.8	106.0	18.6	25.3	6.1	2.0	1.4	306.0	35.8
2010	67.7	8.1	118.3	19.4	57.7	8.0	6.8	1.7	0.7	0.7	246.0	26.8
2009	47.3	7.6	238.7	12.9	92.7	7.3	26.0	3.2	0.7	0.7	404.7	23.4
2008	77.3	18.4	208.0	28.4	34.0	6.3	12.7	2.6	0.0		332.0	47.1
2007	134.7	20.9	216.7	45.9	60.7	5.2	18.7	4.1	0.7	0.7	430.7	52.2
2006	189.3	18.9	70.7	13.5	26.0	4.9	6.0	2.3	0.0		292.0	27.1
2005	53.3	9.3	57.3	8.1	45.3	4.3	13.3	2.2	0.7	0.7	169.3	16.4
2004	30.0	8.9	125.3	21.5	51.3	9.2	6.7	2.2	0.0		213.3	26.0
2003	110.0	17.9	126.0	10.9	52.0	6.1	8.0	2.5	0.7	0.7	296.0	27.3
2002	138.0	33.6	140.0	31.3	31.0	6.6	5.0	1.0	0.0		314.0	67.0
2001	196.0	25.0	32.0	15.1	9.3	5.3	4.0	2.3	0.0		241.3	32.4
2000	104.1	17.3	35.1	6.6	4.6	0.6	8.0	3.3	0.0		151.7	11.3
1999	122.7	29.4	10.0	3.5	8.0	2.1	18.0	4.7	0.7	0.7	158.7	27.3
1998	76.0	23.7	10.0	2.6	23.0	5.5	21.0	3.4	2.0	1.2	130.0	28.5
1997												
1996	104.0	32.2	7.0	3.4	15.0	5.7	14.0	2.6	0.0		140.0	28.8
1995	160.0	52.9	21.0	7.7	74.0	7.4	3.0	1.9	0.0		258.0	61.5

nedpsdlr.d95 - Present

Table 46. Largemouth bass PSD and RSD_{15} values from spring electrofishing at Lake Reba; confidence limits are in parentheses.

Year	No. ≥ 8.0 in	PSD (± 95% CI)		RSD_{15} (± 95% CI)	
2020	249	23	(± 5)	2	(± 2)
2019	262	15	(± 4)	2	(± 2)
2018	93	40	(± 10)	9	(± 6)
2017	364	40	(± 5)	7	(± 3)
2016	156	35	(± 7)	8	(± 4)
2015	268	61	(± 6)	16	(± 4)
2014	314	54	(± 6)	24	(± 5)
2013	243	47	(± 6)	14	(± 4)
2012	263	48	(± 6)	10	(± 4)
2011	360	55	(± 5)	11	(± 3)
2010	270	35	(± 6)	4	(± 2)
2009	536	33	(± 4)	7	(± 2)
2008	382	18	(± 4)	5	(± 2)
2007	444	27	(± 4)	6	(± 2)
2006	154	31	(± 7)	6	(± 4)
2005	174	51	(± 7)	11	(± 5)
2004	275	32	(± 6)	4	(± 2)
2003	279	32	(± 5)	4	(± 2)
2002	176	20	(± 6)	3	(± 2)
2001	33	30	(± 16)	9	(± 10)
2000	43	28	(± 14)	19	(± 12)
1999	98	72	(± 12)	50	(± 13)
1998	26	81	(± 10)	39	(± 13)
1997					
1996	54	96	(± 8)	62	(± 19)
1995	54	79	(± 8)	3	(± 3)

nedpsdlr.d20 - d98, d96 - d95

Table 47. Mean back calculated lengths (in) at each annulus for largemouth bass collected from Lake Reba in September 2020, includes 95% confidence interval (CI) for mean length for each age class.

		Age					
Year	No.	1	2	3	4	5	6
2019	39	6.2					
2018	13	6.4	10.0				
2017	17	6.3	9.6	11.6			
2016	6	5.9	9.1	10.8	12.5		
2015	2	5.9	10.1	12.5	15.5	17.1	
2014	1	6.6	10.5	12.5	13.8	16.4	17.9
Mean		6.2	9.7	11.5	13.3	16.9	17.9
Number		78	39	26	9	3	1
Smallest		4.6	7.4	9.2	11.0	16.4	
Largest		8.6	11.3	13.0	15.6	17.5	
Std. error		0.1	0.1	0.2	0.6	0.3	
95% CI (±)		0.4	0.5	0.7	2.3	1.2	

nedaaglr.d20

Table 48. Population assessment of largemouth bass based on samples collected at Lake Reba from 2004-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	Spring CPUE 12.0-14.9 in	Spring CPUE ≥ 15.0 in	Spring CPUE ≥ 20.0 in	Spring CPUE age-1	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2020	Value	11.6	54.0	4.0	1.0	234.0	15	Good	-1.037	64.60%
	Score	4	4	1	2	4				
2019	Value		34.0	5.0	0.0	162.0	12	Fair		
	Score	3	3	1	1	4				
2018	Value		29.0	8.0	0.0	184.0	13	Good		
	Score	3	3	2	1	4				
2017	Value		94.4	21.6	4.8	321.6	18	Excellent		
	Score	3	4	3	4	4				
2016	Value		41.0	13.0	2.0	101.0	15	Good		
	Score	3	3	2	3	4				
2015	Value	11.0	96.8	33.6	4.0	72.8	19	Excellent	-0.464	37.10%
	Score	3	4	4	4	4				
2014	Value		95.0	75.0	7.0	50.0	18	Excellent		
	Score	3	4	4	4	3				
2013	Value		63.3	27.1	0.0	28.4	15	Good		
	Score	3	4	4	1	3				
2012	Value		68.0	16.7	1.3	76.0	16	Good		
	Score	3	4	3	2	4				
2011	Value		106.0	25.3	2.0	52.7	16	Good		
	Score	3	4	3	3	3				
2010	Value	11.4	57.7	6.8	0.7	47.1	14	Good	-1.019	63.90%
	Score	3	4	2	2	3				
2009	Value		92.7	26.0	0.7	65.3	16	Good	-0.162	15.00%
	Score	3	4	3	2	4				
2008	Value		34.0	12.7	0.0	113.0	13	Good	-1.030	64.30%
	Score	3	3	2	1	4				
2007	Value		60.7	18.7	0.7	183.7	16	Good	-1.040	65.00%
	Score	3	4	3	2	4				
2006	Value	11.2	26.0	6.0	0.0	192.0	13	Good	-0.790	55.00%
	Score	3	3	2	1	4				
2005	Value		45.3	13.3	0.7	41.2	13	Good	-0.250	22.00%
	Score	1	4	3	2	3				
2004	Value		51.3	6.7	0.0	23.2	11	Fair	-0.290	25.00%
	Score	1	4	2	1	3				

nedpsdlr.d20

Table 49. Length frequency and CPUE (fish/hr) of black bass collected in 1.0 hour (4- 15-minute runs) of diurnal electrofishing for largemouth bass in Lake Reba on 21 September.

	Inch class																		
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	CPUE	Std. error
Largemouth bass	24	64	32	2	37	118	39	27	39	35	15	7	1		2	2	444	444.0	53.4

nedwrslr.d20

Table 50. Number of fish and relative weights (W_r) for each length group of largemouth bass captured at Lake Reba.

	Length group								
	8.0-11.9 in			12.0-14.9 in			≥15.0 in		
Year	No.	W_r	se	No.	W_r	se	No.	W_r	se
2020	220	89	1	57	88	1	5	99	2
2019[a]									
2018[a]									
2017[a]									
2016									
2015	216	91	1	62	89	1	7	91	4
2014[a]									
2013[a]									
2012[a]									
2011	114	93	1	80	89	1	16	94	2
2010	191	90	3	116	86	1	12	86	7
2009	91	86	1	31	84	1	2	88	11
2008	219	84	1	32	86	1	1	81	
2007	142	91	5	17	83	2	8	93	3
2006	243	91	1	75	93	1	18	101	2
2005	134	90	1	27	90	3	9	92	3
2004	186	87	1	73	90	1	10	95	2
2003	65	85	1	28	87	2	2	83	3
2002	67	92	2	12	87	3	1	93	
2001	92	94	1	53	92	1	12	99	2
2000	60	97	1	13	95	3	9	98	3
1999	56	90	1	6	92	3	3	96	4
1998	9	93	3	3	94	5	3	103	5
1997	25	94	2	6	98	1	9	101	2
1996[a]									
1995	12	99	3	27	99	3	10	107	3
1994	37	92	2	56	95	1	3	104	6

nedwrslr.d20

[a] = Sample not collected

Table 51. Indices of year class strength at age 0 and age 1 and mean lengths (in) of largemouth bass collected while diurnal electrofishing at Lake Reba

		Age 0		Age 0		Age 0 ≥5.0 in		Age 1	
Year class	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Total	4.6	0.1	122.0	24.5	34.0	11.1		
2019	Total	4.8	0.1	373.0	28.7	153.0	22.0	234.0	41.3
2018	Total	4.8	<0.1	318.0	43.0	126.0	27.4	162.0	46.7
2017	Total	4.8	0.1	501.3	123.3	196.0	34.2	184.0	42.33
2016	Total	5.1	0.1	490.0	43.9	279.0	8.1	321.6	48.5
2015	Total	4.5	0.6	116.0	34.5	35.2	10.2	101.0	15.2
2014	Total	4.1	0.1	375.0	29.6	74.0	16.5	100.0	27.3
2013	Total	3.9	0.1	80.0	16.4	12.0	4.4	50.0	8.9
2012	Total	4.5	0.1	129.1	16.8	37.2	6.0	54.6	9.4
2011	Total	4.4	<0.1	334.9	44.8	84.4	19.5	76.0	14.9
2010	Total	3.9	0.1	58.7	18.9	10.7	4.8	57.3	10.5
2009	Total	4.0	0.1	58.7	15.6	11.3	8.1	47.1	7.0
2008	Total	4.2	0.1	58.7	15.6	11.3	8.1	65.3	7.1
2007	Total	4.3	0.1	44.0	11.2	5.3	2.2	113.0	27.2
2006	Total	4.3	<0.1	175.3	35.9	30.0	8.7	183.7	22.1
2005	Total	5.2	0.1	225.0	48.6	133.0	30.2	192.0	19.5
2004	Total	4.2	0.1	76.7	9.6	15.3	1.9	61.0	10.4
2003	Total	3.7	0.2	23.3	4.8	0.7	0.7	47.3	14.0

nedwrslr.d20, nedpsdlr.d20

Table 52. Length frequency and CPUE (fish/hr) for largemouth bass collected in 0.75 hours of diurnal electrofishing (3- 15-minute runs) at Smoky Valley Lake (Carter Co.) on 11 May 2020.

	Inch class																
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	CPUE	Std. error
Largemouth bass	1	6	10	20	13	5	19	22	16	17	16	3	3	1	152	202.7	21.5

nedpsdsv.d20

Table 53. Spring electrofishing CPUE (fish/hr) for various length groups of largemouth bass collected at Smoky Valley Lake from 1990-2020.

	Length group											
	< 8.0 in		8.0-11.9 in		12.0-14.9 in		≥ 15.0 in		≥ 20.0 in		Total	
Year	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.
2020	73.3	9.3	98.7	24.9	29.3	2.7	1.3	1.3			202.7	21.5
2019	134.7	43.7	106.7	32.7	37.3	16.2	5.3	5.3	1.3	1.3	284.0	66.1
2018	127.7	30.1	178.7	28.2	36.0	9.2	4.0	2.3			341.3	59.3
2017[a]												
2016	110.6	29.5	125.2	21.1	18.1	4.9	2.0	1.2			256.0	52.8
2015	46.1	14.3	86.4	13.2	13.4	2.2	2.0	1.2			147.9	26.5
2014	71.1	16.6	177.4	28.8	24.4	5.5	1.0	1.0			273.9	42.6
2013	100.9	8.5	109.8	11.5	8.9	1.9	2.0	1.2			221.6	6.5
2012	112.1	21.8	98.9	22.3	12.8	2.0	1.0	1.0			224.7	41.4
2011	150.0	34.0	69.0	8.7	10.0	6.2					229.5	31.8
2010	47.7	9.3	65.9	7.8	3.3	1.1	1.0	1.0			117.9	15.3
2009	97.0	6.6	145.0	23.7	14.0	2.6	1.0	1.0			383.0	153.4
2008	155.0	23.3	199.0	34.4	46.0	7.8					607.0	260.2
2007	119.0	21.8	229.0	32.5	37.0	6.4	2.0	1.2			573.0	223.4
2006	112.0	12.8	256.0	33.8	62.0	8.7	4.0	1.6			633.5	234.4
2005	54.4	10.2	190.4	22.7	63.2	9.1	0.8	0.8			397.6	90.9
2004[a]												
2003[a]												
2002[a]												
2001	117.3	11.6	180.0	14.1	46.7	12.7	2.7	2.7			346.7	11.6
2000	68.0	13.0	218.0	22.1	69.0	13.7	1.0	1.0			356.0	46.8
1999[a]												
1998	135.0	32.2	132.0	25.5	75.0	15.1	3.0	1.0			546.0	264.9
1997	46.0	8.9	63.0	6.0	39.0	4.1	3.0	1.9			151.0	3.8
1996	30.0	5.8	77.0	11.5	50.0	7.8	3.0	1.9			160.0	14.3
1995	41.0	14.4	104.0	21.9	84.0	17.7	2.0	2.0			231.0	43.7
1994	72.0	5.9	104.0	14.5	94.0	10.5	7.0	1.9	1.0	1.0	277.0	13.2
1993	34.7	18.3	58.7	28.6	24.7	13.9	4.0	4.0			122.0	63.1
1992	43.4	8.9	96.1	10.9	94.0	6.8.	7.3	3.5	1.8	1.0	261.0	36.8
1991	18.0	2.6	129.0	17.1	18.0	2.0	6.0	1.2	1.0	1.0	171.0	16.9
1990	58.7	9.7	109.2	21.8	34.1	1.2	18.6	5.8	2.4	1.2	352.0	158.0

nedpsdsv.d20

[a] = Sample not collected

Table 54. Largemouth bass PSD and RSD_{15} values from spring electrofishing at Smoky Valley Lake; confidence limits are in parentheses.

Year	No. ≥ 8.0 in	PSD (± 95% CI)		RSD_{15} (± 95% CI)	
2020	97	24	(± 9)	1	(± 2)
2019	112	29	(± 8)	4	(± 3)
2018	164	18	(± 6)	2	(± 2)
2017[a]					
2016	137	14	(± 6)	1	(± 2)
2015	91	15	(± 7)	2	(± 3)
2014	156	12	(± 5)	1	(± 1)
2013	105	10	(± 6)	2	(± 3)
2012	101	13	(± 7)	1	(± 2)
2011	70	14	(± 8)		
2010	67	6	(± 6)	1	(± 3)
2009	160	9	(± 5)	1	(± 1)
2008	245	19	(± 5)		
2007	268	15	(± 4)	1	(± 1)
2006	322	20	(± 4)	1	(± 1)
2005	318	25	(± 5)	0	(± 1)
2004[a]					
2003[a]					
2002[a]					
2001	172	22	(± 6)	1	(± 2)
2000	288	24	(± 5)	0	(± 1)
1999[a]					
1998	210	37	(± 7)	1	(± 2)
1997	105	40	(± 9)	3	(± 3)
1996	130	41	(± 8)	2	(± 3)
1995	190	45	(± 7)	1	(± 1)
1994	205	49	(± 7)	3	(± 2)
1993	131	33	(± 8)	5	(± 4)
1992	213	51	(± 7)	4	(± 3)
1991	153	16	(± 6)	4	(± 3)
1990	194	30	(± 6)	11	(± 4)

nedpsdsv.d20

[a] = Sample not collected

Table 55. Mean back calculated lengths (in) at each annulus for largemouth bass collected from Smoky Valley Lake in September 2020, includes 95% confidence interval (CI) for mean length for each age class.

		Age						
Year	No.	1	2	3	4	5	6	7
2019	21	5.6						
2018	21	6.0	9.1					
2017	3	5.8	9.5	11.2				
2016	10	5.9	8.7	10.7	11.9			
2015	3	5.1	9.0	10.6	11.8	13.0		
2014	1	4.5	7.8	9.0	10.1	11.0	11.8	
2013	1	6.3	10.4	11.8	12.5	12.9	13.2	13.6
Mean		5.8	9.0	10.7	11.8	12.6	12.5	13.6
Number		60	39	18	15	5	2	1
Smallest		3.9	7.3	9.0	10.1	11.0	11.8	
Largest		7.6	10.4	11.8	12.8	13.3	13.2	
Std. error		0.1	0.1	0.2	0.2	0.4	0.7	
95% CI (±)		0.4	0.5	0.6	0.7	1.7	2.8	

nedaagsv.d20

Table 56. Population assessment of largemouth bass based on samples collected at Smoky Valley lake from 2005-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	Spring CPUE 12.0-14.9 in	Spring CPUE ≥ 15.0 in	Spring CPUE ≥ 20.0 in	Spring CPUE age-1	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2020	Value	11.2	29.3	1.3	0.0	60.4	12	Fair	-1.099	66.70%
	Score	3	3	1	1	4				
2019	Value		37.3	5.3	1.3	129.3	14	Good		
	Score	4	3	1	2	4				
2018	Value	11.9	36.0	4.0	0.0	61.3	13	Good	-0.780	53.70%
	Score	4	3	1	1	4				
2017[a]	Value									
	Score									
2016	Value	11.0	18.1	2.0	0.0	47.3	10	Fair	-0.273	23.90%
	Score	3	2	1	1	3				
2015	Value		13.4	2.0	0.0	36.7	10	Fair		
	Score	3	2	1	1	3				
2014	Value		24.4	1.0	0.0	70.1	11	Fair		
	Score	3	2	1	1	4				
2013	Value		8.9	2.0	0.0	80.0	10	Fair		
	Score	3	1	1	1	4				
2012	Value	11.5	12.8	1.0	0.0	68.0	10	Fair	-0.936	60.80%
	Score	3	1	1	1	4				
2011	Value		10.0	0.0	0.0	150.5	7	Poor		
	Score	1	1	0	1	4				
2010	Value	9.6	3.3	1.0	0.0	34.9	7	Poor	-0.787	54.50%
	Score	1	1	1	1	3				
2009	Value		14.0	1.0	0.0	9.0	7	Poor	-0.223	20.00%
	Score	1	2	1	1	2				
2008	Value		46.0	0.0	0.0	56.0	10	Fair	-0.550	22.50%
	Score	1	4	0	1	4				
2007	Value	9.6	37.0	2.0	0.0	7.0	7	Poor	-0.513	40.10%
	Score	1	3	1	1	1				
2006	Value		62.0	4.0	0.0	70.1	13	Good	-0.579	43.90%
	Score	3	4	1	1	4				
2005	Value	11.0	36.2	8.0	0.0	19.1	11	Fair	-0.353	29.80%
	Score	3	3	2	1	2				

nedpsdsv.d20

[a] = Sample not collected

Table 57. Length frequency and CPUE (fish/hr) for largemouth bass collected in 0.75 hours of diurnal electrofishing (3- 15-minute runs) at Smoky Valley Lake (Carter Co.) on 29 September 2020.

	Inch class																			
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	CPUE	Std. error
Largemouth bass	1	21	24	10	4	4	8	20	17	21	26	9	1	1			1	168	224.0	43.9

nedwrssv.d20

Table 58. Number of fish and relative weights (W_r) for each length group of largemouth bass captured at Smoky Valley Lake.

	Length group								
	8.0-11.9 in			12.0-14.9 in			≥15.0 in		
Year	No.	W_r	se	No.	W_r	se	No.	W_r	se
2020	65	84	1	35	84	1	2	92	9
2019[a]									
2018	123	84	1	24	84	1	6	87	3
2017[a]									
2016	79	79	1	24	73	2	1	79	-
2015[a]									
2014[a]									
2013[a]									
2012[a]									
2011	117	87	1	23	78	3	1	81	-
2010	90	81	1	12	82	2			
2009	80	83	1	9	86	2	1	89	-
2008	104	83	1	20	81	1			
2007	99	85	1	10	87	3			
2006[a]									
2005[a]									
2004	108	85	1	43	84	1			
2003									
2002	111	83	0	25	83	1			
2001	129	83	1	27	84	1			
2000	70	82	1	32	83	2	1	88	-
1999[a]									
1998	92	91	1	37	87	1	1	85	-
1997[a]									
1996	93	87	1	34	81	1	5	79	5
1995[a]									
1994	57	86	1	40	82	1	4	84	7
1993	81	91	2	67	86	1	5	93	1
1992	83	87	1	54	81	1	3	72	8
1991	85	86	1	58	81	1	5	76	3
1990	150	89	1	33	85	1	11	92	2

nedwrssv.d18

[a] = Sample not collected

Table 59. Length frequency and CPUE (fish/hr) for largemouth bass collected in 1.0 hour of diurnal electrofishing (8- 7.5-minute runs) at Lake Wilgreen (Madison Co.) on 02 June 2020.

	Inch class								Std.
Species	2	3	4	5	6	7	Total	CPUE	error
Bluegill	112	137	174	153	101	4	681	681.0	61.2
Redear sunfish					1	2	3	3.0	1.4

nedsunlw.d20

Table 60. Spring electrofishing CPUE (fish/hr) for various length groups of bluegill collected at Lake Wilgreen from 2000-2020.

	Length group												
	<3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 6.0 in		≥ 8.0 in		Total		Total CPUE
Year	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	(excluding <3.0 in)
2020	107.7	23.0	446.2	58.6	101.0	26.5	101.0	26.5	0.0		681.0	61.2	574.0
2019[a]													
2018[a]													
2017[a]													
2016			545.4	58.8	121.5	21.9	121.5	21.9	0.0		666.9	70.4	666.9
2015[a]													
2014			662.4	62.9	179.2	34.6	179.2	34.6	0.0		841.6	66.7	841.6
2013[a]													
2012			638.4	57.0	74.4	15.3	74.4	15.3			712.8	57.9	712.8
2011	476.0	58.6	630.4	90.9	92.8	24.7	92.8	24.7			1199.2	158.0	723.2
2010	464.0	14.1	380.8	28.9	57.6	14.9	57.6	14.9			484.8	43.9	20.8
2009	105.0	23.3	287.0	36.2	109.0	27.4	110.0	27.9	1.0	1.0	502.0	55.7	397.0
2008	50.0	17.0	115.0	17.1	45.0	17.3	45.0	17.3			210.0	38.8	160.0
2007			283.2	26.7	88.8	16.7	88.8	16.7			372.0	39.4	372.0
2006	279.2	51.3	409.6	34.5	64.8	20.4	67.2	20.7	2.4	1.2	756.0	79.7	476.8
2005	211.2	67.0	576.8	73.2	40.8	10.8	41.6	11.1	0.8	0.8	829.6	122.7	618.4
2004[a]													
2003[a]													
2002	354.4	91.6	496.8	99.2	177.6	18.6	177.6	18.6			1028.8	196.2	674.4
2001[a]													
2000			298.0	79.6	100.0	14.3	109.0	16.4	9.0	3.0	407.0	83.2	407.0

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[a] = Lake was not sampled

Table 61. Bluegill PSD and RSD_8 values from spring electrofishing at Lake Wilgreen; confidence limits are in parentheses.

Year	No. ≥ 3.0 in	PSD (± 95% CI)		RSD_8 (± 95% CI)	
2020	569	18	(± 3)	-	-
2019[a]					
2018[a]					
2017[a]					
2016	867	18	(± 3)	-	-
2015[a]					
2014	1052	21	(± 2)	-	-
2013[a]					
2012	891	10	(± 2)	-	-
2011	904	13	(± 2)	-	-
2010	548	13	(± 3)	-	-
2009	397	28	(± 4)	0	(± 0)
2008	160	28	(± 7)	-	-
2007	465	24	(± 4)	-	-
2006	596	14	(± 3)	1	(± 1)
2005	773	7	(± 2)	0	(± 0)
2004[a]					
2003[a]					
2002	843	26	(± 3)	-	-
2001[a]					
2000	407	27	(± 4)	2	(± 1)

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[a] = Lake was not sampled

\- = No fish over 8.0 in captured to determine RSD_8

Table 62. Mean back calculated lengths (in) at each annulus for bluegill collected from Lake Wilgreen in 2020, includes 95% confidence interval (CI) for mean length for each age class.

		Age					
Year	No.	1	2	3	4	5	6
2019	10	3.3					
2018	13	3.2	4.5				
2017	6	3.0	4.5	5.5			
2016	9	3.0	4.2	5.1	5.9		
2015	6	3.1	4.6	5.4	6.2	6.8	
2014	1	2.4	4.3	5.2	5.9	6.4	6.9
Mean		3.1	4.4	5.3	6.0	6.8	6.9
Number		45	35	22	16	7	1
Smallest		2.4	3.6	4.5	5.1	6.3	
Largest		3.9	5.5	6.5	6.6	7.2	
Std. error		0.1	0.1	0.1	0.1	0.1	
95% CI (±)		0.2	0.3	0.4	0.4	0.5	

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Table 63. Age frequency and CPUE (fish/hr) of bluegill sampled at Lake Wilgreen in 2020.

	Inch class									
Age	2	3	4	5	6	7	Total	%	CPUE	Std. error
1	112	122	16				250	37	240.0	29.6
2		15	142	51			208	31	200.6	25.0
3			16	51	18		85	13	81.9	10.7
4				51	55		106	16	102.0	17.8
5					28	3	31	4	29.4	7.3
6						1	1	0	1.0	0.4
Total	112	137	174	153	101	4	681	100		
%	16	20	26	22	15	1	100			

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Table 64. Population assessment of bluegill based on samples collected at Lake Wilgreen from 2000-2020 (scoring based on statewide assessment).

Year		Mean length age-2 at capture	Years to 6.0 in	Spring CPUE ≥ 6.0 in	Spring CPUE ≥ 8.0 in	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2020	Value	4.5	3-3+	101.0	0.0	11	Good	-0.539	41.7%
	Score	3	3	4	1				
2019[a]	Value								
	Score								
2018[a]	Value								
	Score								
2017[a]	Value								
	Score								
2016	Value	4.2	4-4+	121.5	0.0	9	Fair	-0.985	62.70%
	Score	2	2	4	1				
2015[a]	Value								
	Score								
2014	Value			179.2	0.0				
	Score			4	1				
2013[a]	Value								
	Score								
2012	Value			74.4	0.0				
	Score			3	1				
2011	Value			92.8	0.0				
	Score			3	1				
2010	Value			57.6	0.0				
	Score			3	1				
2009	Value			110.0	1.0				
	Score			4	2				
2008	Value			45.0	0.0				
	Score			2	1				
2007	Value	4.8	4	88.8	0.0	10	Good	-0.156	10.90%
	Score	4	2	3	1				
2006	Value			67.2	2.4				
	Score			3	3				
2005	Value			41.6	0.8				
	Score			2	2				
2004[a]	Value								
	Score								
2003[a]	Value								
	Score								
2002	Value	5.5	3	177.6	0.0	12	Good	-0.360	30.20%
	Score	4	3	4	1				
2001[a]	Value								
	Score								
2000	Value	4.4	3	109.0	9.0	14	Excellent		
	Score	3	3	4	4				

nedsunlw.d20; d16; d14; d12-d05; d02; d00

SOUTHEASTERN FISHERY DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Conditions encountered during sampling at southeastern district lakes are listed in Table 1.

Lake Cumberland (50,250 acres)

Lake levels in Lake Cumberland rose to 705 msl in 2013 and 723 msl in 2014 with the completion of repairs to Wolf Creek Dam. Sampling completed after 2013 was conducted in areas that were sampled prior to 2007. Samples from 2007-2012 were conducted in areas farther downstream in the embayments due to reduced water levels during dam repairs; therefore, any comparisons of the 2007-2012 data should be interpreted accordingly.

<u>Black Bass Sampling (Spring)</u>
Covid19 restrictions delayed spring sampling, and water temperatures and conditions were not favorable for the spring bass sample on Lake Cumberland.

<u>Black Bass Sampling (Fall)</u>
Diurnal electrofishing was conducted in the Fishing Creek embayment during 6 October 2020 to index the largemouth bass year class strength (Tables 2 and 3). Catch rates of age-0 largemouth bass were higher in 2020 than in 2019, but the average size of age-0 bass was the lowest observed in the last 10 years (Table 3). Table 4 compares the CPUE of age-0 largemouth bass in Lake Cumberland to other SEFD lakes sampled in fall 2020. Relative weight (Wr) values for largemouth bass and spotted bass collected during October sampling are shown in Table 5. Table 6 compares Wr values for black bass in Lake Cumberland to other SEFD lakes sampled in fall 2020.

<u>Walleye and White Bass Sampling</u>
Gill nets were used in November 2020 to evaluate the walleye and white bass populations in the Jamestown/Bugwood, Conley Bottom, and Waitsboro/Burnside areas of Lake Cumberland. A total of 181 walleye were captured in 30 net-nights for a catch rate of 6.0 fish/nn. Length frequency and CPUE of walleye is shown in Table 7. Walleye ranged from 9.0-22.0 in, with the mode being the 17.0-in class (38 fish). None of the catch rate management objectives for walleye were met during the 2020 sampling (Table 8). Mean length of age-2+ walleye at capture (18.8 in) met the growth objective of 18.0 in (Table 8). Age-growth data for male and female walleye are shown in Tables 9 and 10, respectively. The age-growth for both sexes combined is shown in Table 11. Seven year-classes were represented in the catch, with the 2017 year class (age-3; 27%) being most abundant, which coincided with the increased (pulsed) stocking rate of 12.0 fish/acre in 2017 (Table 12). The walleye assessment score was 11 (rating=good; Table 13). Relative weight (Wr) values for walleye are shown in Table 14. The walleye population in Lake Cumberland had steadily improved following a fish die-off in 2009. During 2019, water quality in the lake in the late summer deteriorated, and although limited numbers of dead walleye were observed, results from 2020 sampling indicate that a larger-scale die-off occurred.

A total of 3 white bass were captured in 30 net-nights for a catch rate of 0.1 fish/nn. Length frequency and CPUE of white bass is shown in Table 7. White bass ranged from 8.0-14.0 in. Due to the low number of fish collected, additional age-growth analyses were not performed. Relative weight (Wr) values for white bass are in Table 14.

Striped bass were also recorded during walleye gill netting. Thirty net-nights captured 83 striped bass for a catch rate of 2.8 fish/nn. Length-frequency and CPUE of striped bass are shown in Table 7. Striped bass ranged from 7.0 to 28.0 in with the mode being the 9.0-in class (18 fish). The age-growth data for striped bass collected during 2020 is shown in Table 15. Six year-classes were represented in the catch, with the 2020 (age-0) year class being the most abundant (45%; Table 16). The 2017 year class (age-3) remains strong, accounting for an additional 24% of the catch (Table 16). Relative weight (Wr) values were good for striped bass <20.0 in, but condition values decreased as fish grew larger (Table 14).

Cumberland Tailwater

Trout Sampling (Fall)
Nocturnal electrofishing sampling was conducted November 1 and 2 2020 to assess the trout population in the Lake Cumberland tailwater. Electrofishing was completed in six different areas of the tailwater. Standardized sampling was not conducted at Crocus Creek in 2020 due to boat issues. Table 17 has the length-frequency and CPUE for the three trout species that were collected in each area. Cutthroat trout, which were first introduced in March 2019 and received an additional stocking of 500 fish in 2020, were not observed during the fall sampling. Brook trout were observed in low numbers during the sample at one location. Catch rates of rainbow trout across all size groups increased during 2020 (Table 18). Brown trout catch rates continue to decline and remain well below the 26-year average for the tailwater (Table 19). Relative weight (Wr) values for each trout species is shown in Table 20.

Laurel River Lake (6,060 acres)

Black Bass Sampling (Spring)
Electrofishing sampling was conducted during May and June 2020 to assess the black bass population in Laurel River Lake. Electrofishing was conducted in four areas of the lake: 1) dam, 2) Spruce Creek, 3) Laurel River arm, and 4) upper Craigs Creek. Length-frequency and CPUE of the three black bass species collected in each area is shown in Table 21. The catch-per-hour (by area and length group) of the three black bass species are shown in Tables 22-25. Overall catch rates for largemouth bass increased slightly in 2020, which was due to increases in catch rates of fish less than 12.0 in (Table 23). Catch rates of $\geq$15.0-in largemouth bass decreased in 2020, which marks the third year of declining catches of largemouth bass over 15.0 in (Table 23). Overall catch rates of spotted bass increased in 2020 (Table 24). Smallmouth bass catch rates increased in 2020, and there were increases in the catch rates of smallmouth bass less than 11.0 in (Table 25). Table 26 compares the catch-per-hour by length group of black bass in Laurel River Lake to other SEFD lakes sampled in spring 2020.

The largemouth bass population met one of the four catch rate objectives, with the CPUE of age-1 bass (22.7 fish/hr) exceeding the objective of 10.0 fish/hr (Table 27). This is the second consecutive year that the largemouth bass age-1 CPUE objective was exceeded and should help to bolster the population. Spotted bass met one of the three catch rate management objectives, with the catch rate of fish over 14.0 in exceeding the objective (Table 28). The smallmouth bass population met one of the catch rate management objectives, with the catch rate of fish over 14.0 in meeting the objective (Table 29).

Size structure values were down for all three species in 2020 at Laurel River Lake. Largemouth bass exhibited moderate size structure, having a PSD value of 44 and an RSD_{15} value of 20 (Table 30). Smallmouth and spotted bass also had a moderate size structure, with smallmouth bass having a PSD value of 43 and an RSD_{14} value of 43, and the spotted bass population having a PSD of 34 and an RSD_{14} of 9 (Table 30). Table 31 compares the size structure values of black bass populations in Laurel River Lake to other SEFD lakes sampled in 2020.

Black Bass Sampling (Fall)
Diurnal electrofishing was conducted in the Laurel River arm on 30 September 2020 to index largemouth bass year class strength (Tables 32 and 33). Age-0 catch rates in 2020 were slightly lower than rates observed in 2019, and were lower than the 19-year average for the lake (Table 33). Table 4 compares the CPUE of age-0 largemouth bass in Laurel River Lake to other SEFD lakes sampled in fall 2020. Relative weight (Wr) values for largemouth and spotted bass collected during September sampling are shown in Table 34. Table 6 compares Wr values for black bass in Laurel River Lake to other SEFD lakes sampled in fall 2020.

Cedar Creek Lake (784 acres; Lincoln Co.)

Black Bass Sampling (Spring)
Diurnal electrofishing was conducted on 12 May 2020 to assess the largemouth bass population in Cedar Creek Lake. The length-frequency and CPUE of largemouth bass is shown in Table 35. Size structure of largemouth bass was good (PSD=73, RSD_{15}=41; Table 36). Table 31 compares the size structure values of largemouth bass populations in Cedar Creek Lake to other SEFD lakes sampled in 2020. The catch-per-hour (by length group) of

largemouth bass for 2011-2020 is shown in Table 37. Overall catch rates of largemouth bass in Cedar Creek Lake decreased in 2020 (Table 37). Table 26 compares the catch-per-hour by length group of largemouth bass in Cedar Creek Lake to other SEFD lakes sampled in 2020. Three of the four CPUE management objectives were met or exceeded for the largemouth bass population, with the catch rate of fish greater than 20.0 in (3.3 fish/hr) failing to meet the objective of 4.0 fish/hr (Table 38). The mean length of age-3 bass at capture (12.4 in) met the growth objective of 11.5 in (Table 38).

Black Bass Sampling (Fall)
Diurnal electrofishing was conducted on 28 September 2020 to index the largemouth bass year-class strength (Tables 39 and 40). Although catch rates of age-0 largemouth bass in 2020 were lower than in 2019, the catch rates were higher than the 17-year lake average (Table 40). Table 4 compares the CPUE of age-0 largemouth bass in Cedar Creek Lake to other SEFD lakes sampled in fall 2020. Relative weight (Wr) values for largemouth bass are found in Table 41. Table 6 compares Wr values for largemouth bass in Cedar Creek Lake to other SEFD lakes sampled in fall 2020.

Age-growth data from largemouth bass collected in 2020 from Cedar Creek Lake is shown in Table 42. Growth rates for largemouth bass in Cedar Creek Lake improved, with bass reaching 12.4 in by age-3. Previous growth rates for largemouth bass were slightly lower, with bass attaining lengths of 12.0 in by age-3.

Bluegill/Redear Sunfish Sampling
Due to Covid19 restrictions, spring sampling was delayed and vegetation on Cedar Creek Lake created poor sampling conditions.

Wood Creek Lake (625 acres; Laurel Co.)

Black Bass Sampling (Spring)
Diurnal electrofishing was conducted on 13 May 2020 in the Pump Station and Dock areas of Wood Creek Lake to assess the black bass population. Length frequency and CPUE for black bass are shown in Table 43. The size structure for largemouth and spotted bass was poor, with largemouth bass having a PSD value of 25 (RSD_{15}=10) and spotted bass having a PSD of 27 (RSD_{14}=0; Table 44). Table 31 compares the size structure values of black bass populations in Wood Creek Lake to other SEFD lakes sampled in 2020. Catch-per-hour (by length group) for largemouth and spotted bass are shown in Tables 45 and 46, respectively. Although the overall largemouth bass catch rate decreased in 2020, catch rates of fish larger than 15.0 in increased (Table 45). The spotted bass catch rate increased in 2020 due to increasing numbers of fish in the 8.0- to 13.9-in range (Table 46). Table 26 compares the catch-per-hour by length group of black bass in Wood Creek Lake to other SEFD lakes sampled in 2020. A largemouth bass population assessment is shown in Table 47. Three of the four catch rate management objectives were met for the largemouth bass population, with catch rates of fish greater than 15.0 in (16.7 fish/hr) just failing to meet the objective of 17.0 fish/hr (Table 47).

Black Bass Sampling (Fall)
Diurnal electrofishing was conducted on 29 September 2020 in the Pump Station and Dock areas of Wood Creek Lake to index largemouth bass year class strength (Tables 48 and 49). Catch rates of age-0 largemouth bass in 2020 were consistent with catch rates observed in 2018 and 2019 (Table 49). Table 4 compares the CPUE of age-0 largemouth bass in Wood Creek Lake to other SEFD lakes sampled in fall 2020. Relative weight values for largemouth and spotted bass in Wood Creek are shown in Table 50. Table 6 compares Wr values for black bass in Wood Creek Lake to other SEFD lakes sampled in fall 2020.

Table 1. Summary of sampling conditions by waterbody, species sampled, and date for the Southeastern Fisheries District in 2020.

Water body	Location	Species	Date	Time (24hr)	Gear	Weather	Water temp. F	Water level	Secchi (in)	Conditions	Pertinent sampling comments
Lake Cumberland											
	Fishing Creek	Black bass	10/6/2020	1025	shock	Some fog early, clear skies, upper 50s	67.5	703	18	fair	murky w ater in some areas
	Jamestow n	Walleye	11/16-11/18		gill net	Sunny, clear, 40s, gusty w inds	61	695	84	good	
	Conley Bottom	Walleye	11/16-11/18		gill net	Sunny and w indy	61	695	48	good	
	Waitsboro	Walleye	11/23-11/25		gill net	Mostly clear, some show ers, mainly calm	58	693	18	good	
Cumberland Tailw ater											
	Above Helms	Trout	11/1/2020	1800	shock	50 degrees, 10-20 mph w ind gusts	59.2	3970 cfs			
	Below Helms	Trout	11/1/2020	1800	shock	Clear and 50, 10-15 mph W/NW w inds	56.8	3970 cfs			
	Rainbow Run	Trout	11/1/2020	1800	shock	Gusty w inds/clear skies	60.5	3970 cfs			
	Big Willis	Trout	11/1/2020	1745	shock	Clear, cool	60	3970 cfs			
	Hw y 61 Traces	Trout	11/2/2020	1810	shock	Cold, 40s, mostly clear, SW winds at 5 mph	55	3970 cfs			
	Cloyds	Trout	11/2/2020	1800	shock		58	3970 cfs			
Laurel River Lake											
	Dam	Black bass	5/14/2020	945	shock	Mix of sun and clouds, 50s	59.5	1013	144	fair	w ater w as too clear
	Spruce Creek	Black bass	6/1/2020	1220	shock	sunny, 70s	75	1013	72	good	
	Craig's Creek	Black bass	5/14/2020	1210	shock	mostly clear	61.1	1013	72	good	
	312 Bridge	Black bass	6/1/2020	820	shock	Sunny and 50s at start	70.5	1013	18	fair	w ater w as murky
	312 Bridge	Black bass	9/30/2020	1055	shock	Clear, 60s, S/SW w inds at 10-15 mph	69	1006	36	good	
Cedar Creek Lake		LMB	5/12/2020	1035	shock	Mosty sunny, 50s	58	full	36	good	
		LMB	9/28/2020	945	shock	Mix of clouds and sun, breezy	71	full	66	good	
Wood Creek Lake		Black bass	5/13/2020	940	shock	Light rain and mist, 50s and cloudy	58	full	72	good	
		Black bass	9/29/2020	1035	shock	Increasing clouds, 50s	69	1019.8	54	good	

Table 2. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 1.5 hours of 15-minute diurnal electrofishing runs for black bass in Fishing Creek of Lake Cumberland on 6 October 2020; standard error is in parentheses.

	Inch class																	
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	Total	CPUE
Largemouth bass	9	6	2	2	3		2	5	2	3	1	3	3	4	2	1	48	32.0 (7.0)
Spotted bass	1	7				2	2	3	2	6	5	4	1				33	22.0 (5.2)
Smallmouth bass														1			1	0.7 (0.7)

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Table 3. Indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected in the fall (September and October) in electrofishing samples in the Fishing Creek area of Lake Cumberland.

		Age-0		Age-0		Age-0 ≥5.0 in		Age-1 [a]	
Year class	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
	Lake Cumberland								
2020	Fishing Creek	4.1	0.4	16.0	5.0	4.7	2.4		
2019	Fishing Creek	5.8	0.4	6.7	4.5	4.7	3.2	NA	NA
2018	Fishing Creek	6.2	0.2	17.3	2.9	15.3	2.2	58.0	11.0
2017	Fishing Creek	4.2	0.5	11.3	4.4	3.3	1.6	6.7	2.0
2016	Fishing Creek	6.8	0.2	20.0	9.2	19.3	8.7	4.0	2.1
2015	Fishing Creek	5.1	0.2	18.7	14.1	8.7	6.4	13.3	4.9
2014	Fishing Creek	6.7	0.2	9.3	2.2	9.3	2.2	26.0	4.9
2013	Fishing Creek	6.1	0.1	80.0	23.8	61.3	15.9	26.0	13.6
2012	Fishing Creek	6.1	0.1	96.7	24.6	80.0	19.6	21.8	6.2
2011	Fishing Creek	6.1	0.1	114.7	25.1	102.0	23.2	46.5	7.0

[a] Age-1 largemouth bass CPUE based only on Fishing Creek location
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Table 4. Year class strength at age-0 and mean lengths (in) of largemouth bass collected in September and October 2020 in electrofishing samples at Lake Cumberland, Laurel River Lake, Cedar Creek Lake, and Wood Creek Lake.

		Age-0		Age-0		Age-0 ≥5.0 in	
Lake	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error
Lake Cumberland	Fishing Creek	4.1	0.4	16.0	5.0	4.7	2.4
Laurel River Lake	Laurel River Arm	5.0	0.2	12.0	6.0	7.3	4.2
Cedar Creek Lake		3.4	0.1	69.3	16.7	5.3	2.5
Wood Creek Lake		4.2	0.1	43.3	15.3	6.0	2.9

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sedyoywc.d20

Table 5. Number of fish and mean relative weight (Wr) for each length group of black bass collected in Fishing Creek of Lake Cumberland on 6 October 2020. Standard error is in parentheses.

Species	Length group					
	8.0-11.9 in		12.0-14.9 in		≥15.0 in	
Largemouth bass	No.	Wr	No.	Wr	No.	Wr
	11	87 (2)	7	87 (4)	7	90 (5)
	7.0-10.9 in		11.0-13.9 in		≥14.0 in	
Spotted bass	No.	Wr	No.	Wr	No.	Wr
	9	95 (4)	15	93 (2)	1	118 (-)

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Table 6. Number of fish and mean relative weight (Wr) for each length group of black bass collected in Lake Cumberland, Laurel River Lake, Cedar Creek Lake, and Wood Creek Lake during September and October 2020. Standard error is in parentheses.

		Length group					
Species	Location	No.	Wr	No.	Wr	No.	Wr
Largemouth bass		8.0-11.9 in		12.0-14.9 in		≥15.0 in	
	Lake Cumberland (Fishing Creek)	11	87 (2)	7	87 (4)	7	90 (5)
	Laurel River Lake (Laurel River Arm)	26	100 (2)	15	87 (2)	18	98 (2)
	Cedar Creek Lake	43	95 (2)	17	96 (3)	10	91 (4)
	Wood Creek Lake	91	85 (1)	13	82 (1)	4	90 (7)
Spotted bass		7.0-10.9 in		11.0-13.9 in		≥14.0 in	
	Lake Cumberland (Fishing Creek)	9	95 (4)	15	93 (2)	1	118 (-)
	Laurel River Lake (Laurel River Arm)	7	106 (5)	7	101 (3)	1	101 (-)
	Wood Creek Lake	3	97 (1)	0	0 (0)	0	0 (0)

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sedyoywc.d20

Table 7. Length frequency and CPUE (fish/nn) of walleye, white bass, sauger, and striped bass collected from the Jamestown/Bugwood (10 net-nights), Conley Bottom (10 net-nights), and Burnside/Waitsboro (10 net-nights) areas of Lake Cumberland in November 2020.

		Inch class																								Std.
Area	Species	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Total	CPUE	error
Jamestown/Bugwood																										
	Walleye			1	3					2	6	21	14	18	10	2	3							80	8.0	1.5
	White bass																							0	0.0	0.0
	Sauger																							0	0.0	0.0
	Striped bass			6	2							2	3		1	1		4	1	4	1	3		28	2.8	0.8
	Hybrid striped bass													1										1	0.1	0.1
Conley Bottom																										
	Walleye			1	7	5					3	10	14	5	2	1								48	4.8	0.7
	White bass							1	1															2	0.2	0.1
	Sauger																							0	0.0	0.0
	Striped bass	1		2								1	3	1	1	2		2		1	1	1	2	18	1.8	0.6
	Hybrid striped bass																							0	0.0	0.0
Burnside/Waitsboro																										
	Walleye			1	3	14	1				8	7	9	5	5									53	5.3	0.6
	White bass		1																					1	0.1	0.1
	Sauger										1													1	0.1	0.1
	Striped bass	1	7	10	7	1					1	2	1				2	3	1		1			37	3.7	1.2
	Hybrid striped bass											1			1									2	0.2	0.1
Total																										
	Walleye			3	13	19	1			2	17	38	37	28	17	3	3							181	6.0	0.6
	White bass		1					1	1															3	0.1	0.1
	Sauger										1													1	<0.1	<0.1
	Striped bass	2	7	18	9	1					1	5	7	1	2	3	2	9	2	5	3	4	2	83	2.8	0.5
	Hybrid striped bass											1		1	1									3	0.1	0.1

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Table 8. Population assessment for walleye based on fall gill netting at Lake Cumberland from 2002-2020.

Year		Parameters: CPUE ≥age 1+	Mean length age 2+ at capture	CPUE ≥20.0 in	CPUE age 1+	Total score	Assessment rating
Management objective		≥6.0 fish/nn	≥18.0 in	≥1.5 fish/nn	≥3.0 fish/nn		
2020	Value	4.9	18.8	0.8	1.5		
	Score	3	3	3	2	11	G
2018	Value	12.5	18.7	1.5	8.2		
	Score	4	3	4	4	15	E
2016	Value	8.4	19.4	1.1	4.9		
	Score	4	4	4	4	16	E
2014	Value	9.3	18.3	0.8	3.6		
	Score	4	2	3	4	13	G
2012	Value	6.3	18.2	0.2	3.1		
	Score	3	2	2	3	10	G
2010	Value	3.3	17.6	0.1	1.9		
	Score	2	2	1	3	8	F
2008	Value	5.9	18.5	0.9	2.5		
	Score	3	3	3	3	12	G
2006	Value	14.8	19.1	3.9	3.1		
	Score	4	4	4	3	15	E
2004	Value	8.9	18.8	1.8	4.6		
	Score	4	3	4	4	15	E
2002	Value	12.1	19.1	2.5	6.4		
	Score	4	4	4	4	16	E

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* Data from 1994 used for age-growth

Table 9. Mean back calculated lengths (in) at each annulus for male walleye collected from Lake Cumberland during 2020, including the 95% confidence interval (CI) for each mean length per age group.

		Age					
Year	No.	1	2	3	4	5	6
2019	16	12.1					
2018	6	10.7	16.0				
2017	17	10.9	16.0	17.9			
2016	6	10.9	16.6	18.5	19.4		
2014	1	11.7	17.0	19.0	20.2	21.4	22.2
Mean		11.3	16.2	18.1	19.5	21.4	22.2
Number		46	30	24	7	1	1
Smallest		8.8	13.7	16.4	17.7	21.4	22.2
Largest		14.4	17.9	19.7	20.8	21.4	22.2
Std error		0.2	0.2	0.2	0.4		
95% CI ±		0.3	0.3	0.4	0.8		

Otoliths were used for age-growth determinations; Intercept = 0
sedagcwm.d20

Table 10 Mean back calculated lengths (in) at each annulus for female walleye collected from Lake Cumberland during 2020, including the 95% confidence interval (CI) for each mean length per age group.

		Age				
Year	No.	1	2	3	4	5
2019	1	13.9				
2018	8	11.9	17.2			
2017	2	12.3	17.5	20.0		
2016	1	13.4	17.7	19.5	20.3	
2015	1	12.7	17.2	19.2	20.5	21.3
Mean		12.3	17.3	19.7	20.4	21.3
Number		13	12	4	2	1
Smallest		10.9	14.5	18.9	20.3	21.3
Largest		13.9	18.5	21.0	20.5	21.3
Std error		0.3	0.4	0.5	0.1	
95% CI ±		0.6	0.7	0.9	0.1	

Otoliths were used for age-growth determinations; Intercept = 0
sedagcwf.d20

Table 11. Mean back calculated lengths (in) at each annulus for walleye (both sexes) collected from Lake Cumberland during 2020, including the 95% confidence interval (CI) for each mean length per age group.

		Age					
Year	No.	1	2	3	4	5	6
2019	21	12.3					
2018	14	11.4	16.7				
2017	19	11.1	16.2	18.1			
2016	7	11.2	16.8	18.6	19.6		
2015	1	12.7	17.2	19.2	20.5	21.3	
2014	1	11.7	17.0	19.0	20.2	21.4	22.2
Mean		11.6	16.5	18.3	19.7	21.3	22.2
Number		63	42	28	9	2	1
Smallest		8.8	13.7	16.4	17.7	21.3	22.2
Largest		14.4	18.5	21.0	20.8	21.4	22.2
Std error		0.2	0.2	0.2	0.3	0.0	
95% CI ±		0.3	0.4	0.4	0.7	0.1	

Otoliths were used for age-growth determinations; Intercept = 0
sedagcbw.d20

Table 12. Age-frequency and CPUE (fish/nn) of walleye collected at Lake Cumberland in 30 net-nights during November 2020.

	Inch class															Std
Age	9	10	11	12	15	16	17	18	19	20	21	22	Total	%	CPUE	error
0	3	13	19	1									36	19.8	1.2	0.3
1					2	15	25	4					46	25.3	1.5	0.2
2						2	10	7	10	5	1		35	19.2	1.2	0.2
3							3	22	15	8		1	49	26.9	1.6	0.3
4								4	3	5	1	1	14	7.7	0.5	0.1
5											1		1	0.5	<0.1	<0.1
6												1	1	0.5	<0.1	<0.1
Total	3	13	19	1	2	17	38	37	28	18	3	3	182	100.0	6.0	
%	1.6	7.1	10.4	0.5	1.1	9.3	20.9	20.3	15.4	9.9	1.6	1.6				

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Table 13. Population assessment for walleye gill netted at Lake Cumberland in November 2020.

Parameter	Actual value	Assessment score
Population density (CPUE age 1 and older)	4.9	3
Growth rate (Mean length age 2+ at capture)	18.8	3
Size structure (CPUE $\geq$20.0 in)	0.8	3
Recruitment (CPUE age 1)	1.5	2
Instantaneous mortality (Z)	0.887	
Annual mortality (A)	58.8	
Total score		11
Assessment rating		G

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Table 14. Number of fish and mean relative weight (Wr) for each length group of walleye, white bass, striped bass, and hybrid striped bass collected in Lake Cumberland during November 2020. Standard error is in parentheses.

Species	Length group					
	10.0-14.9 in		15.0-19.9 in		$\geq$20.0 in	
	No.	Wr	No.	Wr	No.	Wr
Walleye	33	91 (1)	109	92 (1)	23	90 (1)
	6.0-8.9 in		9.0-11.9 in		$\geq$12.0 in	
	No.	Wr	No.	Wr	No.	Wr
White bass	0	0 (0)	0	0 (0)	2	104 (2)
	12.0-19.9 in		20.0-29.9 in		$\geq$30.0 in	
	No.	Wr	No.	Wr	No.	Wr
Striped bass	12	86 (1)	18	81 (3)	0	0 (0)
	8.0-11.9 in		12.0-14.9 in		$\geq$15.0 in	
	No.	Wr	No.	Wr	No.	Wr
Hybrid striped bass	0	0 (0)	0	0 (0)	2	98 (2)

sedgncbw.d20

Table 15. Mean back calculated lengths (in) at each annulus for striped bass collected from Lake Cumberland during 2020, including the 95% confidence interval (CI) for each mean length per age group.

		Age						
Year	No.	1	2	3	4	5	6	7
2019	12	11.6						
2018	4	10.3	18.5					
2017	11	13.2	19.7	23.1				
2016	1	13.8	20.2	22.1	24.1			
2013	1	13.7	18.4	21.7	23.8	25.6	26.7	27.4
Mean		12.2	19.4	23.0	24.0	25.6	26.7	27.4
Number		29	17	13	2	1	1	1
Smallest		7.9	17.3	21.1	23.8	25.6	26.7	27.4
Largest		15.1	23.4	27.2	24.1	25.6	26.7	27.4
Std error		0.3	0.3	0.5	0.1			
95% CI ±		0.5	0.7	1.0	0.3			

Otoliths were used for age-growth determinations; Intercept = 0
sedagcbs.d20

Table 16. Age-frequency and CPUE (fish/nn) of striped bass collected at Lake Cumberland in 30 net-nights of walleye gill netting during November 2020.

	Inch class																				Std
Age	7	8	9	10	11	16	17	18	20	21	22	23	24	25	26	27	28	Total	%	CPUE	error
0	2	7	18	9	1													37	45.1	1.2	0.5
1						1	5	7										13	15.9	0.4	0.1
2									2	3		2						7	8.5	0.2	0.1
3											2	7	2	5		2	2	20	24.4	0.7	0.2
4															3			3	3.7	0.1	0.1
7																2		2	2.4	0.1	<0.1
Total	2	7	18	9	1	1	5	7	2	3	2	9	2	5	3	4	2	82	100.0	2.7	
%	2.4	8.5	22.0	11.0	1.2	1.2	6.1	8.5	2.4	3.7	2.4	11.0	2.4	6.1	3.7	4.9	2.4				

sedgncbw.d20
sedagcbs.d20

Table 17. Species composition, relative abundance, and CPUE (fish/hr) of trout collected during 7.5 hours of 15-minute nocturnal electrofishing runs for trout in Cumberland tailwater during November 2020; standard error is in parentheses.

		Inch class																			
Area	Species	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	24	27	Total	CPUE
Above Helms	Rainbow trout		5	25	62	64	35	19	3	2	1	4	7	2	4		2			235	188.0 (22.9)
	Brown trout				3	5	4	1	1			1				2				17	13.6 (4.7)
	Brook trout																			0	0.0 (0.0)
Below Helms	Rainbow trout	1	2	15	18	27	29	13	6	4	4	2	3	1	3					128	102.4 (7.4)
	Brown trout				1	4	1	2												8	6.4 (3.3)
	Brook trout					1		1												2	1.6 (1.0)
Rainbow Run	Rainbow trout		1	2	7	5	4	2	4	1	4	3	5	4						42	33.6 (6.1)
	Brown trout					1	7	1	1		1		1							12	9.6 (3.3)
	Brook trout																			0	0.0 (0.0)
Big Willis	Rainbow trout		1	4	3	4	20	3	7	3	6	6	7	4	2	1				71	56.8 (10.8)
	Brown trout					2	1	1	1				1						1	7	5.6 (2.0)
	Brook trout																			0	0.0 (0.0)
Hwy 61 Bridge	Rainbow trout		2	6	3	7	9	2	3	6	6	8	5	4	1	2				64	51.2 (6.6)
	Brown trout				2	1	1	1	1				1					1		8	6.4 (3.3)
	Brook trout																			0	0.0 (0.0)
Cloyd's Landing	Rainbow trout				1	2	2		2	2	1	1	4	1			2			18	14.4 (1.0)
	Brown trout							2												2	1.6 (1.0)
	Brook trout																			0	0.0 (0.0)
Total	Rainbow trout	1	11	52	94	109	99	39	25	18	22	24	31	16	10	3	4			558	74.4 (11.5)
	Brown trout				6	13	14	8	4		1	1	3			2		1	1	54	7.2 (1.4)
	Brook trout					1		1												2	0.3 (0.2)

sedcbtwn.d20

Table 18. Fall electrofishing mean CPUE (fish/hr) of <15.0 in, 15.0-17.9 in, 18.0-19.9 in, and ≥20.0 in rainbow trout in the Lake Cumberland tailwater from 2000 to 2020. Data collected from sample sites 1-5 each year, except 2007 and 2020 which was based on sites 1-4.

	Length group							
	<15.0 in		15.0-17.9 in		18.0-19.9 in		≥20.0 in	
Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2020	80.2	14.9	10.4	1.5	4.0	0.7	0.6	0.3
2019	79.4	15.5	6.7	1.4	1.8	0.6	0.5	0.3
2018	75.5	20.7	13.1	2.2	1.9	0.6	0.2	0.2
2017	44.5	7.1	21.8	2.4	1.4	0.5	0.0	
2016	196.5	38.2	6.2	1.3	1.0	0.4	0.5	0.3
2015	60.6	8.7	9.0	1.9	1.3	0.6	0.2	0.2
2014	127.7	15.7	8.6	1.1	3.0	0.7	0.2	0.2
2013	118.9	15.3	23.2	3.6	0.5	0.3	0.0	
2012	127.5	18.0	0.5	0.3	0.2	0.2	0.0	
2011*	55.2	7.7	1.1	0.6	0.0		0.2	0.2
2010	129.0	18.7	1.3	0.5	0.3	0.2	0.0	
2009	78.4	14.7	5.4	1.6	0.5	0.3	0.0	
2008	166.1	32.3	18.1	4.3	1.4	0.5	0.0	
2007	175.0	40.5	25.0	3.5	6.4	1.3	0.6	0.3
2006	185.8	33.4	29.3	3.0	4.3	1.2	0.3	0.2
2005	166.2	28.9	9.3	2.4	2.1	0.8	0.0	
2004	66.1	10.7	2.2	0.8	0.6	0.4	0.0	
2003	55.0	11.4	2.1	0.7	1.0	0.4	0.2	0.2
2002	121.0	18.6	10.7	2.4	1.4	0.7	1.0	0.6
2001	109.7	17.2	21.0	3.7	5.5	1.3	0.7	0.4
2000	65.8	12.4	9.4	1.3	1.4	0.7	0.5	0.4

sedctwn1.t20

*2011 sampling was conducted in February.

Table 19. Fall electrofishing mean CPUE (fish/hr) of <15.0 in, 15.0-17.9 in, 18.0-19.9 in, and ≥20.0 in brown trout in the Lake Cumberland tailwater from 2000 to 2020. Data collected from sample sites 1-5 each year, except 2007 and 2020 which was based on sites 1-4.

	Length group							
	<15.0 in		15.0-17.9 in		18.0-19.9 in		≥20.0 in	
Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2020	7.4	1.3	0.8	0.4	0.0	0.0	0.6	0.4
2019	16.8	2.4	1.0	0.4	0.3	0.2	0.5	0.4
2018	29.3	6.8	1.0	0.5	0.5	0.3	2.2	0.6
2017	31.4	6.4	1.4	0.5	1.4	0.5	2.6	0.7
2016	27.5	5.1	4.5	1.1	3.0	0.8	2.2	0.8
2015	41.0	6.0	5.6	1.8	1.9	0.7	1.9	0.7
2014	86.4	13.6	7.2	2.1	1.4	0.6	1.6	0.8
2013	70.2	12.0	2.4	0.8	1.1	0.6	4.6	1.5
2012	32.0	8.5	2.6	0.8	3.2	1.2	2.7	0.9
2011*	26.6	4.4	6.6	1.2	3.4	0.9	4.0	1.2
2010	14.4	2.3	3.7	0.9	1.3	0.5	0.6	0.4
2009	55.8	9.9	9.1	2.0	5.3	1.7	2.7	1.1
2008	108.6	15.6	14.1	2.9	6.4	1.0	2.6	0.7
2007	112.2	25.1	29.0	6.2	5.8	1.3	3.4	0.7
2006	56.6	11.7	30.2	10.1	5.6	1.5	5.0	1.5
2005	84.5	10.2	14.9	3.1	7.0	1.7	9.3	2.4
2004	42.7	4.1	11.8	3.3	7.7	2.0	3.2	0.9
2003	52.0	7.0	20.2	5.0	3.8	1.4	1.9	0.7
2002	97.9	13.2	31.2	6.6	5.6	1.1	2.9	0.9
2001	71.2	9.0	30.2	8.7	5.8	1.5	5.2	1.3
2000	71.5	13.1	18.9	4.7	6.6	1.6	9.0	2.5

sedctwn1.t20

*2011 sampling was conducted in February.

Table 20. Number of fish and mean relative weight (Wr) for each species of trout collected in the Cumberland tailwater during November 2020. Standard error is in parentheses.

	Species			
	Rainbow trout		Brown trout	
Location	No.	Wr	No.	Wr
Above Helms	230	94 (1)	17	89 (3)
Below Helms	125	90 (1)	8	80 (2)
Rainbow Run	41	83 (3)	12	75 (4)
Big Willis	70	92 (1)	7	96 (6)
Hwy 61	62	93 (1)	8	94 (6)
Cloyds	18	90 (2)	2	86 (3)
Total	546	92 (1)	54	86 (2)

sedcbtwn.d20

Table 21. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 6.0 hours of 15-minute electrofishing runs for black bass in Laurel River Lake during May and June 2020; standard error is in parentheses.

Area	Species	Inch class																		Total	CPUE
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
Dam	Largemouth bass			1	2	9	19	18	11	12	2	2	4	3	4	3	1			91	60.7 (11.2)
	Spotted bass						3	1												4	2.7 (1.3)
	Smallmouth bass																			0	0.0 (0.0)
Spruce	Largemouth bass		3		2	6	7	8	5	1	1		4	1	5	9	1		1	54	36.0 (6.4)
Creek	Spotted bass		3	4	2	6	4	7	1		2	3	3	1	1					37	24.7 (4.6)
	Smallmouth bass		1	8		1	3													13	8.7 (2.6)
Laurel	Largemouth bass	1	6	2	8	7	9	7	13	30	26	10	14	17	9	3	6	7	4	179	119.3 (13.4)
River	Spotted bass					2	4	15	15	4	2	2	3	2	3					52	34.7 (19.8)
Arm	Smallmouth bass					1	2	1	2											6	4.0 (1.0)
Upper	Largemouth bass				2	5	12	11	5	9	8	6	4	5	6					73	48.7 (5.0)
Craigs	Spotted bass		1			2	5	8	4	5	5	5	4	2		1				42	28.0 (5.5)
Creek	Smallmouth bass													1	4	1				6	4.0 (2.7)
Total	Largemouth bass	1	9	3	14	27	47	44	34	52	37	18	26	26	24	15	8	7	5	397	66.2 (8.0)
	Spotted bass		4	4	2	10	16	31	20	9	9	10	10	5	4	1				135	22.5 (5.5)
	Smallmouth bass		1	8		2	5	1	2					1	4	1				25	4.2 (1.1)

sedpsdlr.d20

Table 22. Comparison of catch-per-hour of black bass (by area) captured during spring electrofishing on Laurel River Lake during the period of 2016-2020.

	Stock					Quality					Preferred				
Species/Area	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Largemouth bass															
Dam	74.0	54.7	47.3	30.7	40.0	53.3	39.3	36.7	24.7	11.3	21.3	17.3	16.0	8.7	5.3
Spruce Creek	48.7	72.7	50.7	50.7	24.0	45.3	38.0	39.3	42.7	14.0	22.0	29.3	18.0	25.3	10.7
Laurel River Arm	109.3	85.3	75.3	74.0	97.3	70.0	56.7	50.7	46.7	46.7	34.0	21.3	33.3	27.3	19.3
Craigs Cr. headwaters	24.0	69.3	51.3	68.0	36.0	14.7	50.0	36.7	36.7	14.0	5.3	28.0	12.0	13.3	4.0
Mean	64.0	70.5	56.2	55.8	49.3	45.8	46.0	40.8	37.7	21.5	20.7	24.0	19.8	18.7	9.8
Spotted bass															
Dam	9.3	4.0	2.0	3.3	2.7	4.7	4.0	0.7	1.3	0.0	2.7	0.7	0.0	0.0	0.0
Spruce Creek	8.7	24.0	30.0	17.3	14.7	6.0	12.0	12.7	13.3	6.7	4.0	5.3	6.7	1.3	1.3
Laurel River Arm	24.0	18.7	15.3	22.7	33.3	11.3	8.7	3.3	10.0	8.0	1.3	1.3	1.3	1.3	3.3
Craigs Cr. headwaters	17.3	19.3	30.7	18.7	26.0	5.3	12.7	16.0	6.7	11.3	1.3	4.7	4.0	2.0	2.0
Mean	14.8	16.5	19.5	15.5	19.2	6.8	9.3	8.2	7.8	6.5	2.3	3.0	3.0	1.2	1.7
Smallmouth bass															
Dam	7.3	2.0	0.7	4.0	0.0	4.0	1.3	0.0	2.0	0.0	4.0	1.3	0.0	2.0	0.0
Spruce Creek	1.3	2.0	4.0	2.0	2.0	1.3	2.0	2.7	2.0	0.0	1.3	2.0	2.7	1.3	0.0
Laurel River Arm	0.0	2.7	0.7	2.0	3.3	0.0	2.7	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0
Craigs Cr. headwaters	6.0	0.0	1.3	1.3	4.0	4.7	0.0	1.3	1.3	4.0	2.7	0.0	0.7	1.3	4.0
Mean	3.7	1.7	1.7	2.3	2.3	2.5	1.5	1.0	1.8	1.0	2.0	0.8	0.8	1.7	1.0

Largemouth bass - ≥8.0 in = stock, ≥12.0 in = quality, ≥15.0 in = preferred.
Smallmouth bass and spotted bass - ≥7.0 in = stock, ≥11.0 in = quality, ≥14.0 in = preferred.
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Table 23. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Laurel River Lake during May and June 2020.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2020	16.8	2.7	27.8	3.7	11.7	2.5	9.8	1.7	0.0	0.0	66.2	8.0
2019	9.0	1.9	18.2	3.4	19.0	1.8	18.7	2.4	0.8	0.3	64.8	6.3
2018	3.2	0.8	15.3	2.2	21.0	2.2	19.8	2.2	0.5	0.3	59.3	4.9
2017	8.7	1.3	24.5	3.0	22.0	2.6	24.0	2.2	0.2	0.2	79.2	5.2
2016	6.5	1.5	18.2	3.3	25.2	2.9	20.7	3.0	0.8	0.3	70.5	7.9
2015	11.5	2.6	16.5	2.5	23.0	3.2	21.7	2.2	1.2	0.5	72.7	7.1
2014	5.8	1.2	20.0	4.9	16.8	2.5	21.5	2.6	0.8	0.3	64.2	7.9
2013	5.0	1.2	13.3	2.1	26.3	3.0	21.2	2.1	1.2	0.4	65.8	4.6
2012	6.0	1.2	23.3	3.6	18.8	2.9	18.3	2.0	0.2	0.2	66.5	7.6
2011	11.5	3.7	19.8	4.1	26.7	4.7	20.0	2.9	0.8	0.3	78.0	11.6

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Table 24. Spring electrofishing CPUE (fish/hr) for each length group of spotted bass collected at Laurel River Lake during May and June 2020.

	Length group											
	<8.0 in		8.0-10.9 in		11.0-13.9 in		≥14.0 in		≥17.0 in		Total	
Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2020	6.0	1.6	10.0	3.7	4.8	1.2	1.7	0.9	0.0	0.0	22.5	5.5
2019	3.5	0.8	6.2	1.4	6.7	1.6	1.2	0.4	0.0	0.0	17.5	2.6
2018	4.2	0.9	8.5	1.4	5.2	1.2	3.0	1.0	0.0	0.0	20.8	3.2
2017	4.8	1.1	5.3	0.9	6.3	1.5	3.0	0.8	0.0	0.0	19.5	3.2
2016	4.0	0.9	6.3	1.4	4.5	1.1	2.3	0.7	0.0	0.0	17.2	2.4
2015	2.0	0.7	2.8	0.7	4.8	1.0	3.3	0.9	0.0	0.0	13.0	1.9
2014	3.0	0.7	8.2	1.7	6.3	1.5	3.8	1.2	0.0	0.0	21.3	3.6
2013	3.3	0.8	4.8	1.4	10.8	2.9	2.2	0.7	0.0	0.0	21.2	3.9
2012	6.3	1.6	8.3	1.8	6.8	1.6	1.7	0.5	0.0	0.0	23.2	3.3
2011	7.3	1.4	9.2	1.3	7.5	1.7	2.0	0.5	0.0	0.0	26.0	3.5

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Table 25. Spring electrofishing CPUE (fish/hr) for each length group of smallmouth bass collected at Laurel River Lake during May and June 2020.

	Length group											
	<8.0 in		8.0-10.9 in		11.0-13.9 in		≥14.0 in		≥17.0 in		Total	
Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2020	2.7	1.0	0.5	0.3	0.0	0.0	1.0	0.7	0.0	0.0	4.2	1.1
2019	0.5	0.3	0.2	0.2	0.2	0.2	1.7	0.6	1.0	0.4	2.5	0.6
2018	2.0	0.8	0.2	0.2	0.2	0.2	0.8	0.3	0.2	0.2	3.2	0.9
2017	0.7	0.4	0.2	0.2	0.7	0.4	0.8	0.4	0.2	0.2	2.3	0.7
2016	0.5	0.3	1.0	0.5	0.5	0.4	2.0	0.6	1.2	0.5	4.0	1.1
2015	0.3	0.3	0.3	0.3	0.2	0.2	1.3	0.5	0.5	0.3	2.2	0.9
2014	0.7	0.3	0.5	0.3	0.5	0.4	2.3	0.6	1.0	0.4	4.0	0.9
2013	0.3	0.2	0.2	0.2	1.0	0.6	0.8	0.4	0.0	0.0	2.3	0.8
2012	0.3	0.2	0.2	0.2	0.3	0.2	1.0	0.4	0.5	0.3	1.8	0.6
2011	1.0	0.4	1.7	0.5	0.5	0.3	0.8	0.4	0.7	0.3	4.0	1.1

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Table 26. Catch-per-hour of black bass captured during spring electrofishing on lakes in the Southeastern Fishery District during 2020.

Species/Lake	Stock*	Quality*	Preferred*
Largemouth bass			
Laurel River Lake	49.3	21.5	9.8
Cedar Creek Lake	158.7	116.0	65.3
Wood Creek Lake	165.3	40.7	16.7
Spotted bass			
Laurel River Lake	19.2	6.5	1.7
Wood Creek Lake	14.7	4.0	0.0
Smallmouth bass			
Laurel River Lake	2.3	1.0	1.0

*Largemouth bass - ≥8.0 in = stock, ≥12.0 in = quality, ≥15.0 in = preferred
*Smallmouth and spotted bass - ≥7.0 in = stock, ≥11.0 in = quality, ≥14.0 in = preferred

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Table 27. Population assessment for largemouth bass based on spring electrofishing at Laurel River Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	CPUE age-1	CPUE 12.0-14.9 in	CPUE ≥15.0 in	CPUE ≥20.0 in	Total score	Assessment rating
Management objective		≥13.0 in	≥10.0 fish/hr	≥20.0 fish/hr	≥10.0 fish/hr	≥0.5 fish/hr		
2020	Value		22.7	11.7	9.8	0.0		
	Score	4	3	1	2	1	11	F
2019	Value		15.5	19.0	18.7	0.8		
	Score	4	2	2	3	3	14	G
2018	Value	13.4	1.5	21.0	19.8	0.5		
	Score	4	1	2	3	3	13	G
2017	Value		4.3	22.0	24.0	0.2		
	Score	3	1	2	4	2	12	F
2016	Value		3.3	25.2	20.7	0.8		
	Score	3	1	3	4	3	14	G
2015	Value		1.3	23.0	21.7	1.2		
	Score	3	1	3	4	3	14	G
2014	Value		1.6	16.8	21.5	0.8		
	Score	3	1	2	4	3	13	G
2013	Value	13.1	1.2	26.3	21.2	1.2		
	Score	3	1	3	4	3	14	G
2012	Value		3.3	18.8	18.3	0.2		
	Score	3	1	2	3	2	11	F
2011	Value		9.2	26.7	20.0	0.8		
	Score	3	1	3	4	3	14	G

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Table 28. Population assessment for spotted bass based on spring electrofishing at Laurel River Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	CPUE age-1	CPUE 11.0-13.9 in	CPUE ≥14.0 in	Total score	Assessment rating
Management objective		≥11.0 in	≥3.0 fish/hr	≥7.0 fish/hr	≥1.0 fish/hr		
2020	Value		0.8	4.8	1.7		
	Score	1	1	1	3	6	P
2019	Value		0.8	6.7	1.2		
	Score	1	1	2	2	6	P
2018	Value		0.7	5.2	3.0		
	Score	1	1	1	4	7	F
2017	Value		1.3	6.3	3.0		
	Score	1	2	2	4	9	F
2016	Value		1.0	4.5	2.3		
	Score	1	2	1	3	7	F
2015	Value		0.3	4.8	3.3		
	Score	1	1	1	4	7	F
2014	Value		0.5	6.3	3.8		
	Score	1	1	2	4	8	F
2013	Value		0.3	10.8	2.2		
	Score	1	1	4	3	9	F
2012	Value	10.0	0.5	6.8	1.7		
	Score	1	1	2	3	7	F
2011	Value		0.8	7.5	2.0		
	Score	2	1	2	3	8	F

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Table 29. Population assessment for smallmouth bass based on spring electrofishing at Laurel River Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	CPUE age-1	CPUE 11.0-13.9 in	CPUE ≥14.0 in	Total score	Assessment rating
Management objective		≥13.0 in	≥3.0 fish/hr	≥1.5 fish/hr	≥1.0 fish/hr		
2020	Value		1.5	0.0	1.0		
	Score	3	2	1	3	9	F
2019	Value		0.2	0.2	1.7		
	Score	3	1	1	3	8	F
2018	Value		1.3	0.2	0.8		
	Score	3	2	1	2	8	F
2017	Value		0.3	0.7	0.8		
	Score	3	1	2	2	8	F
2016	Value		0.2	0.5	2.0		
	Score	3	1	2	4	10	G
2015	Value		0.0	0.2	1.3		
	Score	3	1	1	3	8	F
2014	Value		0.0	0.5	2.3		
	Score	3	1	2	4	10	G
2013	Value	13.2	0.0	1.0	0.8		
	Score	3	1	3	2	9	F
2012	Value		0.0	0.3	1.0		
	Score	4	1	2	3	10	G
2011	Value		0.3	0.5	0.8		
	Score	4	1	2	2	9	F

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Table 30. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Laurel River Lake during May and June 2020; 95% confidence limits are in parentheses.

		Largemouth bass			Spotted bass			Smallmouth bass		
Year	Area	No. ≥ stock size	PSD (+/- 95%)	RSD_{15} (+/- 95%)	No. ≥ stock size	PSD (+/- 95%)	RSD_{14} (+/- 95%)	No. ≥ stock size	PSD (+/- 95%)	RSD_{14} (+/- 95%)
2020	Dam	60	28 (± 12)	13 (± 9)	4	0 (± 0)	0 (± 0)	0	0 (± 0)	0 (± 0)
	Spruce Creek	36	58 (± 16)	44 (± 17)	22	45 (± 21)	9 (± 12)	3	0 (± 0)	0 (± 0)
	Laurel River Arm	146	48 (± 8)	20 (± 7)	50	24 (± 12)	10 (± 8)	5	0 (± 0)	0 (± 0)
	Upper Craigs Creek	54	39 (± 13)	11 (± 9)	39	44 (± 16)	8 (± 9)	6	100 (± 0)	100 (± 0)
	Total	296	44 (± 6)	20 (± 5)	115	34 (± 9)	9 (± 5)	14	43 (± 27)	43 (± 27)
2019	Total	335	67 (± 5)	33 (± 5)	93	51 (± 10)	8 (± 5)	14	79 (± 22)	71 (± 25)
2018	Total	337	73 (± 5)	35 (± 5)	117	42 (± 9)	15 (± 7)	10	60 (± 32)	50 (± 33)
2017	Total	423	65 (± 5)	34 (± 5)	99	57 (± 10)	18 (± 8)	10	90 (± 20)	50 (± 33)
2016	Total	384	72 (± 5)	32 (± 5)	89	46 (± 10)	16 (± 8)	22	68 (± 20)	55 (± 21)
2015	Total	367	73 (± 5)	35 (± 5)	70	70 (± 11)	29 (± 11)	13	69 (± 26)	62 (± 28)
2014	Total	350	66 (± 5)	37 (± 5)	120	51 (± 9)	19 (± 7)	22	77 (± 18)	64 (± 21)
2013	Total	365	78 (± 4)	35 (± 5)	114	68 (± 9)	11 (± 6)	13	85 (± 20)	38 (± 28)
2012	Total	363	61 (± 5)	30 (± 5)	124	41 (± 9)	8 (± 5)	9	89 (± 22)	67 (± 33)
2011	Total	399	70 (± 4)	30 (± 5)	132	43 (± 8)	9 (± 5)	21	38 (± 21)	24 (± 19)

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Table 31. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Laurel River Lake, Cedar Creek Lake, and Wood Creek Lake during 2020; 95% confidence limits are in parentheses.

	Largemouth bass		Smallmouth bass		Spotted bass	
Lake	PSD	RSD_{15}	PSD	RSD_{14}	PSD	RSD_{14}
Laurel River Lake	44 (±6)	20 (±5)	43 (±27)	43 (±27)	34 (±9)	9 (±5)
Cedar Creek Lake	73 (±6)	41 (±6)				
Wood Creek Lake	25 (±5)	10 (±4)			27 (±19)	0 (±0)

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sedpsdwc.d20

Table 32. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 1.5 hours of 15-minute diurnal electrofishing runs for black bass in Laurel River Lake on 30 September 2020; standard error is in parentheses.

		Inch class																	
Area	Species	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	20	Total	CPUE
Laurel River Arm	Largemouth bass	2	5	10	1	6	11	3	4	8	8	7	7	3	3	4	1	83	55.3 (20.0)
	Spotted bass		1	1	4	1	2	3	1	3	2	2	1					21	14.0 (6.1)
	Smallmouth bass															1		1	0.7 (0.7)

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Table 33. Indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected in the fall (September and October) in electrofishing samples at Laurel River Lake.

		Age-0		Age-0		Age-0 ≥5.0 in		Age-1[a]	
Year class	Area	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	Laurel River Arm	5.0	0.2	12.0	6.0	7.3	4.2		
2019	Laurel River Arm	4.2	0.4	12.7	4.1	5.3	2.7	26.7	4.6
2018	Laurel River Arm	4.2	0.3	21.3	7.6	6.7	3.7	17.3	5.5
2017	Laurel River Arm	3.6	0.3	7.3	2.4	1.3	1.3	2.0	1.4
2016	Laurel River Arm	3.4	0.1	24.0	4.8	2.7	1.3	4.7	1.9
2015	Laurel River Arm	3.5	0.1	5.3	2.0	0.0	0.0	6.7	2.5
2014	Laurel River Arm	4.4	0.1	19.3	4.3	4.0	1.0	4.0	1.5
2013	Laurel River Arm	4.0	0.1	21.3	6.6	2.7	1.3	6.7	2.2
2012	Laurel River Arm	4.6	0.1	11.3	3.6	3.3	1.9	4.0	2.1
2011 [b]	Laurel River Arm	4.1	0.3	10.7	5.6	3.3	1.9	6.0[c]	0.9

[a] Age-1 largemouth bass CPUE based only on Laurel River Arm location

[b] Age-0 largemouth bass stocked in the fall

[c] Includes bass stocked in fall 2011; CPUE of fin-clipped bass=0.0 fish/hr

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Table 34. Number of fish and mean relative weight (Wr) for each length group of black bass collected at 312 Bridge in Laurel River Lake on 30 September 2020. Standard error is in parentheses.

Species	Length group					
	8.0-11.9 in		12.0-14.9 in		≥15.0 in	
Largemouth bass	No.	Wr	No.	Wr	No.	Wr
	26	100 (2)	15	87 (2)	18	98 (2)
	7.0-10.9 in		11.0-13.9 in		≥14.0 in	
Spotted bass	No.	Wr	No.	Wr	No.	Wr
	7	106 (5)	7	101 (3)	1	101 (-)

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Table 35. Length frequency and CPUE (fish/hr) of largemouth bass collected at Cedar Creek Lake in 1.5 hours (0.75 hours in lower end; 0.75 hours upper end; 15-min runs) of diurnal electrofishing on 12 May 2020.

		Inch class																				
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	Std. error
Lower	Largemouth bass	3	16	7	5		6	11	18	11	16	11	9	8	6	7	9	5	1	149	198.7	23.1
Upper	Largemouth bass	2		2		2	2	7	3	6	6	21	13	8	15	23	7	5	4	126	168.0	22.0
Total	Largemouth bass	5	16	9	5	2	8	18	21	17	22	32	22	16	21	30	16	10	5	275	183.3	15.9

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Table 36. PSD and RSD_{15} values obtained for largemouth bass taken in spring electrofishing samples in each area of Cedar Creek Lake on 12 May 2020; 95% confidence levels are in parentheses.

	Lower Lake			Upper Lake			Total		
Year	No. ≥ 8.0 in	PSD (+/- 95%)	RSD_{15} (+/- 95%)	No. ≥ 8.0 in	PSD (+/- 95%)	RSD_{15} (+/- 95%)	No. ≥ 8.0 in	PSD (+/- 95%)	RSD_{15} (+/- 95%)
2020	118	61 (± 9)	31 (± 8)	120	85 (± 6)	52 (± 9)	238	73 (± 6)	41 (± 6)
2019	101	69 (± 9)	59 (± 10)	103	73 (± 9)	53 (± 10)	204	71 (± 6)	56 (± 7)
2018	45	49 (± 15)	36 (± 14)	53	74 (± 12)	62 (± 13)	98	62 (± 10)	50 (± 10)
2017	37	54 (± 16)	30 (± 15)	81	72 (± 10)	52 (± 11)	118	66 (± 9)	45 (± 9)
2016[a]	73	67 (± 11)	47 (± 12)	104	75 (± 8)	52 (± 10)	177	72 (± 7)	50 (± 7)
2015[b]	95	79 (± 8)	52 (± 10)	107	81 (± 7)	53 (± 9)	202	80 (± 6)	52 (± 7)
2014	237	82 (± 5)	48 (± 6)	345	81 (± 4)	47 (± 5)	582	82 (± 3)	47 (± 4)
2013	448	69 (± 4)	33 (± 4)	299	66 (± 5)	36 (± 5)	747	68 (± 3)	34 (± 3)
2012	406	56 (± 5)	27 (± 4)	409	60 (± 5)	30 (± 4)	815	58 (± 3)	29 (± 3)
2011	283	55 (± 6)	22 (± 5)	172	62 (± 7)	31 (± 7)	455	57 (± 5)	25 (± 4)

[a] diurnal sampling beginning in 2016
[b] sampling effort was reduced to 1.5 hours beginning in 2015
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Table 37. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Cedar Creek Lake from 2011-2020.

		Length group											
		<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in			
Year	Area	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	Total	Std. err.
2020	Total	24.7	12.1	42.7	8.8	50.7	8.0	65.3	10.5	3.3	1.2	183.3	15.9
2019	Total	58.7	20.7	39.3	6.1	20.0	5.1	76.7	8.7	5.3	0.8	194.7	25.4
2018	Total	48.7	21.7	24.7	6.8	8.0	1.5	32.7	7.1	1.3	0.8	114.0	23.4
2017	Total	44.7	8.9	26.7	6.5	16.7	2.6	35.3	9.3	2.0	0.9	123.3	9.3
2016	Total	19.3	5.0	33.3	3.2	26.0	5.7	58.7	8.2	5.3	1.7	137.3	7.5
2015	Total	14.0	4.8	26.7	4.2	37.3	5.7	70.7	6.1	5.3	1.3	148.7	8.7
2014	Total	6.3	1.7	30.3	6.0	57.7	8.8	78.3	12.0	5.7	1.1	172.6	25.7
2013	Total	6.3	2.1	69.1	3.7	72.0	8.1	72.3	5.0	10.3	2.3	219.7	12.1
2012	Total	21.4	7.4	98.6	8.5	67.7	7.1	66.6	7.8	7.4	1.6	254.3	17.4
2011	Total	69.4	13.1	55.4	7.2	41.7	4.4	32.9	5.8	4.3	1.1	199.4	18.6

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Table 38. Population assessment for largemouth bass based on spring electrofishing at Cedar Creek Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	CPUE age 1	CPUE 12.0-14.9 in	CPUE ≥15.0 in	CPUE ≥20.0 in	Total score	Assessement rating
Management objective		≥11.5 in	≥16.0 fish/hr	≥20.0 fish/hr	≥30.0 fish/hr	≥4.0 fish/hr		
2020	Value	12.4	22.7	50.7	65.3	3.3		
	Score	4	3	4	4	3	18	E
2019	Value		47.3	20.0	76.7	5.3		
	Score	4	3	2	4	4	17	E
2018	Value		51.3	8.0	32.7	1.3		
	Score	4	3	1	4	2	14	G
2017	Value		44.7	16.7	35.3	2.0		
	Score	4	3	2	4	3	16	G
2016	Value		16.0	26.0	58.7	5.3		
	Score	4	2	3	4	4	17	E
2015	Value	12.0	8.0	37.3	70.7	5.3		
	Score	4	2	3	4	4	17	E
2014	Value		3.7	57.7	78.3	5.7		
	Score	4	1	4	4	4	17	E
2013	Value		4.9	72.0	72.3	10.3		
	Score	4	1	4	4	4	17	E
2012	Value		16.3	67.7	66.6	7.4		
	Score	4	2	4	4	4	18	E
2011	Value		68.6	41.7	32.9	4.3		
	Score	4	4	3	4	4	19	E
2010	Value	13.5	35.5	45.0	42.8	4.1		
	Score	4	3	4	4	4	19	E

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Table 39. Length-frequency and CPUE (fish/hr) of largemouth bass collected during 1.5 hours of nocturnal electrofishing (0.75 hours in lower end; 0.75 hours in upper end; 15-minute runs) at Cedar Creek Lake on 28 September 2020; standard error is in parentheses.

	Inch class																				
Area	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Lower	9	11	15	4	2	4	10	6	3	2	2	1	3	1	1	2	1			77	102.7 (35.9)
Upper	38	14	9	4	6	5	8	5	3	6	4	5	2		1	1	1	1	1	114	152.0 (35.9)
Total	47	25	24	8	8	9	18	11	6	8	6	6	5	1	2	3	2	1	1	191	127.3 (25.2)

sedyoycc.d20

Table 40. Indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected in the fall (September and October) in electrofishing samples at Cedar Creek Lake.

	Age-0		Age-0		Age-0 $\geq$5.0 in		Age-1	
Year class	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	3.4	0.1	69.3	16.7	5.3	2.5		
2019	3.3	0.1	113.3	14.9	2.0	0.9	22.7	12.2
2018	4.2	0.1	52.7	10.6	9.3	2.0	47.3	17.4
2017	4.0	0.1	68.7	15.8	10.7	3.8	51.3	21.9
2016	4.0	0.1	131.3	45.2	36.7	10.1	44.7	8.9
2015	3.4	0.1	50.0	18.6	4.0	1.5	16.0	4.5
2014	3.8	0.2	19.3	7.6	3.3	1.2	8.0	4.0
2013	3.5	0.2	9.4	3.9	0.3	0.3	3.7	1.2
2012	4.0	0.2	18.3	7.6	7.1	1.8	4.9	2.1
2011	4.2	0.1	27.1	4.0	6.0	1.1	16.3	6.5

sedyoycc.d20

Table 41. Number of fish and mean relative weight (Wr) for each length group of largemouth bass collected in Cedar Creek Lake on 28 September 2020. Standard error is in parentheses.

		Length group					
		8.0-11.9 in		12.0-14.9 in		≥15.0 in	
Species	Area	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Lower	21	93 (4)	6	90 (1)	5	97 (4)
	Upper	22	96 (2)	11	99 (4)	5	86 (5)
	Total	43	95 (2)	17	96 (3)	10	91 (4)

sedyoycc.d20

Table 42. Mean back calculated lengths (in) at each annulus for largemouth bass collected from Cedar Creek Lake during 2020, including the 95% confidence interval (CI) for each mean length per age group.

		Age									
Year	No.	1	2	3	4	5	6	7	8	9	10
2019	31	4.7									
2018	26	6.0	9.4								
2017	12	6.0	9.9	12.0							
2016	3	7.5	12.3	14.7	15.8						
2015	3	6.2	11.5	13.9	14.7	15.5					
2014	2	4.7	9.8	13.5	15.2	16.4	17.2				
2012	1	3.9	9.6	12.2	13.2	14.5	15.1	15.7	16.4		
2011	1	7.9	12.1	13.8	15.9	16.9	17.6	18.3	19.3	19.7	
2010	1	5.2	10.3	12.9	14.6	16.2	17.1	17.8	18.1	18.8	19.1
Mean		5.5	9.9	12.8	15.1	15.9	16.8	17.3	17.9	19.2	19.1
Number		80	49	23	11	8	5	3	3	2	1
Smallest		3.2	6.6	10.1	12.3	13.6	15.1	15.7	16.4	18.8	19.1
Largest		12.1	15.2	16.9	17.6	16.9	17.6	18.3	19.3	19.7	19.1
Std error		0.2	0.2	0.4	0.5	0.4	0.5	0.8	0.9	0.5	
95% CI ±		0.4	0.4	0.7	1.1	0.9	0.9	1.6	1.7	0.9	

Otoliths were used for age-growth determinations; Intercept = 0
sedagccl.d20

Table 43. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 1.5 hours of 15-minute diurnal electrofishing runs for black bass in Wood Creek Lake on 13 May 2020; standard error is in parentheses.

		Inch class																			
Area	Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Pump	Largemouth bass		3	1	2	16	10	13	25	13	4	2	1	6	2	1			1	100	133.3 (8.7)
Station	Spotted bass			1	2	2	6	6	4	1	1									23	30.7 (18.8)
Dock	Largemouth bass	8	18	21	7	46	23	33	21	9	6	2		1	4	4	2	2	1	208	277.3 (68.7)
	Spotted bass																			0	0.0 (0.0)
Total	Largemouth bass	8	21	22	9	62	33	46	46	22	10	4	1	7	6	5	2	2	2	308	205.3 (44.7)
	Spotted bass			1	2	2	6	6	4	1	1									23	15.3 (10.9)

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Table 44. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Wood Creek Lake on 13 May 2020; 95% confidence limits are in parentheses.

		Largemouth bass			Spotted bass		
Year	Area	No. $\geq$ stock size	PSD (+/- 95%)	RSD_{15} (+/- 95%)	No. $\geq$ stock size	PSD (+/- 95%)	RSD_{14} (+/- 95%)
2020*	Pump Station	94	32 ($\pm$ 9)	12 ($\pm$ 7)	22	27 ($\pm$ 19)	0 ($\pm$ 0)
	Dock	154	20 ($\pm$ 6)	9 ($\pm$ 5)	0	0 ($\pm$ 0)	0 ($\pm$ 0)
	Total	248	25 ($\pm$ 5)	10 ($\pm$ 4)	22	27 ($\pm$ 19)	0 ($\pm$ 0)
2019*	Total	320	16 ($\pm$ 4)	2 ($\pm$ 2)	12	17 ($\pm$ 22)	0 ($\pm$ 0)
2018*	Total	223	33 ($\pm$ 6)	12 ($\pm$ 4)	17	41 ($\pm$ 24)	6 ($\pm$ 12)
2017*	Total	181	25 ($\pm$ 6)	4 ($\pm$ 3)	32	34 ($\pm$ 17)	3 ($\pm$ 6)
2016*	Total	110	42 ($\pm$ 9)	8 ($\pm$ 5)	23	26 ($\pm$ 18)	0 ($\pm$ 0)
2015	Total	259	41 ($\pm$ 6)	10 ($\pm$ 4)	37	30 ($\pm$ 15)	0 ($\pm$ 0)
2014	Total	334	34 ($\pm$ 5)	10 ($\pm$ 3)	61	21 ($\pm$ 10)	0 ($\pm$ 0)
2013	Total	256	23 ($\pm$ 5)	9 ($\pm$ 4)	79	14 ($\pm$ 8)	1 ($\pm$ 2)
2012	Total	215	20 ($\pm$ 5)	5 ($\pm$ 3)	60	17 ($\pm$ 10)	0 ($\pm$ 0)
2011	Total	185	39 ($\pm$ 7)	16 ($\pm$ 5)	47	17 ($\pm$ 11)	0 ($\pm$ 0)

* Lower lake area was not sampled
sedpsdwc.d20

Table 45. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Wood Creek Lake during May 2020.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2020*	40.0	17.5	124.7	26.7	24.0	5.2	16.7	2.8	2.7	2.0	205.3	44.7
2019*	55.3	23.0	178.7	39.9	30.0	5.3	4.7	1.2	0.0	0.0	268.7	67.1
2018*	56.7	15.9	99.3	15.9	32.0	5.8	17.3	3.7	1.3	0.8	205.3	36.8
2017*	121.3	48.5	90.0	19.9	25.3	4.3	5.3	1.7	0.7	0.7	242.0	70.8
2016*	40.0	14.5	42.7	9.0	24.7	3.2	6.0	0.9	0.7	0.7	113.3	21.3
2015	11.7	2.4	51.3	10.6	26.3	6.0	8.7	2.0	1.3	0.6	98.0	15.8
2014	19.0	4.2	74.0	13.4	25.7	4.7	11.7	3.1	1.0	0.7	130.3	19.8
2013	16.7	5.4	65.3	12.1	12.0	1.8	8.0	1.6	1.0	0.5	102.0	17.7
2012	13.7	4.6	57.0	15.2	11.0	2.5	3.7	0.9	0.3	0.3	85.3	19.4
2011	28.3	5.8	37.7	5.9	14.3	3.3	9.7	2.7	1.0	0.5	90.0	12.9

* Lower lake area was not sampled
sedpsdwc.d20

Table 46. Spring electrofishing CPUE (fish/hr) for each length group of spotted bass collected at Wood Creek Lake during May 2020.

	Length group											
	<8.0 in		8.0-10.9 in		11.0-13.9 in		≥14.0 in		≥17.0 in		Total	
Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
2020*	2.0	1.4	9.3	6.3	4.0	4.0	0.0	0.0	0.0	0.0	15.3	10.9
2019*	2.0	1.4	6.0	3.4	1.3	0.8	0.0	0.0	0.0	0.0	9.3	4.7
2018*	2.0	1.4	6.0	3.2	4.0	2.5	0.7	0.7	0.0	0.0	12.7	5.5
2017*	6.7	4.0	11.3	5.6	6.7	4.0	0.7	0.7	0.0	0.0	25.3	12.5
2016*	5.3	4.6	9.3	5.7	4.0	2.5	0.0	0.0	0.0	0.0	18.7	10.6
2015	4.3	1.7	7.3	2.1	3.7	0.9	0.0	0.0	0.0	0.0	15.3	3.9
2014	6.3	2.5	13.7	2.7	4.3	1.5	0.0	0.0	0.0	0.0	24.3	5.1
2013	6.0	2.0	19.7	5.4	3.3	1.7	0.3	0.3	0.0	0.0	29.3	7.0
2012	17.7	4.4	11.0	2.3	3.3	1.2	0.0	0.0	0.0	0.0	32.0	7.1
2011	16.3	4.2	9.0	2.8	2.7	1.2	0.0	0.0	0.0	0.0	28.0	7.3

* Lower lake area was not sampled
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Table 47. Population assessment for largemouth bass based on spring electrofishing at Wood Creek Lake from 2011-2020 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	CPUE age 1	CPUE 12.0-14.9 in	CPUE ≥15.0 in	CPUE ≥20.0 in	Total score	Assessement rating
Management objectives		≥11.5 in	≥8.0 fish/hr	≥20.0 fish/hr	≥17.0 fish/hr	≥2.0 fish/hr		
2020	Value		34.0	24.0	16.7	2.7		
	Score	1	3	2	3	3	12	F
2019	Value	10.1	44.7	30.0	4.7	0.0		
	Score	1	3	3	1	1	9	F
2018	Value		40.7	32.0	17.3	1.3		
	Score	3	3	3	3	2	14	G
2017	Value		105.3	25.3	5.3	0.7		
	Score	3	4	2	1	2	12	F
2016	Value		29.3	24.7	6.0	0.7		
	Score	3	3	2	2	2	12	F
2015	Value		5.0	26.3	8.7	1.3		
	Score	3	1	3	2	2	11	F
2014	Value	11.3	6.0	25.7	11.7	1.0		
	Score	3	1	3	2	2	11	F
2013	Value		14.0	12.0	8.0	1.0		
	Score	3	2	1	2	2	10	F
2012	Value		4.3	11.0	3.7	0.3		
	Score	3	1	1	1	2	8	P
2011	Value		24.8	14.3	9.7	1.0		
	Score	3	3	2	2	2	12	F

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Table 48. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 1.5 hours of 15-minute diurnal electrofishing runs for black bass in Wood Creek Lake on 29 September 2020; standard error is in parentheses.

		Inch class																
Area	Species	2	3	4	5	7	8	9	10	11	12	13	14	15	18	19	Total	CPUE
Pump station	Largemouth bass	1	2	5		1	8	8	7	3	3	1	1	1			41	54.7 (18.5)
	Spotted bass					1		1	1								3	4.0 (2.3)
Dock	Largemouth bass	1	20	27	9	24	16	18	15	16	5	1	2	1	1	1	157	209.3 (22.2)
	Spotted bass																0	0.0 (0.0)
Total	Largemouth bass	2	22	32	9	25	24	26	22	19	8	2	3	2	1	1	198	132.0 (36.9)
	Spotted bass					1		1	1								3	2.0 (1.4)

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Table 49. Indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected in fall (September and October) electrofishing samples at Wood Creek Lake.

	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2020	4.2	0.1	43.3	15.3	6.0	2.9		
2019	4.5	0.1	45.3	14.3	9.3	3.8	34.0	15.6
2018	4.3	0.1	37.3	14.9	8.0	3.7	44.7	20.4
2017 [a]	4.1	0.2	16.0	4.4	2.7	1.3	40.7	12.7
2016	4.0	0.1	74.7	22.6	8.7	1.6	105.3	43.5
2015	4.2	0.1	32.7	7.8	8.0	2.2	29.3	12.8
2014 [a]	3.7	0.2	2.7	0.9	0.0	0.0	5.0	1.0
2013 [a]	3.4	0.2	11.3	3.0	1.0	0.5	6.0	1.7
2012	4.3	0.1	34.7	10.1	8.3	4.2	14.0	4.9
2011 [a]	4.0	0.1	12.3	4.1	0.7	0.7	4.3 [b]	1.6

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[a] Age-0 largemouth bass stocked in the fall

[b] Includes fish stocked in fall 2011; CPUE stocked fish=1.0 fish/hr

Table 50. Number of fish and mean relative weight (Wr) for each length group of black bass collected at Wood Creek Lake during 29 September 2020. Standard error is in parentheses.

Species	Length group					
	8.0-11.9 in		12.0-14.9 in		≥15.0 in	
Largemouth bass	No.	Wr	No.	Wr	No.	Wr
	91	85 (1)	13	82 (1)	4	90 (7)
	7.0-10.9 in		11.0-13.9 in		≥14.0 in	
Spotted bass	No.	Wr	No.	Wr	No.	Wr
	3	97 (1)	0	-	0	-

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EASTERN FISHERY DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Due to Covid19 restrictions and staffing considerations, most spring sampling (bass in particular) had to be cancelled for 2020. We were able to resume fall data collection following appropriate safety guidelines.

Table 1 shows sampling conditions by water body for eastern fishery district lakes in 2020.

Buckhorn Lake

Muskellunge
Diurnal electrofishing was conducted during early-February (Tables 2-4). A total of 20 fish were collected from 12.7-40.2 in (Table 2) with the largest fish weighing 19.58 lb. Relative weight (Wr) values by length group are listed in Table 3. Relative weight increased with increasing fish size. An assessment rating of “Good” was observed for the fishery (Table 4). Please note that the 2017-2019 sample events were conducted during poor conditions. Due to Covid19 restrictions and staffing considerations, hatcheries were not able to produce enough muskellunge for stocking in 2020. Fish from the last stocking (2019) did not have any wire tag or fin clip for identification, but future stockings should include an appropriate identification mark. Stocking sites usually include the marina and Trace Fork boat ramps. The normal stocking number is 405 fish/yr; however, in 2018 the lake only received 150 fish.

Black bass
Spring electrofishing data from 2003-2019 is shown in Table 5.

Fall nocturnal electrofishing was completed for black bass to determine length frequency, age and growth and year class strength (Tables 6-8). This fall, lake turn-over prevented sampling efforts from being effective in the upper lake sections, reflecting a lower than usual CPUE (Table 6). Age growth data from largemouth bass collected in 2020 from Buckhorn Lake is shown in Table 7. Growth rates for largemouth bass have slowed, with bass only reaching 11.7 in by age-3. Previous growth rates for largemouth bass were slightly higher with age-3 fish attaining lengths of 13.3 inches in 2009 and 12.1 inches in 2014. Length-frequency data shows that the highest density of fish collected in the fall 2020 sample ranged from 9.0 to 12.0 inches in length (Table 6). Catch rates of age-0 largemouth bass (50.9 fish/hr) decreased in 2020 in relation to the catch rates observed over the last several years. Mean age-0 largemouth bass length (4.8 in) was slightly above average. Recruitment has been good in recent years with above-average CPUE observed for age-0 fish from 2016-2019.

Additional lake stockings in 2020 included 24,600 redear sunfish (1.2 in) during September. Approximately 3,200 rainbow trout (8.0-12.0 in) were stocked in the tailwater during the months of May-June and October-November.

Carr Creek Lake

Black bass
Spring electrofishing data from 2002-2019 is shown in Table 9.

Electrofishing was completed in September and October for black bass (Tables 10 and 11). Hydrilla expanded significantly at Carr Creek Lake in 2020, especially in the upper lake arms. Zebra mussels first started showing up in 2019 and the water stayed clear for the majority of the spring and summer in 2020, furthering the expansion of the hydrilla. Length frequency for black bass over 12.0 in was low (Table 10). The expansion of hydrilla limited the ability to electrofish shoreline habitat in the fall, likely reducing catch rates of larger fish. Age-0 CPUE (50.9 fish/hr) was observed to be above average (26.2 fish/hr; Table 11). Mean age-0 largemouth bass length (4.8 in) was also slightly above average. Fall YOY sampling suggests a very good largemouth bass year class in 2020. Increased hydrilla densities most likely played a part in the higher recruitment of age-0 largemouth bass.

Walleye
Diurnal electrofishing samples were collected in the early spring for walleye (Tables 12-14). Additionally, during this sampling effort, broodfish were collected for Minor Clark Fish Hatchery. Over multiple days sampling for broodfish, a total of 87 walleye were sampled (Table 12). The majority of fish were in the 18.0- to 22.0-in size class (Table 12). The total relative weight value was 95 (Table 14) and is good considering that a large proportion were males. This parameter can be influenced by the number of males collected. The $\log_{10}$ length-weight equation for walleye during 2020 sampling was $-3.60 + 3.13(\log_{10}$ length). A typical walleye stocking for Carr Creek Lake is 35,000 (1.2 in) fish. Staff from Minor Clark Fish Hatchery experimented with growing out walleye fry to larger sizes in 2020. Some of the resulting pond-reared walleye were stocked at Carr Creek Lake in August, including 521 (7.0 in), 11,505 (4.4 in) and 6,453 (3.3 in) fingerlings. The stocking was split between the Litt Carr and Marina boat ramps.

Crappie
Early spring electrofishing was used to collect black and white crappie (Tables 15-20). The fishery is managed under a 9.0-in minimum size limit. The total CPUE has fluctuated significantly from year to year (Table 16), but crappie populations can be cyclic in numbers. Tables 18 and 19 contain age and growth data for black and white crappie. All age groups from 1-9 (white) and 1-10 (black) were represented in the age and growth data. Tentative scheduling will include early spring electrofishing in 2022.

Grass carp were stocked jointly by KDFWR and the USACE in an effort to help control hydrilla growth. September grass carp stockings totaled 200 fish at 10.0- to 12.0-in average length. A redear sunfish stocking program was initiated in October 2018 and stocking continued in 2019 and 2020 with 14,200 (1.2 in) fish stocked in September of each year. Tailwater stockings included 3,500 (total) rainbow trout during the months of May, June, October and November.

During 2019, zebra mussels were documented for the first time in the lake, and they became prolific in number by year end. For 2020, the zebra mussel population peaked by early summer and numbers looked to have significantly reduced by fall. This follows several other recent invasive species introductions of purple loosestrife (2013), hydrilla (2008), and alewife (2000) to Carr Creek Lake.

Cranks Creek Lake

Black bass
Spring electrofishing data from 2000-2019 is shown in Table 21.

Fall nocturnal electrofishing was completed in October for black bass to determine length frequency and year class strength (Tables 22 and 23). Age-0 CPUE (43.2 fish/hr) was observed to be slightly below average. Mean age-0 length (4.3 in) was average (Table 23). This lake’s weighted regression shows that the YOY year class is often density dependent. Stocking advanced fingerlings in the fall does not always benefit the year class. This is an extremely clear, relatively infertile lake. Past efforts to apply fertilizer have had little to no effect due to water chemistry. Largemouth bass are the dominant black bass species and this lake continues to produce some trophy-size fish.

Approximately 3,000 rainbow trout (total) were stocked in the lake in January and October. Channel catfish (2,640) were also stocked. No vegetation controls were utilized in 2020; however, herbicides have been used when needed in the past and future work may include a low-rate stocking of grass carp.

Dewey Lake

Black bass

Spring electrofishing data from 1987-2019 is shown in Table 24.

Fall nocturnal electrofishing was completed in October for black bass to determine length frequency and year class strength (Tables 25 and 26). The year class strength model indicated that 2020 was a below-average recruitment year for young-of-year largemouth bass. Age-0 CPUE (11.6 fish/hr) was well below the lake average (43.4 fish/hr). Sampling conditions in the upper portion of the lake were poor and visibility was limited due to muddy water. Recruitment has been consistently low since 2010. Supplemental age-0 fingerling bass were stocked in the fall from 2011-2017. Due to Covid19 and staffing restrictions, no supplemental bass were raised at the hatcheries for stocking in 2020. Dewey Lake lacks significant vegetation in the majority of the lake. EFD staff have increased habitat improvement efforts in a move to increase available cover.

Crappie

Trap netting was conducted in the fall to sample black and white crappie (Tables 27-34). Total CPUE was 20.7 and 17.8 fish/nn for white and black crappie, respectively (Table 27). Age-3 white crappie (Table 31) and age-4 black crappie (Table 32) were the most numerous age classes for each species. The population assessment was "Good" for white crappie (Table 33) and "Fair" for black crappie (Table 34). Mean total length of age-2 fish at capture was 7.8 in for white crappie (Table 33) and 6.5 in for black crappie (Table 34). Mean total length at age-2 for either species failed to reach the 9.0 or 10.0-in size desired for commonly used minimum size limits in Kentucky.

A total of 11,000 blue catfish (5.0-9.0 in) were stocked in October. Due to COVID-19 restrictions and staffing considerations, hatcheries were not able to produce enough muskellunge for stocking in 2020. Rainbow trout (1,000/mo; 9.3-10.2 in) were stocked in the Dewey Lake tailwater in May, October, and November.

Fishtrap Lake

Black bass

During 2020, both spring and fall electrofishing samples were completed for black bass (Tables 35-40). Catch rates for all length groups increased in 2020 when compared to 2019 data (Table 36). PSD data showed a population skewed towards larger sizes (Table 37). The spring assessment was "Excellent" for largemouth bass (Table 38). This lake experienced an extreme drawdown of approximately 42 ft during the winter of 2016-2017 for hydraulic gate repairs in the dam. In 2017, following these repairs, largemouth bass had a spring assessment of "Fair" and in 2018 were not sampled. The most recent assessments suggest that recruitment of spring age-1 bass is improving. Mean age-0 length (5.2 in) in the fall was above the lake average (4.9 in). The total CPUE of age-0 (66.0 fish/hr) and age-0 $\geq$ 5.0 in fish (34.8 fish/hr) was well below the lake averages (105.3 and 50.0 fish/hr, respectively). When fall age-0 catch data suggests the need for stocking, advanced fingerlings for Fishtrap are held over-winter for stocking the following spring. Hold-over bass from 2019 were stocked in March 2020. Due to Covid19 restrictions and staffing considerations, hatcheries were not able to produce enough bass for stocking hold-overs in the spring of 2021.

Walleye

Numerous (unsuccessful) attempts have been made in recent years to collect native walleye broodfish in the upper end of the lake with spring electrofishing. Very few anglers have reported catching walleye in the lake or above the lake in Levisa Fork River. Walleye stockings were discontinued in 2020.

A total of 11,430 blue catfish (7.5 in) were stocked in the lake during October. A total of 23,106 hybrid striped bass (1.5 in) were stocked in June. Rainbow trout (5,000 total) were stocked in the tailwater in May, June and October.

Highsplint Lake

Black bass
Spring diurnal electrofishing results for length distribution and CPUE are presented in Tables 41-43. The overall catch rate of bass (400.0 fish/hr) was similar to 2012 (Table 42). Largemouth bass <8.0 in have decreased significantly while 12.0- to 14.9-in bass have increased (Table 42). Bass PSD (26) is low and the population is dominated by fish in the 8.0- to 11.9-in range (254.0 fish/hr) with poor numbers of fish ≥15.0 in (6.0 fish/hr; Tables 42-43). This is an extremely clear lake with low fertility which will often develop a significant vegetation problem by late spring if left untreated.

Water quality readings were taken during spring 2020. It was determined that alkalinity (34.2 mg/L) and hardness (102.7 mg/L) readings were within appropriate levels for the lake to benefit from the addition of granular fertilizer. Often, this process will effectively shade lake vegetation by boosting phytoplankton/zooplankton levels. Two separate fertilizer applications during the month of May (50 lbs/2 weeks) were successful at reducing secchi disk visibility from 332 in to 60 in. During spring of 2020, some herbicide was also applied to areas of the lake to limit aquatic plant and filamentous algae growth acting as unnecessary protection for small bass and bluegill and also limiting bank angler access.

Fish stockings in the lake for 2020 included rainbow trout in January (1,750) and October (1,000), and channel catfish (1,000; 7.1-in) in October.

During August 2012, a small portion of the lake was found to have a thermocline at approximately 27-35 ft with sufficient dissolved oxygen (4.55-5.45 ppm) and water temp (65-72 F) for trout to survive. With rainbow trout being stocked in the lake, some holdover could occur and produce larger-size fish.

Martins Fork Lake

Black bass
Spring electrofishing data from 2003-2019 is shown in Table 44.

Fall 2020 length-frequency data shows that the highest density of largemouth bass fell in the 7.0- to 11.0-in range (Table 45). Age and growth studies showed that, on average, largemouth bass reach the 12.0-in minimum size limit between age 4 and age 5 (Table 46). Growth rates for largemouth bass have slowed, with bass only reaching 10.1 in by age-3. Previous growth rates for largemouth bass were slightly higher with age-3 largemouth attaining lengths of 10.9 inches in 2014 and 11.8 inches in 2009. From 2016-2018, there were larger-than-average year classes of age-0 largemouth bass (Table 47). In 2020, the year class strength model indicated below-average recruitment for young-of-year largemouth bass (16.0 fish/hr; Table 47). Due to Covid19 restrictions and staffing considerations, hatcheries were not able to produce enough bass for stocking in 2020.

Walleye
During March, a day was utilized to electrofish for walleye broodfish; however, no adults were collected. The native strain walleye has been stocked annually since 2013. Walleye were collected during fall largemouth bass sampling; however, no large fish were observed (Table 45).

Martins Fork Lake was stocked with 8,022 native strain walleye (3.0 in) in June. In addition, 6,700 redear sunfish (1.2 in.) were stocked in September. Channel catfish (4,900; 7.1 in) were stocked in October. Rainbow trout (750 fish/mo) were stocked at the tailwater in May, June, October and November.

Panbowl Lake

Black bass
Diurnal electrofishing was conducted in May to assess the largemouth bass population. Length frequency and CPUE for largemouth bass is shown in Table 48. Catch per hour (by length group) for largemouth bass is shown in Table 49. Fish were sampled from approximately 5.0 to 19.0 in (Table 48). Smaller size ranges were more

numerous resulting in a marginal size structure (Table 50). High fishing pressure, due to the lake's location within the city of Jackson may likely be contributing to the low number of keeper fish (>12.0 in). During the 1990's to early-2000's, it was common to observe largemouth bass PSD values of 60-70.

A total of 3,000 rainbow trout (9.7 in) were stocked in October. An additional 1,864 channel catfish (9.5 in) were stocked in September.

Paintsville Lake

Black bass
Spring electrofishing data from 1988-2019 is shown in Table 51.

Fall diurnal electrofishing was completed in late October to determine length frequency and year class strength of largemouth bass (Tables 52 and 53). Age-0 overall CPUE (71.2 fish/hr) was average while age-0 $\geq$ 5.0 in CPUE (6.0 fish/hr) was well below average. Mean age-0 largemouth bass length (3.3 in) was also below average.

The 12.0- to 15.0-in slot length limit for largemouth bass was replaced with a minimum length limit of 12.0 in beginning 1 March 2019. The slot length regulation was in effect for 17 years (2002-2018). Bass angler acceptance of the new regulation has been largely positive.

Walleye broodfish collection was conducted in March resulting in few fish. Spring electrofishing for crappie is tentatively scheduled for 2021.

The lake received a stocking of 6,000 rainbow trout (9.2 in) during February. The lake also received 23,040 hybrid striped bass (1.5 in) in June. Under current stocking plans, hybrid striped bass will be stocked every third year instead of walleye. The walleye fingerlings for that year are set to be used for the pulse-stocking at Lake Cumberland.

The tailwater trout fishery received approximately 12,000 rainbow trout from June to November. Due to Covid19 and staffing restrictions, no trout were stocked in the tailwater during April and May. Due to an increase in temperature in the tailwater, the brown trout stocking was permanently removed beginning in 2020.

Yatesville Lake

Black bass
Spring diurnal electrofishing was completed in May to assess the black bass population. Length distribution and CPUE are presented in Tables 54 and 55. The lower lake produced a greater CPUE for largemouth bass versus the upper lake area (Table 54). The overall largemouth CPUE of 150.5 fish/hr was on average with the last two years and remains above the lake's historical average of 138.7 fish/hr (Table 55). The catch rate of largemouth $\geq$15.0 in (13.0 fish/hr) is slightly below the average of the last 10 years (Tables 55 and 57). Largemouth bass size structure indices were similar to previous years (PSD=42; RSD=16; Table 56). The population assessment remained "Fair" for largemouth bass in 2020 (Table 57). Recruitment of spring age-1 largemouth has remained mostly above average since 2015. Our most recent age and growth data suggests growth is slowing (Table 57). Age and growth data collection is planned for 2021. Due to heavy angling pressure via tournaments from spring into fall, the population is watched closely. We will continue to monitor assessments.

Fall nocturnal electrofishing was completed in October to determine length frequency and year class strength of black bass species (Tables 58 and 59). Largemouth bass made up the majority of the fall sample (94%) while spotted bass only made up 6%. Age-0 overall CPUE (53.7 fish/hr) and age-0 $\geq$ 5.0-in CPUE (22.0 fish/hr) suggests that the 2020 year class was slightly below average (61.4 fish/hr and 33.3 fish/hr, respectively; Table 59). Mean age-0 largemouth bass length (4.8 in) was average compared to most years.

Crappie
Trap netting for white crappie was conducted in mid-November (Tables 60-64). A total of 2,146 fish were collected from 3.0-15.0 in for a CPUE of 143.1 fish/nn (Table 60). The assessment rating remained "Excellent"; however, recruitment of age-0 and age-1 white crappie has been high over the long term, especially since 2016. PSD values for white crappie sampled in 2020 (16) fell below the 2018 sample value (26; Table 61). Additionally, mean length of age-2 fish at capture decreased from 6.3 inches in 2018 to 6.0 inches in 2020 (Table 64). Consistently high recruitment appears to be keeping growth rates low (Table 64). Age-0 fish accounted for the largest year class sampled in 2020 at 36% (Table 63). White crappie will next be sampled in 2022.

Rainbow trout were stocked in the tailwater of Yatesville Lake in May (1,000 fish) and October and November (750 fish each month).

Table 1. Summary of 2020 sampling conditions by waterbody, species sampled and date.

Water body	Species	Date	Time (24hr)	Gear	Weather	Water Temp (ºF)	Water level (elev ft)	Secchi (in)	Pertinent sampling comments[a,b]
Buckhorn Lake	Musky	3-Feb	1100	shock	pt. cloudy	45.0	757.7	26	outflow : 400cfs; bp: 29.96; cond: 326; 1 boat; low er lake; w ater turbid
Buckhorn Lake	LMB	7-Oct	2000	shock	clear	72.5	781.6	68	outflow : 60cfs; bp: 29.93; cond: 528; 2 boats; w hole lake; variable w ater clarity; LMB A&G
Buckhorn Tailw ater	Walleye	16-Mar	1000	shock	cloudy/rain	50.0	787.0	30	outflow : 3203cfs; bp: 30.22; 1 boat; Squabble Creek; w ater turbid
Carr Creek Lake	crappie	20-Feb	1000	shock	cloudy	46.0	1022.0	26	outflow : 589cfs; bp: 30.48; cond: 345; 1 boal; upper lake; w ater muddy;
Carr Creek Lake	crappie	25-Feb	1000	shock	cloudy/rain	47.4	1017.3	29	outflow : 105cfs; bp: 29.73; cond: 234; 1 boal; w hole lake; w ater muddy
Carr Creek Lake	w alleye	4-Mar	1000	shock	clear	48.3	1017.9	55	broodfish collection; outflow : 96cfs; bp: 30.01; cond: 320; 2 boals; w hole lake; w ater clear
Carr Creek Lake	w alleye	9-Mar	1000	shock	clear	46.5	1017.2	64	broodfish collection; outflow : 75cfs; bp: 30.48; cond: 347; 2 boals; w hole lake; w ater clear
Carr Creek Lake	w alleye	16-Mar	1000	shock	cloudy/calm	51.0	1022.1	20	outflow : 368cfs; bp: 30.35; cond: 347; 2 boals; w hole lake; w ater muddy; broodfish
Carr Creek Lake	LMB	17-Sep	1000	shock	cloudy/rain	79.5	1028.0	186	outflow : 5cfs; cond: 606; 1 boal; upper lake; w ater clear
Carr Creek Lake	LMB	13-Oct	2000	shock	clear	70.0	1027.3	200	outflow : 9cfs; bp: 30.08; cond: 640; 2 boals; w hole lake; w ater clear
Cranks Creek Lake	LMB	27-Oct	1100	shock	pt. cloudy	65.8	normal	84	bp: 30.24; cond: 269; 1 boal; w hole lake; w ater clear
Dew ey Lake	LMB	15-Oct	2000	shock	cloudy/w ind	69.0	650.6	58	outflow : 119cfs; bp: 29.88; cond: 622; 2 boals; w hole lake; w ater clear
Dew ey Lake	crappie	11-9/11-11	1000	trap net	clear/w arm	57.0	649.2/648.8	32	outflow : variable 104-163cfs; bp: 30.30; upper (middle) lake; crappie A&G
Fishtrap Lake	LMB	18-May	1000	shock	cloudy/rain	71.0	757.5	98	outflow : 688cfs; bp: 29.85; cond: 326; 1 boal; w hole lake; w ater clear;
Fishtrap Lake	LMB	20-Oct	2000	shock	clear	68.1	757.5	64	outflow : 105cfs; bp: 30.14; cond: 719; 2 boats; w hole lake; w ater clear
Highsplint Lake	LMB	14-May	1100	shock	pt. cloudy	61.0	normal	332	bp: 30.24; cond: 240; 1 boat; w hole lake; w ater clear
Ky River (Jackson)	Walleye	10-Mar	1100	shock	cloudy/rain	49.5	3.3		flow : 1,520cfs; bp: 30.16; native w alleye broodfish
Levisa Fork (FTL)	Walleye	12-Mar	1100	shock	rain	51.0	736.2		river flow : 630cfs; lake outflow : 260.7 bp: 30.14; broodfish collection
Martins Fk Lake	w alleye	14-Mar	1100	shock	pt. cloudy	50.0	1302.3	38	bp: 30.11; cond: 98; 1 boat; w ater muddy; broodfish collection
Martins Fk Lake	LMB	5-Oct	2000	shock	clear	70.0	1309.9	60	outflow : minimal; bp: 30.21; cond: 203; 1 boat; w hole lake; w ater clear; LMB A&G
Paintsville Lake	w alleye	12-Mar	1000	shock	pt. cloudy	50.5	709.5		outflow : 199.4; bp: 29.97; w ater turbid; broodfish collection
Paintsville Lake	LMB	28-Oct	1000	shock	cloudy	63.1	709.4	90	outflow : 26cfs; bp: 30.09; cond: 133; 2 boats; w hole lake; w ater clear
Panbow l	LMB	22-May	1000	shock	pt. cloudy	68.5	normal	68	bp: 30.08; cond: 146; 1 boat; w ater turbid
Yatesville Lake	LMB	19-May	1000	shock	cloudy/rain	69.6	630.4	76	outflow : 128cfs; bp: 29.75; cond: 129; 1 boat; low er lake; w ater clear
Yatesville Lake	LMB	20-May	1000	shock	cloudy/w ind	65.0	630.5	41	outflow : 397cfs; bp: 30.03; cond: 117; 1 boat; upper lake; w ater turbid
Yatesville Lake	LMB	22-Oct	2000	shock	clear	70.0	630.4	46	outflow : 45cfs; bp: 30.12; cond: 168; 2 boats; w hole lake; lake turning over
Yatesville Lake	crappie	11-16/11-18	1000	trap net	clear/w indy	52.0	628.3/627.3	10	outflow : variable 683-693cfs; bp: 30.28; upper (middle) lake; crappie A&G

[a] cond = conductivity in µS/cm

[b] bp = barometric pressure in inches

L= lower lake

U= upper lake

Table 2. Length frequency and electrofishing CPUE (fish/hr) of muskellunge collected during spring sampling on Buckhorn Lake from 1998-2020; numbers in parentheses are standard errors. Results from 2002 are from fall electrofishing.

	Inch class																																							
Year	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	Total	CPUE
2020			2	7	3	2													1			1			1			2			1								20	11.4 (4.6)
2019				1								1	1									1	1			1	2												8	3.6 (2.2)
2018		1	1			3				1				1		1						2		1		1	2												14	3.1 (0.9)
2017		3	7	1							1				1	1				2	2	1	1						2										22	6.8 (1.1)
2016				2	2	4						2	1	2			1						1	1		1	1		1	1					1				21	7.0 (3.3)
2015																				no sample																				
2014		1	2	1	6	2						1	2	1	4								1		1				1		1		2						26	7.4 (1.9)
2013			3	6	3							1											1	1			1												16	4.3 (0.9)
2012		1		1	8	20	2					1	2	1	6	1	1					1		2		1	3	2	2	1			1						57	13.4 (1.8)
2011			4	5	17	14	3					2		3	3	1				1		3	1	3		3	2	1	1		1			1					69	12.6 (2.7)
2010			1	4	13	18			1	1	1	1		6	6	10	6	1		2	3	2	1	3	2	1	2	1	4	3	1	1					1		96	12.9 (1.6)
2009	1			2	4	11	12	6					1		1	3	2	3	1	1		1	1	4	3	3	3		1		2				1		1		68	17.6 (3.4)
2008				2	6	10	6	1						1	1	3				1		1	5	2			1				1			1			1		43	8.3 (1.6)
2007					1	1	2	1					2	3	6	2		1			1		2		1	2		1	2		1	1				1		1	32	13.7 (4.5)
2006			1	8	10	6								1	2	3						1	1		1	3	2	1	1	1	1	1	1						45	14.2 (2.2)
2005					4	5	2					1		2	2							1			1			2	1	1	3		1				1		27	6.3 (1.7)
2004			2	9	23	16	2				1		6	7	19	9				3	5	6	6	6	4	5	7	5	8	3	1	1					1		155	16.7 (2.1)
2003	1		5	2	1	1									2	1	1		1	1	2	1	1				1									1			22	7.1 (1.9)
2002							1							2	1						3	1		1			2				1								12	6.0 (0.8)
2001					4	1	1				1			1									1		1	1		1									1		13	3.2 (0.7)
2000		1	3	2	3	1								4				1	2		7	1		1	1			2	1				1						31	8.2 (0.5)
1999		1	1	2	3	3	1			1	3	6	6	11	4	4	3				3	2	1		2	1		1											59	10.9 (4.4)
1998	1	1	2	7	4	1	1				1	4	3	1	1	1						1		1	1			1	1										33	6.6 (2.9)

EFDBLMSS.D98-D10, D12, D14, D16-D20

LFRBHLSP.D11, D13

Table 3. Number of fish and relative weight (Wr) for each length group of muskellunge collected at Buckhorn Lake (710 acres) from spring electrofishing. Numbers in parentheses are standard errors.

	Length group									
	≤19.9 in		20.0-29.9 in		30.0-37.9 in		≥38.0 in		Total	
Year	No.	Wr	No.	Wr	No.	Wr	No.	Wr	No.	Wr
2020	14	82 (1)	1	92 (<1)	4	93 (2)	1	102 (<1)	20	86 (2)
2019	1	72 (<1)	2	91 (1)	0		5	92 (3)	8	89 (3)
2018	4	83 (4)	2	91 (4)	6	95 (3)	0		12	90 (3)
2017	0		5	81 (5)	4	84 (1)	2	98 (2)	11	85 (3)
2016	4	78 (5)	6	87 (2)	4	91 (3)	3	96 (2)	17	87 (2)
2014	2	79 (1)	8	95 (2)	2	93 (4)	3	92 (1)	15	92 (2)
2013	0		1	73 (<1)	3	96 (2)	0		4	90 (6)
2012	22	82 (1)	12	91 (3)	8	96 (3)	4	92 (1)	46	88 (1)
2011	11	79 (1)	10	85 (2)	13	92 (2)	3	92 (4)	37	87 (1)
2010	20	79 (1)	33	94 (1)	15	96 (1)	10	97 (4)	78	91 (1)
2009	29	78 (1)	12	96 (4)	15	94 (3)	5	90 (4)	61	86 (2)
2008	16	83 (2)	6	98 (3)	9	96 (2)	3	97 (1)	34	90 (2)
2007	4	87 (2)	14	95 (2)	7	100 (2)	6	91 (5)	31	94 (1)
2006	6	90 (1)	6	106 (2)	9	94 (2)	5	93 (<1)	26	95 (2)
2005	7	75 (5)	5	93 (4)	4	94 (2)	7	93 (2)	23	87 (3)
2004	10	58 (3)	15	69 (5)	19	78 (5)	4	98 (4)	48	73 (3)
2003	1	73 (<1)	6	88 (3)	5	98 (2)	1	73 (<1)	13	89 (3)

EFDBLMSS.D03-D20

Table 4. Population assessment for muskellunge from Buckhorn Lake (1,230 acres) captured during spring electrofishing from 2005-2020. Actual values are in parentheses. Scoring based on statewide assessment.

	Year														
Parameter	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2016	2017	2018	2019	2020
CPUE age 1	2	4	1	3	4	3	4	4	2	2	2	2	1	1	4
	(2.5)	(7.9)	(1.7)	(4.8)	(9.3)	(5.1)	(7.8)	(7.5)	(3.2)	(3.4)	(2.7)	(3.4)	(1.1)	(0.5)	(8.0)
CPUE $\geq$20.0 in	2	3	4	2	4	4	2	3	1	2	2	1	1	1	1
	(3.7)	(6.3)	(12.0)	(3.8)	(7.7)	(7.8)	(4.7)	(5.9)	(1.1)	(4.0)	(4.3)	(3.4)	(1.8)	(3.1)	(3.4)
CPUE $\geq$30.0 in	2	4	4	2	4	3	2	2	1	1	2	1	1	2	2
	(2.6)	(4.4)	(5.3)	(2.2)	(4.7)	(3.4)	(2.9)	(3.1)	(0.8)	(1.7)	(2.3)	(1.9)	(1.3)	(2.2)	(2.9)
CPUE $\geq$36.0 in	4	4	4	1	3	3	2	4	1	2	3	1	1	2	3
	(2.1)	(2.5)	(2.5)	(0.6)	(1.8)	(1.7)	(1.1)	(2.1)	(0.3)	(1.1)	(1.3)	(0.6)	(0.4)	(0.9)	(1.7)
CPUE $\geq$40.0 in	4	4	4	3	4	3	3	2	1	4	2	1	1	1	3
	(1.1)	(1.0)	(1.6)	(0.5)	(1.0)	(0.4)	(0.4)	(0.2)	(0.0)	(0.9)	(0.3)	(0.0)	(0.0)	(0.0)	(0.6)
Total score	14	19	17	11	19	16	13	15	6	11	11	6	5	7	13
Assessment	Good	Excellent	Excellent	Fair	Excellen	Good	Good	Good	Poor	Fair	Fair	Poor	Poor	Poor	Good

EFDBLMSS.D05-D10, D12, D14, D16-D20
LFRBHLSP.D11, D13

Table 5. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Buckhorn Lake (1,230 acres). SE=standard error.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	no sample											
2019	40.0	11.6	56.0	4.3	26.7	3.8	5.3	0.8	2.0	0.9	128.0	16.6
2018	46.4	7.0	59.2	6.4	28.4	4.0	2.8	1.3	0.4	0.4	136.8	11.3
2017	91.3	19.9	40.0	4.3	34.7	7.1	8.7	2.4	0.7	0.7	174.7	19.7
2016	no sample											
2015	56.4	6.0	29.8	5.2	27.1	5.3	3.6	1.2	0.9	0.6	116.9	9.1
2014	9.3	3.4	25.3	6.3	6.0	1.7	2.7	1.3	0.0		43.3	9.9
2013	no sample											
2012	32.5	6.3	26.5	5.3	7.5	0.9	3.5	1.2	0.5	0.5	70.0	8.3
2011	no sample											
2010	21.2	4.5	31.8	6.6	18.3	3.7	10.7	2.6	0.4	0.4	82.0	11.7
2009	41.2	3.5	32.0	7.7	17.2	4.8	14.5	3.0	0.0		104.8	13.2
2008	14.8	5.5	27.0	7.2	21.4	3.3	13.8	1.8	0.0		77.0	12.0
2007	14.5	4.3	26.0	2.7	20.5	3.3	14.0	2.4	0.5	0.5	75.0	6.0
2006	14.2	2.2	35.2	4.6	40.5	5.1	15.2	3.4	0.3	0.3	105.1	11.0
2005	17.0	3.5	45.0	5.1	38.3	5.5	8.3	1.2	0.3	0.3	108.7	7.9
2004	38.0	6.2	51.7	6.5	29.3	4.2	4.3	1.2	0.0		123.3	11.6
2003	22.7	3.5	18.7	2.3	28.3	3.8	6.3	1.2	0.0		76.0	6.9

EFDBLLSS.D03-D19

Table 6. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 1.75 hours of 15-minute electrofishing samples at Buckhorn Lake (1,230 acres) on 7 October 2020; numbers in parentheses are standard errors.

		Inch class															
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	CPUE
Lower	Largemouth bass	2	18	22	27	10	4	10	35	14	15	23	10	5	2	197	131.3 (16.8)
Upper	Largemouth bass		1	6	3			2	2	3	1	3	1			22	88.0 (<0.1)
Total	Largemouth bass	2	19	28	30	10	4	12	37	17	16	26	11	5	2	219	125.1 (15.5)

EFDBLLSF.D20

Table 7. Mean back-calculated length (in) at each annulus for largemouth bass collected from Buckhorn Lake (1,230 acres) on 7 October 2020, including 95% confidence intervals.

Year		Age				
class	No.	1	2	3	4	5
2019	31	6.4				
2018	22	6.9	10.1			
2017	14	6.5	9.9	11.7		
2016	3	5.7	10.0	11.9	13.5	
2015	2	6.9	10.4	12.2	13.3	14.5
Mean		6.5	10.0	11.8	13.5	14.5
Number		72	41	19	5	2
Smallest		4.6	8.4	9.7	12.9	14.2
Largest		9.1	12.4	13.3	13.8	14.8
STD error		0.1	0.1	0.2	0.2	0.3
95% CI LO		6.3	9.8	11.4	13.1	14.0
95% CI HI		6.8	10.2	12.1	13.8	15.0

Intercept = 0
EFDBLLAF.D20

Table 8. Indices of year class strength at age-0 and age-1 and mean lengths (in) of age-0 largemouth bass collected by electrofishing at Buckhorn Lake (1,230 acres). CPUE=fish/hr, SE=standard error.

	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	4.8	0.1	50.9	6.2	22.9	2.6		
2019	4.4	0.1	119.3	14.6	28.7	6.0	no spring sample	
2018	4.7	0.1	114.5	29.8	44.5	9.1	48.7	12.2
2017	4.6	0.1	161.6	20.1	49.6	9.4	48.4	7.9
2016	5.0	<0.1	169.7	44.0	85.7	23.9	90.7	20.0
2015	4.2	0.1	80.0	15.9	17.6	2.0	no spring sample	
2014	4.4	0.1	86.5	24.9	26.5	8.6	56.0	6.0
2013	4.1	0.1	68.8	10.8	16.8	4.3	8.7	3.5
2012	5.0	0.2	39.0	9.6	21.0	7.2	no spring sample	
2011	4.5	0.1	126.7	26.7	42.0	10.0	36.1	6.5
2010	4.3	0.1	67.0	5.0	22.5	5.8	no spring sample	
2009			no fall sample				26.1	5.2
2008	4.9	0.1	21.4	3.7	9.9	2.3	43.8	3.5
2007	4.5	0.2	18.8	6.4	9.6	3.4	11.2	3.8
2006	4.2	0.2	17.6	4.1	5.3	1.9	13.0	3.7
2005	4.0	0.2	44.7	6.6	10.0	3.5	11.2	2.1
2004	3.6	<0.1	176.7	34.0	9.3	4.6	16.3	3.5
2003	4.7	0.5	106.0	13.8	39.7	4.6	35.5	5.4
2002	4.5	0.1	99.3	7.4	38.7	2.6	19.2	3.3

EFDBLLSF.D02-D08, D10-D120
EFDBLLAS.D04, D09
EFDBLLAF.D20
EFDBLLSS.D02-D19

Table 9. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Carr Creek Lake (710 acres). SE=standard error.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	no sample											
2019	59.5	20.6	48.5	9.5	22.5	3.2	16.5	2.9	1.0	0.7	147.0	29.2
2018	107.0	13.8	41.0	10.5	11.0	2.1	19.0	5.3	0.5	0.5	178.0	20.0
2017	28.5	6.6	25.5	7.1	12.5	3.3	17.0	3.1	0.5	0.5	83.5	12.6
2016	30.0	7.6	40.0	11.9	10.7	3.0	15.3	3.6			96.0	16.8
2015	69.5	23.2	18.5	4.1	15.5	3.7	22.0	6.1	1.0	0.7	125.5	28.5
2014	115.0	23.6	48.0	7.8	25.0	4.3	18.5	3.5	1.0	0.7	206.5	18.1
2013	113.3	51.4	20.0	4.5	16.0	3.7	16.7	2.2	2.7	1.3	166.0	53.2
2012	15.0	3.1	21.5	3.5	9.0	1.5	13.5	3.5	1.5	0.7	59.0	8.4
2011	11.0	4.4	10.5	2.6	5.5	1.3	16.0	4.5	1.0	1.0	43.0	9.8
2010	13.8	3.2	10.8	2.6	10.8	2.1	12.6	3.5	0.9	0.6	47.9	4.8
2009	5.1	0.7	10.3	2.6	17.1	3.0	16.0	3.4	0.6	0.6	48.6	6.1
2008	3.0	1.3	16.4	2.6	24.7	5.4	23.7	3.3	0.5	0.5	67.8	8.4
2007	8.0	1.9	20.8	4.7	18.6	3.4	15.7	3.6	0.5	0.5	63.0	5.5
2006	22.3	7.0	30.9	4.8	27.9	3.3	29.9	3.1	0.7	0.5	111.0	10.2
2005	20.0	2.7	19.8	1.6	24.8	2.4	14.0	1.8	0.3	0.3	78.6	4.9
2004	135.0	17.7	24.4	5.3	8.4	1.4	9.0	1.2	0.2	0.2	176.9	18.8
2003	67.6	11.3	15.9	2.2	11.1	1.5	10.7	1.5	0.4	0.3	105.2	14.4
2002	116.3	14.2	16.9	1.7	12.3	1.6	7.1	1.2			152.7	13.3

BBRPSCFL.D02-D05
EFDCLLSS.D02-D19

Table 10. Length frequency and electrofishing CPUE (fish/hr) of black bass collected in approximately 2.25 hours of 15-minute nocturnal electrofishing samples at Carr Creek Lake (710 acres) on 17 September and 13 October 2020; numbers in parentheses are standard errors.

		Inch class																		
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	CPUE	
Lower	Smallmouth bass	1				1	1	1										4	4.0	(2.8)
	Spotted bass	1		1	3	6	1	3	1									16	16.0	(8.1)
	Largemouth bass		2	3		5	12	10	5	3			1		1			42	42.0	(4.1)
Upper	Smallmouth bass																	0	0.0	(0.0)
	Spotted bass	1			6	5	5	6										23	18.4	(6.9)
	Largemouth bass	2	9	19	9	9	35	14	10	5	3				1	1	1	118	94.4	(14.8)
Total	Smallmouth bass	1				1	1	1										4	1.8	(1.4)
	Spotted bass	2		1	9	11	6	9	1									39	17.3	(4.1)
	Largemouth bass	2	11	22	9	14	47	24	15	8	3	0	1	0	2	1	1	160	71.1	(12.6)

EFDCLLSF.D20

Table 11. Indices of year class strength at age-0 and age-1 and mean lengths (in) of age-0 largemouth bass collected by electrofishing at Carr Creek Lake (710 acres). CPUE=fish/hr, SE=standard error.

	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	4.8	0.1	50.9	6.2	22.9	2.6		
2019	5.2	0.3	6.7	2.0	4.0	1.6	no sample	
2018	5.4	0.1	18.7	5.4	12.7	4.2	64.0	21.2
2017	3.9	0.2	19.3	5.8	4.7	1.9	111.5*	13.9
2016	4.6	0.1	32.0	7.9	10.4	3.0	31.0	6.4
2015	4.7	0.2	45.3	9.6	16.0	6.1	35.3	8.0
2014	4.4	0.3	13.3	4.2	5.3	1.7	71.0*	23.2
2013	4.4	0.2	14.0	4.6	4.8	1.8	116.0*	23.8
2012	4.3	0.2	34.5	10.9	11.5	4.0	114.7*	51.8
2011	4.6	0.1	17.6	5.7	7.2	3.0	13.2	2.6
2010	4.6	0.2	13.5	4.4	5.0	1.7	9.0	3.1
2009	3.6	0.3	12.5	2.8	3.5	1.6	10.0	2.5
2008	4.3	0.2	15.2	6.6	3.8	1.7	3.1	0.8
2007	3.7	0.5	5.0	2.2	1.0	0.7	2.4	1.2
2006	4.2	0.2	11.0	4.1	3.0	1.0	7.6	2.0
2005	4.7	0.1	15.8	6.7	5.6	1.7	21.3	6.7
2004	5.2	<0.1	132.0	17.3	88.2	12.7	18.8	2.6
2003	4.4	0.1	14.0	5.4	5.8	2.3	133.8*	17.5

* Includes supplemental spring stocked fish
BBRWRCFL.D03-D05
BBRSCCFL.D03
EFDCLLSF.D03-D20
EFDCLLAS.D08
EFDCLLSS.D03-D19
EFDCLLAF.D13, D19

Table 12. Length frequency and CPUE (fish/hr) of walleye collected at Carr Creek Lake (710 acres) during daytime spring electrofishing.

	Inch class																								
Year	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Total	CPUE	SE
2020											1	11	21	17	23	7	4	2	1				87	8.9	1.4
2019									1	7	9	18	39	58	39	25	9		1	1		1	208	16.6	2.7
2018								6	3	6	8	5	25	30	12	22	9	1		1			128	14.7	2.0
2017								1			6	7	18	13	13	9	2		1	1			71	21.9	3.1
2016									3	3	7	16	21	26	18	13	1	4	1				113	20.6	2.3
2015								2	3	7	9	13	14	11	12	7	3	1					82	21.6	17.4
2014									1		2	14	9	12	10	6	1		1				56	11.8	2.9
2013									3	2	8	11	13	16	21	9	2	2	1				88	10.7	1.4
2012								1	1	2	1	13	19	22	14	4	4	5	1				87	20.8	2.5
2011	1	1				1			2	6	8	8	5	15	7	11	5	5	2	3	1		81	15.4	5.2
2010								6	8	7	7	10	15	16	14	16	13	8	8	9		1	138	12.7	3.3
2009								1	4	3	9	18	21	17	15	13	10	11	2				124	21.3	1.3
2008									1	2	5	12	16	19	21	19	15	14	7	3	1	1	136	12.8	1.2
2007								1		1	2	4	3	11	15	8	4	4	5	2			60	32.9	7.4
2006											1	4	6	7	9	9	8	3	4	2	2		55	31.3	5.4
2005									1	1	2	10	2	10	6	5	4	3	1	1			46	28.2	5.0
2004											1	3	13	10	13	13	4	3	1				61	27.1	7.4
2003		2	1			1	1	2			3	7		4	2		1	1	1	1	1		28	26.7	8.5
2002												no sample													
2001							2	4	3	14	8	6	2	2	1				2				44	20.4	4.7
2000							5	28	10	6	8	2	3	3	1		1	6	4	1			78	20.8	4.6

EFDCLWSS.D00-D20

Table 13. Spring electrofishing catch rate (fish/hr) for each age of walleye collected from Carr Creek Lake (710 acres) from 2010-2020.

	Year										
Age	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1											
2	2.1	1.3	1.6	1.0	0.9	3.2	1.8	1.5	1.7	0.9	0.4
3	3.2	5.0	7.8	4.2	4.5	9.1	8.1	9.0	5.2	6.6	3.5
4	2.6	3.6	5.1	2.6	3.6	5.2	5.2	5.7	3.7	4.3	2.4
5	1.4	1.6	2.9	1.2	1.3	1.6	2.4	2.4	1.6	2.1	1.1
6	0.3	0.4	0.9	0.5	0.4	0.6	0.8	0.8	0.3	0.6	0.5
7	0.4	0.4	0.5	0.1	0.1	0.2	0.2	0.2	0.4	0.2	0.2
8	0.9	0.7	0.8	0.5	0.5	0.6	0.8	0.9	0.5	0.6	0.4
9	0.8	1.0	1.2	0.5	0.5	0.7	1.0	0.9	1.0	0.9	0.4
10	0.2	0.3	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.3	0.1

EFDCLWSS.D09-D20
EFDCLWAS.D09

Table 14. Number of fish and relative weight (Wr) for each length group of walleye collected at Carr Creek Lake (710 acres) on 4-16 March 2020. Numbers in parentheses are standard errors.

Length group									
≤ 9.9 in		10.0-14.9 in		15.0-19.9 in		≥20.0 in		Total	
No.	Wr	No.	Wr	No.	Wr	No.	Wr	No.	Wr
				33	97.0	51	94.0	84	95.0
					(1)		(1)		(1)

EFDCLWSS.D20

Table 15. Length frequency and CPUE (fish/hr) of crappie collected by electrofishing at Carr Creek Lake (710 acres) on 20 and 25 February 2020; numbers in parentheses are standard errors.

	Inch class											
Species	3	4	5	6	7	8	9	10	11	12	Total	CPUE
White crappie			7	11	55	19	16	9	5	4	126	63.0 (33.2)
Black crappie	2	5	11	102	122	46	9	2	1		300	150.0 (69.8)

EFDCLCSS.D20

Table 16. Spring electrofishing CPUE (fish/hr) for each length group of black and white crappie collected at Carr Creek Lake (710 acres). SE=standard error.

	Length group												Total			
	≥8.0 in				≥10.0 in				≥8.0 in		≥10.0 in					
	WC		BC		WC		BC		all crappie		all crappie		WC		BC	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	26.5	10.9	29.0	12.9	9.0	3.4	1.5	0.7	55.5	22.1	10.5	3.9	63.0	33.2	150.0	69.8
2017	29.5	9.8	11.0	3.4	20.5	8.3	5.0	2.1	40.5	11.1	25.5	9.1	39.0	12.1	17.5	5.0
2014	41.6	11.4	8.0	3.1	22.4	8.6	1.6	1.6	49.6	11.1	24.0	9.6	280.0	69.5	28.8	5.6
2013	14.0	4.3	10.5	2.9	2.0	1.1	1.0	0.7	24.5	4.9	3.0	1.0	85.0	19.9	41.0	10.8
2012	3.1	1.3	11.3	9.1	1.4	0.8	0.9	0.7	14.4	9.4	2.4	1.2	8.7	3.9	16.7	12.9
2011	2.0	1.3	1.3	0.8	0.7	0.7	0.4	0.3	3.3	1.2	1.1	0.6	21.7	14.1	3.5	0.9
2010	2.5	1.9	2.4	1.0	2.2	1.8	0.8	0.3	4.9	2.3	2.9	2.0	4.9	3.5	6.1	2.3
2009	1.3	0.6	4.6	2.2	0.8	0.4	0.6	0.4	5.9	2.8	1.4	0.6	1.6	0.5	7.5	4.8
2008	1.3	0.8	1.0	0.4	0.8	0.5	0.2	0.1	2.3	1.0	0.9	0.5	1.7	1.0	1.6	0.7
2007	10.1	9.1	3.8	3.0	6.2	5.3	0.7	0.7	13.9	12.1	6.9	5.1	27.8	26.0	6.9	5.3

EFDCLCSS.D07-D20

Table 17. PSD and RSD_{10} values for black and white crappie taken in spring electrofishing samples at Carr Creek Lake (710 acres) on 20 and 25 February 2020; 95% confidence intervals are in parentheses.

Species	No. ≥5.0 in	PSD	RSD_{10}
White crappie	126	42 (33-51)	14 (8-20)
Black crappie	293	20 (15-23)	1 (0-2)

EFDCLCSS.D20

Table 18. Mean back-calculated length (in) at each annulus for white crappie collected from Carr Creek Lake (710 acres) on 20 and 25 February 2020, including 95% confidence intervals.

Year class	No.	Age 1	2	3	4	5	6	7	8	9
2019	7	3.9								
2018	9	4.0	6.4							
2017	9	4.3	5.9	7.1						
2016	18	4.7	6.4	7.7	9					
2015	14	4.5	6.3	7.3	8.3	9.2				
2014	10	4.2	5.6	6.4	7.2	7.9	8.7			
2013	3	3.8	5.4	6.1	6.7	7.1	7.5	7.9		
2012	2	4.3	5.9	6.7	7.6	8.3	8.8	9.3	10.3	
2011	1	3.7	5.9	7.5	8.3	10.1	11.0	11.8	12.8	13.6
Mean		4.3	6.1	7.2	8.2	8.5	8.6	9.0	11.1	13.6
Number		73	66	57	48	30	16	6	3	1
Smallest		3.2	4.5	4.9	5.6	6.0	6.3	6.8	8.3	13.6
Largest		5.7	8.1	9.1	11.9	11.2	11.0	11.8	12.8	13.6
STD error		0.1	0.1	0.1	0.2	0.3	0.4	0.8	1.4	
95% CI LO		4.2	6.0	6.9	7.8	8.0	7.8	7.4	8.3	
95% CI HI		4.4	6.3	7.4	8.6	9.0	9.4	10.7	13.9	

Intercept = 0
EFDCLCAS.D20

Table 19. Mean back-calculated length (in) at each annulus for black crappie collected from Carr Creek Lake (710 acres) on 20 and 25 February 2020, including 95% confidence intervals.

Year class	No.	Age 1	2	3	4	5	6	7	8	9	10
2019	11	3.7									
2018	10	3.9	6.1								
2017	10	4.0	6.2	7.6							
2016	9	3.9	5.8	6.8	7.6						
2015	9	4.0	5.7	6.7	7.6	8.6					
2014	3	3.3	4.6	5.3	5.8	6.2	6.6				
2013	4	3.5	4.8	5.6	6.2	6.6	7.0	7.5			
2012	1	4.2	5.6	6.1	6.7	7.0	7.4	7.9	8.2		
2011	2	3.4	4.7	5.4	5.9	6.3	6.6	6.8	7.1	7.6	
2010	1	4.7	6.2	7.1	7.7	8.4	9.0	9.9	10.5	11.2	11.8
Mean		3.9	5.7	6.6	7.1	7.5	7.0	7.7	8.3	8.8	11.8
Number		60	49	39	29	20	11	8	4	3	1
Smallest		3.0	4.1	4.7	5.2	5.5	5.8	6.4	7.1	7.5	11.8
Largest		5.6	7.9	9.2	8.9	9.5	9.0	9.9	10.5	11.2	11.8
STD error		0.1	0.1	0.2	0.2	0.3	0.3	0.5	0.8	1.2	11.8
95% CI LO		3.8	5.5	6.3	6.7	6.9	6.4	6.7	6.7	6.5	
95% CI HI		4.0	6.0	7.0	7.5	8.1	7.7	8.6	9.8	11.1	

Intercept = 0

EFDCLCAS.D20

Table 20. Spring electrofishing catch rate (fish/hr) for each age of white and black crappie collected from Carr Creek Lake (710 acres).

	Year													
	2010		2011		2012		2013		2014		2017		2020	
Age	WC	BC	WC	BC	WC	BC	WC	BC	WC	BC	WC	BC	WC	BC
1													3.5	5.9
2			0.9										10.6	36
3	0.9		5.1		1.9	1.3	30.7	10.6	124.9	8.0	3.4	0.6	8.7	32.6
4	0.5	0.4	4.1	0.2	1.5	3.2	12.9	10.4	30.4	6.3	12.0	1.4	13.8	24.7
5	2.1	1.8	4.2	0.9	1.9	2.5	12.9	2.9	37.4	1.8	9.3	4.3	9.4	13.7
6	1.0	1.0	4.6	0.6	1.9	5.7	15.6	10.7	43.2	6.2	9.6	2.8	11.8	12.3
7	0.3		0.2		0.5	2.9	3.7	4.0	12.3	3.7	3.0	3.3	4.4	12.5
8	0.1	0.6	0.2		0.6		4.0		18.0		1.7	3.1	0.9	2.1
9					0.4	0.3	0.3	0.9	0.8	0.5			<0.1	8.9
10										0.8		0.6		<0.1
11														
12						0.8		1.2						
13					0.1				1.0					

EFDCLWSS.D07-D17
EFDCLCSS.D13-D20
EFDCLCAS.D07, D12, D17, D20
WC=white crappie
BC=black crappie

Table 21. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Cranks Creek Lake (219 acres). SE=standard error.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	no sample											
2019	118.4	21.9	92.8	6.3	4.0	1.8	6.4	2.0	2.4	1.0	221.6	21.9
2018	60.8	5.3	71.2	3.4	8.0	3.4	11.2	2.3	6.4	2.0	151.2	6.5
2017	76.8	14.3	62.4	13.9	18.4	2.7	15.2	3.9	8.8	3.8	172.8	17.8
2016	no sample											
2015	27.2	6.0	76.0	8.3	15.2	0.8	13.6	2.4	6.4	1.6	132.0	10.8
2014	no sample											
2013	no sample											
2012	34.4	12.0	32.8	4.6	5.6	2.4	8.8	2.3	2.4	1.0	81.6	14.5
2011	57.6	6.0	52.0	10.5	9.6	1.6	11.2	3.9	5.6	3.5	130.4	15.4
2010	80.8	27.6	43.2	10.4	9.6	3.0	14.4	2.0	4.8	2.3	148.0	41.2
2009	no sample											
2008	33.0	7.9	51.0	6.6	27.0	4.4	8.0	3.7	3.0	1.9	119.0	8.2
2007	no sample											
2006	no sample											
2005	59.2	16.6	70.4	10.5	4.0	1.3	6.4	2.0	2.4	1.0	140.0	17.3
2004	40.7	7.6	40.0	5.8	3.3	1.9	4.0	2.1	0.7	0.7	88.0	11.1
2003	no sample											
2002	no sample											
2001	20.0	6.4	22.0	8.3	2.7	1.3	2.0	0.9	0.7	0.7	46.7	13.8
2000	51.3	11.1	24.7	3.8	2.7	1.3	2.0	1.4	2.0	1.4	80.7	12.5

EFDCCLSS.D00-D19

Table 22. Length frequency and CPUE (fish/hr) of black bass collected in 1.25 hours of 15-min diurnal electrofishing runs at Cranks Creek Lake (219 acres) on 27 October 2020; numbers in parentheses are standard errors.

	Inch class																		
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE
Spotted bass								1										1	0.8 (0.8)
Largemouth bass	20	24	8	3	2	15	14	15	15	5	1	1	1		1	3	1	129	103.2 (35.0)

EFDCCLSF.D20

Table 23. Indices of year class strength at age-0 and age-1 and mean lengths (in) of age-0 largemouth bass collected by electrofising at Cranks Creek Lake (219 acres). CPUE=fish/hr, SE=standard error.

	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	4.3	0.1	43.2	17.6	8.0	4.2		
2019	3.9	0.1	17.6	9.9			no sample	
2018	4.4	0.1	58.0	6.6	19.0	10.3	115.2	22.1
2017	4.2	0.1	77.3	11.6	13.3	3.5	42.4	6.7
2016	4.1	0.1	70.4	29.7	2.4	1.0	72.8	12.6
2015	4.3	0.2	37.0	14.6	9.0	3.0		
2014	4.0	0.1	104.8	24.5	20.8	5.1	19.2	5.3
2013	3.9	0.2	11.2	5.4	0.8	0.8		
2012	4.1	0.1	66.4	27.4	10.4	5.3		
2011	5.3	0.1	51.2	5.4	34.4	5.3	28.0	10.7
2010	4.3	0.1	93.3	28.5	16.0	6.1	45.6	6.0
2009	3.9	0.1	64.0	29.8	7.2	4.8	68.8	26.1
2008								
2007	4.3	0.1	32.0	8.7	7.2	2.9	23.0	7.3
2006								
2005								
2004							50.4	15.3
2003							15.0	4.3
2002	5.1	0.1	34.4	10.6	20.8	7.7		
2001	5.0	0.1	27.3	5.2	13.3	3.0		
2000							14.3	4.8
1999							44.3	10.4

EFDCCLSF.D01-D02, D07, D09-D20
EFDCCLAS.D08
EFDCCLSS.D00-D01, D04-D05, D08, D10-D12, D15, D17-D19
EFDCCLAF.D13, D19

Table 24. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Dewey Lake (1,100 acres). SE=standard error.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020						no sample						
2019	11.0	1.0	32.0	3.7	34.0	4.8	25.0	3.4	1.0	1.0	102.0	5.0
2018	30.0	9.0	32.0	2.5	28.0	5.7	23.2	4.3	1.6	0.7	113.2	8.6
2017	22.7	5.7	27.3	7.1	20.0	5.4	23.3	4.3	1.3	0.8	93.3	10.3
2016	22.5	3.1	25.5	4.9	47.0	5.4	24.0	3.5	1.0	0.7	119.0	9.9
2015	21.2	3.0	35.2	5.2	43.2	5.4	24.0	4.2	0.8	0.5	123.6	11.2
2014	12.4	2.6	40.4	8.1	31.2	6.6	20.0	2.1	1.2	0.9	104.0	16.2
2013	20.8	3.9	92.8	14.8	54.0	6.5	17.2	1.9	1.2	0.6	184.8	20.8
2012	27.2	4.6	63.2	7.0	34.9	3.9	10.7	2.5	0.4	0.4	136.0	8.6
2011						no sample						
2010	42.6	5.9	98.0	27.6	12.3	2.8	8.3	2.0	0.0	0.0	161.2	33.0
2009	83.7	12.7	62.8	6.3	18.8	1.9	14.4	3.4	0.5	0.5	179.8	16.9
2008	87.4	10.4	86.5	9.5	21.6	3.6	16.3	3.4	0.8	0.5	211.7	12.4
2007	54.9	9.6	80.8	9.8	35.1	5.0	30.2	4.1	1.5	0.7	200.9	19.9
2006	32.3	5.7	66.4	8.6	24.2	3.6	24.9	3.6	0.7		147.8	10.0
2005	39.3	5.0	59.2	6.3	31.0	3.2	24.5	1.9	0.3		153.9	12.8
2004	96.2	11.9	34.7	3.8	20.0	3.2	17.5	2.6	1.0		168.3	13.9
2003	71.1	10.1	55.6	4.4	23.1	1.8	22.0	2.1	0.7		171.8	14.6
2002						no sample						
2001	150.1	17.2	57.8	5.7	26.9	2.7	17.8	1.6	0.6		252.6	22.8
2000	62.2	4.7	44.0	4.4	23.6	3.5	10.3	1.3	0.1		140.1	9.5
1999	78.9		34.6		39.5		12.8		0.5		165.8	12.7
1998	20.1		51.4		43.2		7.2		0.6		122.0	8.5
1997	15.3		53.3		32.3		11.0		1.0		112.0	12.2
1996						no sample						
1995	46.6		59.6		28.5		3.6		0.0		138.3	16.9
1994						no sample						
1993	43.7		71.8		15.6		8.8		0.8		140.0	
1992	57.4		64.1		17.2		7.4		0.2		146.1	
1991	73.8		50.6		18.4		3.5		0.2		146.4	
1990	58.8		68.0		32.0		11.4		0.6		171.4	
1989	75.0		27.5		10.8		7.0		0.0		120.7	
1988	84.0		40.7		26.7		2.0		0.0		154.7	
1987	44.6		38.3		12.0		0.6		0.0		95.4	

EFDDLLSS.D87-D19
BBRPSDEW.D03-D05

Table 25. Length-frequency distribution of each black bass species captured during 2.50 hours of 15-minute nocturnal electrofishing runs at Dewey Lake (1,100 acres) on 15 October 2020. Standard errors are in parentheses.

		Inch class																					
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	
Lower	Spotted bass					7	3	3	2	4											19	15.2	(6.3)
	Largemouth bass		3	11	1	1	3	9	12	11	8	8	4	2	5	4	4	2	1	1	90	72.0	(10.8)
Upper	Spotted bass				1																1	0.8	(0.8)
	Largemouth bass	1	2	5	3	2	2	3	6	4	7	5	10	4	4	6	1	1	5	1	72	57.6	(8.2)
Total	Spotted bass				1	7	3	3	2	4											20	8.0	(3.8)
	Largemouth bass	1	5	16	4	3	5	12	18	15	15	13	14	6	9	10	5	3	6	2	162	64.8	(6.8)

EFDDLLSF.D20

Table 26. Indices of year class strength at age-0 and age-1 and mean lengths (in) of age-0 largemouth bass collected from electrofishing at Dewey Lake (1,100 acres). CPUE=fish/hr, SE=standard error.A1

	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	4.6	0.2	11.6	3.55	2.8	1.34		
2019	5.0	0.1	41.5	9.8	21.5	5.0	no sample	
2018	4.9	0.1	43.6	7.8	22.2	3.1	11.0	1.0
2017	4.6	0.1	50.0	9.4	16.5	3.6	29.2	9.0
2016	4.9	0.1	33.5	5.1	17.0	3.5	21.3	5.8
2015	3.7	0.2	38.7	9.9	7.3	3.0	20.5	3.2
2014	3.9	0.1	36.8	8.3	10.0	4.3	17.2	3.5
2013	3.4	0.2	25.2	6.3	3.2	0.8	10.8	2.8
2012	4.4	0.1	26.0	5.3	7.2	1.7	20.8	3.9
2011	4.6	0.1	37.2	9.3	14.8	3.6	19.5	4.4
2010	5.0	0.1	67.6	14.2	38.4	8.5	no sample	
2009	5.3	0.1	45.7	8.8	28.8	5.2	16.4	3.3
2008	5.0	0.1	54.9	14.3	30.0	7.4	55.6	12.1
2007	4.8	0.1	54.3	12.8	21.2	4.2	49.5	10.0
2006	5.1	0.1	39.0	9.9	21.3	5.8	49.0	9.2
2005	4.4	0.1	58.7	16.1	16.9	6.6	27.9	5.5
2004	5.2	0.1	45.2	7.1	25.4	4.6	24.8	4.1
2003	4.9	0.1	38.9	10.6	15.1	3.8	79.7	10.5
2002	5.0	0.0	75.6	14.2	37.6	9.4	61.2	9.4

BBRPSDEW.D03-D05
BBRDLLSF.D02
BBRWRDEW.D03-D04
BBRSCDEW.D03
EFDDLLSF.D02-D20
EFDDLLSS.D06-D10, D12-D19
EFDDLLAS.D08
EFDDLLAF.D13, D18

Table 27. Length frequency and CPUE (fish/nn) for white crappie collected at Dewey Lake (1,100 acres) in 21 net-nights from 9-11 November 2020. Standard errors are in parentheses.

	Inch class														
Species	2	3	4	5	6	7	8	9	10	11	12	13	Total	CPUE	SE
WC	1	3	39	4	42	66	75	73	85	34	9	4	435	20.7	(5.1)
BC				5	19	242	97	8	2				373	17.8	(4.8)

WC=white crappie
BC=black crappie
EFDDLCTF.D20

Table 28. PSD and RSD values calculated for crappie collected in trap nets at Dewey Lake (1,100 acres) during November 2020; 95% confidence intervals are in parentheses.

Species	No. fish $\geq$ 5.0 in	PSD_5	RSD_{10}
WC	392	71	34
		(67-76)	(29-38)
BC	373	27	1
		(24-33)	(0-1)

WC = white crappie
BC = black crappie
EFDDLCTF.D20

Table 29. Mean back-calculated length (in) at each annulus for white crappie collected from Dewey Lake (1,100 acres) in November 2020, including 95% confidence intervals.

Year		Age							
class	No.	1	2	3	4	5	6	7	8
2019	14	4.4							
2018	4	4.6	6.7						
2017	29	4.0	6.7	8.2					
2016	10	4.7	6.9	8.3	9.7				
2015	14	4.5	6.5	7.7	8.8	9.9			
2014	4	4.5	6.9	8.0	8.9	9.9	11.2		
2013	1	4.4	0.2	7.3	7.9	8.3	8.9	9.8	
2012	1	4.7	6.7	7.8	8.9	10.0	11.1	12.2	13.4
Mean		4.4	6.7	8.1	9.1	9.9	10.8	11.0	13.4
Number		77	63	59	30	20	6	2	1
Smallest		3.0	5.1	6.1	6.8	7.4	8.9	9.8	13.4
Largest		6.5	9.5	10.7	12.5	1.8	11.8	12.2	13.4
STD error		<0.1	0.1	0.1	0.2	0.3	0.4	1.2	
95% CI LO		4.3	6.5	7.8	8.6	9.2	10.0	8.6	
95% CI HI		4.5	6.9	8.3	9.5	10.5	11.7	13.4	

Intercept = 0
EFDDLCAF.D20

Table 30. Mean back-calculated length (in) at each annulus for black crappie collected from Dewey Lake (1,100 acres) in November 2020, including 95% confidence intervals.

Year		Age						
class	No.	1	2	3	4	5	6	7
2019	7	4.1						
2018	5	3.6	5.7					
2017	3	3.9	6.1	8.0				
2016	11	3.4	5.0	6.2	7.0			
2015	7	3.4	5.1	6.2	6.7	7.4		
2014	6	3.6	5.6	6.7	7.4	8.0	8.5	
2013	4	3.6	5.5	6.6	7.3	7.8	8.3	8.8
Mean		3.6	5.4	6.5	7.0	7.7	8.4	8.8
Number		43	36	31	28	17	10	4
Smallest		2.8	4.1	5.5	6.3	7.0	7.4	7.8
Largest		4.4	7.3	8.6	8.2	8.7	9.3	9.6
STD error		0.1	0.1	0.1	0.1	0.1	8.1	8.0
95% CI LO		3.5	5.2	6.3	6.9	7.5	8.1	8.0
95% CI HI		3.7	5.6	6.7	7.2	7.9	8.8	9.5

Intercept = 0

EFDDLCAF.D20

Table 31. Age frequency and CPUE (fish/nn) of white crappie collected by trap netting for 21 net-nights at Dewey Lake (1,100 acres) in November 2020; numbers in parentheses are standard errors.

	Inch class															
Age	2	3	4	5	6	7	8	9	10	11	12	13	Total	Age%	CPUE	
0	1	3	39	1									44	10	2.1	(0.7)
1				3	42								45	10	2.1	(0.6)
2						18	8						26	6	1.3	(0.3)
3						36	50	40	57	11	2		196	45	9.3	(2.4)
4						6		20	9	8	2	1	46	11	2.2	(0.6)
5						6	17	13	9	11	4	1	61	14	2.9	(0.8)
6										4	2	1	7	2	0.3	(0.1)
7									9				9	2	0.5	(0.1)
8												1	1	0	0.1	(<0.1)
Total	1	3	39	4	42	66	75	73	84	34	10	4	435			
%	0	1	9	1	10	15	17	17	20	8	2	1				

CPUE of ≥8.0 in (quality size) = 13.3 fish/nn

CPUE of ≥10.0 in (preferred size) = 6.3 fish/nn

EFDDLCAF.D20

EFDDLCTF.D20

Table 32. Age frequency and CPUE (fish/nn) of black crappie collected by trap netting for 21 net-nights at Dewey Lake (1,100 acres) in November 2020; numbers in parentheses are standard errors.

	Inch class									
Age	5	6	7	8	9	10	Total	Age%	CPUE	
0										
1	5	6					11	3	0.5	(0.2)
2		8	20				28	8	1.4	(0.4)
3			20		1	1	22	6	1.1	(0.3)
4		4	141	22			167	45	8.0	(2.2)
5			61	43			104	28	4.9	(1.3)
6				22	5		27	7	1.2	(0.3)
7				11	2	1	14	4	0.7	(0.2)
Total	5	18	242	98	8	2	373			
%	1	5	65	26	2	1				

CPUE of ≥8.0 in (quality size) = 5.1 fish/nn
CPUE of ≥10.0 in (preferred size) = 0.1 fish/nn
EFDBLCAF.D20
EFDBLCTF.D20

Table 33. Population assessment scores for white crappie collected from Dewey Lake (1,100 acres). Actual assessment values are in parentheses. Scoring based on statewide assessment.

Parameter	Year							
	2002	2008	2010	2012	2014	2016	2018	2020
CPUE (excluding age 0)	4 (48.2)	4 (43.9)	4 (15.6)	4 (26.0)	4 (27.5)	4 (64.4)	4 (27.1)	4 (18.6)
CPUE age 1	4 (14.4)	3 (6.6)	4 (7.8)	4 (15.2)	3 (4.8)	4 (24.9)	3 (7.4)	2 (2.1)
CPUE age 0	4 (27.5)	3 (2.6)	4 (4.8)	4 (5.1)	3 (2.2)	4 (11.0)	2 (0.5)	3 (2.1)
CPUE $\geq$ 8.0 in	3 (4.8)	4 (15.5)	4 (8.7)	4 (10.1)	4 (11.3)	4 (14.1)	4 (15.6)	4 (13.3)
Mean length age 2 at capture	1 (6.3)	1 (7.0)	2 (9.1)	3 (9.6)	1 (8.1)	2 (8.2)	1 (8.1)	1 (7.8)
Instantaneous mortality (z)	1.27	0.49	0.50	0.65	1.40	1.11	0.85	0.50
Annual Mortality (A)	72.00	38.80	39.50	47.60	75.40	67.00	57.30	3.91
Total score	16	15	18	19	15	18	14	14
Assessment rating	Good	Good	Excellent	Excellent	Good	Excellent	Good	Good

EFDDLCTF.D02-D20
EFDDLCAF.D02-D20

Table 34. Population assessment scores for black crappie collected from Dewey Lake (1,100 acres). Actual assessment values are in parentheses. Scoring based on statewide assessment.

	Year							
Parameter	2002	2008	2010	2012	2014	2016	2018	2020
CPUE	3	4	2	4	4	4	4	4
(excluding age 0)	(6.1)	(17.4)	(2.0)	(16.0)	(20.5)	(19.9)	(32.7)	(17.8)
CPUE age 1	2	3	1	2	1	3	1	1
	(1.3)	(2.9)	(0.1)	(0.7)	(0.5)	(2.6)	(0.1)	(0.5)
CPUE age 0	3	4	3	2	1	2	1	1
	(1.6)	(2.4)	(1.0)	(0.3)	(0.2)	(0.8)	(<0.1)	(0.0)
CPUE $\geq$ 8.0 in	1	3	2	4	3	1	4	4
	(0.1)	(1.8)	(0.7)	(5.8)	(3.0)	(0.6)	(3.6)	(5.1)
Mean length age 2 at capture	1	1	1	1	1	1	1	1
	(5.0)	(6.5)	(6.7)	(6.8)	(6.6)	(5.8)	(6.6)	(6.5)
Instantaneous mortality (z)	1.25	0.35	0.06	0.33	0.45	0.33	0.86	0.07
Annual Mortality (A)	71.40	29.60	6.20	28.10	36.10	38.40	57.6	7.6
Total score	10	15	9	13	10	11	11	11
Assessment rating	Fair	Good	Fair	Good	Fair	Fair	Fair	Fair

EFDDLCTF.D02-D20
EFDDLCAF.D02-D20

Table 35. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 1.50 hours of 15-minute electrofishing samples at Fishtrap Lake (1,143 acres) on 18 May 2020; numbers in parentheses are standard errors.

		Inch class																			
Area	Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Lower	Smallmouth bass														1					1	1.3 (1.3)
	Spotted bass				1			2	1											4	5.3 (2.7)
	Largemouth bass		10	17		2	1	8	13	12	17	9	9	1	2		1	1	1	104	138.7 (11.6)
Upper	Smallmouth bass																			0	0.0
	Spotted bass																			0	0.0
	Largemouth bass	2	32	31	1	1	3	4	14	9	3	7	4	1	1	2				115	153.3 (17.3)
Total	Smallmouth bass														1					1	0.7 (0.7)
	Spotted bass				1			2	1											4	2.7 (1.7)
	Largemouth bass	2	42	48	1	3	4	12	27	21	20	16	13	2	3	2	1	1	1	219	146.0 (9.9)

EFDFLLSS.D20

Table 36. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass at Fishtrap Lake (1,143 acres) from 2000-2020. SE= standard error

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.
2020	62.0	15.3	30.7	5.2	38.0	7.8	15.3	3.0	1.3	0.8	146.0	9.9
2019	34.0	5.7	17.6	1.9	31.2	5.9	6.8	1.7	0.4	0.4	89.6	8.7
2018	no sample											
2017	62.0	17.7	22.7	5.5	20.7	6.5	4.0	1.5	0.7	0.7	109.3	25.6
2016	no sample											
2015	23.6	3.5	48.4	6.8	33.6	4.6	18.0	2.6	2.4	0.9	123.6	8.6
2014	25.6	5.5	32.8	10.2	35.2	5.9	16.8	5.3	3.2	1.5	110.4	15.2
2013	no sample											
2012	54.7	9.0	20.7	1.9	12.0	2.3	12.7	4.3	3.3	2.6	100.0	9.4
2011	no sample											
2010	52.4	3.1	35.6	5.6	20.4	2.8	10.4	2.5	0.4	0.4	118.8	11.3
2009	44.2	10.7	61.4	11.8	20.4	4.8	9.9	2.4	0.6	0.6	135.9	15.1
2008	39.5	12.7	31.1	3.5	32.0	5.8	9.4	2.7	0.0		111.9	15.0
2007	28.7	4.7	53.9	8.3	33.0	3.5	7.9	1.9	1.2	0.9	123.5	13.5
2006	52.5	8.8	37.6	1.9	33.0	3.4	4.0	0.7	0.0		127.1	11.6
2005	61.8	10.2	67.6	10.0	38.9	6.5	14.9	2.0	0.0		183.3	20.8
2004	44.7	6.8	45.1	5.8	19.3	2.2	13.1	3.9	1.5		122.2	10.7
2003	43.0	4.4	25.0	7.6	16.0	4.9	11.0	3.4	2.0		95.0	4.1
2002	no sample											
2001	20.3	3.7	32.7	4.3	17.3	2.5	10.3	2.9	1.3		80.7	7.7
2000	28.7	4.2	29.0	2.3	19.0	2.6	23.0	4.3	3.4		99.7	9.9

EFDFLLSS.D00-D20

Table 37. PSD and RSD values for each species of black bass in each area of Fishtrap Lake (1,143 acres) on 18 May 2020. Number of fish (No.) is the number of stock-size or larger fish collected and numbers in parentheses are 95% confidence intervals.

	Smallmouth bass			Spotted bass			Largemouth bass		
Area	No.	PSD_7	RSD_{14}	No.	PSD_7	RSD_{14}	No.	PSD_8	RSD_{15}
Lower	1	100 (100-100)	100 (100-100)	4	25 (0-74)	0	77	69 (58-79)	19 (11-28)
Upper	0			0			49	55 (41-69)	16 (6-27)
Total	1	100 (100-100)	100 (100-100)	4	25 (13-87)	0	126	63 (55-72)	18 (11-25)

EFDFLLSS.D20

Table 38. Spring population assessment for largemouth bass collected from Fishtrap Lake (1,143 acres). Actual values are in parentheses. Scoring based on statewide assessment.

	Year									
Parameter	2007	2008	2009	2010	2012	2014	2015	2017	2019	2020
Mean length age 3 at capture	4	4	4	2	2	2	2	2	2	2
	(13.6)	(13.6)	(13.6)	(11.7)	(11.7)	(11.7)	(11.7)	(11.8)	(11.8)	(11.8)
Spring CPUE age 1	3	3	4	4	4	3	2	4	3	4
	(28.3)	(38.5)	(44..2)	(51.6)	(50.8)	(24.2)	(22.1)	(61.3)	(35.6)	(64.0)
Spring CPUE 12.0-14.9 in	4	4	2	2	1	4	4	2	4	4
	(33.0)	(32.0)	(20.4)	(20.4)	(12.0)	(35.2)	(33.6)	(20.7)	(31.2)	(38.0)
Spring CPUE $\geq$15.0 in	2	2	2	2	2	3	3	1	2	3
	(7.9)	(9.4)	(9.9)	(10.4)	(12.7)	(16.8)	(18.0)	(4.0)	(6.8)	(15.3)
Spring CPUE $\geq$20.0 in	3	1	3	2	4	4	4	3	2	4
	(1.2)	(0.0)	(0.6)	(0.4)	(3.3)	(3.2)	(2.4)	(0.7)	(0.4)	(1.3)
Total score	16	14	15	12	13	16	15	12	13	17
Assessment rating	Good	Good	Good	Fair	Good	Good	Good	Fair	Good	Excellent
Instantaneous mortality (z)	0.72	0.59	0.67	0.66	0.50	0.43	0.52			
Annual mortality (A)	51.30	44.30	49.10	48.20	39.20	35.20	40.70			

EFDFLLSS.D06-D20
EFDFLLAS.D04, D10
EFDFLLAF.D17

Table 39. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 2.50 hours of 15-minute electrofishing samples at Fishtrap Lake (1,143 acres) on 20 October 2020; numbers in parentheses are standard errors.

		Inch class																						
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	
Lower																								
	Smallmouth bass					1		1								1		1				4	3.2	(0.8)
	Spotted bass		3	3		2	2	1		1												12	9.6	(7.0)
	Largemouth bass	3	21	7	3	1	10	16	16	19	14	15	8	5	2	4	1	3	2	2	2	154	123.2	(20.8)
Upper																								
	Smallmouth bass																					0		
	Spotted bass																					0		
	Largemouth bass	9	45	48	29	6	10	6	7	9	10	10	3	8	2		2	1				205	164.0	(20.1)
Total																								
	Smallmouth bass					1		1								1		1				4	1.6	(0.7)
	Spotted bass		3	3		2	2	1		1												12	4.8	(3.7)
	Largemouth bass	12	66	55	32	7	20	22	23	28	24	25	11	13	4	4	3	4	2	2	2	359	143.6	(15.2)

EFDFLLSF.D20

Table 40. Indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass electrofished at Fishtrap Lake (1,143 acres). CPUE=fish/hr, SE=standard error.

	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	5.2	0.1	66.0	15.9	34.8	10.8		
2019	4.8	0.1	58.5	19.55	24.5	12.3	64.0	15.1
2018	5.0	<0.1	184.5	24.5	88.0	14.0	35.6	5.4
2017	5.4	0.1	105.8	20.5	76.9	15.9	no sample	
2016	4.7	<0.1	105.2	25.1	32.0	6.3	61.3*	17.9
2015	4.9	0.1	139.0	25.2	62.0	16.7	no sample	
2014	4.8	0.1	54.0	8.8	21.2	3.6	22.1	3.1
2013	4.6	0.1	63.5	16.4	19.5	5.2	24.2	6.2
2012	5.1	0.1	72.7	24.3	38.0	12.0	no sample	
2011	5.1	0.1	119.4	26.9	69.1	13.3	50.8	8.2
2010	5.2	0.1	111.6	16.4	61.6	8.4	no sample	
2009	4.8	0.1	83.3	15.1	39.3	5.4	51.6	3.2
2008	4.6	0.1	75.3	25.9	26.3	9.5	44.2	10.7
2007	5.1	0.1	114.2	23.7	63.5	11.0	38.5	12.1
2006	5.0	0.1	72.7	14.1	36.5	8.0	28.3	4.5
2005	4.5	0.1	108.0	41.3	24.0	11.1	52.5	8.8
2004	5.0	<0.1	256.0	51.1	122.7	23.9	61.5	10.2
2003	5.1	<0.1	106.2	32.9	59.6	15.9	35.4	6.0

* Includes supplemental spring stocked fish
EFDFLLSF.D03-D20
EFDFLLSS.D04-D20
EFDFLLAS.D04, D10
EFDFLLAF.D17

Table 41. Length frequency and CPUE (fish/hr) of black bass collected in approximately 0.50 hours of 7.5-minute electrofishing samples on Highsplint Lake (7 acres) 14 May 2020; numbers in parentheses are standard errors.

	Inch class													
Species	5	6	7	8	9	10	11	12	13	14	15	16	Total	CPUE
LMB	2	1	25	37	23	23	44	28	11	3	2	1	200	400.0 (25.9)

LMB = largemouth bas
EFDHSLSS.D20

Table 42. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass at Highsplint Lake (7 acres).

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.
2020	56.0	(15.0)	254.0	(10.5)	84.0	(10.6)	6.0	(2.0)	0.0	(0.0)	400.0	(25.9)
2012	181.3	(16.2)	250.7	(25.4)	32.0	(0.0)	2.7	(2.7)	0.0	(0.0)	466.7	(16.2)

EFDHSLSS.D20

Table 43. PSD and RSD_{15} values for largemouth bass in each area of Highsplint Lake (7 acres) during spring 2020. Numbers in parentheses are 95% confidence intervals.

Largemouth bass		
No.	PSD	RSD_{15}
172	26	2
	(20-33)	(0-4)

EFDHSLSS.D20

Table 44. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Martins Fork Lake (330 acres). S.E. = standard error.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	no sample											
2019	73.6	24.0	64.0	16.0	12.0	4.2	14.4	1.6	0.0		164.0	15.0
2018	19.2	7.7	38.4	3.7	15.2	3.9	6.4	1.6	0.0		79.2	8.7
2017	no sample											
2016	no sample											
2015	26.4	5.7	46.4	7.9	40.8	8.3	20.8	2.9	1.6	1.0	134.4	14.9
2014	38.0	6.6	46.0	12.5	11.0	6.2	11.0	2.5	1.0	1.0	106.0	18.9
2013	no sample											
2012	16.8	4.6	12.0	3.8	5.6	2.4	10.4	4.3	0.8	0.8	44.8	8.3
2011	23.2	5.6	34.4	9.7	16.8	3.9	16.0	3.4	0.8	0.8	90.4	12.8
2010	17.6	6.3	26.4	16.4	8.0	2.8	19.2	2.7	0.8	0.8	71.2	22.8
2009	11.2	4.1	19.9	3.3	9.6	2.0	11.2	1.5	1.6	1.0	51.8	7.4
2008	7.8	4.8	19.5	7.2	20.2	3.7	19.4	2.4	0.8	0.8	66.9	12.2
2007	7.9	3.3	48.6	13.3	15.7	2.6	21.1	5.3	1.6	1.0	93.3	19.3
2006	9.3	2.0	19.9	6.0	13.3	3.0	9.3	2.7	0.7	0.7	51.7	10.7
2005	4.8	2.3	23.2	6.0	17.6	4.8	4.8	2.0	0.0		50.4	10.8
2004	2.7	2.7	89.3	19.2	4.0	2.3	5.3	3.5	0.0		101.3	26.8
2003	14.0	3.7	22.0	3.8	3.3	1.2	5.3	2.0	0.0		68.0	15.7

EFDMLLSS.D03-D19

Table 45. Length frequency and CPUE (fish/hr) of black bass and walleye collected at Martins Fork Lake (330 acres) during 1.5 hours of 15-minute nocturnal electrofishing samples on 5 October 2020; numbers in parentheses are standard errors.

	Inch class														
Species	3	4	5	6	7	8	9	10	11	12	13	15	19	Total	CPUE
Smallmouth bass	1	10	3		1	1								16	10.7 (5.0)
Spotted bass		4		1	16	8	5	6						40	26.7 (10.8)
Largemouth bass	5	12	6	2	18	22	20	17	7	3	1	1	1	115	76.7 (6.3)
Coosa bass		1												1	0.7 (0.7)
Walleye				8	18	7	1	3	2	2				41	27.3 (10.5)

EFDMLLSF.D20

Table 46. Mean back-calculated length (in) at each annulus for largemouth bass collected from Martins Fork Lake (330 acres) on 5 October 2020, including 95% confidence intervals.

Year		Age								
class	No.	1	2	3	4	5	6	7	8	9
2019	24	5.8								
2018	20	6.4	9.3							
2017	4	5.7	8.4	10.1						
2016	3	5.9	8.4	10.5	11.9					
2011	1	4.9	9.0	11.2	14.0	15.3	16.4	17.0	18.1	19.2
Mean		6.0	9.0	10.4	12.4	15.3	16.4	17.0	18.1	19.2
Number		52	28	8	4	1	1	1	1	1
Smallest		4.6	7.8	9.3	11.3	15.3	16.4	17.0	18.1	19.2
Largest		8.0	10.8	11.2	14.0	15.3	16.4	17.0	18.1	19.2
STD error		0.1	0.1	0.2	0.6					
95% CI LO		5.8	8.8	10.0	11.3					
95% CI HI		6.2	9.3	10.8	13.5					

Intercept = 0

EFDMLLAF.D20

Table 47. Electrofishing indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected at Martins Fork Lake (330 acres); CPUE = fish/hr, SE = standard error.

	Age-0		Age-0		Age-0 $\geq$5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	4.5	0.2	16.0	3.9	4.7	2.4		
2019	5.0	0.1	46.0	10.5	21.0	7.6	no sample	
2018	5.4	0.1	67.0	11.1	44.0	8.2	71.2	23.3
2017	4.5	0.1	95.0	24.6	25.0	4.4	17.6	7.4
2016	4.5	0.1	67.0	26.5	15.0	9.0	no sample	
2015	4.6	0.1	59.0	24.4	18.0	7.4	no sample	
2014	4.9	0.1	39.2	11.8	21.6	8.2	22.4	4.1
2013	4.0	0.2	21.0	6.6	6.0	1.2	22.0	5.3
2012	4.8	0.2	28.8	4.6	13.6	3.9	no sample	
2011	4.7	0.1	20.0	6.8	7.2	1.5	8.8	2.7
2010	5.2	0.2	40.0	11.6	26.7	9.3	11.2	3.4
2009	4.3	0.2	23.2	8.3	7.2	2.3	4.8	2.0
2008	4.4	0.2	31.9	14.3	10.3	2.7	7.2	2.9
2007	4.6	0.2	28.7	8.7	10.4	3.0	10.0	5.1
2006	4.5	0.1	38.4	14.5	11.2	3.2	10.1	3.4
2005	4.4	0.2	32.0	4.3	10.0	2.6	10.0	2.3
2004			no fall sample				24.6	5.9
2003			no fall sample				77.5	18.5
2002	5.5	0.1	34.4	8.6	25.6	7.9	15.3	3.6

EFDMLLSF.D02, D05-D20
EFDMLLSS.D03-D19
EFDMLLAS.D03, D09
EFDMLLAF.D20

Table 48. Length frequency and electrofishing CPUE (fish/hr) of largemouth bass collected at Pan Bowl Lake (98 acres) during 0.625 hours of 15 minute daytime runs on 22 May 2020. Numbers in parentheses are standard errors.

	Inch class														
Species	5	6	7	8	9	10	11	12	13	14	15	16	19	Total	CPUE
LMB	12	16	4	32	39	13	8	5	1	1			1	132	211.2 (24.0)

LMB = largemouth bass
EFDPBLSS.D20

Table 49. Spring daytime electrofishing catch-per-unit-effort (CPUE) for each length group of largemouth bass collected at Pan Bowl Lake (98 acres). Nocturnal electrofishing was used in 1992-2000. CPUE = fish/hour, SE = standard error.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	51.2	14.0	147.2	17.8	11.2	6.0	1.6	1.6	0.0		211.2	24.0
2018	93.6	18.0	168.0	21.1	6.4	2.4	5.6	3.0	2.4	1.6	273.6	31.7
2016	75.4	9.1	148.6	23.4	16.0	3.9	9.1	2.7	4.6	1.6	249.1	23.9
2014	81.3	16.2	86.7	15.7	0.0		1.3	1.3	0.0		169.3	24.6
2012	37.0	10.7	81.0	13.9	3.0	2.1	2.0	2.0	1.0	1.0	123.0	21.9
2011	102.0	10.9	108.0	11.9	11.0	3.0	4.0	3.0	1.0	1.0	225.0	20.0
2010	72.0	22.5	105.0	19.4	7.0	2.8	10.0	2.9	2.0	1.3	194.0	32.1
2009	50.4	8.4	120.0	17.8	11.2	3.2	8.4	2.2	2.9	1.4	190.0	22.6
2008	28.0	10.0	91.0	15.6	21.5	6.4	18.0	4.7	7.0	1.8	158.5	26.9
2007	90.3	26.6	149.7	20.2	12.6	3.9	22.9	4.4	6.9	2.7	275.4	39.2
2005	12.8	4.1	65.8	13.3	9.4	3.6	18.0	4.3	1.8		106.0	18.9
2003	28.8	10.2	47.2	9.6	12.0	1.3	25.6	4.1	3.2		113.6	20.5
2000	34.0		52.0		18.0		34.7		8.7		138.7	21.8
1999	17.3		24.7		30.0		15.3		4.0		87.3	22.7
1998	26.0		20.0		5.0		10.0		3.0		61.0	20.6
1997	12.1		39.5		8.1		15.3		0.8		75.0	19.9
1996	20.0		56.0		9.0		14.0		2.0		99.0	27.4
1992	19.4		22.3		14.3		25.7		1.1		81.7	

EFDPBLSS.D03-D20

Table 50. PSD and RSD values for largemouth bass taken in spring electrofishing samples in Pan Bowl Lake (98 acres) on 22 May 2020; 95% confidence intervals are in parentheses.

No.	PSD_8	RSD_{15}
100	8	1
	(3-13)	(1-3)

EFDPBLSS.D20

Table 51. Spring nocturnal electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Paintsville Lake (1,150 acres). SE = standard error.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	no sample											
2019	50.9	16.4	52.6	5.0	12.0	2.5	11.4	3.0	1.7	1.2	126.9	16.2
2018	64.6	17.1	43.4	7.3	13.1	2.1	4.0	1.6	0.0	0.0	126.9	15.4
2017	35.2	5.3	61.2	11.3	6.4	1.4	6.4	1.5	0.8	0.5	109.2	16.3
2016	67.6	6.2	80.0	7.8	9.2	2.0	10.4	2.1	1.2	0.6	167.2	9.1
2015	83.6	7.4	68.4	11.5	17.8	3.6	10.7	3.0	2.7	1.5	180.4	15.4
2014	62.4	8.1	64.5	6.0	24.8	3.8	4.3	1.3	0.8	0.4	156.0	8.6
2013	58.6	4.9	60.0	5.6	4.6	1.1	4.0	1.0	0.3	0.3	127.1	7.0
2012	63.2	10.5	61.6	7.0	9.9	1.6	2.1	0.7	1.3	0.5	136.8	14.8
2011	40.6	7.2	56.9	5.1	9.4	1.9	3.7	0.9	1.1	0.5	110.6	11.6
2010	51.2	16.4	86.4	11.6	13.3	1.7	5.6	1.1	1.9	0.5	156.5	26.3
2009	28.1	8.0	69.2	24.6	6.2	2.6	2.3	1.0	0.0	0.0	105.9	16.4
2008	37.8	6.6	79.3	11.9	9.8	1.8	4.0	1.6	0.4	0.4	130.8	14.1
2007	39.8	9.5	81.6	23.0	11.1	3.1	6.5	0.8	0.0	0.0	139.0	20.5
2006	30.6	4.4	65.1	12.6	13.6	1.9	2.6	1.1	0.0	0.0	111.9	14.3
2005	80.4	31.9	133.3	38.9	35.1	6.0	6.2	1.2	0.4	0.4	255.1	72.7
2004	62.7	10.9	92.0	19.2	17.0	3.4	2.0	0.9	0.0	0.0	173.7	25.4
2003	106.0	21.2	71.0	10.8	19.7	5.7	3.0	1.3	0.3	0.3	199.7	35.2
2002	41.8	1.8	70.5	2.7	36.0	1.4	2.2	0.2	0.0	0.0	150.9	14.2
2001	42.3	5.5	63.0	10.8	46.7	4.8	4.3	0.9	0.7	0.5	156.3	17.5
2000	12.7	5.0	95.0	19.6	27.0	7.8	2.0	0.8	0.0	0.0	136.7	28.0
1999	36.3		65.7		36.7		2.3		0.0		141.0	12.1
1998	25.7		87.7		26.3		0.0		0.0		139.7	17.9
1997	29.0		40.0		26.3		1.0		0.3		96.3	11.5
1996	no sample											
1995	no sample											
1994	34.0		47.4		26.6		3.6		0.3		111.6	15.6
1993	16.4		26.3		22.5		2.8		0.6		68.0	
1992	16.4		44.0		21.3		0.7		0.0		82.4	
1991	26.6		33.1		12.0		0.4		0.4		72.0	
1990	34.0		31.3		2.7		2.0		0.0		70.0	
1989	15.4		16.0		3.4		0.9		0.0		36.3	
1988	6.8		10.6		1.6		0.3		0.0		19.3	

EFDPLLSS.D88-D19

Table 52. Length frequency and CPUE (fish/hr) of black bass collected in 2.5 hours of 15-minute nocturnal electrofishing samples in Paintsville Lake (1,150 acres) on 28 October 2020; numbers in parentheses are standard errors.

		Inch class																			
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE
Lower																					
	Spotted bass			1			2		1											4	3.2 (3.2)
	Largemouth bass	69	24	21	9	3	2	12	19	6	9	5	2	3	3				1	188	150.4 (17.6)
Upper																					
	Spotted bass				1	1			1			1	1							5	4.0 (2.2)
	Largemouth bass	31	5	13	2	2	5	16	11	6	4	6		1			1			103	82.4 (12.2)
Total																					
	Spotted bass			1	1	1	2		2			1	1							9	3.6 (1.8)
	Largemouth bass	100	29	34	11	5	7	28	30	12	13	11	2	4	3		1		1	291	116.4 (15.2)

EFDPLLSF.D20

Table 53. Nocturnal electrofishing indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected at Paintsville Lake (1,150 acres); CPUE = fish/hr.

	Age-0		Age-0		Age-0 ≥5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	3.3	0.1	71.2	13.9	6.0	4.3		
2019	4.4	0.1	74.7	9.3	25.3	4.5	no sample	
2018	4.6	0.1	50.9	9.8	22.9	7.8	42.9	15.9
2017	5.0	0.1	125.2	20.2	62.4	12.9	56.6	14.6
2016	5.0	0.1	70.0	6.3	34.0	8.6	39.2	6.1
2015	4.9	0.1	95.1	17.7	42.2	6.7	71.2	5.6
2014	4.8	0.1	60.0	11.0	27.0	7.3	90.7	7.4
2013	4.9	<0.1	111.7	13.8	53.1	5.0	63.7	8.3
2012	5.0	0.1	58.1	10.6	32.3	7.3	64.9	5.0
2011	5.1	0.1	36.3	7.2	19.7	4.3	68.8	11.1
2010	4.6	0.1	86.4	19.5	31.5	6.9	35.6	6.7
2009	4.6	0.1	64.6	13.3	23.1	10.7	58.1	17.6
2008	4.6	0.1	24.8	8.8	8.1	5.2	35.6	9.7
2007	5.1	0.1	52.4	24.0	30.2	15.6	51.5	7.3
2006	4.9	0.1	72.4	12.0	33.6	5.1	44.0	8.4
2005	4.5	0.1	46.0	9.6	10.7	2.7	43.5	5.9
2004	5.1	0.1	65.7	10.8	37.3	8.6	75.6	29.2
2003	4.8	0.1	31.3	6.1	14.0	2.2	61.4	10.7
2002							95.2	20.1

EFDPLLSF.D03-D20
EFDPLLSS.D02-D19
EFDPLLAS.D03, D06, D11
EFDPLLAF.D12, D18

Table 54. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 2.0 hours of 15-minute nocturnal electrofishing samples at Yatesville Lake (2,280 acres) on 19-20 May 2020; numbers in parentheses are standard errors.

		Inch class																			
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	
Lower	SB			1																1	1.0	(1.0)
	LMB		3	33	56	16	6	15	13	19	10	7	5	7	1	1	1			193	193.0	(9.9)
Upper	SB																			0	0.0	0.0
	LMB	1	3	13	14	4	9	5	12	13	3	10	5	10	2	1	2		1	108	108.0	(26.9)
Total	SB			1																1	0.5	(0.5)
	LMB	1	6	46	70	20	15	20	25	32	13	17	10	17	3	2	3	0		300	150.5	(20.8)

SB = spotted bass
LMB =largemouth bass
EFDYLLSS.D20

Table 55. Spring nocturnal electrofishing CPUE (fish/hr) for each length group of largemouth bass at Yatesville Lake (2,280 acres). SE = standard error.

	Length group											
	<8.0 in		8.0-11.9 in		12.0-14.9 in		≥15.0 in		≥20.0 in		Total	
Year	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	71.5	15.8	46.0	6.7	20.0	2.9	13.0	2.6	0.5	0.5	150.5	20.8
2019	49.7	5.2	58.3	6.6	28.3	5.4	15.7	3.1	0.0		152.0	11.9
2018	55.3	7.2	64.3	7.1	23.0	3.9	14.0	4.1	0.3	0.3	156.7	9.4
2017	76.7	11.1	55.3	8.7	37.3	4.8	21.0	4.1	0.7	0.7	190.3	17.0
2016	57.3	9.9	50.7	8.8	16.0	4.8	16.7	4.6	0.7	0.7	140.7	16.5
2015	57.3	7.3	67.3	5.4	23.0	3.1	23.3	3.8	0.7	0.5	171.0	8.6
2014	46.0	2.7	67.7	6.7	23.3	2.7	16.7	2.6	0.3	0.3	153.7	10.3
2013						no sample						
2012	23.2	2.8	49.2	7.4	21.6	2.6	8.4	2.1	0.8	0.5	102.4	10.3
2011						no sample						
2010	44.0	6.3	57.0	8.7	19.3	3.8	11.0	2.8	0.7	0.5	131.3	11.7
2009	28.6	5.4	68.3	7.5	30.6	2.8	16.6	3.2	0.0		144.1	9.7
2008	47.0	8.4	38.3	3.8	20.4	3.7	16.6	4.9	0.0		122.3	10.3
2007	47.7	5.9	62.3	5.7	31.3	4.2	15.8	2.7	0.0		157.1	10.7
2006	47.3	7.4	68.0	10.3	20.3	2.2	16.0	4.0	0.7		151.7	17.5
2005	43.7	7.8	61.3	6.6	42.0	4.7	21.7	2.1	0.3		168.7	15.4
2004	12.7	2.8	40.3	10.5	23.7	5.1	9.0	2.2	0.0		85.7	19.4
2003						no sample						
2002	54.3	7.8	50.0	4.4	19.3	2.9	16.7	3.2	0.0		140.3	7.4
2001	35.0	7.0	58.3	7.5	19.3	3.2	9.7	2.1	0.3		122.3	7.8
2000	63.3	8.0	55.7	7.9	9.3	1.1	7.0	1.6	0.0		135.5	13.7
1999	42.7		29.0		16.3		13.7		0.3		101.7	12.2
1998	10.7		25.7		16.3		5.7		0.0		58.3	7.2
1997	50.7		23.7		16.7		2.0		0.0		93.0	10.5
1996	21.5		65.5		7.8		1.5		0.0		96.3	11.5
1995						no sample						
1994						no sample						
1993	153.7		82.9		20.1		7.4		0.0		264.0	

EFDYLLSS.D93-D20

Table 56. PSD and RSD values for black bass species taken in spring electrofishing samples in each area of Yatesville Lake (2,280 acres) on 19-20 May 2020; 95% confidence intervals are in parentheses.

	Largemouth bass			Spotted bass		
Area	No.	PSD	RSD_{15}	No.	PSD	RSD_{14}
Lower	85	38 (27-48)	12 (5-19)	1	0	0
Upper	73	47 (35-58)	22 (12-31)	0	0	0
Total	158	42 (34-49)	16 (11-22)	0	0	0

EFDYLLSS.D20

Table 57. Spring nocturnal electrofishing population assessment for largemouth bass collected at Yatesville Lake (2,280 acres). Actual values are in parentheses. Scoring based on statewide assessment.

	Year									
Parameter	2009	2010	2012	2014	2015	2016	2017	2018	2019	2020
Mean length age-3 at capture	4	4	2	2	1	1	1	1	1	1
	(13.5)	(13.5)	(12.4)	(12.4)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)
Spring CPUE age-1	3	4	2	3	4	4	4	4	4	4
	(28.2)	(42.6)	(19.4)	(37.0)	(54.3)	(56.7)	(73.3)	(51.3)	(46.0)	(70.0)
Spring CPUE 12.0-14.9 in	3	2	2	3	3	1	4	3	3	2
	(30.6)	(19.3)	(21.6)	(23.3)	(23.0)	(16.0)	(37.3)	(23.0)	(28.3)	(20.0)
Spring CPUE $\geq$15.0 in	3	2	2	3	4	3	4	3	3	2
	(16.6)	(11.0)	(8.4)	(16.7)	(23.3)	(16.7)	(21.0)	(14.0)	(15.7)	(13.0)
Spring CPUE $\geq$20.0 in	1	3	3	2	3	3	3	2	1	3
	(0.0)	(0.7)	(0.8)	(0.3)	(0.7)	(0.7)	(0.7)	(0.3)	0.0	(0.5)
Total score	14	15	11	13	15	12	16	13	12	12
Assessment rating	Good	Good	Fair	Good	Good	Fair	Good	Good	Fair	Fair
Instantaneous mortality (z)	0.91	1.22	0.79	0.77						
Annual mortality (A)	59.80	70.40	54.60	53.70						

EFDYLLSS.D08-D10, D12, D14-D20
EFDYLLAS.D06, D12
EFDYLLAF.D15

Table 58. Length frequency and nocturnal electrofishing CPUE (fish/hr) of black bass collected at Yatesville Lake (2,280 acres) during 3.0 hours of 15-minute samples on 22 October 2020; numbers in parentheses are standard errors.

		Inch class																		
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	CPUE	
Lower																				
	Spotted bass	3	8	4	1	4	1	1	2		1							25	16.7	(11.2)
	Largmouth bass		4	16	11	7	8	42	28	15	10	4	7	5	2		1	160	106.7	(17.5)
Upper																				
	Spotted bass																	0	0.0	0.0
	Largmouth bass	2	18	55	32	16	11	27	28	9	4	5	4	4				215	143.3	(6.6)
Total																				
	Spotted bass	3	8	4	1	4	1	1	2		1							25	8.3	(5.9)
	Largmouth bass	2	22	71	43	23	19	69	56	24	14	9	11	9	2			374	125.0	(10.5)

EFDYLLSF.D20

Table 59. Fall electrofishing indices of year class strength at age-0 and age-1 and mean lengths (in) of largemouth bass collected during 2003-2020 at Yatesville Lake (2,280 acres); CPUE = fish/hr, SE = standard error.

	Age-0		Age-0		Age-0 $\geq$5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2020	4.8	0.1	53.7	9.8	22.0	4.5		
2019	5.0	0.1	85.3	16.1	34.7	9.5	70.0	15.3
2018	5.3	0.1	79.6	17.8	49.2	14.4	46.0	5.2
2017	5.1	0.1	84.4	8.7	46.4	7.1	51.3	7.1
2016	5.8	0.1	67.3	7.1	61.3	7.2	73.3	10.9
2015	5.0	0.1	92.0	11.3	48.7	9.9	56.7	9.9
2014	4.7	0.1	79.3	14.8	29.3	7.8	54.3	7.7
2013	5.2	0.1	39.6	5.8	25.6	5.0	37.0	2.9
2012	5.0	0.1	82.9	20.0	45.1	10.1	no sample	
2011	4.9	0.1	55.3	9.6	28.7	4.9	19.4	2.5
2010	5.1	0.1	78.6	11.5	45.1	8.7	no sample	
2009	4.9	0.1	32.7	6.5	16.3	4.0	42.6	6.4
2008	5.1	0.1	45.9	7.8	28.4	6.0	28.2	5.3
2007	5.3	0.1	37.4	10.6	23.2	6.1	45.0	8.1
2006	4.9	0.1	29.5	7.8	13.8	3.8	47.0	6.0
2005	4.7	0.1	47.0	12.3	20.0	7.1	45.9	7.2
2004	4.8	0.1	69.5	13.5	32.5	10.8	42.3	7.1
2003	5.3	0.1	46.0	6.3	29.3	4.4	12.7	2.8

EFDYLLSS.D03-D20
EFDYLLSF.D03-D20
EFDYLLAS.D05, D06, D12
EFDYLLAF.D15

Table 60. Length frequency and CPUE (fish/nn) for white crappie collected at Yatesville Lake (2,280 acres) in 15 net-nights from 16 - 18 November 2020. Standard errors are in parentheses.

Inch class															
3	4	5	6	7	8	9	10	11	12	13	14	15	Total	CPUE	SE
557	441	448	351	170	99	42	14	11	7	4	1	1	2146	143.1	(17.1)

EFDYLCTF.D20

Table 61. PSD and RSD_{10} values calculated for white crappie collected in trap nets at Yatesville Lake (2,280 acres) during November 2020; 95% confidence intervals are in parentheses.

No. $\geq$ 5.0 in	PSD	RSD_{10}
1,148	16	3
	(13-18)	(2-4)

WC = white crappie
EFDYLCTF.D20

Table 62. Mean back-calculated length (in) at each annulus for white crappie collected from Yatesville Lake (2,280 acres) in November 2020, including 95% confidence intervals.

Year class	No.	Age 1	2	3	4	5	6	7	8
2019	8	3.7							
2018	14	40	5.3						
2017	12	4.1	5.7	6.9					
2016	26	4.2	5.5	6.7	8.0				
2015	18	4.4	5.6	6.6	8.0	9.6			
2014	7	4.4	5.8	6.9	8.0	9.2	10.8		
2013	3	4.4	5.2	6.0	6.8	7.7	8.9	10.5	
2012	1	4.8	6.7	8.1	9.3	11.0	12.4	13.6	14.3
Number		89	81	67	55	29	11	4	1
Mean		4.2	5.6	6.7	7.9	9.4	10.4	11.2	14.3
Smallest		3.0	4.0	4.6	5.1	6.6	7.6	9.5	14.3
Largest		5.1	7.6	8.9	11.1	12.8	13.7	13.6	14.3
STD error		0.0	0.1	0.1	0.2	0.3	0.6	0.9	
95% CI LO		4.1	5.4	6.5	7.6	8.8	9.2	9.5	
95% CI HI		4.3	5.7	7.0	8.3	9.9	11.6	13.0	

Intercept = 0
EFDYLCAF.D20

Table 63. Age frequency and CPUE (fish/nn) of white crappie collected by trap netting for 15 net-nights at Yatesville Lake (2,280 acres) in November 2020; numbers in parentheses are standard errors.

	Inch class																
Age	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	Age%	CPUE	
0	557	221												778	36	51.8	(8.9)
1		221	134											355	17	23.7	(3.7)
2			269	160	31	12								472	22	31.4	(5.0)
3				64	77	37		3						181	8	12.1	(2.3)
4			45	128	46	25	23	6	3	3				279	13	18.6	(3.0)
5					15	12	19	3	5	3	2			59	3	3.9	(0.7)
6						12		3		1	1	1		18	1	1.2	(0.2)
7									3		1			4	0	0.3	(0.1)
8													1	1	0	0.1	(0.1)
Total	557	442	448	352	169	98	42	15	11	7	4	1	1	2147			
%	26	21	21	16	8	5	2	1	1								

CPUE of ≥8 in (quality size) = 11.9 fish/nn

CPUE of ≥10 in (preferred size) = 2.5 fish/nn

EFDYLCAF.D20

EFDYLCTF.D20

Table 64. Population assessment score for white crappie collected from Yatesville Lake (2,280 acres). Actual assessment values are in parentheses. Scoring based on statewide assessment.

	Year								
Parameter	2002	2004	2006	2009	2012	2014	2016	2018	2020
CPUE age-1 and older	4	4	4	4	4	4	4	4	4
	(19.5)	(28.2)	(58.6)	(26.4)	(39.4)	(67.5)	(91.2)	(45.3)	(91.3)
CPUE age 1	3	3	4	3	3	4	4	4	4
	(3.9)	(3.7)	(8.9)	(7.5)	(4.4)	(8.2)	(41.1)	(8.2)	(23.7)
CPUE age 0	2	4	3	4	4	3	4	4	4
	(1.5)	(23.9)	(3.6)	(6.0)	(4.8)	(2.2)	(44.7)	(11.1)	(51.8)
CPUE $\geq$ 8.0 in	2	3	4	2	4	4	2	4	4
	(3.0)	(4.8)	(13.6)	(2.2)	(6.9)	(19.9)	(2.7)	(9.9)	(11.9)
Mean length age 2 at capture	1	1	1	1	1	1	1	1	1
	(6.1)	(5.6)	(6.0)	(5.5)	(6.8)	(6.6)	(5.4)	(6.3)	(6.0)
Instantaneous mortality (z)	1.08	0.59	0.98	1.01	0.43	0.72	0.73	0.23	0.87
Annual Mortality (A)	66.0	45.0	62.4	63.6	34.9	51.4	51.7	20.3	58.3
Total score	12	15	16	14	16	16	15	17	17
Assessment rating	Fair	Good	Good	Good	Good	Good	Good	Excellent	Excellent

EFDYLCTF.D02-D20
EFDYLCAF.D02-D20

WESTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

Table 1. Technical guidance given to pond owners in the Western Fishery District during the 2020 project year (April 1, 2020 - March 31, 2021). Approximately 85 telephone calls to the office regarding technical guidance and stocking were also handled. Additionally, numerous emails were replied to requesting farm pond technical guidance information.

County Pond Owner	Date of Inspection	Findings	Management Recommendations

Due to Covid-19 restrictions, no on-site visits were made during this project year

NORTHWESTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

Requests for technical guidance information were received via e-mails, phone calls, and office visits. Problems included unbalanced populations, new pond construction, stocking, fish disease and fish kills, water quality issues, aquatic vegetation control, and general pond management. Requested information was relayed via phone, e-mail, office visit, and referencing the Pond Management section of the web site. There were two on-site visits conducted in 2020, both at Fort Knox. Upper and Lower Douglas Lakes were sampled in early November at the request of local biologists.

SOUTHWESTERN FISHERY DISTRICT

Project 2: Stream Fishery Surveys

FINDINGS

Stream sampling conditions are summarized in Table 1.

Middle Fork Drakes Creek

A selective sport fish survey was conducted mid-April using diurnal boat electrofishing on the lower 3.3 miles of Middle Fork Drakes Creek to its confluence with West Fork Drakes Creek (Table 1). Smallmouth bass were the most abundant sportfish collected (Table 2) and the smallmouth fishery rated “Excellent” (Table 3). Rock bass were well represented (34.4 fish/hr); ranging up to 9.0 inches in length with a population rating of “Good” (Table 4). Native stocked walleye were the third most prevalent of the sport fish collected (15.2 fish/hr), despite the nearest stocking sites being 14 miles downstream and 13 miles upstream in Drakes Creek. Few sections or “holes” on the sampling stretch exceeded 7- to 8-feet in depth, likely aiding in fish detection and sampling efficiency.

Drakes Creek

A fall diurnal electrofishing sample on a 1.2-mile stretch of Drakes Creek encircling Phil Moore Park was conducted during mid-October (Table 1). Spotted bass and smallmouth bass dominated this sample and received assessments of “Excellent” for the fall sample (Tables 5-7). The rock bass fishery was assessed as “Fair” based on the fall sample (Table 8). Though native walleye are stocked in this section, abundance was of no comparison (n=3) to the earlier-sampled upper site (n=19; Middle Fk. Drakes) in the drainage, despite only a small section of this pool exceeding 7-8 feet in depth.

Nolin River

Nolin River below Nolin River Lake dam, was sampled during winter (Dec/Jan) and early summer (late-June) to primarily assess trout holdover (Table 1). Initial “feeler samples” from 2018 were included for additional reference as they had similar sampling metrics (flow and water clarity). Samples were conducted within these flow and water clarity target windows to aid in data consistency and comparisons across seasons. This reach of river has several pool sections that exceed 10-ft depths, which resulted in diminished detection/collection of fish that utilize these deeper waters (walleye, sauger and black bass). Though not presented here, sport fish densities noticeably declined as flow was slowed by the influence of Green River pool #5 and riffle areas became very infrequent.

Rainbow trout exceeding 13.0 in were noted in early summer samples, but were absent from winter samples (Table 9). Scarcity of larger fish in the winter samples suggest few fish holdover from the spring-summer stockings. Marginal water temperatures (low 70’s F) characterize the late summer and early fall months and likely serve as part of the holdover bottleneck. Abundant forage (small gizzard and threadfin shad) were noted in winter samples and trout collected then were very plump. Perhaps adjusting stocking rates and timing to take advantage of the bump in forage could provide for more and larger trout in this seasonal tailwater from late winter to early summer. Though condition metrics (relative weight, etc.) were not measured, June-sampled larger fish were noted as being in poorer condition (lighter weights, with mangled fins, body scars and gashes).

The rock bass fishery was better sampled during the winter (Tables 9 and 10) with a corresponding higher assessment ranking in winter as compared to the summer sample. Occurrence and assessment of spotted bass was similar in this disparity between winter and summer samples (Tables 9 and 11). Conversely, largemouth bass densities and assessments were similar across those two seasons (Table 12). Contribution of lake fish likely explains consistency of largemouth occurrence, but not so for spotted bass, as the Nolin River Lake bass fishery is dominated by largemouth bass, with a low-density spotted bass population. Walleye occurrence was similar in summer samples across years, but different in winter samples (January, n=11; Dec., n=3). This is likely due to walleye escapement from Nolin River Lake as fall discharge events were more frequent and at higher rates than that of the December sample.

Table 1. Stream sampling conditions in the Southwestern Fisheries District in 2020.

Waterbody	Date	Species	Water level (nearest USGS gauge)	Water temp. (F)	Conductivity (umhos)	Secchi (in.)	Comments
Middle Fk Drakes Creek- Duncan Rd. Ford	4/16	Bass-rock bass-w ye	8-ft @ Franklin, 7.5-ft @ Alvaton	55	255	66	ideal clarity and flow , but w ater level no low er (330 cfs - 300 cfs)
Nolin Tailw ater	6/26	Bass-rock bass-trout	18.2-ft @ Kyrock	63-65	168	60	ideal clarity and flow , (322 cfs)
Drakes Creek	10/15	Bass-rock bass-w ye	4.6-ft Alvaton @ 130 cfs	63	242	65	ideal clarity - low w ater level restricted upstream access
Nolin Tailw ater	12/10	Bass-rock bass-trout	17.5-ft @ Kyrock	50	155	66	ideal clarity and flow (237 cfs)

Table 2. Selected sport fish length frequency and CPUE (fish/hr) collected by diurnal electrofishing (15-minute transects; 1.25 hours) at Middle Fork Drakes Creek on 16 April 2020.

	Inch class																						
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	39	Total	CPUE	Std err
Smallmouth bass	2	3	7	12	6	4	4	7	2	8	2	4	2	1							64	51.2	7.3
Spotted bass		1			1	1	1														4	3.2	2.3
Largemouth bass									1												1	0.8	0.8
Rock bass	1	4	3	6	21	6	2														43	34.4	15.6
Walleye						1	5					1	1	5	5			1			19	15.2	5.9
Muskellunge																				1	1	0.8	0.8

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Table 3. Population assessment of smallmouth bass at Middle Fork Drakes Creek on 16 April 2020.

Parameter	Value	Assessment score
Recruitment (CPUE <4.0 in)	0	0
Intermediate size density (CPUE 4.0-8.9 in)	19.2	4
Adult size density (CPUE ≥9.0 in)	36.0	4
Quality size density (CPUE ≥12.0 in)	15.2	4
Preferred density (CPUE ≥14.0 in)	7.2	4
Total score		16
Assessment rating		Excellent

swddcsf.d20

Table 4. Population assessment of rock bass at Middle Fork Drakes Creek on 16 April 2020.

Parameter	Value	Assessment score
Recruitment (CPUE <4.0 in)	0.8	2
Intermediate density (CPUE 4.0-5.9 in)	5.6	3
Quality density (CPUE ≥6.0 in)	28.0	3
Preferred density (CPUE ≥8.0 in)	6.4	3
Total score		11
Assessment rating		Good

swddcsf.d20

Table 5. Selected sport fish length frequency and CPUE (fish/hr) collected by diurnal electrofishing (15-minute transects; 1.25 hours) at Drakes Creek-Phil Moore Park on 15 October 2020.

	Inch class																				
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE	Std err
Smallmouth bass				6	2	2	5	4	1	1		1	2	1	1	1	2	1	30	24.0	5.4
Spotted bass	1	2	1	5	1	2	3	5	1	2	1	1	1	1					27	21.6	1.6
Largemouth bass						2	1			1			1						5	4.0	2.5
Rock bass		1		2	3	3	1												10	8.0	2.2
Walleye													1		1	2			4	3.2	1.5

swddcsf.d20

Table 6. Population assessment of smallmouth bass at Drakes Creek-Phil Moore Park on 15 October 2020.

Parameter	Value	Assessment score
Recruitment (CPUE <4.0 in)	0	0
Intermediate size density (CPUE 4.0-8.9 in)	8	4
Adult size density (CPUE ≥9.0 in)	11.2	4
Quality size density (CPUE ≥12.0 in)	7.2	4
Preferred density (CPUE ≥14.0 in)	6.4	4
Total score		16
Assessment rating		Excellent

swddcsf.d20

Table 7. Population assessment of spotted bass at Drakes Creek-Phil Moore Park on 15 October 2020.

Parameter	Value	Assessment score
Recruitment (CPUE <4.0 in)	2.4	3
Intermediate size density (CPUE 4.0-7.9 in)	7.2	4
Adult size density (CPUE ≥8.0 in)	12.0	4
Quality size density (CPUE ≥11.0 in)	4.8	4
Preferred density (CPUE ≥13.0 in)	2.4	4
Total score		19
Assessment rating		Excellent

swddcsf.d20

Table 8. Population assessment of rock bass at Drakes Creek-Phill Moore Park on 15 October 2020.

Parameter	Value	Assessment score
Recruitment (CPUE <4.0 in)	0.8	1
Intermediate density (CPUE 4.0-5.9 in)	1.6	2
Quality density (CPUE $\geq$6.0 in)	5.6	3
Preferred density (CPUE $\geq$8.0 in)	0.8	2
Total score		8
Assessment rating		Fair

swddcsf.d20

Table 9. Selected sport fish length frequency and CPUE (fish/hr) collected by diurnal electrofishing (15-minute transects; 5-7 runs) at Nolin River Lake Tailwater during winter and early-summer of 2018 and 2020.

			Inch class																							
Year	Month	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	Std err
2020	June	Smallmouth bass						1		1			1	2		1								6	4.0	1.0
		Spotted bass			1	3	1	2	4	7	5	3												26	17.3	4.1
		Largemouth bass								2	3	1	1	2	1	2	2		2					16	10.7	4.0
		Rock bass				1	1	2	4															8	5.3	2.5
		Rainbow trout											1		1	2	1							5	3.3	1.2
		Brown trout								2	1													3	2.0	2.0
		Sauger																	1	1				2	1.3	0.8
		Muskellunge																		1				1	0.7	0.7
	December	Smallmouth bass				3	8	3																14	8.6	3.3
		Spotted bass	1	1	2	5	13	11	8	9	5	1	1											57	32.6	4.1
		Largemouth bass			1	1		1		2	2	5	1		1		1	2						17	9.7	4.3
		Rock bass		2	10	19	12	11																54	30.9	9.2
		Rainbow trout								2	2	1												5	2.9	1.1
		Sauger																	1					1	0.6	0.6
		Walleye															1			1			1	3	1.1	0.7
2018	January	Rainbow trout								1	17	16	11											45	60.0	n/a
		Sauger															2	1	1					4	2.7	n/a
		Walleye														4	4	1		1	1			11	14.7	n/a
	June	Rainbow trout							2	5	3		1	3	2	2	3							21	14.0	8.3
		Sauger															2	1	1					4	2.7	0.7
		Walleye										1	1	1	1		1	1						6	4.0	2.0
		Muskellunge																1						1	0.7	0.7

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Table 10. Population assessment of rock bass at Nolin River Lake Tailwater during early-summer (June) and winter (December) of 2020.

Parameter	June		December	
	Value	Assessment score	Value	Assessment score
Recruitment (CPUE <4.0 in)	0	0	1.1	2
Intermediate density (CPUE 4.0-5.9 in)	0.6	1	16.6	4
Quality density (CPUE $\geq$6.0 in)	4.7	3	18.9	4
Preferred density (CPUE $\geq$8.0 in)	2.7	3	0	0
Total score		7		10
Assessment rating		Fair		Good

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Table 11. Population assessment of spotted bass at Nolin River Lake Tailwater during early-summer (June) and winter (December) of 2020.

Parameter	June		December	
	Value	Assessment score	Value	Assessment score
Recruitment (CPUE <4.0 in)	0	0	1.1	2
Intermediate size density (CPUE 4.0-7.9 in)	4.7	3	17.7	4
Adult size density (CPUE $\geq$8.0 in)	12.7	4	13.7	4
Quality size density (CPUE $\geq$11.0 in)	2	3	1.1	1
Preferred density (CPUE $\geq$13.0 in)	0	0	0	0
Total score		10		11
Assessment rating		Fair		Good

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Table 12. Population assessment of largemouth bass at Nolin River Lake Tailwater during early-summer (June) and winter (December) of 2020.

Parameter	June		December	
	Value	Assessment score	Value	Assessment score
Recruitment (CPUE <4.0 in)	0	0	0	0
Intermediate size density (CPUE 4.0-8.9 in)	0	0	1.7	2
Adult size density (CPUE ≥9.0 in)	10.7	3	8	3
Quality size density (CPUE ≥12.0 in)	7.3	4	2.9	3
Preferred density (CPUE ≥15.0 in)	4	4	1.7	3
Total score		11		11
Assessment rating		Good		Good

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SOUTHWESTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

No onsite technical guidance given during 2020 due to Covid19 restrictions. Numerous emails, phone calls, texts & a few office visits taken, but were not enumerated.

CENTRAL FISHERIES DISTRICT

Project 2a: Stream Fishery Surveys – Warmwater Streams

FINDINGS

No sampling was completed on streams by the Central Fisheries District in 2020. The Streams Investigation Section did sample some streams in this district, and those results can be found in their Annual Report – F-40-43 – Statewide Fisheries Investigation Project: Subsection 1 Stream Fisheries Investigation.

CENTRAL FISHERIES DISTRICT

Project 2b: Trout Stream Fishery Surveys

FINDINGS

No sampling was completed on the Dix River (Herrington Lake tailwater) in 2020. Annual weather data and tailwater flow parameters for Herrington Lake tailwater are summarized in Table 1. Data is collected from the USGS 03286200 gauge and rainfall data is collected from the USGS 03285000 gauge or National Weather Service ID (DNK2). Tailwater observations appear to have a significant relationship to the performance of trout in Dix River Tailwater. During years of high flow and rainfall, there appears to be lower than average survival of trout from year to year and in some cases eliminating the overall trout population. During years of low flow or rainfall the trout appear to flourish, and high numbers of trout will survive to the next year. Overall, this Dix River tailwater trout fishery is strongly influenced by these yearly variations of weather and water conditions.

Dix River (Herrington Lake Tailwater) was monitored for suitability for trout management (Figures 1 and 2). Water temperatures were monitored hourly at Dix River (2 sites) by a Hobo TidbiT MX temperature logger (MX2203) from 22 April to 1 December 2020. The results showed the average daily water temperatures in the section of the Dix River near the boat access adjacent to the shoal averaged 60.2°F (min = 48.6°F and max = 68.7°F) and average daily temperatures never exceeded 72°F in 2020 (Figure 1). Average daily waters temperatures for the Dix River at the beginning of the trout regulation section averaged 66.3°F (min = 48.9°F and max = 85.9°F) and the average daily temperature exceeded 72°F on 76 different days between 2 June and 14 September (Figure 2).

Floyd's Fork at The Parklands of the Floyd's Fork in Louisville, Kentucky was monitored for suitability for trout management (Figure 3 and 4). Water temperatures were monitored hourly at Floyd's Fork (2 sites) by a Hobo TidbiT MX temperature logger (MX2203) from 21 April to 2 December 2020. The results showed that water temperatures near the North Beckley Paddling Access on the Floyd's Fork averaged 67.1°F (min = 41.7°F and max = 83.2°F) and temperatures exceeded 72°F on 104 different days between 29 May and 15 September (Figure 3). Waters temperatures just upstream of the Echo Trail Bridge next to the Bobwhite house averaged 67.8°F (min = 41.7°F and max = 83.9°F) and the temperature exceeded 72°F on 108 different days between 28 May and 15 September (Figure 4).

Table 1. Annual weather data and tailwater parameters for Herrington Lake Tailwater. Tailwater data is collected from USGS 03286200 gauge and rainfall data is collected from USGS 03285000 gauge or National Weather Service ID (DNK2).

Year	Annual average gauge height	Annual average discharge	Days over 10 feet gauge height	Annual rainfall for Danville, KY
2020	7.7	634.5	104	44.88
2019	7.4	532.1	86	39.28
2018	8.1	938.3	122	60.19
2017	5.8	364.0	57	35.15
2016	--	283.6	--	33.57
2015	5.9[b]	487.0	85[b]	42.89
2014	[a]	409.0	[a]	43.82
2013	7.1	709.7	53	64.13
2012	5.7	361.8	11	41.18
2011	7.3	527.3	52	61.43

Gauge heights above 10 feet have probable backwater from Kentucky River.

[a] In 2014, average gauge height was not recorded until August, therefore, the number of days the gauge exceeded 10 was not calculated. Additionally, gauging station was down for about 20 days during high water events.

[b] In 2015, the gauging station was down for 41 days during high water events.

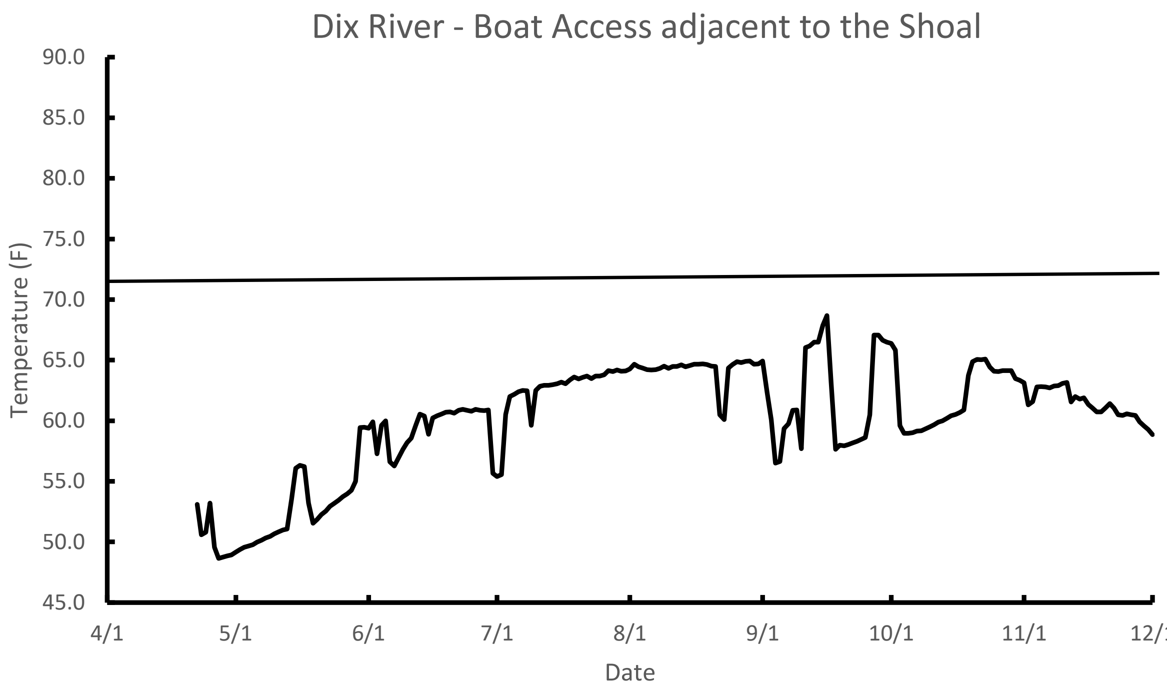

Figure 1. Daily water temperatures observed near the Kentucky Utility boat launch in the upper reach of the trout section on the Dix River (Herrington Lake Tailwater) from 22 April to 1 December 2020.

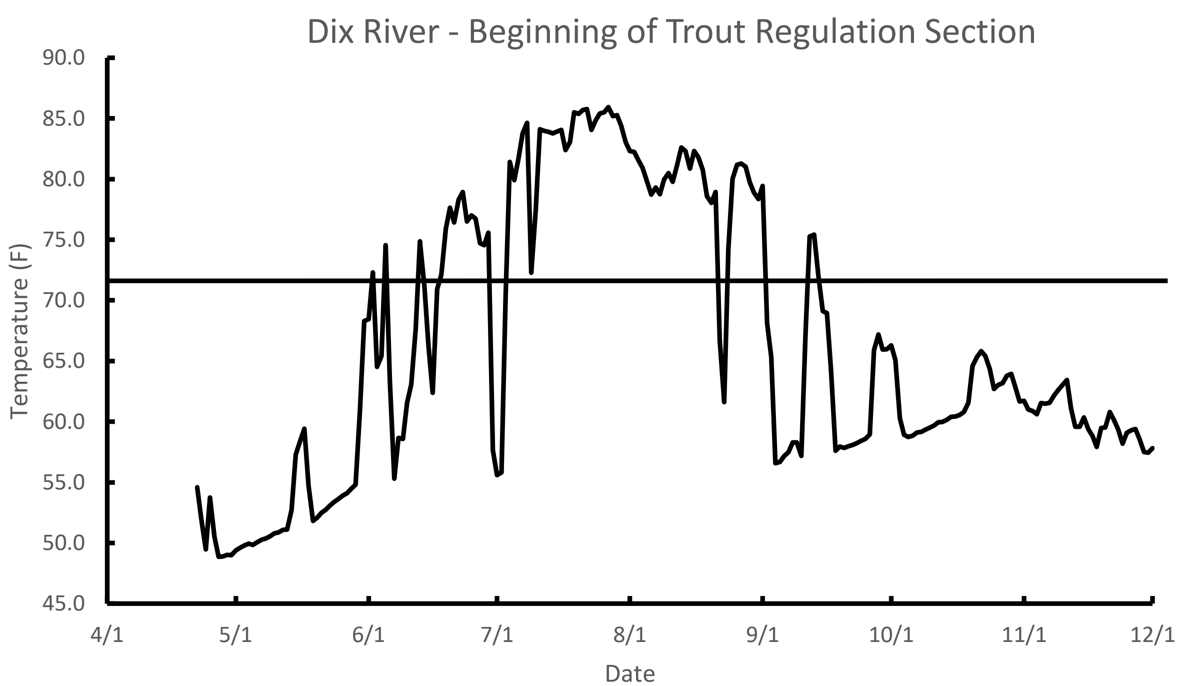

Figure 2. Daily water temperatures observed at the beginning of the regulation zone of the trout section on the Dix River (Herrington Lake Tailwater) from 22 April to 1 December 2020.

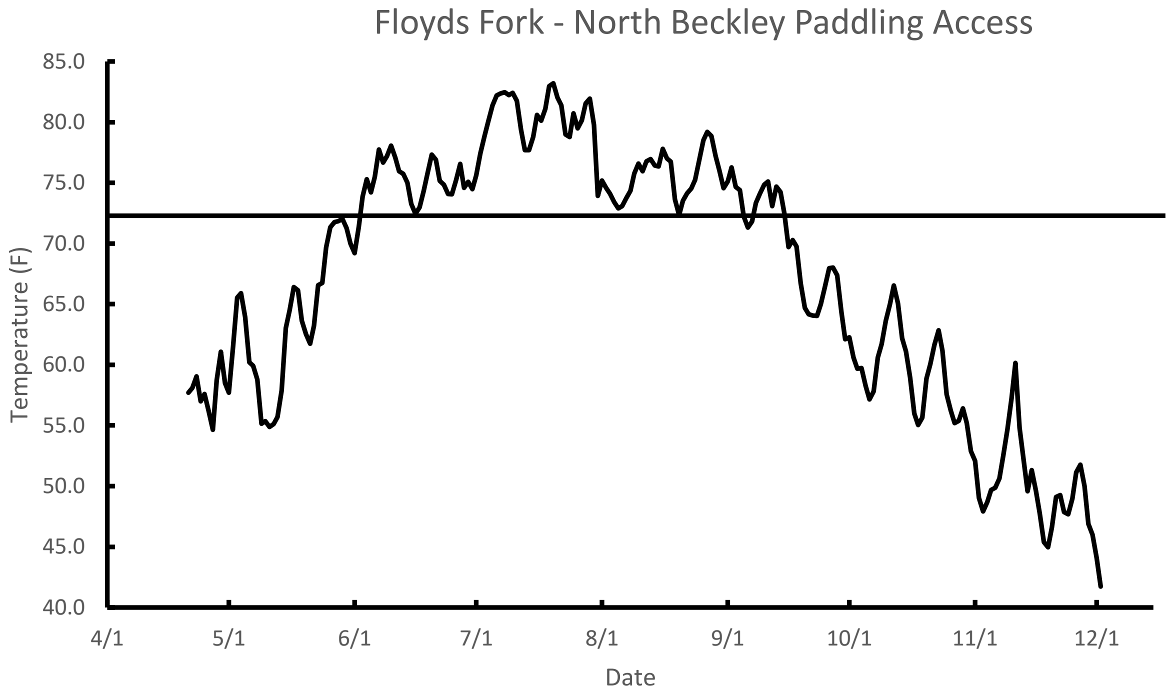

Figure 3. Daily water temperatures observed near the North Beckley Paddling Access in the upper reach of the trout section on the Floyd's Fork from 21 April to 2 December 2020.

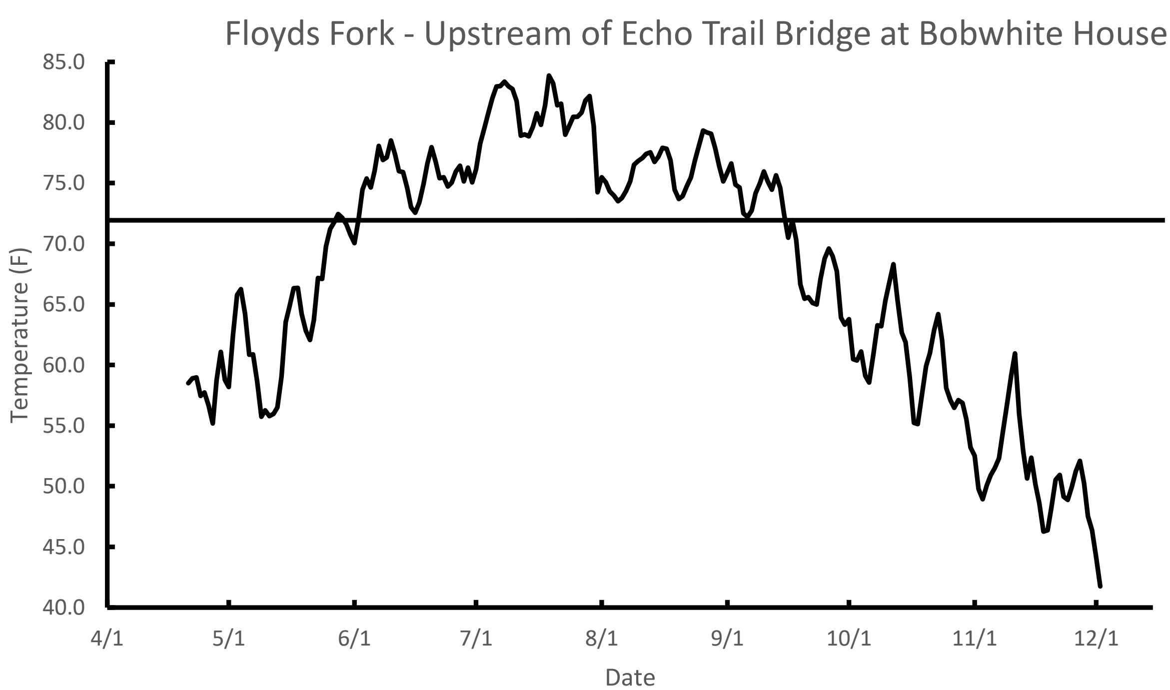

Figure 4. Daily water temperatures observed just upstream of Echo Trail Bridge adjacent to the Bobwhite House in the lower reach of the trout section on the Floyd's Fork from 21 April to 2 December 2020.

CENTRAL FISHERIES DISTRICT

Project 3: Technical Guidance

FINDINGS

A total of 29 pond owners and 39 ponds were visited in 2020. Most common problems were unbalanced fish populations, excessive aquatic plant growth, and lack of fish cover (Table 1). During 2020, nine landowners requested a Fisheries Special Management Permit (FMP) for their ponds. Finally, a total of 345 phone calls, 264 e-mails, and 5 walk-in office visits concerning farm pond problems were handled this year.

Table 1. Technical guidance in the Central Fishery District in 2020.

County	Name of lake / pond owner	Date sampled	Findings	Recommendations
Anderson (6)	Kenneth Barnett	7/31/20	Very good panfish / crowded bass	Harvest LMB and stock BG
	Thomas Brown	7/31/20	Crowded bass	Harvest LMB; FMP completed
	Jerry Rutherford	8/18/20	Not accessible due to vegetation - duckweed	Herbicides for aquatic plant control
	John Rennels	8/18/20	Not accessible due to vegetation - duckweed	Herbicides for aquatic plant control – FMP completed
	Paul Vaughn	8/26/20	Good fish populations	Harvest crappie and common carp
	Mary Jo Timmerman	8/28/20	Balanced pond	Stock CCF
Boone (1)	Moonlite Hunting and Fishing Club	8/11/20	Balanced pond	Stock CCF; add cover
Bullitt (1)	Isaac W. Bernheim Foundation	6/24/20	3 ponds; 1) crowded LMB 2) & 3) balanced ponds	Pond 1: stock CCF; Ponds 2 and 3 incorporate into FINs program.
Campbell (1)	Summer Lake HOA	8/11/20	3 ponds; fair fish populations	Stock CCF; add cover
Carroll (1)	Heath Harris	8/5/20	4 ponds;	2 ponds – harvest LMB; 2 ponds protect LMB / harvest CCF
Fayette (1)	William Goodlett	8/6/20	Inaccessible due to vegetation	Herbicides for aquatic plant control
Grant (1)	Ron Wainscott	8/14/20	Balanced fish populations	Stock CCF; add habitat
Henry (1)	Brian Nutt	9/1/20	2 ponds; balanced ponds	Harvest LMB; add cover
Jefferson (1)	Waterstone Park HOA	7/29/20	Good fish populations	Stock CCF
Kenton (1)	Kenton Co. Parks Department – Fox Run Park	8/11/20	Undesirable fish population; aquatic vegetation issue	Eradicate and restock; Herbicides for aquatic plant control
Mercer (1)	Ben Robinson	8/21/20	Unbalanced fish populations	Stock LMB; harvest CCF
Nelson (1)	Jack Newcomb	8/25/20	2 ponds; Balanced pond and LMB crowded pond	Harvest small LMB; FMP completed for both ponds
Oldham (5)	River Landing	7/29/20	Fair fish populations; old quarry	Stock LMB, CCF, HSB; add cover
	Crystal Lake Club	8/4/20	Good LMB population; aquatic vegetation issue	Stock LMB and CCF; add cover; Herbicides for aquatic plant control
	Debra Kraus	8/4/20	Unbalanced fish populations; aquatic vegetation issue	Stock LMB; harvest crappie; Herbicides for aquatic plant control
	Christina Brown	8/4/20	2 ponds; aquatic vegetation issue	Herbicides for aquatic plant control
	Richard Smith	9/2/20	Good fish populations	Harvest LMB and BG

Table 1 (cont).

County	Name of lake / pond owner	Date sampled	Findings	Recommendations
Shelby (2)	Eric Isaacson	8/19/20	Unbalanced fish populations	Stock LMB; add cover
	Brett Hornback	8/19/20	Small pond; limited fishery	Stock CCF
Spencer (1)	Josh Magsig	7/28/20	Unbalanced fish populations; excessive aquatic vegetation	Stock LMB; herbicides for aquatic plant control
Trimble (1)	Lee Congleton	9/1/20	Crowded LMB	Harvest LMB, add cover; FMP completed
Washington (2)	Kurt Blandford	7/28/20	Balanced fish populations	Harvest LMB and BG; add cover
	John Medley	8/7/20	Fair fish populations	Harvest crappie; stock LMB
Woodford (1)	Gene Hornback	8/26/20	Unbalanced fish populations	Harvest CCF

NORTHEASTERN FISHERY DISTRICT

Project 2: Streams Fishery Surveys

Trout Stream Temperature Assessments

Temperature loggers were installed in all NEFD trout designated waters. Data collection spanned from May through November. Parched Corn, Chimney Top, and Dog Fork represent the coldest streams in the district. All three are at the upper temperature threshold for trout over-summering habitat (Table 1). Upper Dog Fork maxed out at 68 degrees, making it the most suitable for trout in the district.

Trout Stream Usage (Camera Monitoring)

Trail cameras were placed on streams to assess the number of anglers using the trout-stocked waters. Cameras were installed early August and maintained throughout the year. Middle Fork Red River received the most anglers in 2020 (Table 2).

Table 1. Monthly breakdown of minimum, average, and maximum temperatures on designated trout streams.

Stream name	Year	Location	Months																				
			May			June			July			August			September			October			November		
			Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
Parched Corn	2020	Upper	43.4	54.1	62	53	62.2	67	64	67.7	71	62	66.5	69	53	62.3	69	46	54.3	60	40	47.2	55
		Lower	43.4	54.1	62	53	62.5	68	64	68	73	62	66.7	70	53	62.3	69	46	54.2	60	39	46.9	55
	2019	Upper	51.8	57.7	63	57	60.7	64	64	65.7	68	64	65.9	68	62	64.5	67	51	57.1	66	41	45.3	54
		Lower	50	58.8	67	56	61.6	66	63	67	70	63	66.8	70	60	65	68	49	56.2	67	36	42.9	53
Chimney Top	2020	Upper	46.1	54.1	63	54	61.6	67	63	66.9	72	62	65.9	68	55	62.4	69	49	55.5	60	45	49.3	54
		Lower	45.3	54	62	56	61.1	65	63	67.8	72	65	66.1	65	59	63.1	68	54	56.8	60	48	50.9	54
	2019	Upper	51.4	58.1	65	56	61.3	68	62	66.3	71	61	66.4	71	58	65.2	70	48	56.7	68	36	44.2	52
		Lower																					
MF Red	2020	Upper	48.3	59.1	71	62	71.8	80	72	78	85	70	75.5	80	59	68.3	78	51	59.3	66	42	49.6	58
		Lower	48.2	58.6	69	59	69.8	78	70	75.9	83	68	74.1	80	58	67.7	78	51	58.7	66	42	49.7	58
	2019	Upper	55.4	65.8	77	60	68.8	78	68	75.3	82	67	73.8	81	62	70.6	78	51	60.6	76	37	45.1	54
		Lower	56.9	67.3	79	61	69.2	80	70	77.4	86	69	76.3	83	63	73	81	52	61.4	77	37	44.8	54
EF Indian	2020	Upper	45.4	56	67	55	64.6	73	65	70.8	79	62	67.6	75	55	63.3	71	48	56	62	40	48.2	56
		Lower	45.7	57.4	69	59	68	74	67	74.2	80	63	69.6	76	57	64.8	72	50	57.5	63	41	48.8	57
	2019	Upper	51.5	60.5	70	55	62.7	70	63	69.1	75	63	68.8	74	62	67	73	51	59.7	72	37	44.4	52
		Lower																					
Swift Camp	2020	Upper	47	57.7	69	60	68.2	76	69	73.6	81	67	70.6	75	55	64.8	72	48	55.6	62	39	46.5	57
		Lower	46.8	57.5	68	59	68	75	69	73.4	79	66	70.6	75	55	64.8	72	48	55.7	62	39	46.5	56
	2019	Upper	**																				
		Lower	**																				
NF Triplett	2020	Upper	**																				
		Lower	*																				
	2019	Upper	**																				
		Lower	55.4	66.7	78	62	69.3	81	69	76.3	83	68	74.8	82	65	72.8	80	50	60.5	78	37	44.8	55
Craney	2020	Upper	*																				
		Lower	*																				
	2019	Upper	56.2	62.3	70	60	65.1	74	65	72.2	79	65	72.4	80	63	69.8	77	49	58.8	71	38	44	53
		Lower	54.5	59.5	68	59	63.6	76	64	72.4	80	65	72.7	80	63	70.6	78	49	58.9	74	35	43.4	52
Dog Fork	2020	Upper	43.5	53.8	61	54	60.8	64	63	65.4	68	63	65	67	55	61.7	67	49	54.4	59	41	47.3	54
		Lower	43.4	54.3	62	53	62.4	68	64	67.8	72	62	66.2	69	53	61.9	68	46	53.9	60	39	46.4	55
	2019	Upper				60	62.5	66	61	65.7	70	61	65.5	69	57	67.5	64	47	66.1	55	34	42.3	49
		Lower	**																				
Big Caney	2020	-	46.6	55.2	63	56	62.3	68	63	68.3	73	62	66.1	70	54	62.1	68	48	55.1	59	43	48.5	55
	2019	-	52.1	58.7	68	57	61.6	66	62	66.2	72	62	65.9	73	59	64.6	69	48	56.7	69	39	45.2	53
Laurel Creek	2020	-	*																				
	2019	-	*																				
EF Little Sandy	2020	-	49.7	60.4	73	62	71.2	78	73	77.8	85	69	74.7	82	57	68.1	76	51	58.4	66	41	49.3	59
	2019	-	56.6	66.2	77	63	70.2	81	69	75.8	83	68	73.6	82	58	70.6	79	50	60.3	77	36	44.3	57
Sturgeon Creek	2020	-	*																				
	2019	-	57.2	67.8	78	62	69.7	78	70	75.7	82	70	75.9	82	64	71.8	79	50	60.2	73	36	44.2	55
Station Creek	2020	-	*																				
	2019	-	58.8	67.7	77	59	66.6	76	71	76.9	82	73	76.7	80	67	74.1	82	56	63.3	79	40	46.4	56

*not collected due to high water

** missing data

Table 2. Cumulative angler counts on trout streams based on trail camera data.

Stream type	Stream	Location	Year sampled	Months												Year end
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Put, Take																
	Middle Fork	Upper	2020								12	13	46	14	***(30)	72
	Red River	Lower	2020								5	4	4	4	***(30)	17
Put, Grow, Take																
	East Fork Indian	Upper	2020								1**	7	10	5	11	34
		Middle	2020											17**	17	34
		Middle	2020								1**	1	23	7	***(30)	32
		Lower	2020								0**	6	13	6	4	29
	Chimney Top	Upper	2020								1**	4	4	2	6	16
		Lower	2020								0**	1	0	0	0	1
	Parched Corn	Total	2020								0**	0	1	4	1	6

* Stocked month (P/T Streams)

** Camera Installed

*** Lapse in data with days lost in parenthesis()

NORTHEASTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

On site visits were suspended for 2020 due to Covid19. Consultations were handled via telephone (100-125) and/or written correspondence (~20). Most vegetation problems and a few population problems were resolved using email pictures, pond harvest log data or the use of the “Managing Your Farm Ponds” web page.   Typical problems responded to included: pond stocking, aquatic vegetation problems, undesirable species, fishing information, fish kills, farm pond management, fish pathogens, water quality, pond construction, structural problems with dams, and pond nuisances.

SOUTHEASTERN FISHERY DISTRICT

Project 2: Stream Fishery Surveys – Trout Streams

FINDINGS

HOBO MX TidbiT 400 (MX2203) temperature data loggers were deployed in War Fork Creek, Right Fork Buffalo Creek, and Goose Creek, to evaluate current trout management strategies. Data loggers were deployed at one upstream and one downstream location within each of the three streams and water temperatures (ºF) were recorded hourly from early-May to early-November. All six temperature data loggers were visually inspected to verify condition and continued submersion on July 30, 2020. Trout stream information for each of these streams can be found in Table 1.

The upstream location of War Fork Creek recorded a low number of days (23) with daily average temperatures equal to or exceeding 72ºF, a maximum average daily temperature of 74.7ºF between June and September, a maximum average daily temperature of 68.5ºF during June, and zero days with an average temperature equal to or exceeding 73ºF during June. The downstream location recorded a low number of days (6) with daily average temperatures exceeding 72ºF, a maximum average daily temperature of 72.8ºF between June and September, a maximum average daily temperature of 66.3ºF during June, and zero days with an average temperature equal to or exceeding 73ºF during June (Table 2). Water temperatures in the lower portion of War Fork Creek may be the result of an influx of cooler water from a small spring located by Turkey Foot Campground.

The upstream location of Right Fork Buffalo Creek recorded a significant number of days (55) with daily average temperatures equal to or exceeding 72ºF, a maximum average daily temperature of 77.6ºF between June and September, a maximum average daily temperature of 71.6ºF during June, and zero days with an average temperature equal to or exceeding 73ºF during June. The downstream location recorded a significant number of days (62) with daily average temperatures equal to or exceeding 72ºF, a maximum average daily temperature of 77.9ºF between June and September, a maximum average daily temperature of 72.1ºF during June, and zero days with an average temperature equal to or exceeding 73ºF during June (Table 3).

The upstream location of Goose Creek recorded a significant number of days (71) with daily average temperatures equal to or exceeding 72ºF, a maximum average daily temperature of 77.9ºF between June and September, a maximum average daily temperature of 74.8ºF during June, and three days with an average temperature equal to or exceeding 73ºF during June. The downstream location recorded a significant number of days (80) with daily average temperatures equal to or exceeding 72ºF, a maximum average daily temperature of 79.1ºF between June and September, a maximum daily average temperature of 75.3ºF during June, and six days with an average temperature equal to or exceeding 73ºF during June (Table 4).

As outlined in the 2020 Trout Streams Program in Kentucky (found on the Kentucky Department of Fish and Wildlife Resources website), trout streams are currently classified as Class I, II, III, and IV streams based on four water temperature parameters: 1) the number of days stream temperatures average above 72ºF in a calendar year, 2) maximum temperature reached in the period June-September, 3) number of days stream temperatures average equal to or above 73ºF in the month of June, and 4) maximum stream temperatures in the month of June. Class I streams have a minimal number of days (<5) above 72ºF in a calendar year and have a maximum temperature that remains below 72ºF during the period June-September. Class II streams have a low number of days (<25) above 72ºF in a calendar year and have a maximum temperature that remains below 75ºF for the period June-September. Class III and Class IV streams have a significant number of days (>25) above 72ºF in a calendar year and most likely will be unable to provide significant carry-over to the next year. Separation of Class III and IV streams is based on the number of days the stream temperatures remain equal to or greater than 73ºF in June and the maximum stream temperature in June. Streams categorized as Class III streams have the potential to be stocked in June while Class IV streams are considered too warm to be stocked in June.

Based on these four water temperature parameters, War Fork Creek is classified as a Class II trout stream, Right Fork Buffalo Creek is classified as a Class III trout stream, and Goose Creek is classified as a Class IV trout stream (Table 5). Changes to current management strategies for each of these streams are not recommended at this time.

Table 1. Southeastern Fisheries District trout stream information.

Stream name	County	Miles of trout fishing water	Location of trout fishery	Type of trout fishery	Stocking schedule
War Fork Creek	Jackson	1.1	Turkey Foot Recreation Area upstream to Steer Fork	Rainbow Trout put-and-take	March-June, October
Right Fork Buffalo Creek	Owsley	0.2	Mile 1.9-2.1	Rainbow Trout put-and-take	April, May
Goose Creek	Casey	1.2	Mile 4.2-5.4	Rainbow Trout put-and-take	April, May

Table 2. Water temperature data from War Fork Creek, Jackson County, Kentucky, in 2020.

	Upstream		Downstream	
Month	Average temperature (Range) ^oF	Number of days average temperature $\geq$ 72 ^oF ($\geq$ 73 ^oF)	Average temperature (Range) ^oF	Number of days average temperature $\geq$ 72 ^oF ($\geq$ 73 ^oF)
May	57.9 (50.0-63.9)	0 (0)	57.1 (50.2-61.9)	0 (0)
June	65.0 (59.8-68.5)	0 (0)	63.9 (59.5-66.3)	0 (0)
July	71.9 (68.4-74.7)	13 (11)	69.3 (67.0-72.8)	3 (0)
August	71.2 (69.4-73.6)	8 (2)	70.0 (68.1-72.7)	3 (0)
September	65.4 (57.3-72.6)	2 (0)	65.6 (60.3-70.3)	0 (0)
October	56.2 (49.4-62.0)	0 (0)	57.9 (53.6-61.6)	0 (0)
November	47.1 (44.8-51.1)	0 (0)	50.4 (48.5-53.1)	0 (0)

Table 3. Water temperature data from Right Fork Buffalo Creek, Owsley County, Kentucky, in 2020.

	Upstream		Downstream	
Month	Average temperature (Range) ^oF	Number of days average temperature $\geq$ 72 ^oF ($\geq$ 73 ^oF)	Average temperature (Range) ^oF	Number of days average temperature $\geq$ 72 ^oF ($\geq$ 73 ^oF)
May	58.7 (50.3-65.6)	0 (0)	58.9 (50.4-66.2)	0 (0)
June	67.9 (61.7-71.6)	0 (0)	68.4 (62.4-72.1)	2 (0)
July	74.7 (71.8-77.6)	29 (24)	75.1 (71.6-77.9)	30 (24)
August	72.6 (69.7-75.1)	21 (11)	72.9 (70.1-75.3)	23 (14)
September	67.0 (58.4-74.4)	5 (4)	67.6 (59.6-74.6)	7 (5)
October	57.7 (50.5-63.1)	0 (0)	58.6 (51.2-63.2)	0 (0)
November	47.6 (45.5-51.4)	0 (0)	47.7 (45.4-51.8)	0 (0)

Table 4. Water temperature data from Goose Creek, Casey County, Kentucky, in 2020.

Month	Upstream		Downstream	
	Average temperature (Range) ^{o}F	Number of days average temperature $\geq$ 72 ^{o}F ($\geq$ 73 ^{o}F)	Average temperature (Range) ^{o}F	Number of days average temperature $\geq$ 72 ^{o}F ($\geq$ 73 ^{o}F)
May	62.8 (53.7-68.7)	0 (0)	62.9 (53.8-69.0)	0 (0)
June	70.6 (65.0-74.8)	7 (3)	71.5 (66.2-75.3)	13 (6)
July	74.8 (70.2-77.9)	27 (24)	75.8 (71.2-79.1)	29 (27)
August	74.1 (72.3-76.2)	31 (26)	75.1 (73.6-76.8)	31 (31)
September	68.0 (60.5-74.4)	6 (4)	68.5 (61.2-74.9)	7 (5)
October	60.0 (53.5-65.4)	0 (0)	60.3 (54.0-65.5)	0 (0)
November	51.4 (49.3-54.9)	0 (0)	51.7 (49.7-55.1)	0 (0)

Table 5. Southeastern Fisheries District stream assessments for trout management in 2020.

Stream	Number of days average temperature $\geq$ 72 ^{o}F in the Year	Maximum average daily temperature from June-September (^{o}F)	Number of days average temperature $\geq$ 73 ^{o}F in June	Maximum average daily temperature in June (^{o}F)	Stream classification rating
War Fork Creek	14	73.8	0	67.1	II
Right Fork Buffalo Creek	58	77.7	0	71.9	III
Goose Creek	77	78.5	5	75.1	IV

SOUTHEASTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

Onsite technical guidance was not provided due to Covid19 restrictions. Technical guidance requests were handled over the telephone, text, or by written correspondence. Topics encountered and responded to included: fish population balance, aquatic vegetation problems, fish stocking information, water quality problems, and fish disease.

Several other requests for information (approximately 200) about area fisheries and miscellaneous information about fish management in lakes and ponds were handled over the telephone and email.

EASTERN FISHERY DISTRICT

Project 2: Stream Surveys

FINDINGS

Trout Stream Assessments

Two streams in the trout stocking program were evaluated. Greasy Creek (Leslie County) and Looney Creek (Harlan County). Streams were monitored with in-stream devices that recorded water temperature (ºF) once every hour from 13 May – 6 November for Greasy Creek and 13 May – 5 October for Looney Creek. Two sites were monitored in each stream; however, the lower stream temperature logger for Looney Creek could not be activated to remove and observe recorded data from it.

All stream sites had supporting temperatures for trout during spring and fall time periods. Recorded minimum and maximum temperature ranges are displayed in Tables 1 and 2 and were monitored in the vicinity of stocking locations. The trout management plans are different for each stream.

Greasy Creek is managed as a put-take fishery for rainbow trout (spring and fall stockings). Rainbow trout are stocked in April (400 fish) and November (500 fish). Data obtained in Table 1 supports spring and fall stocking and the trout management program could continue on as currently set. The current stocking location is near the downstream site of recorded temperature data. This site can continue to be used as the primary stocking location.

Rainbow trout are stocked at a rate of 500 fish each month in April, May and October. Brown trout are stocked in April (700 fish). Rainbow and brown trout are managed under statewide limits. Due to this stream having a year-round 60 ºF input of water from a coal mine portal at Lynch, KY, there is an acceptable number of trout surviving throughout the year. Due to some fish in angler catches reaching 20.0 in or greater, and brown trout managed under a 16.0-in length limit, the stream is viewed as put-grow-take for both rainbow and brown trout. Recorded water temperatures shown in Table 2 support this management option.

Table 1. Temperature data from Greasy Creek, Leslie County, Kentucky (13 May – 6 November 2020).

	Temperature range (ºF) with mean in parentheses	
Month	Downstream site @ 1st bridge on RT 2009 upstream from confluence with Middle Fork KY River	Upstream site @ 2nd bridge on RT 2009 upstream from confluence with Middle Fork KY River
May	53.3-62.7 (58.7)	52.1-67.7 (61.6)
June	59.8-73.4 (67.9)	62.8-76.9 (70.7)
July	71.3-80.8 (75.1)	72.2-82.7 (76.9)
August	68.6-75.9 (71.8)	69.9-77.5 (73.5)
September	62.7-75.7 (69.2)	62.6-75.5 (69.5)
October	56.0-65.5 (61.1)	54.9-65.1 (60.7)
November	50.5-57.0 (53.2)	49.6-56.0 (52.0)

Table 2. Temperature data from Looney Creek, Harlan County, Kentucky (13 May – 5 October 2020).

	Temperature range (ºF) with mean in parentheses	
Month	Downstream site @ rescue squad building, Cumberland, KY	Upstream site @ fishing pier, Benham, KY
May		52.8-64.0 (58.2)
June		54.7-67.5 (61.7)
July		60.8-70.1 (64.9)
August	No data	61.5-68.9 (64.6)
September		55.2-68.1 (62.1)
October		53.3-60.3 (56.6)

EASTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

Details of technical guidance provided during 2020 are shown in Table 1. On-site technical guidance was provided for two ponds. Additional technical guidance requests were handled over the telephone, walk-in visits, or by written correspondence. Topics encountered and responded to included: fish population balance, water quality problems, fish stocking, fish disease, and aquatic vegetation problems.

Several other requests for information about area fisheries and miscellaneous information about fish management in lakes and ponds were handled over the telephone, email, and walk-in visits.

Table 1. Pond technical guidance in the Eastern Fishery District during 2020.

Date	County	Owner	Problem	Recommendations
01/28	Owsley	J. Kramer	Stocking Info.	Web site links: pond book, fish supplier list, consultation
2/27	Lawrence	John Arthur	Pond balance, Stocking info	Pond in good condition, do not stock, continue to observe
3/18	Floyd	Travis Hall	catfish disease	provided pictures
*4/1	Floyd	Travis Hall	Catfish with lesions	Treat with copper sulfate every 3 days, 4-5 treatments
4/2	Lawrence	Curt Fitzpatrick	Stocking info (RESF, hybrid bluegill)	Recommend RESF for pond
4/15	Lawrence	John Collins	Re-stocking procedures	Drain pond to kill existing fish first
5/12	Knott	Dexter Conley	Bass spawning and recruitment	Add habitat (cedar trees, pallets)
6/1	Pike	Harold Sanders	Filamentous algae	algaecide treatment (cupper sulfate, Cutrine Plus)
6/2	Johnson	Tina Jude	Acid mine water in pond killing fish	Add lime and/or evaluate cost investment long term
6/3	Johnson	James Davis	Filamentous algae	Algaecide treatment (Cutrine Plus)
6/5	Johnson	Samuel Slusher	Stocking questons	Call back
6/8	Lawrence	Curt Fitzpatrick	Vegetation (floating leaf pondweed)	Herbicide - Weedtrine D or Aquathol K
6/15	Letcher	Jeffrey Hampton	Fish kill	Pond turn-over
6/18	Knott	Shane Ambergy	Fish stocking and transoprting	Aeration and satl rates
*6/22	Letcher	Chad Morgan	Pond balance, vegetation	Harvest 12-13" bass, Stock BG/RESF, grass carp
6/22	Leslie	Wayne Engle	Pond balance, Stocking info	Maintain fishing log, stock catfish
7/21	Lawrence	Kathy Crisp	Naiad control	Cutrine Plus + Weedtrine D, fertilize next spring
7/22	Magoffin	Perry Arnet	Black spot parasite, brown algae	Cook fish well, Cutrine Plus
8/17	Lawrence	Gordon Crisp	Pond balance, bass/sunfish sizes	Harvest smaller bass and large channel catfish
8/18	Perry	J. Deaton	Duckweed, algae, grass carp	Weedtrone D + Cutrine Plus, Grass carp 3 / 4 per acre
8/25		Gary Endicott	minnow production	Wood pallets
9/1	Knott	J. Slone	Grass carp stocking	Fish supplier list
10/29	Perry	Steve Campbell	Pond stocking questions	Provided info from Jones Hatchery

*on site visit

Project 4: Fish Habitat Improvement - Public Lakes Fertilization

Lake		County	Size (acres)
Northwestern Fishery District	Subtotal		100
Mauzy Lake		Union	80
Washburn Lake		Ohio	20
Southwestern Fishery District	Subtotal		204
Marion County Lake		Marion	25
Spurlington Lake		Taylor	25
Briggs Lake		Logan	18
Shanty Hollow Lake		Warren	136
Central Fishery District	Subtotal		234
Beaver Lake		Anderson	146
Benjy Kinman Lake		Henry	88
Eastern Fishery District	Subtotal		9.4
High Splint Lake		Harlan	6.9
Kingdom Come Lake		Harlan	2.5

Project 4: Fish Habitat Improvement - Fish Attractors

District / Lake	Fish Attractor Sites
Western Fishery District	
Barkley Lake	25 hardwood units* were used to create new shallow water bass spawning-bench sites; 64 Christmas tree units** were used to create new shallow water habitat sites; 6 Christmas tree units** and several dozen Christmas wreathes were used to refurbish 6 existing deepwater fish attractor sites; 12 plastic units*** were used to refurbish 3 existing deepwater fish attractor sites; 39 hardwood units* were used to refurbish 13 existing deepwater fish attractor sites *Hardwood: 1 tree = 1 unit **Christmas tree: 1 pallet and approximately 5 trees = 1 unit ***Plastic: 1 plastic porcupine-like attractor = 1 unit
Kentucky Lake	Refurbished 353 hardwood shallow water stake beds and made 1 new site (new site=~50 stakes, refurbished site=~20 stakes); 219 hardwood units* were used to refurbish 76 existing deepwater fish attractor sites; 99 gravel-filled, bowl-shaped concrete structures were placed as bass spawning habitat; 6 hardwood units* were used to make 2 new shallow water fish attractor sites; 19 fish attractor buoys were placed to mark existing deepwater fish attractor sites; 834 cypress trees were planted (~3-6 ft tall) *Hardwood: 1 tree = 1 unit
Lake Beshear	26 hardwood units* were used to create 7 new deepwater fish attractor sites; 3 sites were marked with a buoy; 4 hardwoord units* were used to create 2 new shallow water fish attractor sites *Hardwood: 1 tree = 1 unit
Northwestern Fishery District	
Nolin River Lake	• 60 reef balls • 1,244 HDPE gas pipe structures • 54 PVC structures • 96 Christmas trees • 3 tree stumps • 4 pine trees • 4 cedar tree brush piles
Rough River Lake	• 10 reef balls • 53 Christmas trees • 4 HDPE gas pipe structures
Carpenter Lake	• 17 HDPE gas pipe structures • 1 Mossback fish habitat structure
Jack's Lake (PWMA)	• 28 HDPE gas pipe structures • 6 PVC structures
Vastwood Park Lake	• 12 HDPE gas pipe structures

Project 4: Fish Habitat Improvement - Fish Attractors cont.

District / Lake	Fish Attractor Sites
Southwestern Fishery District	
Barren River Lake	BRL fish habitat project and 2 Christmas tree brushpile sites
Briggs Lake	2 Christmas tree brushpile sites
Green River Lake	12 Cedar and hardwoods brushpile sites
Shanty Hollow	3 Hardwood brushpile sites and 2 plastic pallet tree sites (13 trees)
Spurlington Lake	2 Christmas tree brush reefs and 1 plastic pallet tree site (6 trees)
Marion County Lake	2 Christmas tree bushpile sites, 6 short plastic pallet trees, and 5 laydowns/treetops
Mill Creek Lake	3 Christmas tree and cedar brushpile sites
Metcalfe County Lake	2 Cedar brushpile sites and 1 plastic pallet tree site (4 trees)
Three Springs/Basil Griffen Lake	2 Christmas tree brushpile sites and 2 short plastic pallet trees sites (6 trees)
Central Fishery District	
Benjy Kinman Lake	8 rock piles (85 tons of shot rock); 7 new water willow beds
Bullock Pen Lake	12 brush pile (684 trees) – 4 new sites – 8 sites refurbished
Guist Creek Lake	9 brush pile (825 trees) – 5 new sites – 4 sites refurbished
Kincaid Lake	7 brush pile (717 trees) – 5 new sites – 2 sites refurbished
Northeastern Fishery District	
Cave Run Lake	• Tree Sites (~200 smaller cedar trees, ~10 larger cedar trees, and ~50 cedar tree/gas line structures) - Refreshed 5 sites in the Zilpo Flats Area.
Grayson Lake	• Refurbished 4 brush sites (Christmas tree sites – 150+ trees) • Created 3 new brush sites (Christmas tree sites – 100+ trees)
Lake Reba	• Refreshed 3 brush sites (Christmas tree sites – 100 trees) • Created 2 new brush sites (1 Christmas tree site – 36 Trees, 1 pallet/tree site – 5 pallet structures and 36 trees)
Lake Wilgreen	• Created 4 new brush sites (Christmas tree sites – 150+ Trees)
Lake Carnico	• Created 4 new brush sites (Christmas tree sites – 150+ Trees)
Greenbo Lake	• Created 4 new brush sites (Christmas tree sites – 150+ Trees)

Project 4: Fish Habitat Improvement - Fish Attractors cont.

District / Lake	Fish Attractor Sites
Southeastern Fishery District	
Laurel River Lake	4 new brush sites (658 Christmas trees total)
Cedar Creek Lake	1 new brush sites (220 Christmas trees)
Eastern Fishery District	
Buckhorn Lake	1 new deep water brush pile w/ 15 Christmas trees; 5 refurbished shallow sites w/ 35 Christmas trees and driftwood; 1 new pallet structure w/ rocks
Carr Creek Lake	6 refurbished deep water sites w/ 232 Christmas trees
Dewey Lake	14 refurbished shallow water brushpiles w/ 150 Christmas trees and hardwood drift; 4 refurbished deep water brushpiles w/ 54 Christmas and hardwood trees;, 28 hinge-cut trees (hardwood and pine)
Fishtrap Lake	1 new deep water brush pile w/ 15 Christmas trees and drift; 1 new plastic deep water site
Yatesville Lake	3 refurbished shallow reefs w/ 15 cedar trees, 88 Christmas trees and drift wood
Martins Fork Lake	2 new deep water brush piles w/ 40 christmas trees; 1 shallow water site w/ 6 Christmas trees and rocks; 2 hinge-cut hardwood trees

Minor Clark Fish Hatchery 2020 Sport Fish Production*

	Planned			Actual				
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**	**Notes**
Muskellunge	100,000		Ohio DNR	0				Eggs
Total Fry/Eggs				0				
	398	9	Kentucky River Pool 11	0				
	380	9	Kentucky River Pool 12	0				
	182	9	Kentucky River Pool 13	0				
	50	9	Kentucky River Pool 2	0				
	50	9	Kentucky River Pool 3	0				
	705	9	Barren River	0				
	500	9	Green River Pool 5	0				
	350	9	South Fork Kentucky River	0				
	375	9	North Fork Kentucky River	0				
	400	9	Licking River	0				
	200	9	Little Sandy River	0				
	145	9	Drakes Creek	0				
	250	9	Green River Pool 4	0				
	195	9	Tug Fork	0				
	500	9	Levisa Fork	0				
	85	9	Red River	0				
	30	9	West Fork Drakes Creek	0				
	15	9	Sexton Creek	0				
	30	9	Goose Creek	0				
	40	9	Redbird River	0				
	15	9	Station Camp	0				
	30	9	Triplett Creek	0				
	20	9	North Fork Triplett Creek	0				
Total	4,945			0				
Muskellunge	2,700	13	Cave Run Lake	24	8.3	2.2	10.7	
	2,700	13	Green River Lake	0				
	400	13	Buckhorn Lake	0				
	375	13	Dewey Lake	0				
Total	6,175							
Grand Total	11,230			24	8.3	2.2	10.7	
Hybrid Striped	200,000	1.5	Barren River Lake	172,162	1.3	93.0	1,850	
Bass	15,000	1.5	Grayson Lake	15,082	1.6	26.6	567	
	102,000	1.5	Rough River Lake	83,584	1.4	47.2	1,767	
	61,000	1.5	Taylorsville Lake	54,904	1.4	30.2	1,806	
	48,000	1.5	Herrington Lake	44,098	1.4	26.9	1,639	
	23,000	1.5	Fishtrap Lake	23,106	1.5	21.9	1,055	
	7,200	1.5	Lake Linville	7,211	2.0	15.7	459	
	9,500	1.5	Guist Creek Lake	9,502	1.6	12.9	736	
	3,333	1.5	KY River Pool 4	3,360	1.8	5.7	583	
	3,333	1.5	KY River Pool 5	3,360	1.8	5.7	583	
	3,333	1.5	KY River Pool 6	3,360	1.8	5.8	583	
	3,333	1.5	KY River Pool 7	3,360	1.8	5.8	583	
	3,334	1.5	KY River Pool 8	3,360	1.8	5.8	583	
	3,334	1.5	KY River Pool 9	3,360	1.8	5.8	583	
	23,000	1.5	Paintsville Lake	23,040	1.5	21.6	1,067	

	Planned			Actual				
Species	Number	Size (in)	Location/Use	Number	Size (in)	Pounds	No./lb.	Notes
Hybrid Striped			**Ohio River**					
Bass	54,500	1.5	Markland Pool	0				
	41,500	1.5	McAlpine Pool	0				
	50,000	1.5	Cannelton Pool	0				
	36,000	1.5	Newburg Pool	0				
	43,700	1.5	Uniontown Pool	0				
	60,500	1.5	Smithland Pool	0				
Grand Total	794,900			452,849	1.4	330.6	1370	
Reciprocals								
Walleye (Erie)	0	0	Licking River	358,575				Fry
	0	0	Lake Cumberland	2,091,195				Fry
	0	0	Pfieffer Hatchery	163,136				Fry
Total				2,612,906				
	350,000	1.5	Lake Cumberland	511,920	1.4	352.1	1,454	
	40,000	1.5	Dale Hollow Lake (KY)	166,364	1.5	119.1	1,397	
	260,000	1.5	Laurel River Lake	262,815	1.5	168.8	1,557	
	200,000	1.5	Nolin River Lake	186,228	1.5	141.8	1,313	
	200,000	1.5	Green River Lake	200,886	1.5	138.2	1,454	
	10,000	1.5	Russell Fork	14,144	1.5	10.5	1,347	
	13,000	1.5	Licking River	14,682	1.5	10.9	1,347	
	7,100	7.0	Paintsville	17,979	4.4	331.9	54	
Total				1,375,018	1.6	1273.3	1,080	
Grand Total				3,987,924				
Walleye (Native)	20,000	2.5	Upper KY River	9,672	3.1	63.2	153	
	6,400	2.5	Rockcastle River	3,060	3.1	20.0	153	
	16,000	2.5	Lower Barren	7,676	2.7	31.2	286	
	16,700	2.5	Martins Fork Lake	8,022	3	46.8	171	
	27,200	2.5	Upper Cumberland River	13,156	2.7	53.5	246	
	0		Wood Creek Lake	600	8.3	105.0	6	
	86,300			42,186	2.9	319.7	132	
Grand Total				42,186				
Saugeye	200,000	Eggs	Pfeiffer Hatchery	1,024,000				
Striped Bass	500,000	1.5	Lake Cumberland	500,751	1.7	772.2	622	
	50,000	1.5	Kentucky Lake tailwater	0				
	50,000	1.5	Barkley Lake tailwater	0				
			Ohio River					
	49,000	1.5	Markland Pool	28,429	1.4	26.3	1,082	
	38,000	1.5	McAlpine Pool	28,430	1.8	36.4	781	
	46,000	1.5	Cannelton Pool	0				
	33,000	1.5	Newburg Pool	0				
	40,000	1.5	Uniontown Pool	0				
	55,000	1.5	Smithland Pool	0				
	861,000	1.5		557,610	1.7	834.9	668	

	Planned			Actual				
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**	**Notes**
Largemouth Bass			**Ohio River**					
			Cannelton Pool					
	270	2.0	Yellowbank Creek	0				
	660	2.0	Town Creek	0				
	17,000	2.0	Tar Fork/Clover Creek	0				
			McAlpine Pool					
	7,000	2.0	Harrod's Creek	0				
			Markland Pool					
	38,200	2.0	Craig's Creek	0				
	2,400	2.0	Big Sugar Creek	0				
	2,500	2.0	Little Sugar Creek	0				
	16,000	2.0	Big Bone Creek	0				
	10,200	2.0	Gunpowder Creek	0				
	5,800	2.0	Woolper Creek	0				
			Meldahl Pool					
	3,800	2.0	Big Snag Creek	0				
	8,400	2.0	Big Locust Creek	0				
	2,700	2.0	Big Turtle Creek	0				
	7,900	2.0	Bracken Creek	0				
	2,200	2.0	Lawrence Creek	0				
			Greenup Pool					
	15,100	2.0	Little Sandy (Greenup Rp)	0				
	15,100	2.0	Little Sandy (Raccoon Rp)	0				
Total	153,524			0				
	15,000	5.0	Fishtrap Lake	12,464	5.7	997.1	12.5	
Total	115,000			12,464	5.7	997.1	12.5	
Grand Total	245,230			12,464	5.7	997.1	12.5	

Grass Carp	0		Madisonville Lake	55	10.9	38.0	0.7	
Total				55	10.9	38.0	0.7	

Saugeye	0	0	Pfeiffer to grow out	960,000				Eggs
Total				960,000				

Forage Species

Fathead Minnows	**Pounds**	**Location/use**
	727	Muskellunge Ponds
	427	Hatchery Oxbow
	4,290	Overwinter/Display Pool
Total Pounds FHM	5,444	

Goldfish		
	375	Muskellunge Ponds
	3,956	Walleye Broodstock
	3,000	Overwinter Display Pool
	1,673	Hatchery Oxbow
	3,287	Display Pool
Total Pounds GOF	12,291	

*** Several species were not produced due to Covid-19**

Peter W. Pfeiffer Fish Hatchery 2020 Sport Fish Production

	Planned			Actual				
Species	Number	Size (in)	Location/Use	Number	Size (in)	Pounds	No./lb.	Notes
Channel Catfish								
	0		KY River Pool 3	72,725	Fry	32	2,308.7	Surplus Fry
	0		KY River Pool 4	65,950	Fry	23	2,822.0	Surplus Fry
				138,675		55		
	76,670	8-10	Public Fishing Lakes	77,120	8-10	14,587	5.3	
	76,670			77,120		14,587		
Blue Catfish								
	0		KY River Pool 2	11,572	Fry	5	2,143.0	Surplus Fry
	0		KY River Pool 3	17,530	Fry	8	2,306.6	Surplus Fry
	0		TN WRA	35,000	Fry	10	3,684.2	Surplus Fry
				64,102		23		
	11,000	5-7	Dewey Lake	11,000	5-7	1,235	8.9	Hatch and stocked 2020
	11,430	5-7	Fishtrap Lake	11,430	5-7	1,284	8.9	Hatched and stocked 2020
	7,100	5-7	Carr Creek Lake	7,100	5-7	798	8.9	Hatched and stocked 2020
	12,250	5-7	KY River Pool 1	12,250	5-7	1,376	8.9	Hatched and stocked 2020
	5,500	5-7	Ky River Pool 2	5,500	5-7	618	8.9	Hatched and stocked 2020
	12,250	5-7	KY River Pool 3	21,200	5-7	2,382	8.9	Hatched and stocked 2020
			KY River Pool 4	12,100	5-7	1,360	8.9	Hatched and stocked 2020
			KY River Pool 5	6,405	5-7	720	8.9	Hatched and stocked 2020
	59,530			86,985		9,773		
Hybrid Catfish								
	121,800	15	FINS Program	90,750	10-24	86,821	1.0	
				90,750		86,821		
Hybrid Sunfish								
	30,000	6-8	FINS Program					Harvest delayed until 2021 due to covid 19
	30,000			0		0		

	Planned			Actual				
Species	Number	Size (in)	Location/Use	Number	Size (in)	Pounds	No./lb.	Notes
Sauger								
	5,000	1.5	Kentucky River Pool 2					
	10,000	1.5	Kentucky River Pool 3					
	10,000	1.5	Kentucky River Pool 4					
	10,000	1.5	Kentucky River Pool 5					
	10,000	1.5	Kentucky River Pool 6					0% Sauger Survival
	15,000	1.5	Kentucky River Pool 8					
	10,000	1.5	Kentucky River Pool 9					
	10,000	1.5	Kentucky River Pool 10					
	10,000	1.5	Kentucky River Pool 11					
	10,000	1.5	Kentucky River Pool 12					
	5,000		Kentucky River Pool 13					
	105,000			0		0.0		
Saugeye								
	31,700	1.5	Guist Creek Lake					
	9,200	1.5	Boltz Lake	9,200	1.3	7.3	1,269.0	
	16,900	1.5	Wilgreen Lake					
	6,400	1.5	Carpenter Lake	6,400	1.3	5.1	1,267.3	
	11,200	1.5	Lake Carnico					
	17,500	1.5	A.J. Jolly Lake					
	61,000	1.5	Taylorsville Lake	8,890	1.3	5.8	1,546.1	
	153,900			24,490		18.1		
Redear Sunfish								
			Cave Run Lake	146,400	1.2	179.2	817	2020 Spawn surplus
			Elmer Davis Lake	26,200	1.2	32.1	816	2020 Spawn surplus
	20,000	1.5	Peabody WMA	20,000	1.2	24.5	816	2020 Spawn
	14,200	1.5	Carr Creek Lake	14,200	1.2	17.4	816	2020 Spawn
	6,700	1.5	Martin's Fork Lake	6,700	1.2	8.2	817	2020 Spawn
	31,600	1.5	Beaver Lake	31,600	1.2	38.7	817	2020 Spawn
	24,600	1.5	Buckhorn Lake	24,600	1.2	30.1	817	2020 Spawn
	77,100			269,700		330.2		

	Planned			Actual				
Species	Number	Size (in)	Location/Use	Number	Size (in)	Pounds	No./lb.	Notes
Alligator Gar								
	8,000		Clarks River Wildlife Refuge	450	9.1	56		Received advanced fingerlings
	8,000			450		56		
Lake Sturgeon								
	6,000	8	Upper Cumberland River					Did not Receive Sturgeon
	6,000			0		0		
Bluegill								
	10,000	6-8	FINS Program					Harvest delayed until 2021 due to covid 19
	10,000			0		0.0		
Grand Total				752,272		111,662		

Species	Waterbody	Actual Number	Length (in)
Brook Trout	Dog Fork	300	5-8
Brook Trout	Lake Cumberland Tailwater	10,025	9-11
Brook Trout	Parched Corn Creek	300	5-8

Species	Waterbody	Actual Number	Length (in)
Brown Trout	Big Caney Creek	250	8-12
Brown Trout	Cannon Creek Lake	3,000	8-12
Brown Trout	Fagan Branch Lake	1,000	8-12
Brown Trout	Fort Campbell	3,275	8-12
Brown Trout	Greenbo Lake	2,000	8-12
Brown Trout	Jennings Creek	1,000	8-12
Brown Trout	Lake Cumberland Tailwater	37,265	8-12
Brown Trout	Laurel Creek	250	8-12
Brown Trout	Looney Creek	700	8-12
Brown Trout	Nolin River Lake Tailwater	500	8-12
Brown Trout	Otter Creek	2,500	8-12
Brown Trout	Paintsville Lake	10,000	8-12
Brown Trout	Roundstone Creek	400	8-12
Brown Trout	Sulphur Springs Creek	400	8-12
Brown Trout	Trammel Creek	1,200	8-12

Species	Waterbody	Actual Number	Length (in)
Cutthroat Trout	Lake Cumberland Tailwater	500	5-7

Species	Waterbody	Actual Number	Length (in)
Rainbow Trout	Alexandria Community Park Lake	4,500	8-16
Rainbow Trout	Anderson County Community Park Lake	1,500	8-16
Rainbow Trout	Bark Camp Creek	3,000	8-16
Rainbow Trout	Beaver Creek	900	8-16
Rainbow Trout	Beaver Creek - Left Fork	400	8-16
Rainbow Trout	Beaver Creek - Right Fork	1,500	8-16
Rainbow Trout	Bert T. Combs Lake	2,000	8-16
Rainbow Trout	Beulah Lake	2,000	8-16
Rainbow Trout	Big Bone Lick State Park	800	8-16
Rainbow Trout	Big Caney Creek	1,750	8-16
Rainbow Trout	Bloomfield Park Lake	1,500	8-16
Rainbow Trout	Boone Tract 6 Acre Lake	2,000	8-16
Rainbow Trout	Boulder Lake	800	8-16
Rainbow Trout	Brickyard Pond	3,000	8-16
Rainbow Trout	Buckhorn Lake Tailwater	3,250	8-16
Rainbow Trout	Buffalo Creek	500	8-16
Rainbow Trout	Camp Ernst Lake	4,500	8-16
Rainbow Trout	Cane Creek	3,000	8-16
Rainbow Trout	Cannon Creek Lake	6,000	8-16

Species	Waterbody	Actual Number	Length (in)
Rainbow Trout	Carr Creek Lake Tailwater	3,500	8-16
Rainbow Trout	Casey Creek	6,000	8-16
Rainbow Trout	Cave Run Lake Tailwater	2,000	8-16
Rainbow Trout	Cherokee Park Lake	2,275	8-16
Rainbow Trout	Chimney Top Creek	450	8-16
Rainbow Trout	Clear Creek	400	8-16
Rainbow Trout	Clinton Rotary Park Lake	1,500	8-16
Rainbow Trout	Craney Creek	1,000	8-16
Rainbow Trout	Cranks Creek Lake	3,000	8-16
Rainbow Trout	Dewey Lake Tailwater	3,000	8-16
Rainbow Trout	Eagle Lake (Morehead State)	2,000	8-16
Rainbow Trout	Easy Walker Park Pond	1,500	8-16
Rainbow Trout	Elk Spring Creek	1,300	8-16
Rainbow Trout	Fagan Branch Lake	1,525	8-16
Rainbow Trout	Fisherman's Park Lakes	3,000	8-16
Rainbow Trout	Fishpond Lake	2,000	8-16
Rainbow Trout	Fishtrap Lake Tailwater	7,000	8-16
Rainbow Trout	Flemingsburg City Reservoir (Old)	3,000	8-16
Rainbow Trout	Floyds Fork Creek	2,275	8-16
Rainbow Trout	Fort Campbell	960	8-16
Rainbow Trout	Goose Creek	500	8-16
Rainbow Trout	Grants Branch Lake	4,000	8-16
Rainbow Trout	Grayson Lake Tailwater	2,000	8-16
Rainbow Trout	Greasy Creek	500	8-16
Rainbow Trout	Greenbo Lake	11,000	8-16
Rainbow Trout	Gunpowder Creek Nature Park	800	8-16
Rainbow Trout	Hatchery Creek	15,975	8-16
Rainbow Trout	Herrington Lake Tailwater	3,200	8-16
Rainbow Trout	Higginson & Henry WMA	500	8-16
Rainbow Trout	Highsplint Lake	2,750	8-16
Rainbow Trout	Indian Creek - East Fork	1,300	8-16
Rainbow Trout	Jacobson Park Lake	9,000	8-16
Rainbow Trout	James Beville Park Lake	2,250	8-16
Rainbow Trout	Jennings Creek	6,500	8-16
Rainbow Trout	Kentucky Horse Park Lake	3,000	8-16
Rainbow Trout	Kess Creek Park Lake	1,500	8-16
Rainbow Trout	Kingdom Come State Park Lake	1,500	8-16
Rainbow Trout	Lake Cumberland Tailwater	189,305	8-16
Rainbow Trout	Lake Mingo	1,500	8-16
Rainbow Trout	Lake Montgomery	4,500	8-16
Rainbow Trout	Lake Pollywog	2,100	8-16
Rainbow Trout	Laurel Creek	1,500	8-16
Rainbow Trout	Laurel River Lake Tailwater	400	8-16
Rainbow Trout	Leary Lake	4,525	8-16
Rainbow Trout	Logan Hubble Park	4,252	8-16
Rainbow Trout	Looney Creek	1,000	8-16
Rainbow Trout	Lower Sportsman's Lake	1,500	8-16
Rainbow Trout	Lusby Lake	1,500	8-16
Rainbow Trout	Lynn Camp Creek	1,200	8-16
Rainbow Trout	Madisonville Park	4,500	8-16
Rainbow Trout	Martin County Lake	3,750	8-16
Rainbow Trout	Martins Fork Lake Tailwater	3,250	8-16
Rainbow Trout	Mason County Recreational Lake	3,000	8-16
Rainbow Trout	Metcalfe County Park Lake	500	8-16

Species	Waterbody	Actual Number	Length (in)
Rainbow Trout	Middleton Mills Park Lake	3,150	8-16
Rainbow Trout	Mike Miller Park Lake	2,250	8-16
Rainbow Trout	Miles Park Lakes	3,500	8-16
Rainbow Trout	Mill Creek Lake (Wolfe & Powell Co.)	4,500	8-16
Rainbow Trout	Millenium Park Pond	1,500	8-16
Rainbow Trout	Nolin River Lake Tailwater	6,500	8-16
Rainbow Trout	Otter Creek	12,250	8-16
Rainbow Trout	Paintsville Lake	10,000	8-16
Rainbow Trout	Paintsville Lake Tailwater	12,000	8-16
Rainbow Trout	Panbowl Lake	6,000	8-16
Rainbow Trout	Panther Creek Park Lake	2,250	8-16
Rainbow Trout	Peabody WMA	5,250	8-16
Rainbow Trout	Pikeville City Lake	2,500	8-16
Rainbow Trout	Prisoners Lake	2,250	8-16
Rainbow Trout	Red River - Middle Fork	1,400	8-16
Rainbow Trout	Rock Creek	9,125	8-16
Rainbow Trout	Roundstone Creek	3,200	8-16
Rainbow Trout	Royal Springs	1,200	8-16
Rainbow Trout	Russell Fork Creek	1,500	8-16
Rainbow Trout	Sandy Watkins Park	1,000	8-16
Rainbow Trout	Scott County Park Lake	1,500	8-16
Rainbow Trout	Sinking Creek	825	8-16
Rainbow Trout	Southgate Lake	1,500	8-16
Rainbow Trout	Southland Church Lake	1,500	8-16
Rainbow Trout	Sulphur Springs Creek	2,500	8-16
Rainbow Trout	Swift Camp Creek	500	8-16
Rainbow Trout	Taylorsville Lake Tailwater	1,000	8-16
Rainbow Trout	Three Springs Lake	4,500	8-16
Rainbow Trout	Tom Wallace Park Lake	4,500	8-16
Rainbow Trout	Trammel Creek	6,500	8-16
Rainbow Trout	Triplett Creek	900	8-16
Rainbow Trout	Triplett Creek - North Fork	1,450	8-16
Rainbow Trout	Upper Sportsman's Lake	4,488	8-16
Rainbow Trout	War Fork Creek	2,000	8-16
Rainbow Trout	Waverly Park Lake	4,500	8-16
Rainbow Trout	Waymond Morris Park	3,000	8-16
Rainbow Trout	West Hickman Creek	1,000	8-16
Rainbow Trout	Whitehall Park Lake	4,500	8-16
Rainbow Trout	Wood Creek Lake	8,000	8-16
Rainbow Trout	Yatesville Lake Tailwater	2,500	8-16
Rainbow Trout	Yellow Creek Park Lake	2,500	8-16