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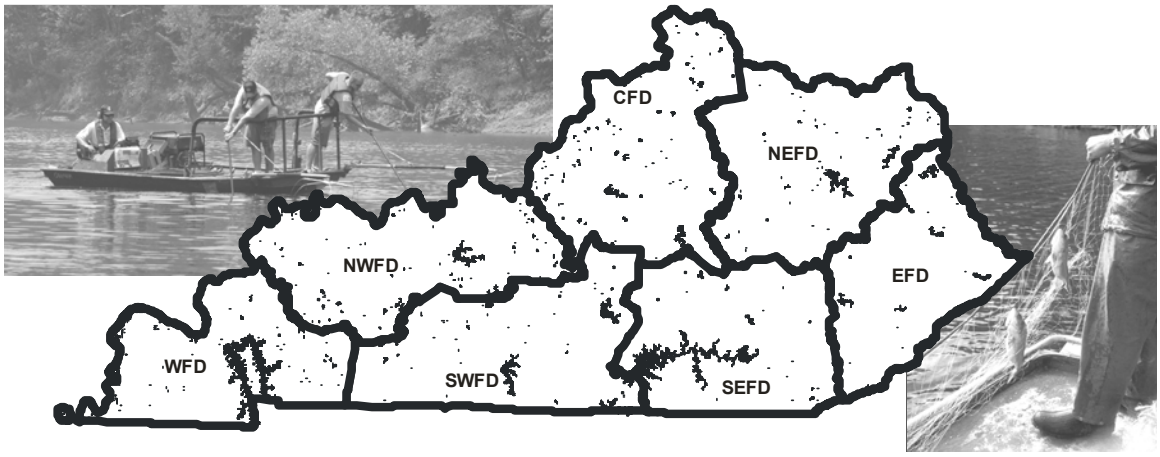
ANNUAL PERFORMANCE REPORT

District Fisheries Management

Projects 1-4



Project Leader: *Adam Martin*, Western Fishery District Biologist
Assistant Project Leader: *Nick Simpson*, WFD Assistant Biologist

Project Leader: *Jeremy Shiflet,* Northwestern Fishery District Biologist
Assistant Project Leader: *Madelyn Ruble*, NWFD Assistant Biologist

Project Leader: *Eric Cummins*, Southwestern Fishery District Biologist
Assistant Project Leader: *Kayla Boles,* SWFD Assistant Biologist

Project Leader: *Jeff Crosby*, Central Fishery District Biologist
Assistant Project Leader: *David Baker, CFD* Assistant Biologist

Project Leader: *Tom Timmermann,* Northeastern Fishery District Biologist
Assistant Project Leader: *Justin Heflin,* NEFD Assistant Biologist

Project Leader: *Marcy Anderson*, Southeastern Fishery District Biologist
Assistant Project Leader: *Bradley Hartman*, SEFD Assistant Biologist

Project Leader: *Jason Russell*, Eastern Fishery District Biologist
Assistant Project Leader: *Vacant*, EFD Assistant Biologist

Department of Fish and Wildlife Resources
Fisheries Division

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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, 547 black bass were collected by diurnal electrofishing (120 PPS, DC current). During this sampling period, 467 largemouth bass (62.3 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 Big Bear (80.8 fish/hr). Unlike previous years, Sugar Bay was not sampled. This was done to avoid interference with the ongoing snorkel surveys of the bass spawning habitat in that embayment.

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 "Fair". The catch rate of age-1 largemouth bass in the sample was excellent indicating a good spawn in 2020. This is extremely encouraging as the two prior spawns were very poor. 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 an above average catch of <8.0-in bass (Table 4). The catch rate of intermediate-size bass (12.0-14.9 in; 10.4 fish/hr) was well below the plan recommendation. The lower numbers of intermediate-size bass were expected due to the weak year classes of 2018 and 2019. The catch rate of harvestable-size bass ($\geq$15.0 in) increased from the previous years' data, but still falls below the plan recommendation. The catch rate of trophy-size largemouth bass ($\geq$20.0 in) was also below the average for the last 10 years and was below the KLFMP recommendation. The dominant size group of adult largemouth was around 15.0 in which was expected based on the strong year class in 2016 (Table 2).

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 72 and 38, respectively. These average values were used in the KLFMP assessment. The PSD value is within the assessment preferred range (55-75; Table 4). The RSD_{15} value was 38, which also falls inside the targeted range (RSD_{15} of 20-40).

During October, 470 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 52% (61.3 fish/hr) of this sample in Blood River and Jonathan Creek. Smallmouth bass comprised 47/% (55.3 fish/hr) of the 2021 sample for those two embayments and once again outnumbered the largemouth in Blood River. Based on length frequency it appears that most of those smallmouth were young-of-year, although the adult densities are starting to increase as well.

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 94 (Table 7). This value was down from the 2020 estimated relative weight value of 95 and is just outside 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 Log_{10} (weight) = -3.46692 + 3.12957 x Log_{10} (length)
Smallmouth bass Log_{10} (weight) = -3.41613 + 3.05390 x Log_{10} (length)

Otoliths were collected from a subsample of smallmouth bass and largemouth bass (<10.0 in) during fall sampling in 2021. Otoliths were used to age bass so that the catch rate and growth of age-0 fish could be evaluated. The catch rates of age-0 smallmouth and largemouth bass during the fall sample were 49.7 and 47.3 fish/hr, respectively (Tables 8 and 9). The 2021 year class appears to be average, with below average growth. The mean length of the age-0 largemouth bass was 4.4 in at time of capture in the fall. The catch rate of age-0 largemouth bass >5.0 in was 17.6 fish/hr.

During 2020, largemouth bass age and growth data was collected in the fall. This age and growth data was coupled with fall 2021 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 10. Ages ranged from 0-9 with age-0 being the most abundant.

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 it is possible that bass are sometimes ready to spawn before water is high enough to reach good shoreline habitat in the spring. A reduction in competition for habitat resources could lead to higher individual nest success. To help determine how fish use these structures we conducted 12 weekly snorkel surveys from March 24 – June 9, 2021, at Sugar Bay on Kentucky Lake (Table 11). We rated the relative amount of observed eggs and fry at 68 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 12 and 13.

In 2021, 47% of the sites were used at least once by spawning bass including 3% of sites that were used twice by bass. 63% of artificial beds next to laydowns were used by bass, while artificial beds without laydowns were used at a rate of 44%. The usage rates of laydowns without artificial nests were lower at 33%. Once water temperatures started to warm up closer to 70F, sunfish started to use our spawning habitat heavily. About 78% of our experimental habitat sites were used at least once by sunfish, and 94% of the artificial spawning beds were used by sunfish. Usage rates in 2021 were very similar to rates in 2020 but were consistently a few percentage points lower in 2021 (Table 14).

Across 68 sites in Sugar Bay, we suspect 34 individual bass spawning events occurred based on weekly snorkel surveys. During the spawn of 2021 we had 366 artificial beds and 195 laydowns deployed in Kentucky Lake and 268 artificial beds and 378 laydowns in Lake Barkley. Based on snorkel survey results, we determined the rate at which bass spawned at three different site types (artificial bed with an adjacent laydown; artificial bed only; and laydown only) in 2021. These rates differ slightly from usage rates because some sites produced multiple spawning events. If we assume identical rates across both lakes, we can extrapolate those numbers and estimate that bass spawned 460 times on our habitat in the spring of 2021. A typical bass nest may contain anywhere from 2,000-7,000 fry after hatch (Post et al., 1998) meaning our spawning habitat could have helped with the spawn of anywhere from about 920,000-3,220,000 bass fry. It is possible however that bass would have spawned in these areas even without any artificial spawning habitat. This makes it very difficult to estimate the amount of additional bass fry produced because of our spawning habitat. During snorkel surveys we rarely 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 29, 2021, and in Blood River on June 22, 2021. 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 from both embayments but were tough to find in Blood River. 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 15 and 16.

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 2021, the average largemouth bass spawn date in Sugar Bay (April 19±1.4 days) was significantly earlier than in Blood River (April 25±1.4 days; $p=6.01\ e^{-9}$). This is the second year in a row that largemouth bass in Sugar Bay spawned earlier than largemouth bass in Blood River, which supports the theory that fish might spawn earlier in bays with our experimental spawning habitat if there is sufficient spawning habitat at lower water elevations. The average smallmouth bass spawn date in Sugar Bay (April 22±1.1 days) was also significantly earlier than in Blood River (May 5±2.2 days; $p=4.54\ e^{-16}$). When both embayments were combined, the average smallmouth bass spawn date (April 27±1.4 days days) was significantly later than the average largemouth bass spawn date (April 22±1.1 days; $p=3.15e^{-8}$). In 2020 this trend was the opposite.

Trap nets were fished for crappie in Blood River and Jonathan Creek embayments for 80 net-nights (nn) during October and November. In addition, Sledd Creek was sampled for 40 nn. This is the first time in recent history that 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 1024 crappie (8.5 fish/nn), of which 5.2 fish/nn (61%) were white crappie and 3.3 fish/nn (39%) were black crappie (Table 17). 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 4.9 fish/nn which is below the goal of 20.0 fish/nn set in the KLFMP (Table 18). The low total catch rate reflects the weak spawns in 2016 and 2017. However, the catch rate of 5.1 fish/nn for age-0 white crappie this fall was the highest catch rate we've seen since 2010.

The number of crappie $\geq$8.0 in and $\geq$10.0 in collected in trap nets was 2.9 and 1.1 fish/nn, respectively (Table 18). 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 slightly below average growth rates in 2021. 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 8.8 in (Table 18).

Another management objective in the KLFMP is to maintain a catch rate of age-1 crappie of at least 11.0 fish/nn (Table 18). The catch rate for this age group of crappie was 1.5 fish/nn. This is on par with the lowest catch rates we have ever observed and indicates a very weak spawn in 2020. Interestingly and perhaps unfortunately, weak crappie spawns are typically associated with strong largemouth bass spawns (Table 4 and Table 18). For a discussion of the potential effects 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 19).

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 20.

The mean relative weights of keeper-size (>10.0 in) white crappie and black crappie were (91) and (87), respectively (Table 21). These relative weights are much lower than we would like to see. However, 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, which is very similar to the relative weights in 2021. It was our observation in 2017 that the longest white crappie (14+ in) were the most emaciated. It is our belief that those extremely skinny large fish were the most concerning for our anglers.

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

White crappie	Log_{10} (weight) = -3.63417 + 3.27130 x Log_{10} (length)
Black crappie	Log_{10} (weight) = -3.50899 + 3.20996 x Log_{10} (length)

Tables 22-27 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 28 and 29, respectively. The poor white crappie spawns reported in 2016 and 2017 are once again very noticeable as no 4- or 5-year-old white crappie were collected in 2021.

During the spring of 2021, icthyoplankton sampling was conducted in the Jonathan Creek embayment of Kentucky Lake. Weekly sampling began April 8, 2021 and ran through June 9, 2021. 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 30). The standard error and coefficients of variation of the mean and geometric mean were used to evaluate sample accuracy. In 2021 the peak weekly density of crappie occurred on June 3rd and was 84.8 crappie/1000m^3. This peak density occurred the latest in the year but was also the second highest since 2015 (Table 32). Based on these results, the crappie spawn in Jonathan Creek in 2021 appears to have been average or above average. This will still need to be verified by trap netting age-1 crappie in 2022. After tracking the crappie spawn since 2015 using ichthyoplankton nets, we have noticed a trend that the peak crappie catch rate in the spring is a good predictor of age 0 catch rates in fall trapnets (Regression R^2=0.94, $p<0.001$; Figure 1) and age 1 catch rates in trapnets the following fall (R^2=0.88, p=0.005; Figure 2).

In order to determine the hatch dates of crappie more precisely, based on growth rates, all crappie that were 7–12 mm in total length were assumed to represent a one-week cohort (Table 31). 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 12 mm were more likely to avoid capture. This length range was also chosen because a 7 mm crappie would grow to 12.1 mm in one week (our sample interval), based on a growth rate of 0.90 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 7–12 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 33). A hatch date was then back-calculated for each individual fish using the assumed growth rate (0.90 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 47 days and extended at least until late May (Table 33). Because of our limited larval sampling window, we cannot be sure that crappie did not spawn 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 seems to have been one strong peak in spawning activity in 2021 along with a few lesser peaks. The highest amount of spawning occurred from May 18 to May 21. Similar to prior years' surveys we found higher densities of larval crappie farther into the embayment (Table 30; Appendix A).

In July 2021 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 1-4 days, but if the difference between readers was less than 10% of the fish's estimated age, the counts were averaged and accepted. In 2021, no fish were 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 33). There is no way to practically differentiate between crappie species in the larval samples. Therefore, the estimated growth rate used in the larval hatch date back calculation combined both species together. Our estimated growth rate of 0.90 mm/day was higher than the 0.67-0.71 mm/day we've seen the past few years.

Because the collection of black crappie was so low (n=2 of 201; Table 34), 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 2021, crappie in Blood River had a faster average growth rate (0.93mm/day) than crappie in Johnathan Creek (0.90 mm/day; p=0.01). Additionally, the average crappie hatch date in Johnathan Creek (May 19±1.0 days) was not significantly different than in Blood River (May 20±1.2 days; p=0.42).

The catfish population was sampled at Kentucky Lake during June by 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 162 catfish were collected during 60 electrofishing runs (Table 35). Each run lasted 300 seconds, for a total sample time of 5.0 hours over a three-day period. Of the catfish species, blue catfish had the highest catch rate at 25.3 fish/hr, and made up 75% of the catfish collected. The catch rate was lower than observed in some previous years, but consistent with the last four years' results. Relative weight values are listed in Table 36. The relative weight values are all high, suggesting the fish are healthy.

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Lake Barkley

Black bass were collected during 9.0 hours of diurnal electrofishing (120 PPS, DC current) during the spring at sampling sites historically used on Lake Barkley. A total of 671 black bass were collected at a rate of 74.6 fish/hr (Table 37). Spotted and smallmouth bass combined for about 7% of the total black bass sampled. The catch rate of small ($\leq$ 8.0 in; 35.7 fish/hr) largemouth bass was its highest since 2009, while catches of intermediate-sized (8.0-11.9 in) largemouth bass were about equal to the current ten-year average. The catch rates of large ($\geq$ 15.0 in) and larger ($\geq$ 18.0 in) largemouth bass continues to be below the average historic catch rate for these size groups. Several below-average spawns from 2014-2019 on Lake Barkley resulted in weak catch rates of age-1 fish following those spawns and have likely reduced the overall numbers of large bass currently in the system. However, in 2021 the recruitment of largemouth bass (catch rate of age-1 fish in the spring; 41.7 fish/hr) was the 5th highest it has been since 1997. The long-term average for age-1 largemouth in the spring is about 25.0 fish/hr, so we are optimistic that this strong 2020 cohort will provide a boost to the larger size classes of fish in the coming years. The overall largemouth bass catch rate was 69.1 fish/hr which is just above the average of the past ten years (Table 38). The overall smallmouth bass catch rate was 5.0 fish/hr which is the highest since 2005 which is when smallmouth bass started getting consistently collected at the same time as largemouth bass at Lake Barkley.

The overall PSD and RSD_{15} values for largemouth bass at Lake Barkley, along with values for individual embayments are listed in Table 39. The PSD value (72) is within the objective goal (PSD of 55-75) established in the Barkley Lake Fish Management Plan (BLFMP). This value indicates a balanced bass fishery. The RSD_{15} (37) was also within the set goal (20-40). The spring catch rate of small ($\leq$8.0 in) largemouth bass was above average while catches of medium (8.0-14.9 in) and larger ($\geq$15.0 in) largemouth bass remain below the historical averages (Table 38).

The lake specific assessment score for Lake Barkley was "fair" (Table 40). 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 34% as determined using catch-curve regression of fall-caught largemouth (Table 40).

Black bass were sampled in October to collect length-weight data to assess condition factors and to determine the strength of the 2021 year-class. A total of 596 bass were collected from Little River, Eddy Creek, Taylor Bay, and Jakes Fork Bay with about 75% being largemouth bass (Table 41). 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 62.5 fish/hr which is well below the historical average going back to 1998. The catch rate of small fish (<8.0 in) was slightly above the historical average and was the majority of the fall catch. 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 42). Relative weights for all size groups of largemouth bass were good this year. The relative weight for harvestable-size (≥15.0 in) largemouth bass from Little River and Eddy Creek was 100 which is equal to the average for Lake Barkley and within the acceptable range. The length-weight equations for black bass at Lake Barkley are:

Largemouth Bass	$Log_{10}(weight) = -3.507 + 3.2115x\ Log_{10}\ (length)$
Smallmouth Bass	$Log_{10}(weight) = -3.464 + 3.1174x\ Log_{10}\ (length)$

During 2019, largemouth bass age and growth data was collected in the fall. This age and growth data was coupled with fall 2021 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 43. Ages ranged from 0-11 with age-0 being the most abundant.

Mean length of the age-0 cohort of largemouth bass was 5.1 in (Table 44). This is below the historical average (5.3 in) but meets 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 (47.5 fish/hr) was above the historical average (34.6 fish/hr), while this year’s catch rate of age-0 largemouth bass over 5.0 in (23.0 fish/hr) was equal to the average 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 45). Total catch rate (24.5 fish/hr) and the catch rate of age-0 smallmouth bass over 5.0 in (6.5 fish/hr) were both ranked 2nd of the three years we’ve done this.

Taylor Bay and Jake Fork Bay were sampled for the first time in the fall of 2021 to begin assessing potential effects of artificial spawning habitat on black bass. As stated in the Kentucky Lake section, we have been placing this habitat as a result of some bad spawning events and overall low bass abundance recently. The additional spawning habitat at lower lake elevations in the test bays may provide more preferred areas for bass to spawn and areas for bass to spawn earlier in the year. Bass spawned earlier should, theoretically, be longer when sampled in the fall. Two of the metrics we’re using to assess the effectiveness of artificial habitat are catch rate and average length of age-0 fish as compared to Little River and Eddy Bay, which both have no artificial habitat and are sampled every fall. The fall of 2021 was mostly a preliminary sample since there was only a small amount of artificial habitat in either test bay. The average length of age-0 largemouth bass was 4.8 in, slightly shorter than Little River and Eddy Bay (5.1 in). Age-0 largemouth bass were caught at 90.0 fish/hr which is a much higher rate than Little River and Eddy Bay (47.5 fish/hr). Age-0 largemouth bass over 5.0 in were also caught at a higher rate in test bays (35.5 fish/hr vs 23.0 fish/hr). Smallmouth bass were caught at lower rates overall but displayed the opposite trends. Age-0 smallmouth bass were longer on average in test bays (4.8 in vs 4.5 in) and caught at higher rates (24.5 fish/hr vs 13.5 fish/hr) than Little River and Eddy Bay. It will be interesting to see if any trends develop in these bays after the addition of 179 artificial spawning beds and 219 laydowns in Taylor Bay and Jake Fork Bay in 2021 and early 2022.

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 1640 crappie were collected at a rate of 20.5 fish/nn (Table 46). Additionally, Crooked Creek (LBL) was sampled for another 40 net-nights. Crooked Creek (19.3 fish/nn) also provided a good sample and will remain on the sampling schedule in the future if possible.

White crappie accounted for 88% of the total catch and were caught at 17.6 fish/nn. Black crappie accounted for the remaining 12% of the total catch and were collected at a rate of 2.5 fish/nn (Table 46). The mean relative weights for keeper-size (≥10.0 in) black and white crappie were 98 and 100, respectively (Table 47). For historical comparisons, only data from Little River and Donaldson Creek were used in the standardized population parameters of Lake Barkley crappie in Table 48. The catch rate of harvestable-size (≥10.0 in) crappie was 0.8 fish/nn, which is lower than the ten-year average of 1.4 fish/nn. The catch rate of quality-size (≥8.0 in) crappie was 2.4 fish/nn, which is below the management objective (4.0 fish/nn) set in the BLFMP. The catch rate of age-1 crappie (3.5 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) = -3.831 + 3.5315 x Log_{10} (length)
Black crappie	Log_{10} (weight) = -3.341 + 3.5965 x Log_{10} (length)

Crappie collected in trap nets in Little River and Donaldson Creek were used to determine stock densities. The PSD (54) of white crappie was just below the historic average of 57, while the RSD_{10} (18) of white crappie was also below the historic average of 27. These metrics suggest a somewhat balanced size distribution of white crappie that is missing some larger fish (Table 49). The PSD (59) of black crappie was slightly higher than the historic average of 55, while the RSD_{10} (17) of black crappie was slightly lower than 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 386 crappie were used for age and growth analysis. Ages ranged from 0-7 years for white crappie and 0-3 years for black crappie (Tables 50 and 51). 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 52 and 53) or black crappie (Tables 54 and 55). The average lengths of age-2 white crappie and black crappie at capture were 11.1 in and 9.6 in, respectively (Table 56). In addition, we calculated age-2 crappie mean length at capture as outlined by Murphy and Willis (1996) for all years presented in Table 56. 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. 79% of white crappies captured in Little River and Donaldson Creek were age-0 fish while age-1 fish made up another 18% of the catch (Table 57). Few white crappies age-2 and older were collected. 80% of black crappies captured in Little River and Donaldson Creek were age-0 fish while age-1 fish made up another 10% of the catch. Few black crappies older than age-2 were collected (Table 58). The age-0 white crappie catch rate was well above the long-term average in 2021 and was the 4th highest on record back to 1985. The age-0 catch rate of black crappie was slightly higher than the long-term average. This preliminary age-0 data suggests that 2021 could have been a good crappie spawn.

Assessment of the crappie population yielded a rating of “Fair” at Lake Barkley in 2021 (Table 56) The catch of age-1 crappie was below the ten-year average; however, catches of age-0 fish were above average. The catch rate of crappie ≥8.0 in continues to rise but is still below the ten-year average while the average length of age-2 crappie is just slightly below the ten-year average. The catch rate of larger fish (≥ 8.0 in; 2.4 fish/nn) was its highest in 5 years but still below the long-term average of 3.7 fish/nn. We are hopeful that the high catch of age-0 white crappie this year will boost catch rates of larger fish in the next couple years.

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 always positioned in each boat for a total of two dippers. A total of 552 catfish were collected during 60 electrofishing runs (Table 59). Each run lasted 300 seconds, for a total sample time of 5.0 hours over a three-day period. Blue catfish had the highest catch rate at 101.4 fish/hr and made up 92% 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 and are listed in Table 60.

Literature Cited

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

Lake Barkley Creel Survey

A random, non-uniform probability, roving creel survey was conducted on the Kentucky portion (45,600 a) of Lake Barkley from 01 March to 30 November 2021. The Kentucky portion of the lake was divided into eight creel areas (Appendix B). The survey was conducted six hours per day, with the goal of 5 days per week. However, the clerk left the position before the end of the survey and WFD staff filled in for the final two months as time allowed. 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 were assigned to the Eddy Creek and Little River areas in March, April, October, and November, resulting in more frequent interviews during months with historically less fishing effort. Equal probabilities were assigned to all areas from May to September. An angler attitude questionnaire concerning fishing on Lake Barkley was conducted by the creel clerk throughout the survey period (Appendix C).

During the 2021 creel, the typical angler was a male (85%) resident (76%) who was casting (42%) or still fishing (51%) from a boat (85%; Table 61). Of the crappie anglers, 36% used a spider rig (defined as 3 or more poles per angler) for fishing. The average fishing trip for all anglers was 4.34 hours. There was a decline in the number of trips of (40,898). This is the lowest number of trips ever recorded in a Lake Barkley creel survey and is less than half the number of trips from the 2018 survey. Anglers also caught a record low number of fish (209,277). We suspect the original clerk may have been an inefficient user of his time on the water which could have led to lower overall effort and catch in this survey. Length frequencies of all harvested or released fish are given in Table 62.

Table 63 provides fish catch and harvest statistics for the 2021 creel survey. Crappie anglers accounted for 24% of fishing trips to Lake Barkley in 2021 (20% in 2018, 24% in 2016, 17% in 2012). Estimated catch and harvest rates for crappie were average to slightly below average. Crappie anglers caught 1.1 fish/hr which is equal to the long-term average of 1.1 fish/hr. Of the crappie caught, 45% were a harvestable size (Table 64). This slightly higher proportion of sub-legal sized crappie corresponds to fall trap netting data that suggested two very poor spawns in 2016-2017 followed by slightly better spawns for the last three years. Forty-five percent of the crappie were caught in March-May (Table 65). 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), spider rigging (>5 poles). During this survey, 36% of crappie anglers used 3 or more poles. The percentage of crappie anglers using (>5 poles) decreased to 4% in 2021 compared to only 19% of crappie anglers in 2018 (Table 66). There is an ongoing trend in crappie fishing right now to use only one or two poles in conjunction with advanced live-imaging sonar to target individual fish. During 2021, about one quarter of crappie anglers consistently used live-imaging sonar, and it will be interesting to see if we are able to capture this rising trend in future creel surveys.

Black bass anglers accounted for 35% of all fishing trips to Lake Barkley during 2021 (Table 63). There were 14,109 black bass fishing trips in the 2021 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 67). However, when tournament and “mock tournament” harvested bass were removed from the actual harvest, the harvest rate dropped to 0.007 bass/hr. Largemouth bass accounted for 79% of the harvested black bass by number (Table 68).

About 8% of all trips were taken to catch panfish during 2021 (Table 63). This is approximately equal to the average percentage of panfish trips since 1999. Catch and harvest rates of panfish were below the long-term averages in 2021. Almost 80% of the panfish were harvested during May (Table 69). Bluegill and redear sunfish accounted for 100% of the panfish harvested. Of the bluegill, only 39% of the fish caught were harvested, while 44% of the redear sunfish caught were harvested (Table 70). Although fish are observed by the creel clerk whenever possible, it is possible that some percentage of misidentification took place by anglers when reporting panfish catch and release.

Catfish anglers accounted for 21% of all fishing trips on Lake Barkley in 2021 (Table 63). The number of trips for catfish was well below the long-term average. The catfish fishery remains highly harvest oriented. Almost 74% of the catfish caught were harvested (Table 71). The total catch of channel catfish was a few thousand fish greater than the total catch of blue catfish, while the total catch of flathead catfish was minimal (Table 72). Only 8% of catfish anglers reported that they considered catching trophy fish to be their goal, while 72% reported a goal to catch keeper sized fish to eat (Appendix C). Catching keepers has consistently been much more of a priority to catfish anglers since we started asking them this question several years ago.

Less than 2% of the anglers fishing Lake Barkley in 2021 sought *Morones* (Table 63). 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. Positive ID on this genus can be difficult for anglers, so it is possible that some released fish were mis-identified. The highest total catches of *Morones* occurred in November and May in 2021 (Table 73). Approximately 62% of the *Morones* caught were yellow bass, with white bass making up the remaining 38%. About 71% of yellow bass were released after being caught (Table 74).

An angler attitude survey was also given to anglers willing to participate (Appendix C). The opinions on the black bass fishing continue to worsen with 46% of anglers reporting that they were somewhat or very dissatisfied (30% in 2018, 7% in 2016). Most dissatisfied black bass anglers are not happy with the number of fish caught. Just 43% of crappie anglers were in favor of pole limits while 57% were opposed or had no opinion. Only about one quarter of crappie fisherman used real time sonar while fishing. About 75% of catfish anglers would support a statewide 12-inch minimum length on catfish. About 72% of catfish anglers believe catching more keepers is more important than catching trophies. The percentage of anglers (76%) who stated they knew that Asian carp were widely considered to be a good fish to eat was higher in 2021 than recent surveys. Additionally, 87% of anglers were aware that commercial fishing for Asian carp was occurring on Lake Barkley. There was also a section of questions directed at tournament anglers. Although the sample size was lower than we would like (n=60), 83% 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. Two-hundred-and-fifty-one largemouth bass were collected at a rate of 100.4 fish/hr (Table 75). The catch rate of harvestable-size ($\geq$12.0 in) largemouth bass was 45.2 fish/hr (Table 76). This year's sample falls just above 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 high this year (23.2 fish/hr). Other objectives are to maintain high catch rates of bass $\geq$15.0 and $\geq$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 36.4 and 6.0, respectively. Lake Beshear continues to have a quality bass fishery with good numbers of bass $\geq$15.0 in. However, the lower catch of bass 12.0-14.9 in this spring is a potential concern and may lead to some slight angler dissatisfaction in the future. The fishery rated as "good" in 2021 thanks in part to strong recruitment and solid numbers of trophy-size fish (Table 77).

Largemouth bass were also collected by diurnal electrofishing (120 PPS, DC current) in October (Table 75). The catch rate (156.4 fish/hr) was an improvement over last year, but again the catch was skewed towards smaller fish. Relative weight data (Table 78) suggests that larger bass ($\geq$15.0 in) are healthy with regard to their length-weight ratio. The average relative weight value was 94 for these larger bass and 82 for all sizes of bass. However, the reduced body weights of the smaller fish are indicative of a lack of smaller forage and should be monitored closely to see if this trend continues. The length-weight equation for largemouth bass at Lake Beshear is:

$$\text{Log}_{10}\,(\text{weight}) = -3.52039 + 3.14135 \times \text{Log}_{10}\,(\text{length})$$

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 83.6 fish/hr (Table 79). The average length of an age-0 bass was 4.8 in.
The catfish population at Lake Beshear was sampled in June using trotlines and tandem hoopnets. A total of 131 channel catfish and 146 blue catfish were collected in the hoopnets for catch rates of 43.7 and 48.7 fish/hr, respectively (Table 80). A total of 45 channel catfish and 60 blue catfish were collected on trotlines baited with cutbait (Table 81). The mean relative weights for channel catfish and blue catfish were 95 and 88, respectively (Table 82). The lower blue catfish relative weights will be monitored again in 3 years to determine whether stocking rates need to be adjusted; however, the channel catfish relative weights support the appropriateness of the current stocking rates.

Otoliths were removed from a subsample of fish to assess growth rates and monitor for successful natural spawns (Tables 83 and 85). The catch was unsurprisingly dominated by two age classes from the most recent stockings; however, some older fish are reaching trophy sizes (Table 83). Growth rate of channel catfish has improved since changing the stocking schedule to a 2-year rotation (Table 85). The mean length at age 3 from earlier channel catfish stockings was around 8.0 in, but the more recent stockings averaged around 13.0 in. Given the lack of significant natural reproduction, a mortality estimate was not appropriate. However, survival appears to be adequate based on the presence of older fish in the system (Tables 84 and 86).

Lake Pennyrile

Electrofishing for all species of sportfish at Lake Pennyrile was conducted on May 7, 2021. Thirty-three largemouth bass were captured at a rate of 33.0 fish/hr (Table 87). This catch rate is well below the 10-year average of 90.6 fish/hr (Table 88). Most largemouth bass were still below 12.0 in. Only 2 (6.1%) bass were 12.0 in or larger, while only 1 (3.0%) 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 2.1 fish/hr (Table 88). The catch rate of largemouth bass 8.0-11.9 in was 18.0 fish/hr which is well below the management objective of 80.0 fish/hr. It appears we may have missed the bass with the timing of our sample this year. In previous years many more bass have been caught, and recently the bass have been stunted around 9.0-10.0 in. These high catch rates of intermediate-size largemouth bass are desirable in order to maintain good numbers of large sunfish in this system. The overall largemouth bass population was rated as "poor" in 2021 (Table 89). Due to the shift in management focus towards trophy sunfish, it is unlikely that the largemouth bass population will be rated highly again soon.

The catch rate of large-size (≥8.0 in) bluegill was above average at 22.0 fish/hr. (Table 90). This was our fourth highest catch of large bluegill on record. The catch rate of large (≥8.0 in) redear was below average at 13.0 fish/hr. While the catch of redear ≥8.0 in has been below average for the past three years, the catch of redear just below this length has increased in that time. We will continue to monitor the panfish populations at Lake Pennyrile in 2022.

PSD and RSD values for largemouth bass, bluegill and redear sunfish are listed in Table 91. The PSD value for largemouth bass (10) suggests a population heavily skewed toward small bass. The largemouth bass fishery is stunted which is our goal when managing for large panfish. The PSD value for bluegill (81) suggests a population skewed towards larger fish which coincides with our goals at this lake. The PSD value for redear (51) suggests a more balanced size distribution.

Lake George

Electrofishing for all species of sportfish was conducted at Lake George (Marion, KY, Crittenden Co.) on May 11, 2021. Ninety-one largemouth bass were captured at a rate of 91.0 fish/hr (Table 92). Catch rates of all size classes of largemouth bass were good (Table 93). The PSD and RSD values (Table 94) of largemouth bass suggest a fairly balanced population with a good number of larger individuals.

The catch rate of bluegill was 390.0 fish/hr (Table 92). The PSD (24) of bluegill suggests an unbalanced population skewed towards small fish (Table 94). The catch rate of redear sunfish was 111.0 fish/hr (Table 92). The PSD (91) of redear suggests a population heavily skewed towards larger fish (Table 94). Black crappie, white crappie, and channel catfish were also collected but at much lower rates (Table 92).

Lake Blythe

Electrofishing for all species of sportfish in Lake Blythe (Hopkinsville, KY, Christian Co.) was conducted on May 10, 2021. Catch rates of all sportfish were well below what they had been in the previous survey in 2019, and it is unclear what the cause for this is (Table 96). Due to only having 2 previous surveys on file for this lake, it is unknown if this has happened before. Sixteen largemouth bass were captured at a rate of 16.0 fish/hr (Table 95). Of these 16 fish, 5 of them were greater than 18.0 inches in length.

The catch rate of bluegill was 47.0 fish/hr (Table 95). The PSD (16) of bluegill suggests an unbalanced population skewed towards small fish (Table 97). The catch rate of redear sunfish was 19.0 fish/hr (Table 95). The PSD (26) of redear suggests an unbalanced population skewed towards small fish (Table 97). The catch rate of channel catfish was 14.0 fish/hr (Table 95). The PSD (100) of channel catfish suggests a population with a size distribution skewed towards large fish and minimal reproduction, if any (Table 97). The catch rates of white crappie and black crappie were minimal.

Ballard County Wildlife Management Area Lakes

On May 13, 2021, several Ballard County Wildlife Management Area lakes (Butler, Shelby, and Castor) were sampled with electrofishing (2- 900-second runs at each lake). These lakes are old oxbows of the Ohio River which are primarily managed for waterfowl. The fisheries in these systems fluctuate greatly due to the nearly annual connection with the river during flood events. Each of the lakes shows potential for good bluegill fishing, despite low numbers of bluegill >6.0 in (Table 98).

Duncan Lake (LBL)

On May 17, 2021, Duncan Lake in the Land Between the Lakes National Recreation Area was sampled with electrofishing. Staff of LBL had contacted us wanting to know if we thought this lake could be promoted as a fishing opportunity. Very few fish were collected in almost 41 minutes of electrofishing (Table 99). The few largemouth bass that were collected appear stunted with all individuals under 12.0 in. Forage for bass was limited, as the catch rate of bluegill was also very low. The lake itself is heavily silted and shallow which may make any future management of the fish populations very difficult.

USFWS Lakes

On May 14, 2021, two small USFWS lakes were sampled with electrofishing. The pond in Benton Kentucky is a small public fishing lake which we have sampled nearly annually for many years. The largemouth bass catch rate was 22.0 fish/hr which is concerning so it was supplementally stocked with 300 largemouth from our hatcheries during the fall (Table 100). The bluegill catch rate was 108.0 fish/hr, but the size distribution was skewed heavily towards smaller fish.

We also sampled a smaller pond which was newly acquired by the USFWS near Symsonia Kentucky. The catch rate of bass in this pond was only 6.0 fish/hr (Table 101). This pond was also supplemented with 350 largemouth bass from our hatcheries in the fall of 2021. The wide range of species is indicative of prior flooding and connection with the nearby river. However, the USFWS have made efforts to prevent future flooding. Both the Symsonia pond and the Benton pond are being managed for large sunfish and high catch rates of bass.

Table 1. 2021 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	Eddy Bay	black bass	4/19/2021	2.5 hr	electrofishing	sunny/light wind	62.2	357.3	24	rising slightly	fair sample, bushes not fully flooded yet
Barkley	Donalsdon Bay	black bass	4/22/2021	2.5 hr	electrofishing	sunny/light wind	60	357.8	23	falling slightly	fair sample, bushes not fully flooded yet
Barkley	Demumbers Bay	black bass	4/30/2021	2.5 hr	electrofishing	sunny	64	358.9	25	rising slightly	fair sample
Barkley	Little River	black bass	5/6/2021	1.5 hr	electrofishing	sunny/light wind	66	359.5	8	rising	poor sample, murky water
Lake Pennyrile		sportfish	5/7/2021	1.0 hr	electrofishing	sunny	65	normal	12	calm	fair sample for sunfish, missed the bass
Lake Blythe		sportfish	5/10/2021	1.0 hr	electrofishing	cloudy, cold front	60s	normal	24	calm	hard to find fish
Lake George		sportfish	5/11/2021	1.0 hr	electrofishing	sunny	63.3	normal	29	calm	fair sample
Duncan Lake LBL		sportfish	5/17/2021	0.68 hr	electrofishing	cloudy	60s	normal	34	calm	hard to find fish
Ballard WMA	Shelby	sportfish	5/13/2021	0.5 hr	electrofishing	sunny, light wind	65.7	normal		calm	fair sample
Ballard WMA	Castor	sportfish	5/13/2021	0.5 hr	electrofishing	sunny, light wind	65.7	normal		calm	fair sample
Ballard WMA	Butler	sportfish	5/13/2021	0.5 hr	electrofishing	sunny, light wind	65.7	normal		calm	fair sample
Barkley	Nickel Branch	catfish	6/23/2021	1.67 hr	electrofishing	sunny	79	359.9		rising	fair sample
Barkley	Devils Elbow	catfish	6/28/2021	1.67 hr	electrofishing	sunny	83	359.2		stable	fair sample
Barkley	Cravens Bay	catfish	7/6/2021	1.67 hr	electrofishing	sunny	83	359		elevation falling	fair sample
Barkley	Taylor Bay	black bass	10/4/2021	2.0 hr	electrofishing	sunny	73.5	355	17	steady	fair sample, experimental habitat sample
Barkley	Eddy Bay	black bass	10/6/2021	2.0 hr	electrofishing	partly cloudy	75.3	355.3	23	elevation rising	fair sample
Barkley	Little River	black bass	10/9/2021	2.0 hr	electrofishing	sunny	75	355.1	32	elevation falling	fair sample
Barkley	Crooked Creek	crappie	10-19 - 10/22	40 nn	trapnet	variable	67.5	354.7	21	stable	fair sample
Barkley	Donaldson Bay	crappie	10-26 - 10-29	40 nn	trapnet	variable	62	355.1	20	elevation rising	fair sample
Barkley	Little River	crappie	11-2 - 11-5	40 nn	trapnet	variable	55	354.7	24	stable	fair sample
Kentucky	Jonathan Creek	crappie	4/8/2021	6 tows	neustonic tow net	dusk	63.8	358.2			
Kentucky	Jonathan Creek	crappie	4/14/2021	6 tows	neustonic tow net	dusk	65.3	357			
Kentucky	Jonathan Creek	crappie	4/21/2021	6 tows	neustonic tow net	dusk	61.1	357.2			
Kentucky	Jonathan Creek	crappie	4/29/2021	6 tows	neustonic tow net	dusk	64.5	358.6			
Kentucky	Jonathan Creek	crappie	5/5/2021	6 tows	neustonic tow net	dusk	66	359.4			
Kentucky	Jonathan Creek	crappie	5/12/2021	6 tows	neustonic tow net	dusk	66	358.9			
Kentucky	Jonathan Creek	crappie	5/19/2021	6 tows	neustonic tow net	dusk	73.7	358.9			
Kentucky	Jonathan Creek	crappie	5/26/2021	6 tows	neustonic tow net	dusk	74	359.2			lots of zooplankton, cut tow duration to 3 min
Kentucky	Jonathan Creek	crappie	6/3/2021	6 tows	neustonic tow net	dusk	72.6	359.7			lots of zooplankton, cut tow duration to 3 min
Kentucky	Jonathan Creek	crappie	6/9/2021	6 tows	neustonic tow net	dusk	80.1	359.7			lots of zooplankton, cut tow duration to 3 min
Kentucky	Blood River	black bass	6/22/2021	4 hauls	50' seine						only bass were enumerated
Kentucky	Sugar Bay	black bass	6/29/2021	7 hauls	50' seine						only bass were enumerated
Kentucky	Blood River	crappie	7/2/2021	2 tows	benthic trawl						fish were easy to find
Kentucky	Jonathan Creek	crappie	7/2/2021	1 tow	benthic trawl						fish were easy to find
Lake Beshear		black bass	4/27/2021	2.5 hr	electrofishing	sunny, breezy	65.6			stable	fair sample

Table 1 (cont).

Water body	Location	Species	Date	Effort	Gear	Weather	Water temp. °F	Water level	Secchi (in)	Water conditions	Pertinent sampling comments
Kentucky	Jonathan Creek	black bass	4/21/2021	2.5 hr	electrofishing	partly cloudy	62.0	357.5	20	rising slightly	poor sample, snow night before, water low
Kentucky	Big Bear	black bass	5/3/2021	2.5 hr	electrofishing	overcast, windy	66.4	359.0	36	rising slightly	good sample
Kentucky	Blood River	black bass	4/26/2021	2.5 hr	electrofishing	sunny/light wind	62.5	358.4	55	rising slightly	fair sample
Kentucky	Fenton	catfish	7/7/2021	1.36 hr	low pulse	sunny	84.0	358.8		stable	rookie dipper, but fair sample
Kentucky	Fenton	catfish	6/22/2021	0.24 hr	low pulse	windy	79.0	359.7		whitecap	high discharge, but too wavy, cut short
Kentucky	Little Bear	catfish	6/30/2021	1.66 hr	low pulse	sunny	82.0	359.0		stable	3-4 amps fair sample
Kentucky	Patterson Landing	catfish	6/24/2021	1.66 hr	low pulse	sunny	78.0	359.6			3-4 amps 54,000 discharge
Lake Beshear		black bass	10/13/2021	2.5 hr	electrofishing	overcast					fair sample
Kentucky	Jonathan Creek	black bass	10/5/2021	2.0 hr	electrofishing	sunny/light wind	76.0	355.0	14		fair sample
Kentucky	Blood River	black bass	10/7/2021	2.01 hr	electrofishing	cloudy	75.0	355.3	25	stable	runs in smaller test pockets
Kentucky	Sugar Bay	black bass	10/12/2021	2.0 hr	electrofishing	sunny/windy	76.0	355.0		stable	fair sample
Kentucky	Big Bear	black bass	10/14/2021	2.0 hr	electrofishing	cloudy	74.0	355.0	26	high discharge	extra sample to collect more adults for Wr
Kentucky	Sledd Creek	crappie	10/18 - 10/22	40 nn	trapnet	sunny	72.0			steady	fair sample/water temps dropping
Kentucky	Blood River	crappie	10/25 - 10/29	40 nn	trapnet	variable/rainy	66.0	355.0		steady	fair sample/water temps dropping
Kentucky	Jonathan Creek	crappie	11/01 - 11/5	40 nn	trapnet	variable	65.0	354.5	31	steady	fair sample/water temps dropping
Lake Beshear		catfish	6/14/2021	1.0 hr	low pulse	sunny, no wind	84.3	normal	72	calm	low pulse attempt. no fish observed
Lake Beshear		catfish	6/15-6/17	72 hr	tandem hoop net	sunny, no wind	85.3	normal	73	calm	fair sample. last net not counted due to turtles
Lake Beshear		catfish	6/15-6/18	72 hr	trotline	sunny, no wind	86.3	normal	74	calm	fair sample. fresh cutbait (buffalo, silver carp)
CNWR pond	Benton	community	5/14/2021	0.5 hr	electrofishing	sunny	60's	normal			fair sample
CNWR pond	Symsonia	community	5/14/2021	0.5 hr	electrofishing	sunny	60's	normal			fair sample, shallow, silted.

Table 2. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 7.5 hours (15- 30-minute runs) of diurnal electrofishing at Kentucky Lake during April-May 2021.

	Inch class																				
Area	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	2	6	10	6		2	1	1	1				1		1	1			32	12.8	9.8
Spotted bass	1	1	2	1		1													6	2.4	2.4
Largemouth bass	4	16	15	21	21	13	4	3	4	4	3	6	14	7	2				137	54.8	6.3
Jonathan Creek																					
Smallmouth bass		2	2	1	2		2	5				1							15	6.0	3.3
Largemouth bass	3	5	12	25	21	9	2	3	3	4	7	14	8	5	5		2		128	51.2	10.3
Big Bear																					
Smallmouth bass	3	6	5	6	2		1				1	1	1		1				27	10.8	4.5
Largemouth bass	6	4	13	41	26	15	4	2	4	5	15	20	23	13	4	3	2	2	202	80.8	14.7
Total																					
Smallmouth bass	5	14	17	13	4	2	4	6	1		1	2	2		2	1			74	9.9	3.6
Spotted bass	1	1	2	1		1													6	0.8	0.8
Largemouth bass	13	25	40	87	68	37	10	8	11	13	25	40	45	25	11	3	4	2	467	62.3	7.1

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Table 3. Lake specific assessment for largemouth bass collected at Kentucky Lake from 2012-2021. 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						
				12.0-14.9 in	≥15.0 in	≥20.0 in				
Year	Mean length age-3 at capture	****Mean length age-3 at capture	CPUE age-1	CPUE	CPUE	CPUE	Total score	Assessment rating	Z	A
2021	12.7**	13.4**	36.5	10.4	12	0.3				
Score	2		4	1	1	1	9	F		
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		
Average	13.3	13.8	28.7	16.1	14.0	0.8	9.7		0.315	36.33

Data from 1985 to 2011 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.

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 2012-2021.

	Mean length	*Mean length			Length group													
	age-3 at	age-3 at	Age-1		<8.0 in		12.0-14.9 in		≥15.0 in		≥18.0 in		≥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}
2021	12.7	**13.4	36.5	4.1	31.1	3.4	10.4	1.7	12.0	2.8	1.2	0.6	0.3	0.2	62.3	7.1	72	38
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
Average	13.3	13.4	28.7		22.8		16.2		13.9		3.4		0.8		70.0		65.2	29.6
KLFMP	≥ 12.0 in		≥ 30				> 22		≥ 18				≥ 2				55-75	20-40

(Kentucky Bass Database.xls)

Data for 1985-2011 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 2021; 95% confidence limits are shown in parentheses.

Area	No. ≥8.0 in	PSD	RSD_{15}
Blood River	60	60 (+/-13)	38 (+/-12)
Jonathan Creek	62	73 (+/-10)	32 (+/-12)
Big Bear	112	78 (+/-9)	42 (+/-10)
Total	234	72 (+/-5)	38 (+/-6)

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Table 6. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 8.02 hours of diurnal electrofishing at Kentucky Lake during October 2021.

	Inch class																				
Area / Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE	Std err
Blood River																					
Smallmouth bass	1	42	38	9	2	7	4	2	1			1		1	1				109	54.1	16.3
Largemouth bass	2	16	30	29	8	1	3	2		3	1		1	1		1			98	48.6	13.4
Jonathan Creek																					
Smallmouth bass		64	32	6	2	1	1	3	1	1	2								113	56.5	13.3
Spotted bass	1	1																	2	1.0	1.0
Largemouth bass	12	53	15	18	12	5	8	9	7		2	1	2	2	1	1			148	74.0	16.6
Sugar Bay																					
Smallmouth bass	1	22	19	6	2	2	2				1	1							56	28.0	5.7
Largemouth bass		14	21	12	5	3	2	4	2	1	1	2	1	2		1			71	35.5	8.4
Big Bear																					
Smallmouth bass		4	8	2		1	5	2	1			1							24	12.0	2.9
Largemouth bass		5	10	7	6	1	1	8	5	2	3	4	9	4	4	2	2	1	74	37.0	7.0
***TOTAL**																					
Smallmouth bass	1	106	70	15	4	8	5	5	2	1	2	1		1	1				222	55.3	10.6
Spotted bass	1	1																	2	0.5	0.4
Largemouth bass	14	69	45	47	20	6	11	11	7	3	3	1	3	3	1	2			246	61.3	7.6

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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 2021.

		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	8	83	4	2	104	3	2	108	2	12	91	4
	Jonathan Creek	24	93	1	5	90	2	4	93	4	33	92	1
	Big Bear	16	90	1	16	86	2	13	93	3	16	93	2
	Sugar Bay	9	94	3	4	91	3	3	92	4	45	90	1
	Total	57	91	1	27	89	2	22	94	2	106	91	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
Smallmouth bass	Total	33	88	1	7	80	2	2	77	0	42	86	1

wfdwrk.d21

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
2021	4.0	<0.1	49.7	8.8	4.4			
2020	4.7	0.1	39.8	12.0	13.4		4.8	1.9
2019	4.3	0.1	30.1	6.3	3.4			
Average	4.3		39.9		7.1		0.0	

[A] Data collected by fall (October) diurnal electrofishing. Mean lengths were determined by analysis of otoliths removed from a subsample of SMB <8.0 in and extrapolated to the entire catch of the fall sample.

[B] Data from diurnal electrofishing samples collected the following spring (April/May). wfdwrky.dxx, wfdwragk.dxx, wfdpsdky.dxx

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
2021	4.4	0.1	47.3	7.3	17.6	1.8		
2020	5.3	0.1	76.7	12.6	38.5	10.6	36.5	4.1
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
Average	5.2		41.4		23.1		30.9	

[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).

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 2011 is listed in previous year reports.

wfdwrky.dxx, wfdwragk.dxx, wfdpsdky.dxx

Table 10. Age frequency and CPUE (fish/hr) of largemouth bass collected during diurnal electrofishing at Kentucky Lake in October 2021. 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	14	88	76	66	31	10	11												296	75.1	37.6	5.7
1							1	20	13	3	1								38	9.6	4.5	0.9
2							1	3	1	2	5	4	4		1				21	5.3	2.4	0.4
3										1	1	3	3	3	1				12	3.0	1.3	0.3
4											1	1	7	5	2	4			20	5.1	2.2	0.6
5														2	1				3	0.8	0.3	0.1
6																			0	0.0	0.0	0.0
7																	1		1	0.3	0.1	0.1
8															1			1	2	0.5	0.2	0.1
9																1			1	0.3	0.2	0.1
Total	14	88	76	66	31	10	13	23	14	6	8	8	14	10	6	5	1	1	394	100		
%	4	22	19	17	8	3	3	6	4	2	2	2	4	3	2	1	0	0	100			

wfdwrk.d21 and wfdwragk.d20

Table 11. Lake conditions and spawning activity rating for each survey site during snorkel surveys in Sugar Bay, 2021. 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.

Conditions			March 24	March 30	April 7	April 15	April 20	April 28	May 5	May 12	May 19	May 25	June 2	June 9
Air temp (F)			57	70	70	50	55	70	55	55	65	75	66	75
Water temp (F)			58.0	61.7	63.3	62.5	64.0	65.6	67.5	65.1	68.4	78.5	72.1	75.6
Secchi (in)			53	52	30	35	37	40	38	29	40	51	51	60
Elevation (ft)			355.9	357.3	358.5	356.7	357.5	358.5	359.3	358.9	359.0	359.1	359.2	359.6
Weather			p. cloudy, light breeze	p. cloudy, breezy 15mph	sunny, breezy 15mph	sunny, cool	sunny, coldfront coming tonight	overcast, storms moving in	p. cloudy, breezy	sunny, breezy	overcast	p. cloudy, low wind	overcast, showers	mostly cloudy
Site ID	Laydown	Spawning Bed	March 24	March 30	April 7	April 15	April 20	April 28	May 5	May 12	May 19	May 25	June 2	June 9
K3-PSB-1	WFD	Plastic	0	0	c	c	c	0	0	0	LMB 4	LMB 3	0	SF 3
K3-PSB-2	WFD	Plastic	0	0	0	LMB 5	LMB 3	SMB 5	0	0	SF 5	SF 3	c	SF 2
K3-PSB-2.9	WFD		0	0	c	0	0	0	0	c	c	c	c	SF 3
K3-PSB-3	WFD	Plastic	0	0	0	0	0	0	SF 2	c	c	SF 3	c	SF 4
K3-PSB-4	WFD	Plastic	0	0	0	0	0	0	c	0	SF 1	SF 3	0	SF 2
K3-PSB-4.9	WFD		0	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	0
K3-PSB-6	WFD	Plastic	0	0	0	0	0	c	SF 4	c	SF 3	c	SF 1	SF 5
K3-PSB-6.9	WFD		0	0	0	c	0	0	0	0	0	0	0	0
K3-PSB-7	WFD	Plastic	0	0	0	0	0	0	c	c	SF 5	SF 5	SF 4	SF 3
K3-PSB-8		Plastic	0	0	0	0	c	0	SF 5	c	SF 3	SF 3	0	SF 3
K3-PSB-8.8	WFD		0	0	0	0	c	LMB 4	LMB 5	LMB 3	0	0	0	c
K3-PSB-8.9	WFD	Plastic	0	0	c	c	LMB 4	c	c	c	c	c	c	c
K3-PSB-9	WFD	Plastic	0	0	c	SMB 1	SMB 3	SMB 2	0	0	0	SF 4	c	SF 4
K3-PSB-10	WFD	Plastic	0	0	c	0	c	c	c	c	SF 4	SF 3	c	SF 3
K3-PSB-10.9	WFD			0	0	0	0	c	0	c	SF 4	SF 3	0	SF 3
K3-PSB-11	WFD	Plastic	0	0	LMB 3	LMB 4	c	c	c	c	SF 2	SF 3	SF 3	SF 5
K3-PSB-12	WFD		0	0	0	0	0	LMB 4	c	c	c	0	c	0
K3-PSB-12.9	WFD		0	0	0	0	0	0	0	0	0	0	0	0
K3-PSB-13	WFD	Plastic	0	0	c	0	0	SMB 3	0	0	SF 4	SF 4	SF 4	SF 4
K3-PSB-14	WFD	Plastic	0	0	c	SMB 3	0	c	0	c	0	SF 3	c	SF 3
K3-PSB-14.8	WFD			0	0		0	0	0	0	0	0	0	0
K3-PSB-15	WFD	Plastic		0	LMB 4		0	0	c	SF 4	c	0	c	0
K3-PSB-16		Plastic		0	LMB 4		0	0	c	SF 3	SF 5	c	c	SF 4
K3-PSB-16.8	Natural			0	0		0	0	0	0	0	0	0	0
K3-PSB-16.9	WFD		0	0	c	LMB 3	0	0	0	0	0	0	0	0
K3-PSB-17	WFD	Plastic	0	0	0	0	LMB 5	c	SF 4	0	SF 3	SF 5	SF 3	SF 3
K3-PSB-18	Natural	Plastic	0	0	0	0	0	0	0	0	SF 2	SF 4	c	SF 4
K3-PSB-19	WFD	Plastic	0	0	0	0	0	c	c	c	SF 3	SF 5	c	SF 3
K3-PSB-20	WFD	Plastic	0	0	LMB 4	LMB 3	LMB 5	0	c	SF 2	0	0	SF 1	SF 2
K3-PSB-21	WFD	Plastic	0	0	LMB 4	0	0	0	c	c	c	0	c	0
K3-PSB-22		Plastic	0	0	c	0	0	c	c	0	SF 4	0	SF 3	0
K3-PSB-23	WFD	Plastic	0	0	LMB 5	LMB 5	c	c	SF 5	c	SF 3	SF 4	c	SF 3
K3-PSB-25		Plastic	0	0	LMB 5	c	c	c	c	c	SF 5	SF 3	c	0
K3-PSB-26		Plastic	0	0	0	0	0	c	SF 3	SF 2	c	SF 3	c	SF 5
K3-PSB-27		Plastic	0	0	LMB 5	LMB 5	0	c	c	c	SF 2	SF 4	SF 4	0
K3-PSB-28		Plastic	0	0	0	0	c	c	SF 1	0	SF 2	SF 3	c	0
K3-PSB-29		Plastic	0	0	c	0	c	c	c	SF 1	SF 3	SF 2	0	SF 3
K3-PSB-30		Plastic	0	0	c	c	c	c	SF 4	0	SF 3	SF 5	c	0
K3-PSB-31		Plastic		0	LMB 4	0	0	0	c	c	SF 5	SF 3	c	0
K3-PSB-33		Plastic	0	0	0	0	0	0	c	c	SF 5	c	c	0
K3-PSB-33.9		Plastic	0	0	0	0	0	LMB 4	LMB 3	0	SF 4	SF 2	SF 2	0
K3-PSB-34		Plastic	0	0	0	0	0	c	c	0	SF 2	SF 4	c	SF 3
K3-PSB-35		Plastic		0	0	0	0	0	SF 1	SF 3	c	0	0	0
K3-PSB-36		Plastic		0	BASS 4		0	0	0	0	SF 3	SF 4	SF 5	SF 4
K3-PSB-37		Plastic	0	0	0	0	0	0	c	SF 3	SF 3	SF 5	0	0
K3-PSB-38		Plastic		0	LMB 4		0	c	c	c	SF 2	c	0	SF 4
K3-CSB-33.9	WFD		0	0	0	0	c	0	0	0	0	0	0	0
K3-CSB-34		Concrete	0	0	0	0	0	c	SF 4	c	SF 4	SF 4	c	SF 4
K3-CSB-34.9	WFD		c	c	LMB 4	0	c	LMB 3	c	c	SF 3	SF 4	c	c
K3-CSB-35		Concrete	0	0	c	LMB 3	c	0	0	0	SF 5	SF 4	0	0
K3-CSB-35.9	WFD		0	0	0	c	c	0	0	0	c	0	0	0
K3-CSB-36		Concrete	0	0	0	c	c	SMB 3	SMB 4	0	0	0	0	c
K3-CSB-36.9	WFD		0	0	LMB 3	c	c	c	0	0	0	0	0	0
K3-CSB-37		Concrete	0	0	0	0	0	0	0	0	0	0	0	SF 4
K3-CSB-38		Concrete	0	0	0	c	c	c	c	c	SF 5	SF 2	c	c
K3-CSB-39		Concrete	0	0	0	c	c	0	0	c	SF 3	SF 3	c	SF 5
K3-CSB-40		Concrete	0	0	0	0	0	c	c	c	SF 4	SF 5	0	c
K3-CSB-41		Concrete	0	0	c	0	0	0	c	0	SF 5	SF 3	SF 2	c
K3-CSB-42		Concrete	0	0	0	SMB 1	SMB 3	SMB 4	0	c	SF 5	SF 5	SF 5	c
K3-CSB-43		Concrete	0	0	c	c	c	c	SF 4	c	c	SF 2	c	c
K3-CSB-44		Concrete	0	0	0	0	0	SMB 2	c	c	c	SF 3	0	0
K3-CSB-45		Concrete	0	0	0	c	c	0	c	c	SF 1	SF 1	c	0
K3-CSB-46		Concrete	0	0	0	SMB 4	SMB 3	SMB 4	0	0	0	0	c	SF 4
K3-CSB-47		Concrete	0	0	0	0	c	0	c	0	SF 4	SF 4	SF 4	SF 4
K3-CSB-48		Concrete	0	0	0	SMB 4	SMB 3	SMB 4	0	0	SF 2	SF 3	0	SF 3
K3-CSB-49		Concrete	0	0	c	0	LMB 4	c	SF 4	0	SF 4	SF 4	SF 4	SF 5
K3-CSB-50		Concrete	0	0	0	SMB 4	c	SMB 4	SMB 5	0	0	0	c	SF 5

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

Table 12. Number of survey sites located and the percentage of each spawning activity rating among sites that were located during snorkel surveys in spring of 2021.

	March 24	March 30	April 7	April 15	April 20	April 28	May 5	May 12	May 19	May 25	June 2	June 9
# sites located	59	68	68	62	68	68	68	68	68	68	68	68
cleaned off (%)	1.7	1.5	22.1	19.4	32.4	35.3	39.7	41.2	16.2	8.8	42.7	13.2
1 (%)	0.0	0.0	0.0	3.2	0.0	0.0	2.9	1.5	2.9	1.5	2.9	0.0
2 (%)	0.0	0.0	0.0	0.0	0.0	2.9	1.5	2.9	10.3	5.9	2.9	4.4
3 (%)	0.0	0.0	2.9	6.5	7.4	4.4	2.9	5.9	16.2	25.0	4.4	19.1
4 (%)	0.0	0.0	11.8	6.5	2.9	10.3	10.3	1.5	14.7	17.7	7.4	16.2
5 (%)	0.0	0.0	4.4	4.8	2.9	1.5	5.9	0.0	14.7	10.3	2.9	8.8
Total (%)	1.7	1.5	41.2	40.3	45.6	54.4	63.2	52.9	75.0	69.1	63.2	61.8

Table 13. Number of artificial spawning beds located and the percentage of each spawning activity rating among beds that were located during snorkel surveys in 2021.

	March 24	March 30	April 7	April 15	April 20	April 28	May 5	May 12	May 19	May 25	June 2	June 9
# beds located	47	53	53	49	53	53	53	53	53	53	53	53
cleaned off (%)	0.0	0.0	24.5	18.4	32.1	41.5	47.2	45.3	15.1	9.4	49.1	13.2
1 (%)	0.0	0.0	0.0	4.1	0.0	0.0	3.8	1.9	3.8	1.9	3.8	0.0
2 (%)	0.0	0.0	0.0	0.0	0.0	3.8	1.9	3.8	13.2	7.6	3.8	5.7
3 (%)	0.0	0.0	1.9	6.1	9.4	3.8	3.8	5.7	18.9	30.2	5.7	20.8
4 (%)	0.0	0.0	13.2	8.2	3.8	9.4	13.2	1.9	17.0	20.8	9.4	20.8
5 (%)	0.0	0.0	5.7	6.1	3.8	1.9	5.7	0.0	18.9	13.2	3.8	11.3
Total (%)	0.0	0.0	45.3	42.9	49.1	60.4	75.5	58.5	86.8	83.0	75.5	71.7

Table 14. Percentage of different habitat types that held black bass eggs or fry during at least one snorkel survey in 2020-2021.

	2020	2021
overall	50.8%	47.1%
sites with a bed	54.7%	50.9%
beds with a laydown	66.7%	63.2%
sites with only a laydown	38.5%	33.3%
sites with only a bed	46.9%	44.1%
plastic beds	58.3%	52.8%
concrete beds	47.1%	47.1%

Table 15. Estimated hatch dates of largemouth bass in Sugar Bay and Blood River at Kentucky Lake, derived using daily ring counts of juveniles in 2021. "# 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
2-Apr		1			358.97	267041	58.35
3-Apr					359.17	273364	59.14
4-Apr		1		1	359.07	272426	60.08
5-Apr	1	2			358.74	266335	61.23
6-Apr		1			358.55	251543	62.28
7-Apr	1	2	1		358.35	235986	62.80
8-Apr	2	2			358.26	218545	62.71
9-Apr	1	2		1	358.07	200930	63.05
10-Apr	2	3		1	357.71	202244	62.71
11-Apr	2	2		3	357.55	181619	62.67
12-Apr	2	1	1	2	357.53	150511	63.41
13-Apr	3	4	1	3	357.20	132573	63.19
14-Apr	2	8	3		356.88	117939	63.27
15-Apr	1	7	2	3	356.90	84954	63.14
16-Apr	4	3	3		357.15	64707	62.71
17-Apr	8	3		2	357.16	64724	62.78
18-Apr	7	6	3	1	357.15	58149	63.23
19-Apr	3	8		3	357.48	44180	62.24
20-Apr	3	7	2	3	357.25	39633	62.49
21-Apr	6	6	1	2	357.82	35394	62.13
22-Apr	8	2	3	2	357.86	35797	61.72
23-Apr	7	3	3	5	357.95	29689	61.75
24-Apr	6	5	2	6	358.01	31120	62.29
25-Apr	2	6	2	5	358.25	28029	63.07
26-Apr	3	2	5	7	358.35	25574	63.93
27-Apr	5	5	6	4	358.43	30543	64.60
28-Apr	6	2	5	8	358.58	30445	65.89
29-Apr	2		7	7	358.93	25942	65.79
30-Apr	5	1	4	6	359.08	27255	66.33
1-May	2	1	8	4	358.95	34933	66.33
2-May			7	3	358.94	54404	67.59
3-May	1		6	1	359.15	49043	67.69
4-May	1		4	5	359.22	69628	67.82
5-May			3	4	359.44	98282	67.91
6-May			1	2	359.50	110187	67.84
7-May			5		359.68	109286	67.17
8-May		1	4		359.48	108326	66.65
9-May		1	2		358.64	108510	66.31
10-May		1			358.84	88897	66.13
11-May	1				358.96	58505	66.27
12-May	1				359.04	60047	66.52
13-May	1				359.22	55651	66.49

Table 16. Estimated hatch dates of smallmouth bass in Sugar Bay and Blood River at Kentucky Lake, derived using daily ring counts of juveniles in 2021. "# 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**				
	#hatch	#spawned	#hatch	#spawned	**Environmental variables**		
					Elevation	Discharge (cfs)	Temp. F
10-Apr		1			357.71	202244	62.71
11-Apr		1			357.55	181619	62.67
12-Apr					357.53	150511	63.41
13-Apr	1	2			357.20	132573	63.19
14-Apr	1	1			356.88	117939	63.27
15-Apr		4			356.90	84954	63.14
16-Apr	2	5			357.15	64707	62.71
17-Apr	1	4			357.16	64724	62.78
18-Apr	4	4			357.15	58149	63.23
19-Apr	5	8		1	357.48	44180	62.24
20-Apr	4	8		2	357.25	39633	62.49
21-Apr	4	4			357.82	35394	62.13
22-Apr	8	6	1	2	357.86	35797	61.72
23-Apr	8	9	2	2	357.95	29689	61.75
24-Apr	4	10			358.01	31120	62.29
25-Apr	6	5	2	1	358.25	28029	63.07
26-Apr	9	9	2	1	358.35	25574	63.93
27-Apr	10	4		1	358.43	30543	64.60
28-Apr	5	4	1	1	358.58	30445	65.89
29-Apr	9	2	1		358.93	25942	65.79
30-Apr	4	2	1		359.08	27255	66.33
1-May	4		1		358.95	34933	65.79
2-May	2			1	358.94	54404	66.33
3-May	2	2		3	359.15	49043	66.33
4-May		1		1	359.22	69628	67.59
5-May			1	2	359.44	98282	67.69
6-May	2		3	2	359.50	110187	67.82
7-May	1	2	1	3	359.68	109286	67.91
8-May		1	2	3	359.48	108326	67.84
9-May			2	6	358.64	108510	67.17
10-May	2		3	3	358.84	88897	66.65
11-May	1		3	5	358.96	58505	66.31
12-May			6	2	359.04	60047	66.13
13-May			3	1	359.22	55651	66.27
14-May			5	2	359.20	58769	66.52
15-May			2		359.05	58455	66.49
16-May			1	2	358.97	29354	67.19
17-May			2		359.00	22555	67.21
18-May				1	358.97	24289	67.41
19-May			2		358.94	23973	68.14
20-May					359.02	24761	69.01
21-May			1		359.03	24912	70.20

Table 17. 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 2021. 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	15	Total	CPUE	Std err
Blood River	White crappie	185	200	1	3	8	3	5	5	8	2	1			421	10.5	3.3
	Black crappie	45	10	1		7	29	40	24	10	3	4	1		174	4.4	0.7
Jonathan Cr.	White crappie	6	14	3	21	44	17	25	10	10	15	2	5		172	4.3	0.6
	Black crappie	15	8		11	5	17	23	10	12	5	6	2		114	2.9	0.5
Sub-Total	**White crappie**	**191**	**214**	**4**	**24**	**52**	**20**	**30**	**15**	**18**	**17**	**3**	**5**		**593**	**7.4**	**1.7**
	Black crappie	**60**	**18**	**1**	**11**	**12**	**46**	**63**	**34**	**22**	**8**	**10**	**3**		**288**	**3.6**	**0.4**
Sledd Creek	White crappie	2	9	7	2	1		2	2	4		1		1	31	0.8	0.2
	Black crappie	33	24	2			3	23	13	4	9	1			112	2.8	0.3
TOTAL	**White crappie**	**193**	**223**	**11**	**26**	**53**	**20**	**32**	**17**	**22**	**17**	**4**	**5**	**1**	**624**	**5.2**	**1.1**
	Black crappie	**93**	**42**	**3**	**11**	**12**	**49**	**86**	**47**	**26**	**17**	**11**	**3**		**400**	**3.3**	**0.3**

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Table 18. 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
2021	2.3	2.6	4.9	5.1	1	6.1	9.6	9.5	8.4	8.4	9	8.8	1.1	1.8	2.9	1.2	0.3	1.50	0.5	0.5	1.1
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
Average	3.5	7.5	11.0	1.9	1.6	3.5	10.0	9.9	8.9	8.8	9.4	9.1	2.2	4.4	6.7	1.8	2.5	4.3	1.1	1.4	2.5
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 2011 is listed in previous annual reports.

KLFMP - Kentucky Lake Fish Management Plan objective goal.

Kentucky Lake Crappie Database

Table 19. Lake specific assessment for crappie collected at Kentucky Lake (Blood River and Jonathan Creek) from 2012-2021. 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
2021	4.9	1.5	6.1	2.9	9.4	8.8			0.701	50.4
Score	1	1	4	1	1		9	F		
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		
Average	11.0	4.3	3.5	6.7	9.4	9.1			0.8	54.5

*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 20. 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 Sledd Creek) during October and November 2021. 95% confidence intervals are shown in parentheses.

Location	Species	N	PSD	RSD_{10}
Blood River	White crappie	35	60 (+/- 16)	31 (+/- 15)
	Black crappie	118	69 (+/-8)	15 (+/- 7)
Jonathan Creek	White crappie	149	45 (+/- 9)	21 (+/- 7)
	Black crappie	91	64 (+/- 11)	27 (+/- 9)
Sub Total	**White crappie**	**184**	**48 (+/- 8)**	**23 (+/- 6)**
	Black crappie	**209**	**67 (+/- 6)**	**21 (+/- 6)**
Sledd Creek	White crappie	13	77 (+/- 13)	46 (+/- 30)
	Black crappie	53	94 (+/- 6)	26 (+/- 12)
Total	**White crappie**	**197**	**50 (+/- 7)**	**25 (+/- 7)**
	Black crappie	**262**	**73 (+/- 6)**	**22 (+/- 5)**

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Table 21. 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 2021.

		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	14	85	2	10	83	3	11	94	2
	Jonathan Creek	81	82	1	35	80	1	32	89	2
	Sledd Creek	3	82	17	4	84	1	6	97	6
	Total	98	82	1	49	81	1	49	91	1

		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	36	86	1	63	87	1	18	86	1
	Jonathan Creek	33	84	2	32	84	1	25	84	1
	Sledd Creek	3	89	2	36	94	1	14	93	2
	Total	72	85	1	131	88	1	57	87	1

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Table 22. 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 Sledd Creek) in fall 2021.

		Age						
Year class	N	1	2	3	4	5	6	7
2020	50	4.1						
2019	57	3.9	7.4					
2018	6	3.8	6.7	9.9				
2015	4	4.6	7.3	6.3	10.1	11.2	12.0	
2014	7	3.9	6.2	8.2	9.2	10.2	11.2	12.1
Mean	124	4.0	7.2	8.3	9.5	10.5	11.5	12.1
Smallest		2.5	4.3	6.6	7.4	8.3	9.2	11.0
Largest		8.1	10.1	11.2	12.6	13.7	14.5	13.4
Std err		0.1	0.1	0.5	0.4	0.4	0.5	0.4
Low 95% CI		3.9	6.9	7.3	8.7	9.7	10.6	11.3
High 95% CI		4.1	7.5	9.4	10.3	11.4	12.3	12.8

* Intercept = 0.

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Table 23. 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 Sledd Creek) in fall 2021.

		Age						
Year class	N	1	2	3	4	5	6	7
2020	8	5.4						
2019	36	4.0	7.7					
2018	4	4.0	6.8	10.2				
2015	2	4.5	6.3	7.7	8.7	9.7	10.7	
2014	3	4.5	6.8	8.7	9.7	10.6	11.6	12.4
Mean	53	4.3	7.5	9.2	9.3	10.2	11.2	12.4
Smallest		3.4	5.6	6.6	7.4	8.3	9.2	11.0
Largest		8.1	10.1	11.2	10.2	11.3	12.6	13.4
Std err		0.1	0.2	0.4	0.6	0.6	0.7	0.7
Low 95% CI		4.1	7.2	8.3	8.2	9.1	9.9	11.0
High 95% CI		4.5	7.8	10.0	10.4	11.4	12.6	13.8

* Intercept = 0.

wfdtnagk.d21

Table 24. 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 Sledd Creek) in fall 2021.

		Age						
Year class	N	1	2	3	4	5	6	7
2020	11	4.6						
2019	16	3.8	6.8					
2018	2	3.4	6.3	9.2				
2015	2	4.7	8.4	9.9	11.4	12.6	13.2	
2014	4	3.6	5.8	7.8	8.8	9.9	10.9	11.8
Mean	35	4.1	6.7	8.7	9.7	10.8	11.7	11.8
Smallest		2.5	4.3	6.7	8.6	9.5	10.3	11.0
Largest		6.1	9.6	11.1	12.6	13.7	14.5	12.9
Std err		0.1	0.3	0.5	0.6	0.7	0.6	0.4
Low 95% CI		3.8	6.2	7.7	8.4	9.5	10.4	11.0
High 95% CI		4.3	7.2	9.6	10.9	12.1	12.9	12.6

* Intercept = 0.

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Table 25. 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 Sledd Creek) in fall 2021.

		Age							
Year class	N	1	2	3	4	5	6	7	8
2020	38	4.2							
2019	74	3.9	7.1						
2018	18	3.8	6.4	9.0					
2017	5	3.7	6.1	8.6	10.3				
2016	2	4.4	7.4	8.6	9.8	11.2			
2015	8	4.8	7.3	8.7	9.1	10.2	11.2		
2014	7	4.1	6.6	8.3	9.2	9.8	10.4	11.1	
2013	2	4.0	6.5	7.7	8.8	9.4	10.0	10.7	11.2
Mean	154	4.0	7.0	8.7	9.4	10.0	10.7	11.0	11.2
Smallest		2.9	5.2	6.7	7.2	7.8	8.2	8.9	10.2
Largest		7.0	10.5	10.3	11.8	11.8	12.8	12.8	12.3
Std err		0.1	0.1	0.1	0.2	0.2	0.3	0.5	1.1
Low 95% CI		3.9	6.8	8.5	8.9	9.6	10.2	10.1	9.2
High 95% CI		4.1	7.2	9.0	9.9	10.5	11.3	11.9	13.3

* Intercept = 0.

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Table 26. 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 Sledd Creek) in fall 2021.

		Age							
Year class	N	1	2	3	4	5	6	7	8
2020	13	4.4							
2019	34	3.7	7.0						
2018	10	3.6	6.1	8.9					
2017	2	3.6	6.1	8.5	10.2				
2016	2	4.4	7.4	8.6	9.8	11.2			
2015	3	5.1	7.6	9.4	10.1	11.1	12.1		
2014	3	4.1	6.7	8.1	8.7	9.3	9.8	10.4	
2013	2	4.0	6.5	7.7	8.8	9.4	10.0	10.7	11.2
Mean	69	3.9	6.8	8.7	9.5	10.2	10.7	10.5	11.2
Smallest		3.0	5.3	6.7	7.2	7.8	8.2	8.9	10.2
Largest		7.0	10.3	10.0	11.3	11.8	12.8	12.6	12.3
Std err		0.1	0.1	0.2	0.4	0.4	0.6	0.7	1.1
Low 95% CI		3.8	6.5	8.3	8.8	9.4	9.6	9.2	9.2
High 95% CI		4.1	7.1	9.1	10.2	11.1	11.8	11.8	13.3

* Intercept = 0.

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Table 27. 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 Sledd Creek) in fall 2021.

		Age						
Year class	N	1	2	3	4	5	6	7
2020	13	4.9						
2019	33	4.1	7.6					
2018	8	3.9	6.7	9.1				
2017	2	3.7	6.3	9.1	10.6			
2015	5	4.6	7.1	8.3	8.6	9.6	10.6	
2014	4	4.1	6.5	8.5	9.5	10.1	10.8	11.7
Mean	65	4.2	7.3	8.8	9.3	9.8	10.7	11.7
Smallest		3.1	5.3	7.6	7.5	8.7	9.7	10.1
Largest		6.1	10.5	10.3	11.8	10.7	11.6	12.8
Std err		0.1	0.2	0.2	0.3	0.2	0.2	0.6
Low 95% CI		4.1	6.9	8.4	8.6	9.4	10.3	10.5
High 95% CI		4.4	7.6	9.2	10.0	10.2	11.2	12.8

* Intercept = 0.

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Table 28. 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 2021.

	Inch class															
Age	2	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std err
0	191	214	3	2									410	69	5.1	1.7
1			1	22	52	14	2	1	1				93	16	1.2	0.2
2						6	28	12	16	9	1		72	12	0.9	0.1
3								1	1	4	1		7	1	0.1	<0.1
6								1			1	1	3	1	<0.1	<0.1
7										4	1	4	9	2	0.1	<0.1
Total	191	214	4	24	52	20	30	15	18	17	4	5	594		7.4	
%	32	36	1	4	9	3	5	3	3	3	1	1				

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Table 29. 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 2021.

	Inch class															
Age	2	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	Std err
0	60	18											78	27	1.0	0.2
1			1	11	6	7		2					27	9	0.3	0.1
2					6	39	58	24	4		1		132	46	1.7	0.2
3							5	3	11	4			23	8	0.3	0.1
4								3	1		2		6	2	0.1	0.0
5										1	1		2	0.7	<0.1	<0.1
6									2	3	2	1	8	2.8	0.1	<0.1
7								2	2		2	2	8	2.8	0.1	<0.1
8									1		1		2	0.7	<0.1	<0.1
Total	60	18	1	11	12	46	63	34	21	8	9	3	286		3.6	
%	21	6	0	4	4	16	22	12	7	3	3	1				

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Table 30. Length frequency, density (fish/1000M³), median density, and geometric mean density (standard error given in parentheses) of each 0.5 mm class of crappie collected during nocturnal neustonic tow net sampling (60 tows) at 6 sample sites in the Jonathan Creek embayment of Kentucky Lake from 8 April-9 June 2021. 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
4/8/2021	JC002															0	0.0	0.0
	JC003															0		
	JC004															0		
	JC006															0		
	JC007															0		
	JC005															0		
4/14/2021	JC002															0	0.0	0.0
	JC003															0		
	JC004															0		
	JC006															0		
	JC007															0		
	JC005															0		
4/21/2021	JC002															0	0.0	1.24 (0.44)
	JC003															0		
	JC004					2.6										3		
	JC006															0		
	JC007															0		
	JC005															0		
4/29/2021	JC002															0	0.0	1.32 (0.71)
	JC003					4.3										4		
	JC004															0		
	JC006															0		
	JC007															0		
	JC005															0		
5/5/2021	JC002															0	7.4	5.94 (1.90)
	JC003									4.5						5		
	JC004										4.8					5		
	JC006										4.8	4.8				10		
	JC007							4.5		8.9						13		
	JC005									4		4				8		
5/12/2021	JC002					4.7			4.7							9	34.5	31.54 (6.56)
	JC003						4.8	4.8	4.8	9.5	4.8					29		
	JC004					8.7	4.4	13	17	8.7	4.4					57		
	JC006					4.5		8.9	8.9				4.5			27		
	JC007					4.5	4.5	14	4.5	9						36		
	JC005				14		9.1		9.1	4.6			4.6	4.6		46		
5/19/2021	JC002															0	35.5	18.10 (9.30)
	JC003					4.9	4.9									10		
	JC004							14	4.8	4.8	9.6	4.8				38		
	JC006					17	10	23	6.7	6.7						64		
	JC007					3.3	6.7	20		3.3		3.3	3.3			40		
	JC005						4.4	8.8		13			4.4			31		
5/26/2021	JC002															0	22.5	9.63 (8.20)
	JC003								10	16	5.2	16			5.2	52		
	JC004					5.3	11	5.3	5.3	5.3						32		
	JC006					9.3		9.3								19		
	JC007															0		
	JC005						7.5	7.5								15		
6/3/2021	JC002															0	172.2	84.81 (77.39)
	JC003						4.2			4.2	4.2	21	4.2	8.4	13	59		
	JC004								6.1	6.1	6.1	6.1	6.1	6.1	12	49		
	JC006					6.7		20	6.7	27		27	6.7	14		108		
	JC007					22	7.3	15		37	66	59	44	95	37	381		
	JC005									14	14	27	34		27	116		
6/9/2021	JC002											7.1				7	25.0	27.47 (10.54)
	JC003									7.8	3.9	7.8			7.8	27		
	JC004									10	15	20	5.1			51		
	JC006									6.7		27	27			60		
	JC007												6.9			7		
	JC005											4.5		4.5	4.5	14		

*includes all lengths of yoy crappie collected

Table 31. Geometric mean density (#/1000m³) for pelagic larval fish captured in neuston tow nets from 8 April-9 June 2021 (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	7.0-12.0mm	Total catch	Total catch		Total catch	Temp	Elevation
4/8/2021	0.00	0.00	0.00	0.00	0.00	62.7	358.2
4/14/2021	0.00	0.00	1.29 (0.60)	0.00	0.00	63.3	357.0
4/21/2021	1.24 (0.44)	1.24 (0.44)	11.57 (3.08)	0.00	0.00	62.1	357.2
4/29/2021	1.32 (0.71)	1.32 (0.71)	79.74 (18.31)	0.00	0.00	65.6	358.6
5/5/2021	5.94 (1.90)	5.94 (1.90)	114.97 (34.19)	0.00	2.84(4.84)	67.7	359.4
5/12/2021	29.03 (6.24)	31.54 (6.56)	543.58 (84.02)	0.00	1.84 (6.34)	66.1	358.9
5/19/2021	18.01 (9.30)	18.10 (9.30)	689.69 (284.07)	0.00	1.28 (0.56)	68.1	358.9
5/26/2021	9.63 (8.20)	9.63 (8.20)	729.71 (391.72)	12.07 (5.15)	2.81 (7.58)	75.0	359.2
6/3/2021	59.16 (60.69)	84.81 (77.39)	3054.72 (979.78)	224.98 (115.37)	4.69 (4.82)	72.1	359.7
6/9/2021	23.20 (8.98)	27.47 (10.54)	2659.09 (509.75)	63.65 (14.88)	11.20 (66.94)	75.3	359.7

Table 32. Peak geometric mean density (#/1000m³) and standard errors for pelagic larval crappie captured in neuston tow nets at Kentucky Lake from 2015-2021. Catch rates of age 0 crappie (fish/net-night) in fall trapnets and age 1 crappie from the following year from Kentucky Lake also reported.

	2015	2016	2017	2018	2019	2020	2021
Date	May 12	May 19	May 19	May 19	May 20	April 21	June 3
Peak density	70.5	3.9	32.0	27.7	150.2	15.1	84.8
Std Error	27.2	1.4	20.3	35.1	161.3	3.5	77.4
Catch age 0	4.3	0.9	1.1	3.1	9.0	1.7	6.1
Catch age 1	2.9	1.5	1.6	3.4	7.7	1.5	

Table 33. 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 2021. 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	# spaw ned / 1000m³	# hatch	# spaw ned	# hatch	# spaw ned	Elevation	Discharge (cfs)	Temp. F
11-Apr		1.24					357.55	181619	62.7
12-Apr							357.53	150511	63.4
13-Apr							357.20	132573	63.2
14-Apr	1.24						356.88	117939	63.3
15-Apr							356.90	84954	63.1
16-Apr							357.15	64707	62.7
17-Apr							357.16	64724	62.8
18-Apr							357.15	58149	63.2
19-Apr		1.32					357.48	44180	62.2
20-Apr							357.25	39633	62.5
21-Apr		1.75					357.82	35394	62.1
22-Apr	1.32	4.34					357.86	35797	61.7
23-Apr							357.95	29689	61.8
24-Apr	1.75	1.33					358.01	31120	62.3
25-Apr	4.34						358.25	28029	63.1
26-Apr							358.35	25574	63.9
27-Apr	1.33	1.33					358.43	30543	64.6
28-Apr		1.77					358.58	30445	65.9
29-Apr		5.99				2	358.93	25942	65.8
30-Apr	1.33	8.33					359.08	27255	66.3
1-May	1.77	8.22					358.95	34933	65.8
2-May	5.99	3.44		1	2		358.94	54404	66.3
3-May	8.33						359.15	49043	66.3
4-May	8.22			2			359.22	69628	67.6
5-May	3.44	3.40	1			1	359.44	98282	67.7
6-May		5.22		1		1	359.50	110187	67.8
7-May		1.88	2	1		2	359.68	109286	67.9
8-May	3.40	10.24		4	1	3	359.48	108326	67.8
9-May	5.22	2.77	1	3	1	3	358.64	108510	67.2
10-May	1.88	1.48	1	4	2	2	358.84	88897	66.7
11-May	10.24	1.35	4	5	3	4	358.96	58505	66.3
12-May	2.77	1.60	3	6	3		359.04	60047	66.1
13-May	1.48	3.52	4	6	2	8	359.22	55651	66.3
14-May	1.35	2.03	5	5	4	9	359.20	58769	66.5
15-May	1.60	5.01	6	4		7	359.05	58455	66.5
16-May	3.52	2.00	6	5	8	8	358.97	29354	67.2
17-May	2.03		5	8	9	6	359.00	22555	67.2
18-May	5.01	14.58	4	7	7	6	358.97	24289	67.4
19-May	2.00	14.30	5	9	8	7	358.94	23973	68.1
20-May		22.67	8	8	6	5	359.02	24761	69.0
21-May	14.58	14.83	7	10	6	5	359.03	24912	70.2
22-May	14.30	1.95	9	5	7	4	359.17	22113	71.8
23-May	22.67	4.51	8	1	5	5	359.24	17030	71.8
24-May	14.83	2.37	10	4	5	4	359.25	22852	73.0
25-May	1.95	3.24	5	1	4	4	359.18	25025	75.3
26-May	4.51	11.15	1		5		359.15	25350	75.0
27-May	2.37	5.09	4	1	4	1	359.24	25566	75.3
28-May	3.24		1		4	1	358.90	26719	75.3
29-May	11.15					1	359.24	25241	73.1
30-May	5.09		1		1		359.21	25817	72.5
31-May					1		359.14	25717	72.2
1-Jun					1		359.08	25942	72.6
2-Jun							359.53	28163	72.0
3-Jun							359.85	35650	72.1
4-Jun							360.11	51454	72.5
5-Jun							360.06	53737	73.9
6-Jun						1	360.00	54953	74.4
7-Jun							359.96	54731	74.2
8-Jun							359.74	63686	74.8
9-Jun					1		359.65	82191	75.3

Table 34. Estimated hatch dates of black and white crappie in Jonathan Creek and Blood River, derived using daily ring counts of juveniles in 2021. "# 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				
	White crappie #hatch	Black crappie #hatch	White crappie #hatch	Black crappie #hatch	Environmental variables		
					Elevation	Discharge (cfs)	Temp. F
2-May			2		358.94	54404	66.3
3-May					359.15	49043	66.3
4-May					359.22	69628	67.6
5-May	1				359.44	98282	67.7
6-May					359.50	110187	67.8
7-May	2				359.68	109286	67.9
8-May			1		359.48	108326	67.8
9-May	1		1		358.64	108510	67.2
10-May	1		2		358.84	88897	66.7
11-May	4		3		358.96	58505	66.3
12-May	3		3		359.04	60047	66.1
13-May	4		2		359.22	55651	66.3
14-May	5		4		359.20	58769	66.5
15-May	6				359.05	58455	66.5
16-May	6		8		358.97	29354	67.2
17-May	4	1	8	1	359.00	22555	67.2
18-May	4		7		358.97	24289	67.4
19-May	5		8		358.94	23973	68.1
20-May	8		6		359.02	24761	69.0
21-May	7		6		359.03	24912	70.2
22-May	9		7		359.17	22113	71.8
23-May	8		5		359.24	17030	71.8
24-May	10		5		359.25	22852	73.0
25-May	5		4		359.18	25025	75.3
26-May	1		5		359.15	25350	75.0
27-May	4		4		359.24	25566	75.3
28-May	1		4		358.90	26719	75.3
29-May					359.24	25241	73.1
30-May	1		1		359.21	25817	72.5
31-May			1		359.14	25717	72.2
1-Jun			1		359.08	25942	72.6
2-Jun					359.53	28163	72.0
3-Jun					359.85	35650	72.1
4-Jun					360.11	51454	72.5
5-Jun					360.06	53737	73.9
6-Jun					360.00	54953	74.4
7-Jun					359.96	54731	74.2
8-Jun					359.74	63686	74.8
9-Jun			1		359.65	82191	75.3

Table 35. Length frequency and CPUE (fish/hr) of channel, blue, and flathead catfish collected from Kentucky Lake in June and July 2021 using low pulse (15 PPS) electrofishing along the main river channel. A chase boat was used. A total of 5.0 hours of sampling consisting of 60- 300-second runs.

	Inch class																								
Species	5	8	9	10	11	12	13	14	15	16	17	18	19	20	21	23	24	25	29	30	31	34	36	Total	CPUE	Std err
Blue catfish		2	12	22	17	23	10	14	9	2	1	1	1	1	2	1			1	1	1		1	122	25.3	5.8
Channel catfish	1	1			1	1																		4	0.8	0.4
Flathead catfish			3	3	2	2	1	2	3		4	1	3	1	3	2	3	2				1		36	7.5	1.8

wfdcatk.d21

Table 36. Relative weight (Wr) of each length group of blue, channel, and flathead catfish collected from Kentucky Lake during June and July 2021. 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
	52	102	1	4	101	5	3	115	4	59	102	1

	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
	14	100	2	10	105	3	1	107		25	103	2

wfdcatk.d21

Table 37. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 9.0 hours (18- 30-minute runs) of diurnal electrofishing at Lake Barkley from 19 April to 6 May 2021.

		Inch class																					Std
Area	Species	2	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				3	1																4	4.0	4.0
	Spotted bass				1																	1	1.0	1.0
	Largemouth bass			12	25	15	4	5	1			1		1	3	3		2				72	72.0	2.0
Fords	Smallmouth bass			4	5	2					1	1				1						14	9.3	2.9
	Largemouth bass			14	37	27	5	5	2		2	1	1	1	1	3	1	1				101	67.3	6.4
Middle																								
Eddy Cr.	Smallmouth bass		1	2	2				1	2			1						1			10	4.0	0.9
	Spotted bass			1																		1	0.4	0.4
	Largemouth bass	2	8	5	18	25	10	16	5	9	3	10	8	26	20	14	4	10	6	1	1	201	80.4	8.9
Little River	Smallmouth bass					1					2					1	1					5	3.3	2.4
	Spotted bass								1				1									2	1.3	1.3
	Largemouth bass		2	3	2	1	4			2	3		2		5		3	3	3	1		34	22.7	3.7
Upper																								
Demumbers	Smallmouth bass		1																			1	2.0	0.0
	Largemouth bass		1	4	10	10	3	1		1	4	2	2								1	39	78.0	0.0
Nickell Cr.	Smallmouth bass		2		3	1				1			1						1			9	9.0	9.0
	Largemouth bass		3	8	10	6	6	6	6	3	2	6	6	17	6	3	1		2			91	91.0	21.0
Willow	Smallmouth bass		1		1																	2	2.0	2.0
	Largemouth bass	1	1	11	8	13	7	5	1		3	3	7	12	7	5						84	84.0	4.0
Total	Smallmouth bass		5	6	14	5			1	3	3	1	2			2	1		2			45	5.0	1.2
	Spotted bass			1	1				1				1									4	0.4	0.3
	Largemouth bass	3	15	57	110	97	39	38	15	15	17	23	26	57	42	28	9	16	11	2	2	622	69.1	6.1

w fdpsdb.d21

Table 38. Spring diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Lake Barkley during late April/early May since 2012. Mean length at capture of age-3 fish also provided.

					Length group											
	Mean length age-3 at	Mean length age-3 at	Age-1		<8.0 in		8.0-11.9 in		12.0 -14.9 in		≥15.0 in		≥20.0 in		Total	
Year	capture	capture***	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
2021			41.7	4.5	35.7	4.2	9.4	1.4	11.8	2.6	12.2	2.5	0.4	0.2	69.1	6.1
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
Average	13.1	13.4	16.8		14.0		10.6		17.3		19.7		1.2		61.7	

(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 39. PSD and RSD_{15} values calculated for largemouth bass collected during 9.0 hours (18- 30-minutes runs) of spring diurnal electrofishing at each area of Lake Barkley from 19 April to 6 May 2021. 95% confidence intervals are shown in parentheses.

Area	No. ≥8.0 in	PSD	RSD_{15}
Donaldson	16	63 (+/-25)	50 (+/-25)
Fords	18	50 (+/-24)	33 (+/-22)
Eddy Creek	133	75 (+/-7)	42 (+/-8)
Little River	22	77 (+/-18)	68 (+/-20)
Demumbers	11	45 (+/-31)	9 (+/-18)
Nickell	58	71 (+/-12)	21 (+/-11)
Willow	43	79 (+/-12)	28 (+/-14)
Total	301	72 (+/-5)	37 (+/-5)

wfdpsdb.d21

Table 40. Lake specific assessment for largemouth bass collected at Lake Barkley from 2012-2021. 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).

	Mean length age-3 at	Mean length age-3 at	CPUE	Length group 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
2021	12.9	13.1	41.7	11.8	12.2	0.4			0.415	34.0
Score	2		4	1	1	1	9	F		
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		
Average	13.1	13.4	16.8	17.3	19.7	1.2	8.6		0.388	31.9

Older data is listed in previous annual reports.

(Revised _Barkley_bass_Database.xlsx)

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

** used back calculated lengths from fall

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

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

Table 41. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 6.0 hours of diurnal electrofishing (12- 30-minute runs) for black bass in each area of Lake Barkley October 4, 6, and 9, 2021. 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		9	12	3	1	1	2	1	1	1						1				32	16.0	6.4
Spotted bass		4	4																	8	4.0	3.4
Largemouth bass		12	26	22	19	5		2	4	9	3	7	4	8		3		1		125	62.5	9.2
Little River																						
Smallmouth bass		18	33	20	3		1	1	1			1	2			1	1			82	41.0	7.9
Spotted bass																						
Largemouth bass	1	19	40	22	16	8	1			5	4		2	2	2	1	1		1	125	62.5	17.9
Sub-Total																						
Smallmouth bass		**27**	**45**	**23**	**4**	**1**	**3**	**2**	**2**	**1**		**1**	**2**			**2**	**1**			**114**	**28.5**	**6.7**
Spotted bass		**4**	**4**																	**8**	**2.0**	**1.7**
Largemouth bass	**1**	**31**	**66**	**44**	**35**	**13**	**1**	**2**	**4**	**14**	**7**	**7**	**6**	**10**	**2**	**4**	**1**	**1**	**1**	**250**	**62.5**	**9.3**
Taylor Bay/Jake Fork Bay																						
Smallmouth bass		3	11	12	1										1					28	14.0	2.2
Spotted bass																						
Largemouth bass	6	45	58	34	14	18	5	2	1	5	3	1	2	2						196	98.0	11.6
Total																						
Smallmouth bass		**30**	**56**	**35**	**5**	**1**	**3**	**2**	**2**	**1**		**1**	**2**		**1**	**2**	**1**			**142**	**23.7**	**4.8**
Spotted bass		**4**	**4**																	**8**	**1.3**	**1.2**
Largemouth bass	**7**	**76**	**124**	**78**	**49**	**31**	**6**	**4**	**5**	**19**	**10**	**8**	**8**	**12**	**2**	**4**	**1**	**1**	**1**	**446**	**74.3**	**8.6**

w fdw rb.d21, w fdw rb1.d21

Table 42. Number of fish and the relative weight (Wr) values for each length group of largemouth and smallmouth bass collected at Lake Barkley during 6.0 hours of diurnal electrofishing (12- 30-minute runs) in October 2021. 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	15	104	2	14	101	2	12	101	2	41	102	1
	Little River	6	100	4	6	106	2	7	99	2	19	102	2
	Sub-Total	**21**	**103**	**2**	**20**	**103**	**2**	**19**	**100**	**2**	**60**	**102**	**1**
	Taylor Bay/Jake Fork Bay	13	105	2	6	98	3	2	100	10	21	102	2
	Total	**34**	**104**	**1**	**26**	**102**	**2**	**21**	**100**	**2**	**81**	**102**	**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	5	84	5	1	97		1	79		7	85	4
	Little River	3	116	19	1	84		4	84	9	8	96	10
	Sub-Total	**8**	**96**	**9**	**2**	**90**	**6**	**5**	**83**	**7**	**15**	**91**	**5**
	Taylor Bay/Jake Fork Bay							1	80		1	80	
	Total	**8**	**96**	**9**	**2**	**90**	**6**	**6**	**83**	**6**	**16**	**90**	**5**

wfdwrb.d21, wfdwrb1.d21

Table 43. Age frequency and CPUE (fish/hr) of largemouth bass collected during diurnal electrofishing at Eddy Creek and Little River at Lake Barkley in October 2021.

	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	1	31	66	44	35	13	1													191	76	47.8	8.8
1								2	4	10	3									19	8	4.8	1.6
2											1	4	1							6	2	1.4	0.6
3										4	2	3	3	5	1					18	7	4.4	1.0
4											1	1	2	4	1	2				11	4	2.4	0.5
5														1		1		1		3	1	0.8	0.2
6																1				1	0	0.3	0.1
7																				0	0	0.1	<0.1
8													1							1	0	0.3	0.1
9																			1	1	0	0.2	0.2
11																		1	1	2	1	0.3	0.2
Total	1	31	66	44	35	13	1	2	4	14	7	8	7	10	2	4	0	2	2	253		62.5	9.3
%	0	12	26	18	14	5	0	1	2	6	3	3	3	4	1	2	0	1	1	100			

wfdwrb1.d21, wfdagwrb.d19

Table 44. 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.

	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
2021	5.1	0.1	47.5	8.6	23.0	3.3		
2020	4.8	0.1	99.3	15.4	42.3	9.9	41.7	4.5
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
Average	5.3		42.9		20.6		17.2	

[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

wfdwrb.dxx, wfdwrb1.dxx, wfdpsdb.dxx

Table 45. 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.

	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
2021	4.5	0.1	24.5	6.5	6.5	2.6		
2020	4.5	0.1	42.5	20.7	13.8	5.8	3.3	1.0
2019	4.1	0.1	18.9	3.6	2.4	0.7	0.5*	0.3*
Average	4.4		28.6		7.6		1.9	

[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 46. Length frequency and CPUE (fish/nn) of each inch class of white and black crappie collected by trap nets (120 net-nights) at Lake Barkley from 19 October-5 November 2021. Sub-Total is shown for comparisons with historical data which included only Little River and Donaldson Creek.

		Inch class															
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	15	Total	CPUE	Std err
Little River	White crappie	152	463	129	12	29	32	16	38	11	6	2	1	1	892	22.2	3.3
	Black crappie	12	23	7	1		3								46	1.2	0.3
Donaldson Creek	White crappie	170	175	35	14	34	23	32	26	24	5	5			543	13.6	1.7
	Black crappie	65	44	8	3	2	10	11	8	3	3	2			159	4	0.9
Sub-Total	**White crappie**	**322**	**638**	**164**	**26**	**63**	**55**	**48**	**64**	**35**	**11**	**7**	**1**	**1**	**1,435**	**17.9**	**1.9**
	Black crappie	**77**	**67**	**15**	**4**	**2**	**13**	**11**	**8**	**3**	**3**	**2**			**205**	**2.6**	**0.5**
Crooked Creek	White crappie	275	266	18	2	23	17	16	30	19	11	5			682	17.1	2.6
	Black crappie	29	17	6		6	5	10	13	4					90	2.3	0.5
TOTAL	**White crappie**	**597**	**904**	**182**	**28**	**86**	**72**	**64**	**94**	**54**	**22**	**12**	**1**		**2,116**	**17.6**	**1.5**
	Black crappie	**106**	**84**	**21**	**4**	**8**	**18**	**21**	**21**	**7**	**3**	**2**			**295**	**2.5**	**0.4**

wfdtpntb.d21, wfdtpnb1.d21

Table 47. Number of fish and the relative weight (Wr) values for each length group of black and white crappie collected by trap nets (120 net-nights) at Lake Barkley from 19 October-5 November 2021.

		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	11	88	2	23	93	1	4	94	4	38	92	1
	Little River	4	80	1							4	80	1
	Donaldson Bay	15	97	2	19	98	2	8	101	3	42	98	1
	Total	**30**	**91**	**2**	**42**	**96**	**1**	**12**	**98**	**3**	**84**	**94**	**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	39	87	1	46	98	1	35	100	1	120	95	1
	Little River	73	82	1	54	99	1	21	100	2	148	90	1
	Donaldson Bay	70	87	1	58	100	1	34	101	1	162	95	1
	Total	**182**	**85**	**1**	**158**	**99**	**1**	**90**	**100**	**1**	**430**	**93**	**<1**

wfdtpntb.d21

Table 48. Crappie population parameters used to manage the population at Lake Barkley for 2012-2021, 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
2021	3.8	0.5	4.3	0.5	0.2	0.7	11.1	9.6	10.5	10.5	2.1	0.3	2.4	3.2	0.3	3.5	0.7	0.1	0.8
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
Average	3.8	1.6	5.5	0.8	0.5	1.3	11.1	10.0	10.7	10.6	2.1	0.9	3.0	2.8	1.0	3.8	1.1	0.4	1.4

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

Data is available from 1985 in previous annual reports.

Revised_Barkley_Crappie_Database

Table 49. Proportional stock density (PSD) and relative stock density (RSD_{10}) of white and black crappie collected by trap nets (120 net-nights) at Lake Barkley from 19 October-5 November 2021. 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	148	51 (+/-8)	14 (+/-6)
	Black crappie	4		
Donaldson	White crappie	163	56 (+/-8)	21 (+/-6)
	Black crappie	42	64 (+/-15)	19 (+/-12)
Sub-Total	**White crappie**	**311**	**54 (+/-6)**	**18 (+/-4)**
	Black crappie	**46**	**59 (+/-14)**	**17 (+/-11)**
Crooked Creek	White crappie	123	66 (+/-8)	28 (+/-8)
	Black crappie	38	71 (+/-15)	11 (+/-10)
Total	**White crappie**	**434**	**57 (+/-5)**	**21 (+/-4)**
	Black crappie	**84**	**64 (+/-10)**	**14 (+/-8)**

wfdtpntb.d21, wfdtpnb1.d21

Table 50. 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, and Crooked Creek) from 19 October-5 November 2021.

		Age						
Year class	N	1	2	3	4	5	6	7
2020	160	4.2						
2019	48	4.2	8.4					
2018	6	4.2	8.2	11.2				
2015	1	5.6	9.3	11.4	12.8	13.7	14.4	
2014	1	4.1	8.1	9.6	10.7	11.8	12.8	13.5
Mean	216	4.2	8.4	11.0	11.8	12.8	13.6	13.5
Smallest		2.7	4.2	9.6	10.7	11.8	12.8	13.5
Largest		7.3	10.6	11.8	12.8	13.7	14.4	13.5
Std err		0.1	0.2	0.2	1.0	0.9	0.8	
Low 95% CI		4.1	8.1	10.6	9.7	11.0	12	
High 95% CI		4.3	8.7	11.4	13.8	14.6	15.2	

*Intercept = 0

wfdtnagb.d21

Table 51. 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, and Crooked Creek) from 19 October-5 November 2021.

		Age		
Year class	N	1	2	3
2020	37	4.7		
2019	35	4.1	7.4	
2018	2	4.6	8.0	10.4
Mean	74	4.4	7.4	10.4
Smallest		2.9	5.7	9.5
Largest		6.2	10.8	11.4
Std err		0.1	0.2	0.9
Low 95% CI		4.2	7.0	8.7
High 95% CI		4.5	7.7	12.2

*Intercept = 0
wfdtnagb.d21

Table 52. 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, and Crooked Creek) from 19 October-5 November 2021.

		Age		
Year class	N	1	2	3
2020	50	4.7		
2019	31	4.2	8.4	
2018	3	4.2	7.6	11.0
Mean	84	4.5	8.4	11.0
Smallest		2.8	4.2	10.7
Largest		6.5	10.6	11.1
Std err		0.1	0.2	0.1
Low 95% CI		4.3	7.9	10.7
High 95% CI		4.7	8.8	11.2

*Intercept = 0
wfdtnagb.d21

Table 53. 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, and Crooked Creek) from 19 October-5 November 2021.

		Age						
Year class	N	1	2	3	4	5	6	7
2020	52	4.4						
2019	17	4.1	8.4					
2018	3	4.2	8.7	11.3				
2015	1	5.6	9.3	11.4	12.8	13.7	14.4	
2014	1	4.1	8.1	9.6	10.7	11.8	12.8	13.5
Mean	74	4.3	8.4	11.0	11.8	12.8	13.6	13.5
Smallest		3.3	7.0	9.6	10.7	11.8	12.8	13.5
Largest		7.3	9.9	11.8	12.8	13.7	14.4	13.5
Std err		0.1	0.2	0.4	1.0	0.9	0.8	
Low 95% CI		4.2	8.0	10.3	9.7	11.0	12.0	
High 95% CI		4.5	8.8	11.7	13.8	14.6	15.2	

*Intercept = 0
wfdtnagb.d21

Table 54. 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, and Crooked Creek) from 19 October-5 November 2021.

		Age		
Year class	N	1	2	3
2020	14	4.9		
2019	17	4.2	7.5	
2018	1	5.3	9.4	11.4
Mean	32	4.5	7.6	11.4
Smallest		3.5	6.2	11.4
Largest		5.9	10.8	11.4
Std err		0.1	0.3	
Low 95% CI		4.3	7.0	
High 95% CI		4.8	8.2	

*Intercept = 0
wfdtnagb.d21

Table 55. 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, and Crooked Creek) from 19 October-5 November 2021.

		Age		
Year class	N	1	2	3
2020	14	4.9		
2019	18	4.0	7.2	
2018	1	3.8	6.7	9.5
Mean	33	4.4	7.2	9.5
Smallest		3.2	5.7	9.5
Largest		6.2	9.1	9.5
Std err		0.1	0.2	
Low 95% CI		4.1	6.8	
High 95% CI		4.6	7.6	

*Intercept = 0

wfdtnagb.d21

Table 56. Lake specific assessment for crappie collected at Lake Barkley (Little River and Donaldson Creek) from 2012-2021. 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
2021	4.3	3.5	16.2	2.4	10.5	10.5			1.326	73.5
Score	2	2	4	1	3		12	F		
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		
Average	5.5	3.8	7.7	3.0	10.6	10.6	12.1		0.953	59.75

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 57. Age frequency and CPUE (fish/nn) of white crappie collected during 120 net-nights at Lake Barkley (Little River, Donaldson Creek, and Crooked Creek) from 19 October-5 November 2021. 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	14	15	Total	%	CPUE	Std err
0	322	635	164	9											1130	79	14.1	1.8
1				17	63	55	48	62	14						259	18	3.2	0.4
2								2	21	11	3				37	3	0.5	0.1
3											4				4	0	0.1	<0.1
6														1	1	0	<0.1	<0.1
7												1			1	0	<0.1	<0.1
Total	322	635	164	26	63	55	48	64	35	11	7	1	0	1	1,432		17.9	1.9
%	22	44	11	2	4	4	3	4	2	1	0	0	0	0				

Lake Barkley Total

	Inch class																	
Age	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	%	CPUE	Std err
0	597	901	182	9											1689	80	14.1	1.4
1				19	86	72	64	91	21	1					354	17	3.0	0.3
2								3	33	21	5				62	3	0.5	0.1
3											7				7	0	0.1	<0.1
6														1	1	0	<0.1	<0.1
7													1		1	0	<0.1	<0.1
Total	597	901	182	28	86	72	64	94	54	22	12	0	1	1	2,114		17.6	1.5
%	28	43	9	1	4	3	3	4	3	1	1	0	0	0				

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Table 58. Age frequency and CPUE (fish/nn) of black crappie collected during 120 net-nights at Lake Barkley (Little River, Donaldson Creek, and Crooked Creek) from 19 October-5 November 2021. 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	Total	%	CPUE	Std err
0	77	67	15	4								163	80	2.0	0.5
1					2	12	6	1				21	10	0.3	0.1
2						1	5	7	3	2	1	19	9	0.2	0.1
3										1	1	2	1	<0.1	<0.1
Total	77	67	15	4	2	13	11	8	3	3	2	205		2.6	0.5
%	38	33	7	2	1	6	5	4	1	1	1				

Lake Barkley Total

	Inch class														
Age	2	3	4	5	6	7	8	9	10	11	12	Total	%	CPUE	Std err
0	106	84	21	4								215	73	1.8	0.3
1					8	16	12	3				39	13	0.3	0.1
2						2	9	18	7	2	1	39	13	0.3	0.1
3										1	1	2	1	<0.1	<0.1
Total	106	84	21	4	8	18	21	21	7	3	2	295		2.5	0.4
%	36	28	7	1	3	6	7	7	2	1	1				

wfdtpntb.d21, wfdtpnb1.d21, wfdtnagb.d21

Table 59. Length frequency and CPUE (fish/hr) of channel, blue, and flathead catfish collected from Lake Barkley in June-July 2021 using low pulse (15 PPS) electrofishing along the main lake river channel. A chase boat was used during a total of 5.0 hours of sampling (60- 300-second runs).

	Inch class																													
Species	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	Total	CPUE	Std err
Blue catfish	5	12	13	10	32	65	55	56	55	51	28	32	24	20	17	13	12	3	1	1	1	1							507	101.4	16.2
Channel catfish	3	7	8	3	1		2	3	1	1																			29	5.8	1.4
Flathead catfish					1	2	1		1					2			1		1		1	1	2		1			2	16	3.2	0.9

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Table 60. Relative weight (Wr) of each length group of blue, channel, and flathead catfish collected from Lake Barkley during June-July 2021. 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
	216	103	1	16	101	2				232	103	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	105	8							4	105	8
	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
	3	113	4	7	115	5	2	130	1	12	117	3

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Table 61. Fishery statistics derived from a creel survey at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

Fishing Trips			
	No. of fishing trips (per acre)	40,898	(0.9)
Fishing Pressure			
	Total angler-hours (S.E.)	177,689	(9174)
	Angler-hours/acre	3.9	
Catch / Harvest			
	No. of fish caught (S.E.)	209,277	(32,439)
	No. of fish harvested (S.E.)	64,568	(12,054)
	Lb of fish harvested	58,780	
Harvest Rates			
	Fish/hour	0.32	
	Fish/acre	1.42	
	Pounds/acre	1.29	
Catch Rates			
	Fish/hour	1.03	
	Fish/acre	4.59	
Miscellaneous Characteristics (%)			
	Male	85.3	
	Female	14.7	
	Resident	76.3	
	Non-resident	23.7	
Method (%)	**Non-Crappie Anglers**		
	Still fishing	50.6	
	Casting	42.1	
	Trolling	3.5	
	Trotline/Jugging	3.6	
	Bow Fishing	0.2	
	Crappie Anglers Only		
	Casting	4.4	
	Still fishing (1-2 poles)	60.0	
	Spider Rig (3 Poles)	11.9	
	Spider Rig (4-5 Poles)	20.0	
	Spider Rig (>5 Poles)	3.8	
Mode (%)			
	Boat	85.1	
	Bank	10.2	
	Dock	3.9	

Table 62. Length distribution for each species of fish harvested or released (lengths of released fish were estimated by anglers) at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

		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									3,953	6,917	4,200	1,173	1,173	618		62	62								
	R		120	479	2,214	2,991	2,872	4,068	11,905	1,017	299	60	60	60	178											
Black crappie	H									170	339	904	57	113	57	55										
	R		73		73		146	509	655	73		145														
Largemouth	H														88	175	44	44	44					44		
bass	R							952	150	3,257	401	4,860	4,459	4,459	2,405	3,557	2,555	1,002	251	902	50	100		50	51	
Smallmouth	H														129	129		192								
bass	R			121		121	60	723	181	1,387	121	4,280	1,145	1,869	1,025	965	543	603	301		59					
Spotted bass	H																									
	R							80	161		241	161	80													
Bluegill	H		67		267	2,407	1,805	3,544		1,337		67														
	R		1,139	4,934	4,175	2,404	759	949	127	63																
Redear sunfish	H							212	53	159	159	106	55													
	R				333	222	111	56	167	56																
Longear sunfish	H				68																					
	R		72	144	144	72																				
Warmouth	H																									
	R			86																						
Green sunfish	H																									
	R		365		72																					
Channel catfish	H							108		269	108	1,347	162	1,831	1,185	2,478		2,585		916				53		
	R			60		241			181	120	60	843	120	301	482	602		1,386		120	60			60		184
Blue catfish	H									154		1,028	206	1,645	1,285	1,337	514	1,902	308	925	206	360	154	257		51
	R			56		279		112		112	112	279		223	167	223		223		279	56	112		112		
Flathead catfish	H															113										
	R													68			34	34								
White bass	H							66		656	788	656	394	788	459	197			66							
	R		71	141	1273	1,980	1,061	2,122	920	5,093	1,485	2,193	788	3,041	1,132	424	2,123									
Yellow bass	H					61	485	3,034	1,031	1,577		121		182	61											
	R		1,024	1,024	1,775	4,710	3,481	1,843	546	1,365	342															
Striped Bass	H																									
	R													173												
Sauger	H																									
	R								64					65												
Yellow perch	H																									
	R																									
Drum	H									45																
	R					122		61		183		549		305	610	244	183	1,402	183	671	183	549		671	122	59
Skipjack herring	H														849	255										
	R				149			74				521		299												
Shad	H																									
	R			58	58	58		58		58		172														
Carp	H																									
	R											24			24							24		24		
Bighead carp	H																									
	R																									45
Grass carp	H																									
	R																							80		
Gar	H																									
	R									50		50								100				50		
Bow fin	H																					80				
	R																									

Table 62 (cont).

Species		Inch class																							Total
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		
White crappie	H																								18,158
	R																								26,323
Black crappie	H																								1,695
	R																								1,674
Largemouth	H																								439
bass	R																								29,461
Smallmouth	H																								450
bass	R																								13,504
Spotted bass	H																								0
	R																								723
Bluegill	H																								9,494
	R																								14,550
Redear sunfish	H																								744
	R																								945
Longear sunfish	H																								68
	R																								432
Warmouth	H																								0
	R																								86
Green sunfish	H																								0
	R																								437
Channel catfish	H																								11,042
	R																								4,820
Blue catfish	H		51		54																				10,437
	R														56					52					2,453
Flathead catfish	H				113																				226
	R										35														171
White bass	H																								4,070
	R																								23,847
Yellow bass	H																								6,552
	R																								16,110
Striped Bass	H																								0
	R																								173
Sauger	H																								0
	R																								129
Yellow perch	H																								0
	R																								0
Drum	H																								45
	R																								6,097
Skipjack herring	H																								1,104
	R																								1,043
Shad	H																								0
	R																								462
Carp	H														98										98
	R																								96
Bighead carp	H										45														45
	R				538																			45	628
Grass carp	H																								0
	R																								80
Gar	H																								0
	R										49														299
Bow fin	H																								80
	R																								0

Table 63. Fish harvest statistics derived from a creel survey at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

	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	**44,656**	29,899	13,953	723	**47,851**	44,481	3,369	**29,148**	15,862	396	12,891	**26,756**	24,044	1,689	500	86	437
(per acre)	**(0.98)**	(0.66)	(0.31)	(0.02)	**(1.05)**	(0.98)	(0.07)	**(0.64)**	(0.35)	(0.01)	(0.28)	**(0.59)**	(0.53)	(0.04)	(0.01)	(T)	(0.01)
No. harvested	**888**	439	450	0	**19,853**	18,158	1,695	**21,705**	11,042	226	10,437	**10,306**	9,494	744	68	0	0
(per acre)	**(0.02)**	(0.01)	(0.01)	(0.00)	**(0.44)**	(0.40)	(0.04)	**(0.48)**	(0.24)	(T)	(0.23)	(0.23)	(0.21)	(0.02)	(T)	(0.00)	(0.00)
% of total no. harvested	**2.0**	1.5	3.2	0.0	41.5	40.8	50.3	**74.5**	69.6	57.1	81.0	**38.5**	39.5	44.0	13.6	0.0	0.0
Lb. harvested	**2,097**	1,143	954	0	**14,736**	13,041	1,695	**32,002**	13,713	1,179	29,703	**3,012**	2,510	497	5	0	0
(per acre)	**(0.05)**	(0.03)	(0.02)	(0.00)	**(0.32)**	(0.29)	(0.04)	**(0.70)**	(0.30)	(0.03)	(0.65)	**(0.07)**	(0.06)	(0.01)	(T)	(0.00)	(0.00)
% of total lb. harvested	**3.6**	1.9	1.6	0.0	**25.1**	22.2	2.9	**54.4**	23.3	2.0	29.1	**5.1**	4.3	0.8	0.0	0.0	**0.0**
Mean length (in)		16.4	17.2			11.8	12.1		15.4	23.0	17.3		6.6	9.4	5.0		
Mean w eight (lb)		2.35	2.40			0.82	1.00		1.17	6.16	1.87		0.19	0.58	0.08		
No. of fishing trips for that species	**14,109**				**9,686**			**8,464**				**3,324**					
% of all trips	**34.5**				**23.7**			**20.7**				**8.1**					
Hours fished for that species	**61,301**				**42,081**			**36,773**				**14442**					
(per acre)	**(1.34)**				**(0.92)**			**(0.81)**				**(0.32)**					
No. harvested fishing for that species	**439**				**19,117**			**19,922**				**9,652**					
Lb harvested fishing for that species	**1,144**				**14,210**			**30,102**				**2,829**					
No./hour harvested fishing for that species	**0.01**				**0.43**			**0.54**				**0.70**					
% success fishing for that species	**2.0**				**36.7**			**36.5**				**36.7**					

T = < .005

Table 63 (cont.).

	Sauger	**Morone Group**	White bass	Yellow bass	Striped bass	Drum	Skipjack herring	Gar	Carp	Yellow perch	**Anything**
No. caught	129	**50,741**	26,084	22,662	173	6,142	2,146	299	194	0	
(per acre)	(T)	**(1.11)**	(0.57)	(0.50)	(T)	(0.13)	(0.05)	(0.01)	(T)	(0.00)	
No. harvested	0	**10,622**	4,070	6,552	0	45	1,104	0	0	0	
(per acre)	(0.00)	**(0.23)**	(0.09)	(0.14)	(0.00)	(T)	(0.02)	(0.00)	(0.00)	(0.00)	
% of total no. harvested	0.0	**20.9**	15.6	28.9	0.0	0.7	51.4	0.0	0.0	0.0	
Lb. harvested	0	**5,105**	3,312	1,793	0	22	847	0	0	0	
(per acre)	(0.00)	**(0.11)**	(0.07)	(0.04)	(0.00)	(T)	(0.02)	(0.00)	(0.00)	(0.00)	
% of total lb. harvested	0.00	**8.68**	5.63	3.05	0.0	0.04	1.44	0.00	0.00	0.00	
Mean length (in)			13.2	9.5		10.0	15.5				
Mean weight (lb)			0.96	0.43		0.48	0.80				
No. of fishing trips for that species		**714**									**4,601**
% of all trips		**1.7**									**11.3**
Hours fished for that species		**3100**									**19,992**
(per acre)		**(0.07)**									**(0.44)**
No. harvested fishing for that species		**5,032**									
Lb harvested fishing for that species		**2,493**									
No./hour harvested fishing for that species		**2.71**									
% success fishing for that species		**57.1**									**8.5**

T = < 0.005

Table 64. Crappie catch and harvest statistics derived at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

	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	18,158	24,649	1,674	44,481	1,695	1,456	218	3,369
% of crappie harvested by number	91%				9%			
*Total weight of crappie (lb)	13,041	4,928	18,303	36,272	1,695	414	2,170	4,279
% of crappie harvested by weight	88%				12%			
Mean length (in)	11.8				12.1			
Mean weight (lb)	0.82				1.00			
*Catch rate (fish/hr)	0.25				0.02			
*Harvest rate (fish/hr)	0.10				0.01			

* Includes effort and catch of non-crappie anglers

Table 65. Monthly crappie angling success at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

	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	4,917	1,574	1,574	1,327	5,763	4,917	0.85	1,573	0.27
Apr	9,682	3,932	3,932	3,684	16,004	9,556	0.60	3,890	0.24
May	6,996	3,260	3,260	1,227	5,329	6,045	1.13	2,785	0.52
Jun	493	269	269	245	1,065	224	0.21	224	0.21
Jul	47	47	47	9	40	39	0.98	39	0.98
Aug	452	151	151	103	446	453	1.02	151	0.34
Sept	340	194	194	212	921	340	0.37	194	0.21
Oct	5,916	2,478	2,478	906	3,934	5,837	1.48	2,399	0.61
Nov	19,007	7,948	7,948	1,974	8,578	18,921	2.21	7,862	0.92
Total	47,851	19,853	*19,853	9,686	42,081	46,332	1.10	19,117	0.45
Mean	5,317	2,206	*2,206	1,076	4,676	5,148		2,124	

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

Table 66. Crappie angling methods at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

Year	Casting (1 pole)	Still-fishing (1-2 poles)	Spider Rig (3 poles)	Spider Rig (4-5 poles)	Spider Rig (>5 poles)
2021	4.4%	60.0%	11.9%	20.0%	3.8%
2018	48.1%	9.9%	18.2%	4.5%	19.2%
2016	57.4%	3.3%	26.5%	4.7%	8.0%
Mean	36.6%	24.4%	18.9%	9.7%	10.3%

Table 67. Monthly black bass angling success at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

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	2,164	551	236	1,535	6,667	2,006	0.30	551	236	0.08	0.04
Apr	6,257	296	42	2,237	9,717	5,665	0.58	253	0	0.03	0.00
May	6,248	951	475	2,642	11,478	5,298	0.46	543	68	0.05	0.006
Jun	1,570	135	135	1,323	5,750	1,301	0.23	135	135	0.02	0.02
Jul	1,284	39	0	292	1,269	1,283	1.01	39	0	0.03	0.00
Aug	302	0	0	349	1,517	302	0.20	0	0	0.00	0.000
Sept	728	49	0	451	1,958	631	0.32	49	0	0.03	0.00
Oct	20,228	2,079	0	4,125	17,923	19,747	1.10	2,079	0	0.12	0.00
Nov	5,875	0	0	1,156	5,021	5,788	1.15	0	0	0.00	0.00
Total	44,656	4,098	*888	14,109	61,301	42,021	0.69	3,649	*439	0.06	0.007
Mean	4,962	455	*99	1,568	6,811	4,669		405	*49		

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

Table 68. Black bass catch and harvest statistics derived at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

	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	3,238	13,552	8,428	29,899	860	7,267	3,124	13,953	0	241	0	0
*Total no. of bass	(*439)		(*10,923)		(*450)		(*3,496)		(*0)		(*0)	
% of bass harvested by number	79.0%				21.0%				0.0%			
Total weight of bass (lb)	7,405	16,176	3,061	39,228	1,939	7,124	10,059	14,774	0	131	0	391
*Total weight of bass (lb)	(*1,143)		(*13,866)		(*954.2)		(*3,531)		(*0)		(*0)	
% of bass harvested by weight	79.2%				20.8%				0.0%			
Mean length (in)	16.4				17.2							
Mean weight (lb)	2.35				2.40							
**Catch rate (fish/hr)	0.17				0.08				0.00			
**Harvest rate (fish/hr)	0.018				0.005				0.000			

* 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 69. Monthly panfish angling success at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

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	0	0	26	113.1	0	0.00	0	0.00
Apr	2,494	423	658	2,858	2,283	0.80	423	0.15
May	17,998	8,286	1,840	7,994	16,302	2.04	8,015	1.00
Jun	1,346	538	196	852	718	0.84	494	0.58
Jul	0	0	0	0	0	0.00	0	0.00
Aug	75	0	0	0	0	0.00	0	0.00
Sept	243	0	0	0	0	0.00	0	0.00
Oct	2,958	800	503	2,186	1,360	0.62	720	0.33
Nov	1,642	259	48	209	86	0.41	0	0.00
Total	26,756	10,306	3,271	14,212	20,749	1.46	9,652	0.68
Mean	2,973	1,145	363	1,579	2,305		1,072	

Table 70. Panfish catch and harvest statistics derived from Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

	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	9,494	3,162	1,139	24,044	744	333	279	1,689
% of panfish harvested by number	92.7%				7.3%			
Total weight of panfish (lb)	2,510	258	93	3,698	497	75	63	711
% of panfish harvested by weight	83.5%				16.5%			
Mean length (in)	6.6				10.9			
Mean weight (lb)	0.19				0.89			
*Catch rate (fish/hr)	0.14				0.01			
*Harvest rate (fish/hr)	0.053				0.004			

* includes effort and catch of non-panfish anglers

Table 71. Monthly catfish angling success at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

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	1,141	708	364	1,582	943	0.60	550	0.35
Apr	592	296	526	2,286	296	0.13	169	0.07
May	7,811	6,792	2,642	11,478	6,045	0.53	5,637	0.49
Jun	5,563	4,217	1,961	8,518	5,114	0.60	4,172	0.49
Jul	109	86	100	436	86	0.20	78	0.18
Aug	2,903	2,526	370	1,606	2,828	1.76	2,451	1.53
Sept	3,933	3,399	716	3,109	3,836	1.23	3,350	1.08
Oct	5,197	2,558	1,207	5,246	4,637	0.88	2,478	0.47
Nov	1,901	1,123	578	2,511	1,815	0.72	1,037	0.41
Total	29,148	21,705	8,464	36,773	25,600	0.70	19,922	0.54
Mean	3,239	2,412	940	4,086	2,844		2,214	

Table 72. Catfish catch and harvest statistics derived at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

	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	10,437	336	1,782	12,891	11,042	361	4,158	15,862	226	0	171	396
% of catfish harvested by	48.1%				50.9%				1.0%			
Total weight of catfish (lb)	17,110	675	3,607	22,070	13,713	445	5,134	19,652	1,179	0	1,411	2,591
% of catfish harvested by weight	53.5%				42.8%				3.7%			
Mean length (in)	17.3				15.3				23.0			
Mean weight (lb)	1.87				1.17				6.16			
*Catch rate (fish/hr)	0.07				0.09				<0.01			
*Harvest rate (fish/hr)	0.059				0.062				0.001			

* includes effort and catch of non-catfish anglers

Table 73. Monthly Morone angling success at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

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	2,203	826	0	0	0	0.0	0	0.0
Apr	1,142	169	0	0	0	0.0	0	0.0
May	7,878	543	0	0	0	0.0	0	0.0
Jun	1,570	1,166	0	0	0	0.0	0	0.0
Jul	280	0	0	0	0	0.0	0	0.0
Aug	226	113	0	0	0	0.0	0	0.0
Sept	3,593	1,942	27	115	2,477	21.51	971	8.43
Oct	3,438	160	302	1,311	400	0.31	0	0.00
Nov	30,411	5,702	385	1,674	14,256	8.52	4,061	2.43
Total	50,741	10,622	714	3,100	17,133	5.53	5,032	1.62
Mean	5,638	1,180	79	344	1,904		559	

Table 74. Morone catch and harvest statistics derived at Lake Barkley (45,600 acres) from 1 March through 30 November 2021.

	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*	4,070	6,012	3,679	27,906	6,552	16,110	22,662	0	0	0	0	0	173	0	173
% of Morone harvested by number	38.3%				61.7%			0.0%				0.0%			
Total weight of *Morone* (lb)	3,312	3,418	2,092	16,866	1,793	1,950	3,743	0	0	0	0	0	191	0	191
% of Morone harvested by weight	64.9%				35.1%			0.0%				0.0%			
Mean length (in)	13.2				9.5										
Mean weight (lb)	0.96				0.43										
*Catch rate (fish/hr)	0.16				0.13			0				<0.01			
*Harvest rate (fish/hr)	0.023				0.037			0				0			

* includes effort and catch of non-morone anglers

Table 75. Species composition, relative abundance, and CPUE (fish/hr) of largemouth bass collected during diurnal electrofishing at Lake Beshear during 2021.

	Inch class																						
Season	1	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	Std err
Spring		1	18	31	8	7	18	22	21	12	8	10	4	11	13	20	16	16	12	3	251	100.4	11.7
Fall	1	16	107	74	12	10	52	30	26	26	19	1	4		1	4	7	1			391	156.4	13.6

wfdpsdlb.d21 and wfdwrlb.d21

Table 76. Spring diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Lake Beshear during April or May of 2012 to 2021.

Year	Mean length age-3 at capture	*Mean length age-3 at capture	Age-1		Length group												Total		PSD	RSD_{15}
					<8.0 in		≥12.0 in		12.0-14.9 in		≥15.0 in		≥18.0 in		≥20.0 in					
			CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err		
2021	13.8	13.8	23.2	5.6	26.0	6.4	45.2	8.2	8.8	3.0	36.4	5.6	18.8	2.9	6.0	1.1	100.4	11.7	61	49
**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
2016[AB]	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
Average	13.6	13.6	14.1		15.6		50.5		10.8		39.8		21.8		5.7		82.8		74.9	59.7
LBFMP	≥ 12.0 in		≥ 10				≥ 45		≥ 15		≥ 30				≥ 3				55 - 75	20 - 40

(Lake Beshear Bass Database.xls)

Data for 1985-2011 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 77. Lake specific assessment for largemouth bass collected at Lake Beshear from 2012-2021. 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
2021	13.8	13.8	23.2	8.8	36.4	6.0				
Score	3		4	2	3	4	16	G		
**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		
Average	13.6	13.6	14.1	10.8	39.8	5.7	14.6		0.336	28.20

Data from 1985 to 2011 is listed in previous year reports.

**only one dipper used in spring 2020 due to covid19 pandemic restrictions

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

[B] age and grow th data w as collected in the Fall. Mean length age-3 w as calculated from back calculations. Spring CPUE age-1 w as determined from back-calculations and extrapolation w ith spring data. Mortality w as determined from fall age frequency data.
*Mean length calculated using a w eighted average applied to the entire spring sample

Assessment Quartiles w ere 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 78. 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 2021.

		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	Lake Beshear	130	81	1	24	83	2	13	94	2	167	82	1

wfdwrlb.d21

Table 79. 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
2021	4.8	0.1	83.6	6.1	34.8	8.3		
2020	5.1	0.1	60.8	25.0	36.0	17.7	23.2	5.6
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
Average	4.8		46.7		20.1		15.6	

[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.

WFDWRLB.Dxx, WFDWRAGB.Dxx, WFDPSDLB.Dxx

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

Table 80. Length frequency and CPUE (fish/hr) of channel, blue, and bullhead catfish collected from Lake Beshear in June 2021 using tandem hoopnets. Three tandem hoopnets were baited with ZOTE brand soap and fished for 3 consecutive nights.

	Inch class																			
Species	8	9	10	11	12	13	14	15	16	17	18	19	20	21	23	24	25	Total	CPUE	Std err
Blue catfish	4	21	41	28	15	3	2	4	10	11	5	1					1	146	48.7	12.6
Channel catfish	3	17	29	24	15	12	2	2	10	4	7	2	2	1			1	131	43.7	14.0
Yellow bullhead	1																	1	0.3	

wfdcatlb.d21

Table 81. Length frequency and CPUE (fish/100 hook-night set) of channel and blue catfish collected from Lake Beshear in June 2021 using trotlines. A total of nine, 100 hook-night sets were used. Trotlines were baited with cutbait (buffalo, silver carp) in 1-inch or smaller chunks.

	Inch class																			
Species	9	10	11	12	13	14	15	16	17	18	19	20	21	23	27	28	31	34	Total	CPUE	Std err
Blue catfish	2	1	14	8	1				2	6	13	4	4	1	1	1	1	1	60	6.7	1.3
Channel catfish	1	4	8	5		1		7	8	5	5	1							45	5.0	0.8

wfdcatlb.d21

Table 82. Relative weight (Wr) of each length group of blue and channel catfish collected from Lake Beshear during June 2021. Fish were collected using trotlines and tandem hoopnets.

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
	80	87	1	12	88	4	2	112	0	94	88	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
	69	93	1	53	95	2	1	133		123	95	1

wfdcatlb.d21

Table 83. Age frequency of blue catfish collected with trotlines and tandem hoopnets in Lake Beshear during June 2021. No catch rates are reported as multiple sampling methods were used.

	Inch class														
Age	8	9	10	11	12	17	18	19	20	21	27	31	34	Total	%
2	4	23	42	42	23									134	73
6						13	11	14	4	4				46	25
11											1			1	<1
12													1	1	<1
13												1		1	<1
Total	4	23	42	42	23	13	11	14	4	4	1	1	1	183	
%	2	13	23	23	13	7	6	8	2	2	<1	<1	<1		

wfdcatlb.d21, wfdcaglb.d21

Table 84. Mean back-calculated length (in) at each annulus of blue catfish including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected in Lake Beshear in June 2021.

		Age												
Year class	N	1	2	3	4	5	6	7	8	9	10	11	12	13
2019	22	7.4	11.6											
2015	28	6.1	9.8	12.7	15.0	17.2	19.4							
2010	1	11.2	14.0	17.4	19.5	20.9	22.3	23.2	24.4	25.8	26.5	27.9		
2009	1	6.5	10.3	14.2	16.8	19.4	22.0	24.5	26.6	28.7	31.0	32.3	34.1	
2008	2	5.0	8.4	11.2	13.2	15.2	17.0	18.9	20.5	22.4	24.0	25.5	27.2	29.1
Mean	54	6.7	10.6	12.8	15.4	17.2	19.4	21.4	23.0	24.8	26.4	27.8	29.5	29.1
Smallest		4.7	8.0	10.9	12.5	14.4	16.0	17.6	19.2	20.8	22.4	23.4	24.8	26.6
Largest		11.2	14.0	17.4	19.5	20.9	22.3	24.5	26.6	28.7	31.0	32.3	34.1	31.5
Std err		0.2	0.2	0.2	0.2	0.2	0.3	1.5	1.6	1.6	1.8	1.8	2.7	2.5
Low 95% CI		6.4	10.2	12.4	14.6	16.8	18.9	18.3	19.9	21.6	22.9	24.2	24.3	24.2
High 95% CI		7.0	10.9	13.2	15.5	17.7	19.9	24.4	26.2	28.0	29.9	31.3	34.8	33.9

* Intercept = 0.

wfdcaglb.d21

Table 85. Age frequency of channel catfish collected with trotlines and tandem hoopnets in Lake Beshear during June 2021. No catch rates are reported as multiple sampling methods were used.

	Inch class																
Age	8	9	10	11	12	13	14	15	16	17	18	19	20	21	24	Total	%
2	3	18	33	32	20	7	2									115	65
3										1						1	1
4						5	1	2	16	10	11	4				49	28
6									1		1	4	2			8	4
9														1		1	1
15										1			1	1	1	4	2
Total	3	18	33	32	20	12	3	2	17	12	12	8	3	2	1	178	
%	2	10	19	18	11	7	2	1	10	7	7	4	2	1	1		

wfdcatlb.d21, wfdcaglb.d21

Table 86. Mean back-calculated length (in) at each annulus of channel catfish including the range in length at each age and the 95% confidence interval of each age group. Otoliths were collected in Lake Beshear in June 2021.

		Age														
Year class	N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2019	63	7.0	11.4													
2018	1	8.9	13.5	17.0												
2017	46	6.4	11.0	14.2	16.9											
2015	6	5.5	10.0	13.1	15.6	17.9	20.0									
2012	1	4.9	7.4	9.5	12.3	13.6	15.0	17.7	19.1	21.8						
2006	4	3.4	5.4	7.2	8.6	10.0	11.4	12.6	13.9	15.0	16.3	17.3	18.4	19.5	20.3	21.3
Mean	121	6.6	11.0	13.5	16.1	14.6	16.4	13.7	14.9	16.4	16.3	17.3	18.4	19.5	20.3	21.3
Smallest		2.6	5.0	6.6	8.0	9.2	10.4	11.5	12.3	13.2	14.1	14.7	15.3	16.4	17.3	17.9
Largest		9.4	15.0	17.0	19.9	22.6	26.2	17.7	19.1	21.8	19.5	20.4	21.6	22.9	23.9	24.7
Std err		0.1	0.2	0.3	0.4	1.3	1.5	1.2	1.2	1.6	1.1	1.2	1.3	1.4	1.4	1.4
Low 95% CI		6.4	10.6	12.9	15.4	12.1	13.5	11.4	12.5	13.3	14.1	15.0	15.8	16.9	17.7	18.6
High 95% CI		6.8	11.3	14.1	16.8	17.2	19.3	15.9	17.4	19.5	18.5	19.7	20.9	22.2	23.0	24.1

* Intercept = 0.

wfdcaglb.d21

Table 87. Species composition, relative abundance, and CPUE (fish/hr) of fish collected during 1.0 hour (4- 900-sec runs) of diurnal electrofishing at Lake Pennyrile on 7 May, 2021.

	Inch class																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	19	Total	CPUE	Std err
Largemouth bass			1	2	4	5	1	3	6	7	2		1	1	33	33.0	10.4
Bluegill	3	30	17	5	6	21	76	22							180	180.0	30.1
Redear sunfish		2	7	5	7	14	14	12	1						62	62.0	22.0
Longear sunfish	1	5	2	4	17	7	2								38	38.0	19.4
White crappie									1						1	1.0	1.0
Channel catfish												1			1	1.0	1.0
Warmouth		1	4	4	4	6									19	19.0	4.4
Yellow bullhead								1	3						4	4.0	2.8
Hybrid sunfish						1									1	1.0	1.0
Topminnow		3	5												8	8.0	2.8

wfdpsdp.d21

Table 88. Spring, diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Pennyrile Lake from 2012-2021.

	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
2021	13.0	3.4	18.0	6.2	1.0	1.0	1.0	1.0	0.0		33.0	10.4
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											
Mean	32.2		49.6		6.6		2.1		0.6		90.6	

wfdpsdp.dxx

Data from 1990 to 2011 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 89. Lake specific assessment for largemouth bass collected at Pennyrile Lake from 2012-2021. 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
2021	11.0	1.0	1.0		10.5				
Score	1	1	1		4	7	P		
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 Score	Did not sample								
Average	23.8	6.6	2.1	0.7	11.3				

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 90. Spring, diurnal electrofishing CPUE (fish/hr) for each length group of bluegill and redear sunfish collected at Lake Pennyrile from 2012-2021.

		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											
	2021	33.0	18.7	28.0	1.6	97.0	12.0	22.0	2.6	180.0	30.1
	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									
	Mean	19.3		60.3		59.1		17.7		156.4	

		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											
	2021	2.0	2.0	19.0	6.8	28.0	10.5	13.0	8.5	62.0	22.0
	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									
	Mean	0.5		20.4		18.5		19.2		58.7	

wfdpsdp.dxx

Data from 1990 to 2011 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 91. PSD and RSD values obtained for largemouth bass, bluegill, and redear sunfish collected during 1.0 hour of diurnal electrofishing (4 - 900-sec runs) at Lake Pennyrile on 7 May, 2021. 95% confidence intervals are in parentheses.

Species	N	PSD	RSD*
Largemouth bass	20	10 (+/-13)	5 (+/-10)
Bluegill	147	81 (+/-6)	15 (+/-6)
Redear sunfish	53	51 (+/-14)	2 (+/-4)

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

wfdpsdp.d21

Table 92. Species composition, relative abundance, and CPUE (fish/hr) of fish collected during 1.0 hour (4- 900-sec runs) of diurnal electrofishing at Lake George (Crittenden Co) on 11 May 2021.

	Inch class																										
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	45	Total	CPUE	Std err
Gizzard shad							1	5	20	6	1														33	33.0	14.0
Grass carp																								3	3	3.0	3.0
Golden shiner			1	12	1	7	5																		26	26.0	13.6
Yellow bullhead						1	1	1	5	1															9	9.0	6.4
Channel catfish																	1	3	1	1	2	3	1		12	12.0	2.8
Green sunfish		1	17	5	1	1	1	1																	27	27.0	25.7
Bluegill	1	14	11	103	172	73	16																		390	390.0	31.9
Redear sunfish		1	9	3		6	35	42	13	2															111	111.0	14.9
Largemouth bass					1	7	4	17	11	3		3	10	11	8	5		4	2	2	3				91	91.0	21.6
White crappie							10	1			1		1												13	13.0	6.4
Black crappie					1	1	8	7	2																19	19.0	3.0

wfdpsdg.d21

Table 93. Spring electrofishing CPUE (fish/hr) for each length group of sportfish collected at Lake George in 2020-2021.

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											
	2021	12.0	7.1	31.0	7.6	24.0	8.2	24.0	2.8	91.0	21.6
	2020	10.0	3.5	6.0	3.8	22.0	2.6	31.0	7.6	69.0	11.5

		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											
	2021	15.0	8.2	286.0	21.7	89.0	22.9			390.0	31.9
	2020	10.0	3.5	116.0	20.2	50.0	8.7			176.0	30.4

		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											
	2021	1.0	1.0	12.0	2.8	41.0	7.6	57.0	7.2	111.0	14.9
	2020			15.0	3.4	45.0	15.3	21.0	1.9	81.0	17.7

		Length group									
		>8.0 in		>10.0 in						Total	
		CPUE	Std err	CPUE	Std err					CPUE	Std err
All crappie											
	2021	12.0	3.3	2.0	1.2					32.0	6.3
	2020	6.0	2.0	1.0	1.0					42.0	19.4

		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											
	2021			12.0	2.8	12.0	2.8	7.0	1.0	12.0	2.8
	2020			35.0	13.0	35.0	13.0	3.0	1.9	35.0	13.0

wfdpsdg.dxx

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

Table 94. PSD and RSD values obtained for sportfish collected during 1.0 hour of diurnal electrofishing (4 - 900-sec runs) at Lake George (Crittenden Co) on 11 May 2021. 95% confidence intervals are in parentheses.

Species	N	PSD	RSD*
Largemouth bass	79	61 (+/-11)	30 (+/-10)
Bluegill	375	24 (+/-4)	
Redear sunfish	101	91 (+/-6)	15 (+/-7)
White crappie	13	23 (+/-24)	15 (+/-20)
Black crappie	19	47 (+/-23)	
Channel catfish	12	100 (+/-0)	

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

wfdpsdg.d21

Table 95. Species composition, relative abundance, and CPUE (fish/hr) of fish collected during 1.0 hour (4- 900-sec runs) of diurnal electrofishing at Lake Blythe on 10 May 2021.

	Inch class																						
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	27	Total	CPUE	Std err
Common carp																					1	1	1.0	1.0
Channel catfish															2	4	2	4	2			14	14.0	6.6
Warmouth					1		1															2	2.0	1.2
Bluegill	3	11	14	12	6	1																47	47.0	12.6
Longear sunfish		5	4	1	1																	11	11.0	3.0
Redear sunfish			3	2	9	5																19	19.0	7.6
Largemouth bass			1	2	1	1	2			2		1	1				1		2	2		16	16.0	2.8
White crappie					1	1	4															6	6.0	3.8
Black crappie						3																3	3.0	1.9

wfdpsdbl.d21

Table 96. Spring electrofishing CPUE (fish/hr) for each length group of sportfish collected at Lake Blythe in 2021, 2019, and 2006.

Species	Year	Length group								Total	
		<8.0 in		8.0-11.9 in		12.0-14.9 in		≥12.0 in			
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Largemouth bass											
	2021	5.0	2.5	4.0	0.0	2.0	2.0	7.0	1.9	16.0	2.8
	2019	39.0	10.1	45.0	11.7	9.0	5.7	26.0	10.4	110.0	22.1
	2006	67.0	18.4	74.0	13.1	1.0	1.0	3.0	1.9	144.0	28.8

Species	Year	Length group								Total	
		<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in			
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Bluegill											
	2021	3.0	1.9	37.0	9.2	7.0	4.4			47.0	12.6
	2019	19.0	8.5	193.0	18.4	26.0	7.4			238.0	32.4
	2006	8.0	6.7	45.0	13.6	36.0	9.5	2.0	2.0	91.0	24.0

Species	Year	Length group								Total	
		<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in			
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Redear sunfish											
	2021			5.0	2.5	14.0	6.6			19.0	7.6
	2019			15.0	3.4	33.0	1.9	1.0	1.0	49.0	4.4
	2006			11.0	3.0	17.0	6.4	3.0	1.9	31.0	8.7

Species	Year	Length group				Total	
		≥8.0 in		≥10.0 in			
		CPUE	Std err	CPUE	Std err	CPUE	Std err
All crappie							
	2021	4.0	2.3			9.0	5.3
	2019	12.0	1.6	2.0	1.2	30.0	18.1
	2006	8.0	2.3			8.0	2.3

Species	Year	Length group								Total	
		<12.0 in		≥12.0 in		≥15.0 in		≥20.0 in			
		CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err	CPUE	Std err
Channel catfish											
	2021			14.0	6.6	14.0	6.6	6.0	3.8	14.0	6.6
	2019			37.0	8.5	35.0	6.8	2.0	1.2	37.0	8.5
	2006			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

wfdpsdbl.dxx

Table 97. PSD and RSD values obtained for sportfish collected during 1.0 hour of diurnal electrofishing (4 - 900-sec runs) at Lake Blythe on 10 May 2021. 95% confidence intervals are in parentheses.

Species	N	PSD	RSD*
Largemouth bass	11	64 (+/-30)	45 (+/-31)
Bluegill	44	16 (+/-11)	
Redear sunfish	19	26 (+/-20)	
White crappie	6	67 (+/-41)	
Black crappie	3		
Channel catfish	14	100 (+/-0)	

* Largemouth = RSD_{15}, Bluegill = RSD_8, Channel catfish = RSD_8, Crappie =RSD_{10}, Redear =RSD_9.

wfdpsdbl.d21

Table 98. Species composition, relative abundance, and CPUE (fish/hr) of sportfish collected from Ballard Wildlife Management Area lakes on 13 May 2021. A total of 0.5 hrs (2- 900-sec runs) of electrofishing was conducted at each lake.

	Inch class																					
Area	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	24	Total	CPUE	Std err
Butler																							
Bluegill	4	4	2	7	7	1															25	50.0	6.0
Redear sunfish						2															2	4.0	4.0
Largemouth bass						1	1		2	2								1			7	14.0	2.0
Black crappie							1														1	2.0	2.0
White crappie		1																			1	2.0	2.0
Yellow bass		1																			1	2.0	2.0
Shelby																							
Bluegill	11	3	19	12	10																55	110.0	42.0
Redear sunfish	2		2		1																5	10.0	2.0
Spotted bass							1														1	2.0	2.0
Largemouth bass		1	1	1	1		2	2	1	2						1		1			13	26.0	6.0
White bass						1															1	2.0	2.0
Castor																							
Bluegill	3	2	9	15	13	2															44	88.0	16.0
Redear sunfish				2	2	2															6	12.0	4.0
Largemouth bass				1		1	1		2	1	2			1		1					10	20.0	<0.1
Channel catfish																				1	1	2.0	2.0
Black crappie		1		1					1	1											4	8.0	8.0
White crappie												1									1	2.0	2.0
Yellow bass			1																		1	2.0	2.0

w fdpsdb1.d21, w fdpsdb2.d21, w fdpsdb3.d21

Table 99. Species composition, relative abundance, and CPUE (fish/hr) of fish collected during 0.68 hours of diurnal electrofishing at Duncan Lake in the Land Between the Lakes National Recreation Area on 17 May, 2021.

	Inch class													
Species	1	2	3	4	5	6	7	8	9	10	11	Total	CPUE	Std err
Bluegill	1	1	3	3	3	1	2					14	20.6	0.0
Green sunfish			1	1	2							4	5.9	0.0
Largemouth bass					2			3	3	3	2	13	19.1	0.0

wfddunc.d21

Table 100. Species composition, relative abundance, and CPUE (fish/hr) of fish collected during 0.5 hour (2- 900-sec runs) of diurnal electrofishing at Clarks River National Wildlife Refuge Benton pond (36.855573, -88.334829) on 14 May, 2021.

	Inch class																			
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	CPUE	Std err
Largemouth bass		1				1	2	1	2					1	1		2	11	22.0	2.0
Bluegill	1	1	37	10		5												54	108.0	8.0
Green sunfish			2	2	1													5	10.0	2.0
Longear sunfish						1												1	2.0	2.0
Catfish												1	2	1	3	1	1	9	18.0	10.0

wfdusfwc.d21

Table 101. Species composition, relative abundance, and CPUE (fish/hr) of fish collected during 0.5 hour (2- 900-sec runs) of diurnal electrofishing at Clarks River National Wildlife Refuge Symsonia pond (36.963681, -88.523353) on 14 May, 2021.

	Inch class																				
Species	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	19	20	21	Total	CPUE	Std err
Spotted gar																1				1	2.0	2.0
Shortnose gar																	1	1	1	3	6.0	6.0
Gizzard shad									1		4	1								6	12.0	<0.1
Smallmouth buffalo									1	2		1	2	2	1					9	18.0	2.0
Bigmouth buffalo													1							1	2.0	2.0
Channel catfish																1				1	2.0	2.0
Warmouth				1																1	2.0	2.0
Bluegill	17	20	5	1	1	1														45	90.0	22.0
Longear sunfish	1																			1	2.0	2.0
Redear sunfish			1			1	1	1												4	8.0	4.0
Largemouth bass								1			1	1								3	6.0	6.0
White crappie					1					2										3	6.0	6.0
Black crappie					1															1	2.0	2.0

wfdusfws.d21

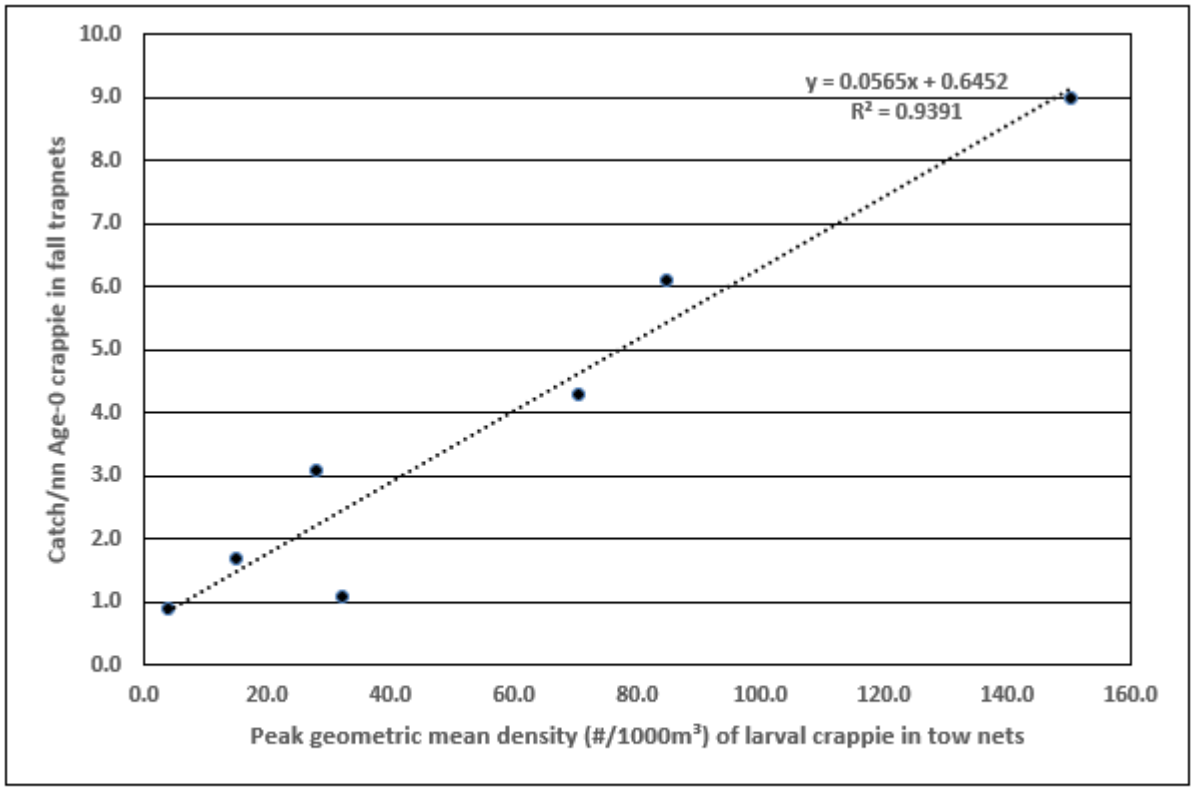


Figure 1. Relationship between peak geometric mean density (#/1000m³) of pelagic larval crappie captured in neuston tow nets and catch rates of age 0 crappie (fish/net night) in fall trapnets at Kentucky Lake from 2015-2021.

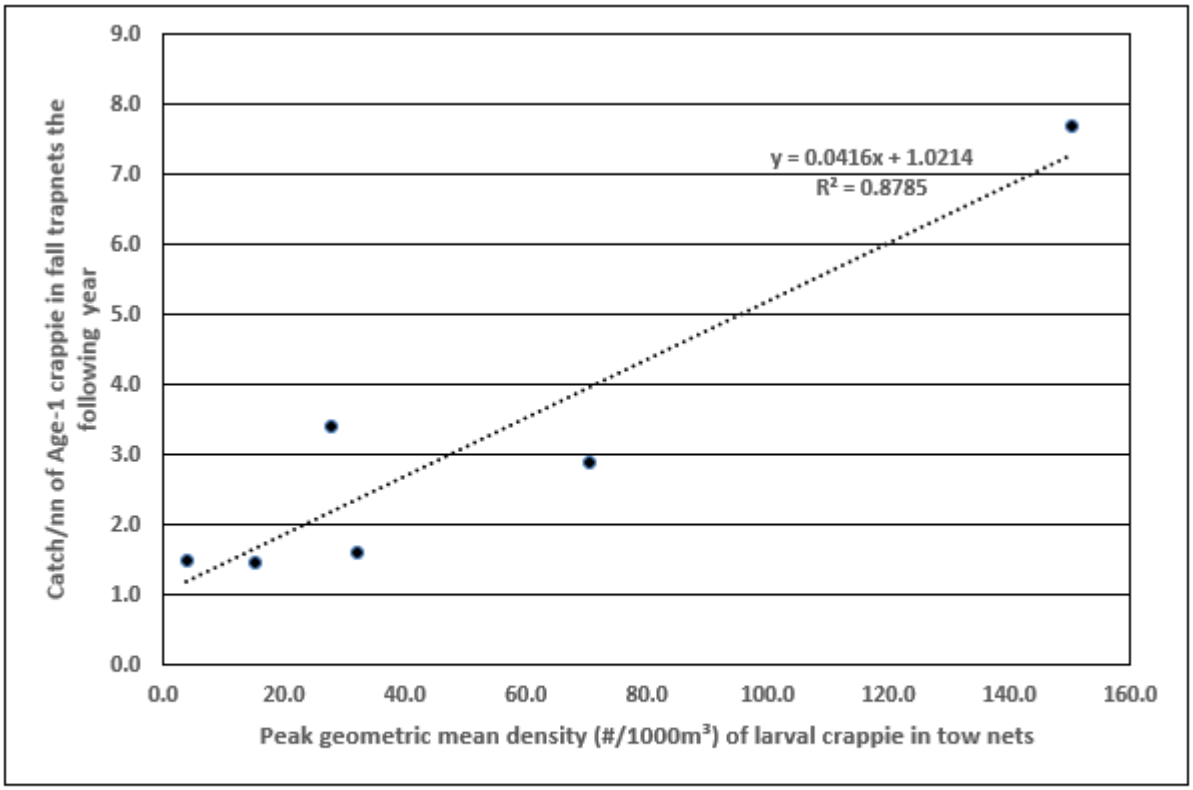
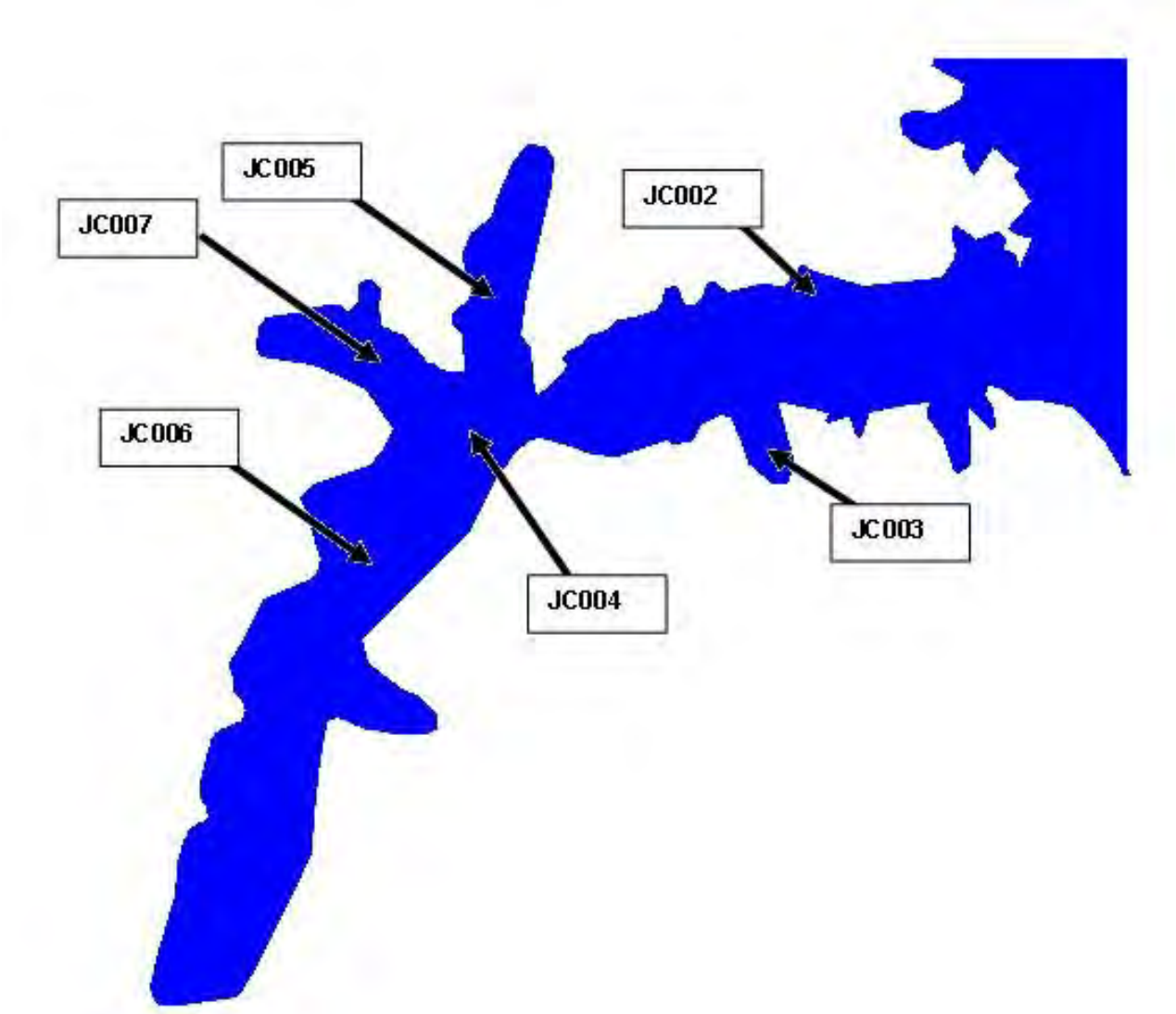
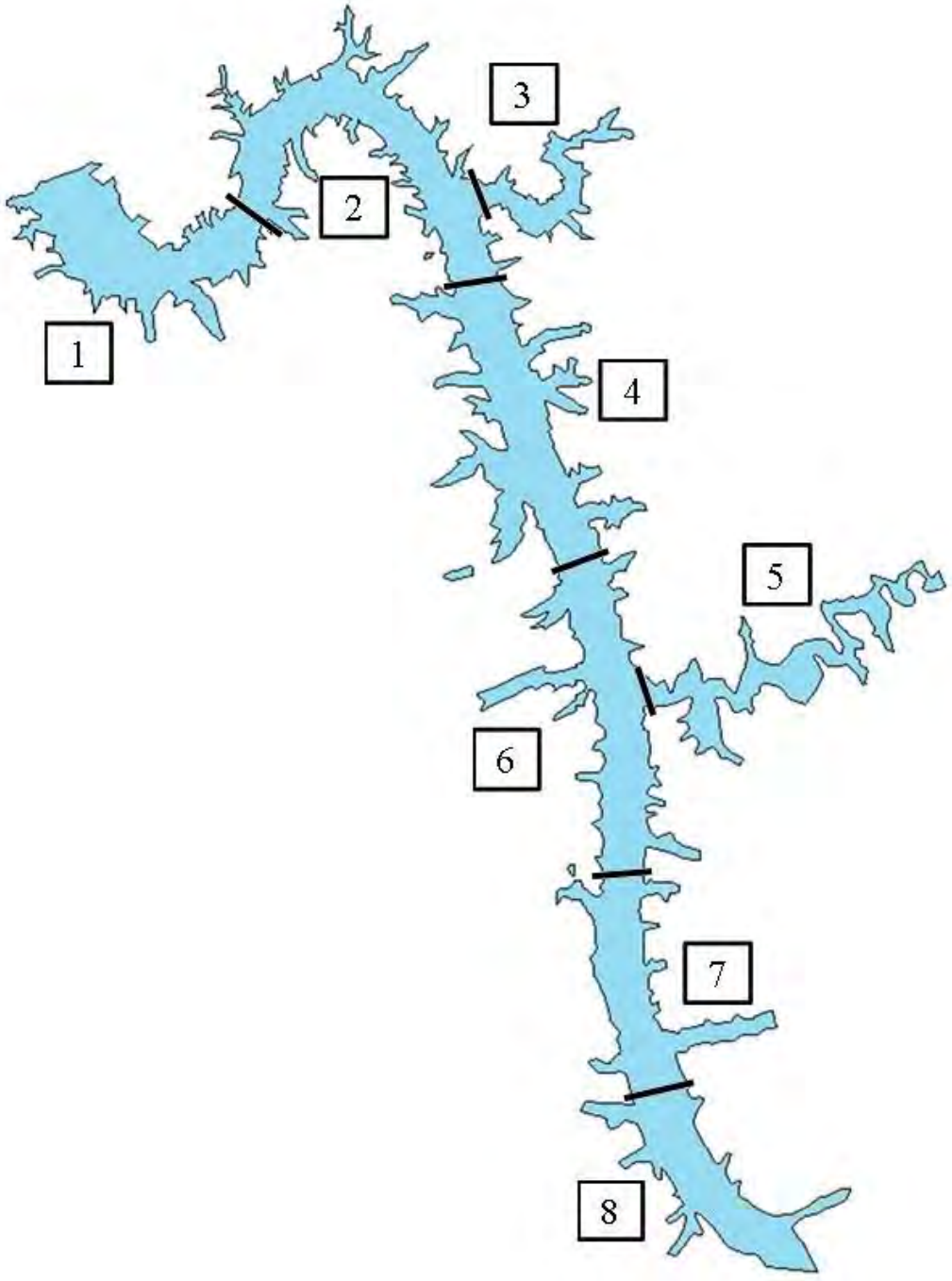


Figure 2. Relationship between peak geometric mean density (#/1000m³) of pelagic larval crappie captured in neuston tow nets and catch rates of age 1 crappie (fish/net night) in fall trapnets the following year at Kentucky Lake from 2015-2021.

Appendix A. 2021 Larval fish sample sites in Jonathan Creek embayment, Kentucky Lake



Appendix B. Lake Barkley Creel Survey Areas 2021.



Appendix C. LAKE BARKLEY ANGLER ATTITUDE SURVEY 2021

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

2. Name _____ (**Optional**) and Zip Code _____

3. On average, how many times do you fish Lake Barkley in a year? N=227

First time here 3.5% 1 to 4 13.2% 5-10 11.9% More than 10 71.4%

4. Which species of fish do you fish for at Lake Barkley (**check all that applies**)? N=231
Redear 4.8% Bluegill 13.0% Black Bass 57.6% Crappie 48.5% Catfish 41.6% White bass 6.1% Yellow bass 1.3%
Other- Carp 0.4%; Anything 0.9%

5. Which one species do you fish for most at Lake Barkley (**check only one**)? N=231
Redear 0.4% Bluegill 3.5% Black Bass 45.0% Crappie 27.7% Catfish 20.8% White bass 1.3% Yellow bass 0.4%
Other- Anything 0.9%

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 Lake Barkley? N=11
Very satisfied 36.4% Somewhat satisfied 18.2% Neutral 27.3% Somewhat dissatisfied 9.1%
Very dissatisfied 9.1%

6a. If you responded with somewhat or very dissatisfied in question (6) – what is the single most important reason for your dissatisfaction? N=2
Number of fish 50.0**%** Size of fish 0.0**%** Not happy with regulations 0.0**%** Don't know how to catch them 0.0**%**
Asian carp 50.0%

Bluegill Anglers

7. In general, what level of satisfaction or dissatisfaction do you have with the bluegill fishing at Lake Barkley? N=30
Very satisfied 16.7% Somewhat satisfied 30.0% Neutral 16.7% Somewhat dissatisfied 16.7%
Very dissatisfied 20.0%

7a. If you responded with somewhat or very dissatisfied in question (7) – what is the single most important reason for your dissatisfaction? N=11
Number of fish 90.9**%** Size of fish 0.0**%** Not happy with regulations 0.0**%** Asian carp 9.1%

Black Bass Anglers

8. In general, what level of satisfaction or dissatisfaction do you have with the black bass fishing at Lake Barkley? N=132
Very satisfied 3.0% Somewhat satisfied 31.1% Neutral 19.7% Somewhat dissatisfied 32.6%
Very dissatisfied 13.6%

8a. If you responded with somewhat or very dissatisfied in question (8) – what is the single most important reason for your dissatisfaction? N=61
Number of fish 82.0**%** Size of fish 6.6**%** Not happy with regulations 0.0**%** Asian carp 9.8%
water level fluctuations 1.6%

Crappie Anglers

9. In general, what level of satisfaction or dissatisfaction do you have with crappie fishing at Lake Barkley? N=112
Very satisfied 4.5% Somewhat satisfied 40.2% Neutral 17.9% Somewhat dissatisfied 23.2%
Very dissatisfied 14.3%

9a. If you responded with somewhat or very dissatisfied in question (9) – what is the single most important reason for your dissatisfaction? N=42

Number of fish 92.9**%** Size of fish 0.0**%** Not happy with regulations 0.0**%** Asian carp 4.8%
water fluctuations at spawn 2.4%

Catfish Anglers

10. In general, what level of satisfaction or dissatisfaction do you have with the catfish fishing at Lake Barkley? N=96
Very satisfied 39.6% Somewhat satisfied 44.8% Neutral 10.4% Somewhat dissatisfied 1.0%
Very dissatisfied 4.2%

10a. If you responded with somewhat or very dissatisfied in question (10) – what is the single most important reason for your dissatisfaction? N=5
Number of fish 60.0**%** Size of fish 0.0**%** Not happy with regulations 0.0**%** Too much commercial fishing 20.0%
Invasive species 20.0%

White Bass Anglers

11. In general, what level of satisfaction or dissatisfaction do you have with the white bass fishing at Lake Barkley? N=14
Very satisfied 14.3% Somewhat satisfied 21.4% Neutral 21.4% Somewhat dissatisfied 28.6%
Very dissatisfied 14.3%

11a. If you responded with somewhat or very dissatisfied in question (11) – what is the single most important reason for your dissatisfaction? N=6
Number of fish 66.7**%** Size of fish 0.0**%** Not happy with regulations 0.0**%** Asian carp**-** 33.3%

All Anglers

12. Are you satisfied with the current size and creel limits on all sport fish at Lake Barkley? N=230 Yes 90.4% No 9.6%

12a. If you responded "No" to Question 11, which species are you dissatisfied with and what size and creel limits would you prefer? N=22 Creel Limit (CL), Length Limit (LL), Slot Limit (SL)

Black Bass- 17" LL; 18" LL; 3 fish/day CL; keep one fish under 15"/day; No one keeps bass for next 5 years; Add tournament restrictions for bass

Largemouth bass- 15-20" SL; 12" LL; 14" LL;

Smallmouth bass- 10-18" SL

Crappie- 12-13" SL; 11" LL; 12" LL; 10 fish/day CL; 15 fish/day CL; "lower" crappie CL;

Catfish- Add limit to fish under 16"; No commercial netting for catfish over 27"

White bass- 10 fish/day CL

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 Lake Barkley? N=231
Yes 89.2% No 10.8%

13a. When you fish Lake Barkley, how regularly do you fish around Department placed fish attractors? N=206
Always 1.9% Frequently 12.6% Occasionally 28.2% Rarely 47.6% Never 9.7%

13b. If you answered "Rarely" or "Never", what is the single most important reason you don't fish around Department placed fish attractors? N=117
Over fished 14.5% No boat 1.7% No success 36.8% Don't know their location 16.2% Wrong water depth 5.1%
Fishes own stuff 6.0% Boat too big 0.9% Get snagged 4.3% **Other-** "no reason" 5.1%" ; "wrong species" 3.4% ;
"only fishes them seasonally" 2.6%; "only fishes dropoffs" 0.9%; "don't want to disrupt spawning fish" 0.9%;
"only fishes from docks" 0.9%; fish attractors are only for tourists" 0.9%

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=112
Yes 24.1% No 75.9%

14a. If "Yes", how many poles do you use? N=27 3 3.7% 4 70.4% 5 7.4% 6 3.7% >6 14.8%

15. Do you support or oppose a pole limit while fishing for crappie? N=111
Support 43.2% Oppose 25.2% No Opinion 31.5%

15a. If you support a pole limit, what should be the pole limit per person? N=48
1 2.1% 2 27.1% 3 27.1% 4 20.8% 5 2.1% 6 10.4% >6 10.4%

16. If you fish for crappie, do you use some form of real time sonar like livescope or a similar system? N=112
Yes 25.9% No 74.1%

16a. If "Yes", how often do you use it while crappie fishing? N=29
Always 75.9% Frequently 10.3% Occasionally 13.8% Rarely 0.0% Never 0.0%

17. If you fish for catfish in Lake Barkley, which is more important to you: catching trophy fish, or catching more keeper size fish to eat? N=96 Trophy fish 8.3% Catching keeper fish to eat 71.9% Both equally important 17.7% No opinion 2.1%

18. Would you support or oppose a statewide 12-inch minimum size limit on catfish? N= 96
Support 75.0% Oppose 18.8% No Opinion 6.3%

19. Have you participated in an organized fishing tournament on any body of water within the last twelve months? N=229
Yes 26.2% No 73.8%

19a. Were any of the tournaments an alternative format (catch, photo, release; onboard weighing, etc.)? N=60
Yes 8.3% No 91.7%

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=60
Support 83.3% Oppose 8.3% No opinion 8.3%

20. Are you aware that Asian carps are generally considered to be an excellent fish to eat? N=230
Yes 75.7% No 24.4%

21. Are you aware that commercial harvest of Asian carps occurs on Lake Barkley? N=230
Yes 86.5% No 13.5%

21a. How often do you see commercial fishermen fishing for Asian carps on Lake Barkley? N=199
Always 12.6% Frequently 19.1% Occasionally 31.7% Rarely 23.6% Never 13.1%

21b. How are your typical interactions with commercial fishermen fishing for Asian carps? N= 173

Positive 65.3% Negative 1.7% No opinion 33.0%

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 2021 field season.

Nolin River Lake

Black bass Sampling

Diurnal boat electrofishing to sample the black bass population at Nolin River Lake was conducted in April 2021 (Tables 2-4). Catch rates are consistent with previous samples. Largemouth bass accounted for around 83% of black bass collected. Total CPUE for largemouth bass in 2021 is slightly lower than the previous survey in 2017, but still on the high end of collections through time. Catch rates for fish ≥15.0 and ≥20.0 in are higher than most previous collections. Largemouth bass PSD and RSD_{15} have both increased since the 2017 sample and are acceptable.

Diurnal boat electrofishing to survey the black bass population at Nolin River Lake was conducted in October 2021 (Tables 5 and 6). CPUE and relative weights are consistent with previous collections. However, average relative weights could be better.

Slight variability exists concerning catch of larger fish and seems to be attributable to environmental variables at time of sampling rather than changes in the population. The largemouth bass population at Nolin River Lake is relatively stable and performing consistently well (2021 Statewide Assessment Rating = Excellent; Table 7).

Crappie Sampling

The crappie population was not directly assessed in 2021. It is scheduled to be surveyed during fall 2022.

White Bass/Walleye Sampling

The white bass and walleye populations were not directly assessed in 2021. They are not scheduled to be surveyed with gill nets until fall 2023.

Rough River Lake

Black bass Sampling

Diurnal boat electrofishing to survey the black bass population at Rough River Lake was conducted in April 2021 (Tables 8-10). Largemouth bass account for around 94% of black bass collected during standardized sampling events. Largemouth bass catch rates are within the range of previous collections. There has been a steady decline in catch rate for fish ≥15.0 and ≥20.0 in since highs in 2012. However, the 2021 catch rate for 12.0- to 14.9-in fish was the highest recorded, which will hopefully translate to an increase in ≥15.0-in fish in 2022 and ≥20.0-in fish down the road. Largemouth bass PSD has increased since the last collection in 2019. A large portion of the increase is attributed to the increase in 12.0- to 14.9-in fish. If growth continues in the historic range, we should see an increase in RSD_{15} for 2022 and beyond.

Diurnal boat electrofishing to survey the black bass population at Rough River Lake was conducted again in October 2021 (Tables 11 and 12). Catch rate and condition are consistent with previous samples. Fall catch rates for the different size classes was similar to the 2021 spring survey. Average relative weight for bass ≥15.0 in was good (95), but we would like to see increases for fish 8.0-11.9 and 12.0-14.9 in.

The largemouth bass population at Rough River Lake is experiencing some variability and will be monitored consistently moving forward (2021 Statewide Assessment Rating = Good; Table 13).

Crappie Sampling

Trap netting to sample Rough River Lake's crappie population was conducted during November (Tables 14-19). A total of 928 crappie (810 white crappie) were collected during 84 net-nights (nn) for a total CPUE of 11.0 fish/nn. Catch rates were within the range of previous collections. Catch rate for young of year fish was the lowest recorded for the last fourteen samples. However, through time, this parameter is not always an accurate assessor of age class strength. Weather and water conditions can vary tremendously from one year to the next and could easily account for data inconsistencies. Additionally, research has shown that age-0 crappie are not always accurately represented in standardized samples.

Weights were taken and otoliths removed from a representative sample of each inch class of crappie. Average relative weights were very good for all length groups (96-100 white crappie, 97-103 black crappie). Fish ages 1-3 accounted for approximately 90% of fish captured, while 55.8% of fish captured were 7.0-8.0 in. Growth was improved from the previous four samples but remains well below the exceptional growth recorded from 2002-2009.

There are quite a few chunky 7.0- to 9.0-in fish that will be good, harvestable fish in 2022 and beyond (2021 Statewide Assessment Rating = Good).

Hybrid Striped Bass Sampling

After five consecutive years of sampling (2016-2020), hybrid striped bass were not surveyed with gill nets in 2021. Data from the telemetry project is in process of being analyzed and will be reported when complete.

Lake Malone

Largemouth Bass Sampling

Diurnal boat electrofishing to survey the black bass population at Lake Malone was conducted in April (Tables 20-22) and October 2021 (Tables 23-25). Spring catch rate for most length groups was down compared to the 2018 survey. Total CPUE was among the lowest collected during the last fifteen surveys. Sampling conditions were good but sample timing near the end of April may have influenced catch.

Total fall catch rate was nearly identical to the spring; however, fewer fish greater than 15.0 in were collected during this survey. Relative weights for each length group were similar to previous collections but remain below the desired range. Otoliths were collected from a subsample of fish for enumeration of age and growth statistics. Exploitation continues to be low, with fish collected from age-0 to age-12. Growth rates are highly variable across all ages, especially from age-5 and older. However, mean length at age is reasonable through age-5 based on fall lengths at capture.

Largemouth bass PSD and RSD_{15} are within acceptable ranges. Mean WR for all length groups is lower than desired. This may indicate a need to remove bass from within or below the protected slot. An alternative would be to remove the protective slot and manage the lake with the statewide minimum size limit (12.0 in). Data collected in 2022 will be instrumental in determining the next best step. Overall, the bass population at Lake Malone has been relatively stable and performing well for the last two decades (2021 Statewide Assessment Rating = Good; Table 26).

Channel Catfish Sampling

Tandem hoop netting to assess the channel catfish population was conducted twice in 2021 (9/27 - 9/30 and 10/2 - 10/4). Nets were baited with Zote soap for both samples. The first week of sampling had stable weather, bluebird skies, and air temperature in the low 80s. Only eight individuals were captured during this sampling event. A front was coming through in the next few days, so bait was refreshed, and nets reset for another three net nights.

However, the front weakened, and fewer individuals (5) were captured during the second sampling event. The catfish population will be sampled again in 2022 to document length frequencies and collect individuals for age and growth analyses. Sampling will be attempted in the May/June time frame.

Mauzy Lake

Largemouth Bass Sampling

Diurnal boat electrofishing to evaluate the largemouth bass population was conducted in April and October 2021 (Tables 21, 24, 27-29). Both spring and fall sampling conditions were fair, with excessive aquatic vegetation present. Total spring catch rate was one of the lowest recorded since 2009. Almost half of the fish captured were 9.0-10.0 in. Catch rate for fish ≥15.0 in was the lowest recorded and no fish ≥20.0 in were captured for the first time since 2008. PSD was very low (15) for a consecutive year. Fall catch rate was also low; however, relative weights were consistent with previous collections. Assessment values continue to drop across the board, and the bass population is struggling (2021 Statewide Assessment Rating = Poor; Table 30).

Excessive aquatic vegetation (coontail, Eurasian watermilfoil) continues to be an issue despite management efforts. Additional grass carp (200) were stocked in 2021 and did have a noticeable positive effect. However, a significant amount of vegetation remained throughout the fall. Aquatic vegetation negatively impacted sampling efforts and makes accurate evaluation of the fishery difficult. We are hopeful the grass carp will keep up better with vegetation growth in 2022 and allow for more accurate evaluation of the population. Spring and fall electrofishing surveys are planned for 2022, along with age and growth data collection.

Bluegill/Redear Sunfish Sampling

Electrofishing to assess the bluegill and redear sunfish populations was not conducted in 2021 due to excessive aquatic vegetation. A survey will be completed during spring 2022 and fish will be collected for age and growth analyses during the fall.

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 will 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

Diurnal boat electrofishing to survey the largemouth bass population at Carpenter Lake was completed in April and October 2021 (Tables 21, 24, 31-33). Total catch rate was the lowest recorded in the last 20 years. The greatest decline was in fish 12.0-14.9 in but there was also a decrease in catch of fish ≥15.0 in. Both PSD and RSD_{15} are currently at acceptable levels, although an increase in PSD is desirable. Catch rate was higher for the fall sample (174.0 fish/hr compared to 129.0 fish/hr) with several more fish ≥15.0 in captured. Body condition was within the range established in previous samples; however, it is desired to see in increase for fish less than 15.0 in. The 2021 Statewide Assessment Rating was Good (Table 34).

Bluegill/Redear Sunfish Sampling

Electrofishing to assess the bluegill and redear sunfish populations was conducted in May (Tables 35-37). Total catch rate for bluegill dropped back near the long-term average in 2021 after an all-time high collected in 2020.

Again, no bluegill greater than 8.0 in were collected. This is likely the result of abundant gizzard shad and submerged aquatic vegetation. Grass carp (300) were stocked in 2021 to help manage excessive aquatic vegetation (coontail). Several grass carp were documented during the fall bass survey. Bluegill PSD is within the desired range for balanced predator/prey population management; however, a slight increase is desired (2021 Statewide Assessment Rating = Fair – Good; Table 38).

Forty-nine redear sunfish were collected in May in conjunction with bluegill sampling. Total catch rate is near the long-term average but is a decrease from highs in 2019 and 2020. Redear sunfish > 10.0 in were not documented in 2021 but anglers continue to report catching some quality fish. Due to low population size through time a statewide assessment rating has not been produced for redear sunfish at Carpenter Lake.

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. Stocking rate was increased to 100 fish/acre in 2020 and 2021. The stocking rate was increased again during the 2022 Fish Production meeting to 150 fish/acre for 2022. Anglers report catching a few saugeye throughout the year from approximately 10.0 to 18.0 in. Very few have been seen during standard sampling events. Nighttime electrofishing was attempted in November 2020 but no saugeye were captured. No saugeye were collected during 2021 spring bass or bluegill sampling events; however, four saugeye were captured during 2021 fall diurnal largemouth bass sampling (10.5, 19.2, 19.5, 19.7 in). Additional sampling effort will be directed toward saugeye moving forward. It is believed that low population size due to fingerling predation is responsible for the lack of fish documented during standardized sampling events.

Temperature/Dissolved Oxygen

Temperature and dissolved oxygen profiles were collected at Carpenter Lake on 27 August 2021 (Table 39). Dissolved oxygen dropped below 3.0 ppm at around five feet on the front side and around six feet on the back side of the lake. The lake is very eutrophic, likely resulting from several different sources. The primary of which appears to be a cattle operation on the north side of the lake where cattle have direct access to the lake. The removal of direct access to the lake will be a priority moving forward. Improvements to the aeration system and watershed management are also being investigated as potential avenues to improve water quality.

Emergency Spillway

The emergency spillway at Carpenter Lake suffered a complete failure during the winter of 2021. Water has undercut the concrete weir and created a channel under the structure. The concrete apron affixed to the front of the weir broke off when all supporting material eroded away. The spillway is now head cutting back toward the lake. Engineering is aware of the issue and plans to repair or replace the structure during summer 2022.

New Kingfisher Lake

Largemouth Bass

Electrofishing to assess the largemouth bass population at New Kingfisher Lake was conducted in April and October (Tables 21, 24, 40-42). Spring catch rate decreased from 2021 due to a decrease in fish <8.0 and 12.0-14.9 in. Catch rates for fish greater than 15.0 in and greater than 20.0 in remain high. This 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 a consistent length distribution (2021 Statewide Assessment Rating = Good; Table 43).

Bluegill/Redear Sunfish Sampling

The sunfish population was sampled via electrofishing in May (Tables 36, 44-45). Total bluegill CPUE was extremely low compared to samples pre and post renovation. Visibility was much higher than typically encountered during spring sampling and could have accounted for unusually low catch. High catch rates for fish 3.0-5.9 and 6.0-7.9 in were documented in 2021 and we expected that to translate to high catch rates for larger fish in 2022. This was not documented and hopefully can be attributed to a sampling anomaly as opposed to a real population problem.

Fish were not collected for age and growth analysis in 2021 (2021 Statewide Assessment Rating = Poor – Fair; Table 46).

Gizzard shad were documented in both spring and fall samples. The bluegill population will continue to be monitored in 2022. Winter rotenone treatment will likely be employed during winter 2022/2023.

Temperature/Dissolved Oxygen

Temperature and dissolved oxygen profiles were collected at New Kingfisher Lake on 27 August 2021 (Table 39). Dissolved oxygen dropped below 3.0 ppm between three and four feet. The lake remains very eutrophic, likely resulting from several different sources. The primary of which is likely the breakdown of terrestrial vegetation that grew in the lake basin during the drawdown for renovation. Water samples will be analyzed in 2022 and remedial efforts will be further explored. Some potential actions include an alum treatment, installation of a bottom diffused aeration system, and/or other phosphorus "locking" products.

Old Kingfisher Lake

Largemouth Bass

Electrofishing to assess the largemouth bass population was conducted at Old Kingfisher Lake in April and October (Tables 21, 24, 47-49). A total of 45 bass were collected during the spring survey for a total CPUE of 135.1 fish/hr. High catch rate for fish <8.0 inches in 2020 did translate to an increased catch of 8.0- to 11.9-in fish in 2021. Fall sampling did reveal a decline in largemouth bass abundance, presumably related to the oxygen issue in late summer that resulted in both dead and translocated fish. Relative weights continue to be good for fish ≥15.0 in but could improve for the smaller length groups. Additional fish habitat targeted toward small sunfish may prove beneficial. Fish were not collected for age and growth analysis in 2021 (2021 Statewide Assessment Rating = Poor – Fair; Table 50).

Bluegill/Redear Sunfish Sampling

The sunfish population at Old Kingfisher Lake was sampled via electrofishing in May (Tables 36, 51-52). Total bluegill CPUE was 746.7 fish/hr, which is a decrease from 2020. Total numbers remain above the desired range but are still shifting around as the bass population changes as well. 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. Fish were not collected for age and growth analysis in 2021 (Statewide Assessment Rating = Fair – Good; Table 53). Only twelve redear sunfish were collected during standardized sampling, those ranging from 1.0-9.0 in.

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. It is likely that a winter shad rotenone treatment will be completed during winter 2022/2023.

Temperature/Dissolved Oxygen

Temperature and dissolved oxygen profiles were collected at Old Kingfisher Lake on 27 August 2021 (Table 39). Dissolved oxygen dropped below 3.0 ppm between two and three feet. Obviously, the lake remains very eutrophic, likely resulting from several different sources. The primary of which is likely the breakdown of terrestrial vegetation that grew in the lake basin during the drawdown for renovation. Anoxic conditions at the water-sediment interface during stratification releases a large amount of phosphorus into the water column, leading to heavy planktonic algae blooms. Water samples will be analyzed in 2022 and remedial efforts will be further explored. Some potential actions include an alum treatment, installation of a bottom diffused aeration system, and/or other phosphorus "locking" products.

There was an oxygen related fish kill in 2021. After several cloudy and cool days during late summer a believed planktonic/blue-green algae die off resulted in stressed and dying fish. Several larger, stressed largemouth bass beached themselves on the boat ramp and were picked up by hand and transported across the road to New Kingfisher Lake. There did not appear to be a significant oxygen issue occurring in New Kingfisher Lake at the same time and those fish appeared to swim away unharmed. Many shad, crappie and bluegill died during this event, along with several largemouth bass and channel catfish.

Washburn Lake

Largemouth Bass

Electrofishing to assess the largemouth bass population was conducted at Washburn Lake in April and October (Tables 21, 24, 54-56). Total CPUE for the spring (372.0 fish/hr) is slightly above the long-term average. Fish 12.0-20.0 in were noticeably missing once again. Good numbers of 8.0- to 14.9-in fish seen in 2018 did not show up in the larger length groups in spring or fall samples in 2021. PSD is extremely low (7), due to an abundance of fish 8.0-12.0 in. Recruitment is high and average relative weight for the 8.0- to 11.9-in fish is 80, indicating crowding of small fish. Spring catch of two fish >20.0 in inflated the CPUE for the ≥20.0-in length group, making it score full points in that category. Additionally, a full score for CPUE age-1 fish due to high numbers of small fish may not actually be a good thing. Fall sampling did not produce a fish over 15.0 in (2021 Statewide Assessment Rating = Fair – Good; Table 57). Data collected in 2022 will determine the next steps for the lake. Although we are focused on a trophy sunfish fishery with abundant small bass, it appears likely that some small bass will need to be removed to allow for some improvement in growth. A slight increase in larger bass will be necessary to keep the sunfish from becoming crowded in the 5.0- to 7.0-in range. A subsample of bass will be collected for age and growth analyses during fall 2022 sampling.

Bluegill/Redear Sunfish Sampling

The sunfish population at Washburn Lake was sampled via electrofishing in May (Tables 36, 58-59). Total CPUE for bluegill decreased in 2021. Catch rate for fish <3.0 in remained constant, catch for fish 3.0-5.9 and 6.0-7.9 in decreased, and catch rate for fish ≥8.0 in increased from 2020. Bluegill PSD is 37 and should continue to increase if crowding does not occur. Age and growth data was not collected in 2021 (2021 Statewide Assessment Rating = Fair – Good; Table 60).

Total CPUE for redear sunfish increased some from 2020, with most of the increase being attributed to a near threefold increase in fish ≥8.0 in. Small (<6.0-in) redear were in very low abundance, likely due to the high numbers of small bass. Redear sunfish PSD is 92, which is very good if recruitment can be maintained. However, we have not collected a redear sunfish ≥10.0 in to date. Age and growth data was not collected in 2021 (2021 Statewide Assessment Rating = Fair – Good; Table 61).

Lake Renovation

Washburn Lake would benefit greatly from another full 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. The lakeshore that adjoins the county road needs to be stabilized and parking added for angler safety. This renovation will require more planning, cooperation, and financial commitment than the renovation at Mauzy Lake due to the proximity of private landowners and county roads serving as two of the lake boundaries.

Table 1. Annual summary of sampling conditions by waterbody, species sampled, and date for Northwestern Fishery District lakes during 2021.

Water body	Species	Date	Time (24hr)	Gear	Weather	Water temp. F	Water level	Secchi (in)	Conditions	Pertinent sampling comments
Nolin River Lake	WE	3/16	930	EF		52.3	511.2		Good	Bacon Creek to Wheelers Mill, 22 male walleye
Nolin River Lake	LMB	4/12, 4/15, 4/16	930	EF	Mostly sunny, breezy, low 70s	62 - 65	515.6 - 515.2	39 - 51	Fair	
Nolin River Lake	LMB	10/26, 10/27	930	EF	Cloudy to mostly sunny, breezy	65.1 - 68.7	510.0 - 509.3	29 - 59	Good	
Rough River Lake	LMB	4/19, 4/20, 4/26	930	EF	Sunny to mostly sunny, blue skies, low 60s	62 - 66	495.3 - 495.7	36 - 72	Good	
Rough River Lake	LMB	10/20, 10/21	930	EF	Sunny w/ blue skies to cloudy/partly sunny and windy, 65-70F	69 - 72	493.4 - 492.9	24 - 54	Good	
Rough River Lake	Crappie	11/1 - 11/5		TN	Cloudy/foggy to sunny with blue skies, mid 30s	57.8 - 61.7	488.5 - 486.3	24	Good	
Lake Malone	LMB	4/27	900	EF	Mostly sunny, light breeze, upper 60s	63.7 - 64.9	pool	30 - 34	Good	
Lake Malone	LMB	10/18, 10/19	900	EF	Sunny, low 60s	67.8 - 73.9	pool	24 - 30	Good	
Lake Malone	CCF	9/27 - 9/30		HN	Blue skies, stable weather, low 80s	73.8	pool + 3"	30	Poor	
Lake Malone	CCF	10/2 - 10/4		HN	Partly cloudy, weak front passed through, low 80s	76.4	pool + 3"	31	Fair	
Mauzy	LMB	4/14	900	EF	Cloudy, front just passed through, 60F	64	pool	60	Fair	
Mauzy	LMB	10/22	900	EF	Cloudy, calm, 60F	66.7	pool	39	Fair	
Carpenter	LMB	4/30	800	EF	Sunny, blue skies, light breeze, 65F	66.2	pool	28	Good	
Carpenter	BG	5/13	830	EF	Sunny then cloudy, breezy, 60F	65	pool	27	Good	
Carpenter	LMB	10/25	830	EF	Cloudy, 60F	65.8	pool	32	Good	Captured 4 saugeye
Carpenter	ALL	8/27	1120	Temp/DO	Sunny, calm	88	pool	13	Good	
New Kingfisher	LMB	4/30	1015	EF	Sunny, blue skies, light breeze, 65F	68.2	pool	51	Good	
New Kingfisher	BG	5/13	1230	EF	Mostly sunny, breezy, 65F	68.7	pool	51	Good	
New Kingfisher	LMB	10/25	1045	EF	Cloudy, windy, 58F	64.6	pool	24	Fair	
New Kingfisher	ALL	8/27	1030	Temp/DO	Sunny, calm	86.4	pool	11	Good	
Old Kingfisher	LMB	4/30	1215	EF	Sunny, blue skies, light breeze, 67F	71.2	pool	24	Fair	
Old Kingfisher	BG	5/13	1115	EF	Sunny, breezy, 63F	87.8	pool	29	Good	
Old Kingfisher	LMB	10/25	1150	EF	Mostly cloudy, windy, 60F	64.6	pool	16	Fair	
Old Kingfisher	ALL	8/27	1055	Temp/DO	Sunny, calm	87.2	pool	11	Good	
Washburn	LMB	4/28	800	EF	Mostly cloudy, 65F	68.5	pool	38	Good	
Washburn	BG	5/14	800	EF		64.6	pool	35	Good	
Washburn	LMB	10/28	1200	EF	Cloudy, breezy, 58F	62.2	pool	34	Good	
Waymond Morris Park	ALL	9/7	1015	Temp/DO		77.4	pool	12	Good	

Table 2. Species composition, length frequency, and CPUE (fish/hr) of black bass collected during 6.0 hours of 30-minute diurnal electrofishing at Nolin River Lake in April 2021.

		Inch class																					
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	SE
Upper	Largemouth bass	6	7	25	47	36	18	17	17	24	34	47	33	31	31	18	8	3	4	2	408	136.0	13.2
	Spotted bass				1	1		3	6	11	6	13	1								42	14.0	4.2
Mid	Largemouth bass		6	16	31	18	8	7	7	16	31	53	32	30	16	10	6	4	8		299	149.5	9.8
	Spotted bass				9	8	13	8	4	29	15	4	3								93	46.5	18.3
Lower	Largemouth bass	2	2	8	13	10	6	8	10	7	18	19	11	9	11	5	4	2			145	145.0	27.0
	Spotted bass					2		4	4	6	8	3	2								29	29.0	5.0
Total	Largemouth bass	8	15	49	91	64	32	32	34	47	83	119	76	70	58	33	18	9	12	2	852	142.0	7.9
	Spotted bass				10	11	13	15	14	46	29	20	6								164	27.3	7.4

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Table 3. PSD and RSD[a] values obtained for each black bass species taken in spring electrofishing samples in each area of Nolin River Lake during April 2021; 95% confidence intervals are in parentheses.

Area	Species	No. ≥ stock	PSD	RSD[b]
Upper	Largemouth bass	287	74 (± 5)	34 (± 5)
	Spotted bass	41	76 (± 14)	2 (± 5)
Mid	Largemouth bass	228	83 (± 5)	32 (± 6)
	Spotted bass	84	61 (± 10)	4 (± 3)
Lower	Largemouth bass	110	72 (± 8)	28 (± 8)
	Spotted bass	29	66 (± 16)	7 (± 9)
Total	Largemouth bass	154	77 (± 4)	32 (± 4)
	Spotted bass	625	66 (± 7)	4 (± 3)

[a] Largemouth bass = 8.0 in, spotted bass = 7.0 in

[b] Largemouth bass = RSD_{15}, spotted bass = RSD_{14}.

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Table 4. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Nolin River Lake during spring electrofishing 1999-2021.

	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
2021	37.8	4.2	24.2	3.4	46.3	4.6	33.7	1.8	2.3	0.6	142.0	7.9
2017	36.2	8.8	46.2	8.0	60.6	4.0	21.0	2.3	1.6	0.4	164.0	17.4
2016	19.6	5.3	23.8	6.0	37.1	6.6	12.0	2.6	1.6	0.6	92.4	14.0
2014	21.4	2.3	29.2	2.5	64.0	5.4	15.0	1.7	1.4	0.6	129.6	6.9
2012	76.9	9.6	52.7	6.4	53.8	4.7	16.0	2.1	0.2	0.2	199.3	14.8
2009	30.0	5.7	25.1	4.3	36.0	3.6	5.3	1.1	0.7	0.3	96.4	7.1
2008	50.4	7.9	45.8	5.4	34.2	4.3	11.3	1.6	3.6	1.0	141.8	11.2
2007	53.3	10.0	17.3	2.2	27.6	4.9	8.2	1.3	0.7	0.5	106.4	14.2
2006	17.8	2.8	15.8	1.5	23.6	2.7	7.6	1.5	0.4	0.4	64.7	5.7
2005	27.1	5.0	27.1	4.1	25.3	3.9	14.2	2.3	0.4	0.3	93.8	10.1
2004	23.7	1.6	16.4	3.7	16.2	2.4	8.9	2.6	0.4	0.3	65.3	6.8
2003	12.9	3.7	10.2	2.3	8.9	2.2	7.6	2.0	0.0		39.6	9.2
2002	4.0	1.3	9.8	2.6	8.0	3.1	8.0	1.6	0.0		29.8	5.4
2001	5.5	1.7	27.0	7.4	18.0	3.3	9.0	2.8	0.0		59.5	11.7
2000	9.5	3.1	35.0	6.3	41.5	5.1	14.0	4.3	0.5	0.5	100.0	13.1
1999	n/d		61.3	16.8	56.9	9.2	8.0	1.8	0.4	0.4	126.2	26.0

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Table 5. Species composition, length frequency, and CPUE (fish/hr) of black bass collected during 4.5 hours of 30-minute diurnal electrofishing at Nolin River Lake in October 2021.

		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	SE
Upper	Largemouth bass	21	91	7	2	9	8	10	17	29	48	51	42	35	19	9	6	5	1			410	164.0	47.2
	Spotted bass			1				1	1	4	4	5	3	4								23	9.2	4.6
Mid	Largemouth bass	17	11	1			1		3	1	4	4	8	4	2	7	4	1	1	1	1	71	71.0	3.0
	Spotted bass	5	5	1	3	5	5	6	3	6	10	6	5	3								63	63.0	7.0
Lower	Largemouth bass	1			2	1	1	4	8	2	5	9	2	1								36	36.0	20.0
	Spotted bass	27	8	1	3	3	1		3	1	4	9	11	7	5	1	5		2			91	91.0	27.0
Total	Largemouth bass	65	110	9	5	12	10	10	23	31	56	64	61	46	26	17	15	6	4	1	1	572	127.1	29.3
	Spotted bass	6	5	2	5	6	6	11	12	12	19	20	10	8								122	27.1	8.9

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Table 6. Number of fish and relative weight (Wr) for length groups of largemouth bass collected at Nolin River Lake during October 2021. 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	80	89 (1)	84	89 (1)	40	93 (2)
Largemouth bass	Middle	7	83 (2)	16	85 (1)	17	90 (2)
Largemouth bass	Lower	8	84 (2)	27	85 (1)	13	87 (2)
Largemouth bass	Total	95	88 (1)	127	88 (1)	70	91 (1)

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Table 7. Population assessment for largemouth bass based on spring electrofishing at Nolin River Lake from 2000-2021 (scoring based on statewide assessment).

Year	Mean length age 2+ 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
2021		33.3 (4)	46.3 (4)	33.7 (4)	2.3 (4)			≥ 17	Excellent
2017	12.9 (3)	58.8 (4)	60.6 (4)	21.0 (4)	1.6 (4)	0.968	58.7	19	Excellent
2016		23.1 (3)	37.1 (4)	12.0 (2)	1.6 (4)			≥ 14	G - E
2014		22.2 (2)	64.0 (4)	15.0 (3)	1.4 (4)			≥ 14	G - E
2012	13.4 (4)	82.9 (4)	53.8 (4)	16.0 (3)	0.2 (2)	0.582	44.1	17	Excellent
2009	12.6 (3)	29.2 (3)	36.0 (4)	5.3 (1)	0.7 (3)			14	Good
2008	12.6 (3)	49.7 (4)	34.2 (4)	11.3 (2)	3.6 (4)	0.553	42.5	17	Excellent
2007	12.6 (3)	51.6 (4)	27.6 (3)	8.2 (2)	0.7 (3)	0.609	45.0	15	Good
2006	12.6 (3)	17.0 (2)	23.6 (3)	7.6 (2)	0.4 (2)	0.447	36.0	12	Fair
2005	13.1 (3)	26.2 (3)	25.3 (3)	14.2 (3)	0.2 (2)	0.617	46.0	14	Good
2004	13.1 (3)	22.9 (3)	16.2 (1)	8.9 (2)	0.4 (2)	0.684	49.5	11	Fair
2003	13.1 (3)	11.3 (1)	8.9 (1)	7.6 (2)	0.0 (1)	0.534	41.4	8	Poor
2002	13.1 (3)	3.8 (1)	8.0 (1)	8.0 (2)	0.0 (1)			8	Poor
2001	13.1 (3)	5.0 (1)	18.0 (2)	9.0 (2)	0.0 (1)			9	Fair
2000	13.1 (3)	9.0 (1)	41.4 (4)	14.0 (3)	0.5 (3)			14	Good

Table 8. Species composition, length frequency, and CPUE (fish/hr) of black bass collected during 6.0 hours of 30-minute diurnal electrofishing runs at Rough River Lake in April 2021.

		Inch class																				
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	SE
North Fork	Largemouth bass	1	16	25	29	15	6	3	10	14	35	39	37	19	5	4	5	1		264	132.0	12.8
	Spotted bass		1	1	1		1	1	3	5	6	2		1						22	11.0	3.0
South Fork	Largemouth bass	15	38	51	68	55	27	13	30	47	49	57	48	29	11	3	2	6	2	551	137.8	17.7
	Spotted bass		2	1	1		1	1	4	13	7	2								32	8.0	3.1
Total	Largemouth bass	16	54	76	97	70	33	16	40	61	84	96	85	48	16	7	7	7	2	815	135.8	12.2
	Spotted bass		3	2	2		2	2	7	18	13	4		1						54	9.0	2.3

nwd2psd.d21

Table 9. PSD and RSD[a] values obtained for each black bass species taken in spring electrofishing samples on each arm of Rough River Lake during April 2021; 95% confidence intervals are in parentheses.

Area	Species	No. ≥ stock size[a]	PSD	RSD[b]
North Fork	Largemouth bass	178	82 (± 6)	19 (± 6)
	Spotted bass	19	74 (± 20)	5 (± 10)
South Fork	Largemouth bass	324	64 (± 5)	16 (± 4)
	Spotted bass	28	79 (± 16)	-
Total	Largemouth bass	502	70 (± 4)	17 (± 3)
	Spotted bass	47	77 (± 12)	2 (± 4)

[a] Largemouth bass = 8.0 in, Spotted bass = 7.0 in

[b] Largemouth bass = RSD_{15}, Spotted bass = RSD_{14}.

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Table 10. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Rough River Lake during 1999-2021.

	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.
2021	52.2	8.6	25.0	3.7	44.2	3.8	14.5	1.3	0.3	0.2	135.8	12.2
2019	61.8	9.0	48.0	4.2	27.6	3.3	15.8	3.4	0.9	0.4	153.1	12.6
2016	30.7	7.5	18.4	2.9	29.3	4.7	23.3	2.5	2.0	0.8	101.8	9.0
2013	20.9	3.1	49.6	5.0	32.4	3.6	31.3	3.6	3.3	0.6	134.2	8.1
2012	25.8	4.3	52.4	11.7	29.3	4.3	32.0	7.2	3.6	1.4	139.6	22.3
2009	29.1	3.2	47.8	4.2	42.7	4.3	17.6	2.5	0.7	0.3	137.1	7.0
2007	26.4	3.5	27.3	4.7	27.8	4.1	13.1	1.2	0.2	0.2	94.7	8.9
2006	21.1	2.6	28.7	10.1	28.2	4.4	11.3	2.8	0.4	0.3	89.3	16.7
2005	26.9	6.2	34.0	7.6	38.9	5.2	14.2	2.5	0.7	0.3	114.0	41.7
2004	31.1	3.9	35.6	5.1	12.9	2.2	9.8	1.1	0.2	0.2	89.3	9.5
2003	61.6	7.0	27.8	6.9	20.0	5.6	18.4	3.2	0.7	0.3	127.8	15.4
2002	7.3	1.7	7.1	2.3	2.0	0.9	1.6	0.4	0.0	0.0	18.0	3.8
2001	30.7	7.5	21.3	4.5	16.4	5.0	3.1	1.7	0.0	0.0	71.6	11.2
2000	15.1	3.5	32.9	4.3	21.8	2.8	5.3	2.1	1.8	1.0	75.1	6.4
1999	n/d		28.4	2.1	21.3	4.1	8.9	2.4	0.4	0.4	58.7	4.6

[a] Unable to sample due to high water some years

nwd2psd.d21

Table 11. Length frequency and CPUE (fish/hr) for black bass collected in 4.0 hours of electrofishing at Rough River Lake during October 2021.

		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	SE
North Fork	Largemouth bass	4	53	12	3	15	26	9	16	27	20	21	27	19	12	11	3	2	3	3	1	287	143.5	27.77
	Spotted bass				1		1	2		1	3	5	1	1								15	7.5	3.3
South Fork	Largemouth bass	2	18	54	39	38	60	21	24	47	44	35	34	21	7	6	1	2				453	226.5	65.06
	Spotted bass	1	11	2	1	2	4	2	2	2	1	5	2	1								36	18.0	8.29
Total	Largemouth bass	6	71	66	42	53	86	30	40	74	64	56	61	40	19	17	4	4	3	3	1	740	185.0	36.3
	Spotted bass	1	11	2	2	2	5	4	2	3	4	10	3	2								51	12.8	4.6

nwd2lmb.d21

Table 12. Number of fish and relative weight (Wr) for length groups of largemouth bass collected at Rough River Lake during October 2021. Standard errors are in parentheses.

Species	Area	Length group					
		8.0-11.9 in		12.0-14.9 in		≥ 15.0 in	
		No.	Wr	No.	Wr	No.	Wr
Largemouth bass	North Fork	60	89 (1)	65	86 (1)	35	95 (1)
Largemouth bass	South Fork	66	86 (1)	49	85 (1)	16	95 (2)
Largemouth bass	Total	126	87 (1)	114	86 (1)	51	95 (1)

nwd2lmb.d21

Table 13. Population assessment for largemouth bass based on spring electrofishing at Rough River Lake from 1999-2021 (scoring based on statewide assessment).

Year	Mean length age 3	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
2021		57.7 (4)	44.2 (4)	14.5 (3)	0.3 (2)			≥ 14	Good
2019	13.2 (3)	46.0 (4)	27.6 (3)	15.8 (3)	0.9 (3)			16	Good
2016		33.8 (3)	29.3 (3)	23.3 (4)	2.0 (4)			≥ 15	G-E
2013	12.3 (2)		32.4 (4)	31.3 (4)	3.27 (4)			≥ 15	G-E
2012		36.4 (3)	29.3 (3)	32.0 (4)	3.6 (4)			≥ 15	G-E
2009	12.6 (3)	28.4 (3)	42.7 (4)	17.6 (3)	0.67 (3)	0.884	58.7	16	Good
2007	13.6 (4)	27.1 (3)	27.8 (3)	13.1 (3)	0.2 (2)	0.576	42.3	15	Good
2006	13.6 (4)	22.0 (2)	28.2 (3)	11.3 (2)	0.4 (2)	0.773	53.8	13	Good
2005	13.6 (4)	28.0 (3)	38.9 (4)	14.2 (3)	0.7 (3)	0.759	53.2	15	Good
2004	13.6 (4)	38.8 (3)	12.9 (1)	9.8 (2)	0.2 (2)	0.862	57.8	12	Fair
2003	12.5 (3)	44.3 (4)	20.0 (2)	18.4 (3)	0.7 (3)	0.797	54.9	15	Good
2002	12.5 (3)	7.9 (1)	2.0 (1)	1.6 (1)	0.0 (1)			7	Poor
2001	12.5 (3)	28.0 (3)	16.4 (2)	3.1 (1)	0.0 (1)			10	Fair
2000	12.5 (3)	10.5 (1)	21.8 (2)	5.3 (1)	1.8 (4)			11	Fair
1999	12.5 (3)	3.0 (1)	21.3 (2)	8.9 (2)	0.4 (2)			10	Fair

Table 14. Length frequency and CPUE (fish/nn) for each species of crappie collected in 84 net-nights of sampling at Rough River Lake during November 2021.

	Inch class												
Species	3	4	5	6	7	8	9	10	11	12	Total	CPUE	SE
White crappie		21	37	44	205	247	152	75	24	5	810	9.6	1.9
Black crappie	3	2	7	43	22	17	21	2	1		118	1.4	0.3

nwd2tn.d21

Table 15. PSD and RSD_{10} values calculated for crappie collected in trap nets from Rough River Lake during November 2021; 95% confidence limits are in parentheses.

Lake/Species	No. ≥ stock size	PSD	RSD_{10}
Rough River Lake			
White crappie	789	64 (± 4)	13 (± 3)
Black crappie	113	36 (± 9)	3 (± 3)

nwd2tn.d21

Table 16. Number of fish and the relative weight (Wr) for each length group of crappie collected at Rough River Lake during November 2021. Standard errors are in parentheses.

	Length group					
	5.0 - 7.9 in		8.0 - 9.9 in		≥ 10.0 in	
Species	No.	Wr	No.	Wr	No.	Wr
White crappie	156	96 (1)	199	99 (1)	85	100 (1)
Black crappie	72	98 (1)	38	103 (1)	3	97 (5)

nwd2tn.d21

Table 17. Mean back calculated lengths (in) at each annulus for white crappie collected at Rough River Lake in November 2021.

Year		Age						
class	No.	1	2	3	4	5	6	7
2020	54	5.2						
2019	26	5.2	8.0					
2018	32	5.1	7.7	9.3				
2017	3	3.2	5.2	7.5	8.8			
2015	2	5.1	7.1	8.4	9.7	11.1	11.7	
2014	2	4.4	6.2	7.1	7.7	8.3	10.0	11.1
Mean		5.1	7.6	9.0	8.7	9.7	10.9	11.1
No.		119	65	39	7	4	2	2
Smallest		2.3	4.4	6.2	6.8	7.4	9.1	10.5
Largest		7.0	9.7	11.6	11.5	11.7	12.4	11.7
SE		0.1	0.1	0.2	0.7	0.9	0.7	0.6
95% CI (±)		0.1	0.2	0.4	1.3	1.8	1.3	1.2

nwd2wca.d21

Table 18. Age-frequency and CPUE (fish/nn) per inch class of white crappie collected in 84 net-nights at Rough River Lake during November 2021.

	Inch class												
Age	4	5	6	7	8	9	10	11	12	No.	CPUE	SE	Age (%)
0	21	37	3							61	0.73	0.22	7.5
1			41	164	148	67	4			424	5.05	1.04	52.3
2				21	37	61	34	3		155	1.85	0.37	19.1
3				10	62	18	38	18	2	147	1.75	0.35	18.1
4				10		6			1	17	0.21	0.04	2.1
5										0			
6								2	1	3	0.03	0.01	0.4
7								2	1	3	0.03	0.01	0.4
Total	21	37	44	205	247	152	76	25	5	810			
(%)	2.6	4.6	5.4	25.3	30.5	18.8	9.2	3.0	0.6				100.0

nwd2wca.d21, nwd2tn.d21

Table 19. Population assessment for white crappie based on fall trapnetting at Rough River Lake from 2000-2021 (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	Instantaneous mortality (z)	Annual mortality (A)%	Total score	Assessment rating
2021	8.9 (3)	5.1 (3)	0.7 (1)	6.0 (4)	9.3 (3)	0.814	55.7	14	Good
2018	3.0 (1)	1.5 (1)	2.8 (1)	1.5 (1)	9.2 (3)	0.612	54.2	7	Poor
2015	38.9 (4)	25.5 (4)	1.4 (1)	7.2 (3)	9.3 (3)			15	Good
2013	18.6 (3)	3.8 (3)	6.0 (2)	9.0 (3)	8.3 (1)			11	Fair
2011	15.6 (3)	10.3 (3)	1.0 (1)	4.9 (2)	9.2 (3)	1.230	70.9	12	Fair
2010	10.2 (3)	5.8 (2)	1.9 (1)	3.4 (2)					
2009	28.1 (4)	26.1 (4)	12.4 (4)	7.8 (3)	10.8 (4)	2.040	87.1	19	Excellent
2008	4.6 (2)	3.1 (2)	20.0 (4)	4.3 (2)	10.7 (4)	1.030	64.3	14	Good
2006	8.2 (2)	7.5 (3)	2.3 (1)	4.0 (2)	10.7 (4)	2.180	88.7	12	Fair
2005	4.6 (2)	3.5 (2)	4.6 (2)	3.3 (2)	10.4 (4)	0.869	58.1	12	Fair
2004	8.2 (2)	5.5 (2)	1.8 (1)	7.1 (3)	10.4 (4)	0.734	52.0	12	Fair
2003	13.1 (3)	10.8 (3)	18.9 (4)	9.9 (3)	10.6 (4)	1.066	65.5	17	Good
2002	8.4 (3)	4.5 (2)	4.5 (2)	7.3 (3)	10.3 (4)	0.871	58.5	14	Good
2000	4.0 (1)	1.4 (1)	2.1 (1)	3.1 (2)	9.2 (3)	1.160	68.7	8	Fair

Table 20. Length frequency and CPUE (fish/hr) of largemouth bass collected during 2.5 hours of 30-minute diurnal electrofishing at Lake Malone in April 2021.

	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	4	9	9	2	8	36	23	26	20	47	44	32	31	28	26	15	6	4	1	371	148.4	16.3

nwd3psd.d21

Table 21. PSD and RSD_{15} values obtained for largemouth bass collected in spring electrofishing samples at NWFD state-owned lakes during 2021; 95% confidence intervals are in parentheses.

Lake	Species	No. ≥ 8.0 in	PSD	RSD_{15}
Malone	Largemouth bass	339	69 (± 5)	33 (± 5)
Mauzy	Largemouth bass	145	15 (± 6)	1 (± 2)
Carpenter	Largemouth bass	103	51 (± 9)	37 (± 9)
New Kingfisher	Largemouth bass	50	44 (± 14)	36 (± 13)
Old Kingfisher	Largemouth bass	29	28 (± 17)	14 (± 13)
Washburn	Largemouth bass	102	7 (± 2)	5 (± 4)

nwd3psd.d21
nwd4psd.d21
nwd5psd.d21
nwd6psd.d21
nwd7psd.d21
nwd8psd.d21

Table 22. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Lake Malone 1999-2021.

	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
2021	12.8	2.3	42.0	11.7	49.2	4.8	44.4	2.6	2.0	1.1	148.4	16.3
2018	5.6	1.7	37.6	7.2	60.4	7.2	59.2	7.8	10.8	2.6	162.8	17.8
2017	14.0	3.2	32.0	6.8	44.8	8.1	37.2	9.2	5.6	1.3	128.0	16.8
2015	18.8	2.7	81.6	7.7	60.8	5.3	42.8	7.2	8.4	1.2	204.0	17.2
2014	9.6	1.3	44.4	9.6	23.2	4.6	29.8	3.3	5.0	0.6	107.0	16.7
2012	46.4	18.4	123.6	18.1	48.8	10.9	48.8	10.3	2.8	1.0	267.6	44.5
2011	45.6	10.3	56.0	7.3	35.2	7.7	34.4	6.8	4.0	1.1	171.2	26.8
2010	37.2	8.8	49.6	5.0	49.6	5.4	62.0	7.1	3.6	1.6	198.4	16.3
2009	10.0	1.4	29.6	4.4	51.2	7.6	37.2	3.6	5.6	0.4	128.0	11.7
2008	18.8	6.5	78.8	6.6	77.2	5.0	43.6	8.1	6.4	1.5	218.4	12.4
2007	29.2	4.0	80.4	10.4	30.8	2.0	37.6	10.3	3.6	1.3	178.0	17.8
2006	31.6	3.7	81.6	14.3	22.4	2.1	28.0	5.9	5.2	1.6	163.6	19.8
2005	32.4	4.8	69.2	14.3	32.0	8.7	53.6	5.7	8.4	1.2	187.2	30.1
2004	28.4	3.9	53.6	5.7	26.4	4.2	53.2	3.9	6.0	1.6	161.6	12.8
2003	57.0	3.3	76.5	6.8	35.0	5.0	57.5	4.9	9.5	2.8	226.0	12.1
2002[a]	8.6	3.3	43.4	5.0	43.4	8.5	41.7	7.6	8.0	3.0	137.1	17.5
2001[a]	18.0	8.1	66.0	12.0	50.0	8.0	31.3	6.3	0.7	0.7	165.3	15.6
2000[a]	13.3	3.4	46.0	4.2	51.3	7.8	24.0	4.0	2.0	0.9	134.7	14.5
1999[a]	n/d		48.7	9.8	61.3	7.0	23.3	4.9	2.7	1.3	133.3	12.7

[a] Nocturnal sample

nwd3psd.d21

Table 23. 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 2021.

	Inch class																					
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	SE
Largemouth bass	1	39	32	14	11	21	31	23	29	31	36	22	24	21	19	13	5	8	2	382	152.8	13.3

nwd3lmb.d21

Table 24. Number of fish and relative weight (Wr) for length groups of largemouth bass collected in fall electrofishing samples at NWFD state-owned lakes during 2021; 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	108	87 (1)	80	87 (1)	68	90 (1)
Mauzy	55	84 (1)	21	85 (1)	1	88 (-)
Carpenter	49	86 (1)	33	88 (1)	42	94 (1)
New Kingfisher	26	88 (1)	14	92 (2)	19	97 (2)
Old Kingfisher	10	88 (2)	1	85 (-)	1	109 (-)
Washburn	58	80 (1)	4	91 (4)	-	-

nwd3lmb.d21
nwd4lmb.d21
nwd5lmb.d21
nwd6lmb.d21
nwd7lmb.d21
nwd8lmb.d21

Table 25. Mean back calculated lengths (in) at each annulus for largemouth bass collected at Lake Malone in October 2021.

Year		Age											
class	No.	1	2	3	4	5	6	7	8	9	10	11	12
2020	31	5.2											
2019	23	6.6	9.3										
2018	21	6.2	10.0	12.2									
2017	19	5.8	9.6	11.6	13.2								
2016	7	5.7	10.1	12.3	13.7	14.9							
2015	6	6.5	9.7	11.6	13.2	14.9	16.0						
2014	3	5.5	10.5	13.6	15.2	16.7	18.0	19.0					
2013	1	6.3	10.3	12.0	13.3	14.5	16.0	17.0	18.0				
2012	2	5.3	10.7	13.2	14.3	15.8	17.3	17.7	18.4	18.8			
2010	1	6.8	10.9	12.6	13.9	14.8	16.1	16.8	17.3	17.8	18.2	19.0	
2009	1	6.4	9.5	10.4	11.3	12.4	13.5	14.4	15.2	15.7	16.4	17.0	17.5
Mean		5.9	9.8	12.1	13.5	15.1	16.4	17.5	17.5	17.8	17.3	18.0	17.5
No.	115												
Smallest		3.7	7.9	9.5	10.8	11.9	12.6	14.4	15.2	15.7	16.4	17.0	17.5
Largest		11.6	14.5	15.9	17.0	18.4	19.5	19.8	18.5	18.9	18.2	19.0	17.5
Std error		0.1	0.1	0.2	0.2	0.4	0.6	0.6	0.6	0.7	0.9	1.0	
95% CI (±)		0.2	0.3	0.3	0.5	0.8	1.0	1.1	1.2	1.5	1.8	1.9	

nwd3lmba.d21

Table 26. Population assessment for largemouth bass based on spring electrofishing at Lake Malone from 2001-2021 (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
2021	12.8 (4)*	9.6 (1)	49.2 (4)	44.4 (4)	2.0 (3)	0.398	32.8	16	Good
2018		5.6 (1)	60.4 (4)	59.2 (4)	10.8 (4)			≥ 14	Good
2017		12.8 (1)	44.8 (4)	37.2 (4)	5.6 (4)			≥ 14	Good
2015	11.4 (3)*		60.8 (4)	42.8 (4)	8.4 (4)			≥ 16	G - E
2014		7.8 (1)	23.2 (2)	29.8 (4)	5.0 (4)			≥ 12	F - G
2012		31.2 (2)	48.8 (4)	48.8 (4)	2.8 (3)			≥ 14	Good
2011		41.2 (2)	35.2 (3)	34.4 (4)	4.0 (4)			≥ 14	G - E
2010	10.4 (2)	15.1 (1)	49.6 (4)	62.0 (4)	3.6 (3)	0.397	32.7	14	Good
2009	10.3 (2)	8.8 (1)	51.2 (4)	37.2 (4)	5.6 (4)	0.293	25.4	15	Good
2008	10.3 (2)	16.4 (2)	77.2 (4)	43.6 (4)	6.4 (4)	0.357	30.0	16	Good
2007	10.3 (2)	29.2 (2)	30.8 (2)	37.6 (4)	3.6 (3)	0.330	28.1	13	Good
2006	11.5 (4)	20.2(2)	22.4 (2)	28.0 (4)	5.2 (4)	0.526	40.9	16	Good
2005	11.5 (4)	19.0 (2)	32.0 (2)	53.6 (4)	8.4 (4)	0.387	32.0	16	Good
2004	11.5 (4)	19.0 (2)	26.4 (2)	53.2 (4)	6.0 (4)	0.365	31.1	16	Good
2003	11.5 (4)	35.0 (2)	35.0 (3)	48.0 (4)	8.5 (4)	0.416	34.1	17	Excellent
2002	11.5 (4)	6.0 (1)	43.4 (3)	41.7 (4)	8.0 (4)			16	Good
2001	12.9 (4)	14.0 (1)	50.0 (4)	31.3 (4)	0.7 (1)			14	Good

*Using excel back calc tool

Table 27. Length frequency and CPUE (fish/hr) of largemouth bass collected during 1.0 hour of 15-minute diurnal electrofishing runs at Mauzy Lake in April 2021.

	Inch class																	
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	CPUE	SE
Largemouth bass	1	7	2	2	12	24	34	45	20	16	2	2		1	1	169	169.0	17.5

nwd4psd.d21

Table 28. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Mauzy Lake during spring 2003-2021.

	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
2021	24.0	0.0	123.0	16.4	20.0	2.3	2.0	1.2	0.0	-	169.0	17.5
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.d21

Table 29. Length frequency and CPUE (fish/hr) of largemouth bass collected during 1.0 hour of 15-minute diurnal electrofishing runs at Mauzy Lake in October 2021.

	Inch class																	
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	CPUE	SE
Largemouth bass	1	18	12	3	2	8	12	17	18	16	3	2			1	113	113.0	14.4

nwd4lmb.d21

Table 30. Population assessment for largemouth bass based on spring electrofishing at Mauzy Lake from 2003-2021 (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
2021		10.0 (2)	20.0 (2)	2.0 (1)	0.0 (1)			≥ 7	Poor
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 31. 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 2021.

	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	2	20	4		3	20	12	15	6	1	8	3	7	7	9	5	5	2	129	129.0	16.6

nwd5psd.d21

Table 32. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Carpenter Lake 2003-2021.

	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
2021	26.0	13.1	50.0	10.5	15.0	1.0	38.0	7.6	7.0	3.0	129.0	16.6
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.d21

Table 33. Length frequency and CPUE (fish/hr) of largemouth bass collected during 1.0 hour of 15-minute diurnal electrofishing runs at Carpenter Lake in October 2021.

	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	2	14	23	9	8	20	30	10	7	5	9	11	9	5	3	174	174.0	35.7

nwd5lmb.d21

Table 34. Population assessment for largemouth bass based on spring electrofishing at Carpenter Lake from 2001-2021 (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
2021		26.0 (3)	15.0 (2)	38.0 (4)	7.0 (4)			≥ 14	Good
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 35. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected during 0.75 hours of electrofishing at Carpenter Lake in May 2021.

	Inch class											
Species	1	2	3	4	5	6	7	8	9	Total	CPUE	SE
Bluegill	20	54	25	57	61	51	1			269	358.7	43.3
Redear sunfish		1				3	16	24	5	49	65.3	21.8

nwd5bg.d21

Table 36. PSD and RSD values obtained for bluegill and redear sunfish collected in spring electrofishing samples at NWFD state-owned lakes during 2021; 95% confidence intervals are in parentheses.

Lake	Species	No. ≥ stock size	PSD	RSD[a]
Carpenter	Bluegill	195	27 (± 6)	-
	Redear sunfish	48	94 (± 7)	10 (± 9)
New Kingfisher	Bluegill	51	39 (± 13)	-
	Redear sunfish	4	100 (± 0)	75 (± 49)
Old Kingfisher	Bluegill	166	49 (± 7)	-
	Redear sunfish	10	90 (± 20)	40 (± 32)
Washburn	Bluegill	67	37 (± 11)	9 (± 6)
	Redear sunfish	132	92 (± 5)	11 (± 5)

[a] Bluegill = RSD_8, Redear = RSD_9

nwd5bg.d21
nwd6bg.d21
nwd7bg.d21
nwd8bg.d21

Table 37. Spring electrofishing CPUE (fish/hr) for each length group of bluegill (2001-2021) and redear sunfish (2010-2021) 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
2021	98.7	15.7	190.7	30.3	69.3	23.7	0.0		0.0		358.7	43.3
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.d21

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
2021	1.3	1.3	0.0		25.3	12.3	38.7	15.1	0.0		65.3	21.8
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.d21

Table 38. Population assessment for bluegill based on spring electrofishing at Carpenter Lake from 2001-2021 (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
2021			69.3 (3)	0.0 (1)			≥ 6	F - G
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 39. Dissolved oxygen (ppm) and temperature profiles conducted at Carpenter and Kingfisher lakes on 27 August 2021.

	Carpenter Lake				New Kingfisher Lake		Old Kingfisher Lake	
	Front	11:20 AM	Back	11:42 AM	Site: 1	10:30 AM	Site: 1	10:55 AM
Depth	**Temp (F)**	**DO**	**Temp (F)**	**DO**	**Temp (F)**	**DO**	**Temp (F)**	**DO**
Surface	88.0	11.86	89.5	11.98	86.4	13.86	87.2	8.89
1	86.9	8.87	87.3	11.95	85.5	10.86	86.3	7.09
2	86.4	7.09	86.7	10.12	85.1	9.08	85.8	2.72
3	86.1	4.95	86.0	6.76	84.4	3.54	85.7	2.35
4	85.8	3.29	85.7	5.92	84.1	1.64	85.4	2.16
5	85.6	2.66	85.6	4.70	82.8	0.53	83.1	0.54
6	85.4	2.12	85.3	2.79	81.4	0.40	80.0	0.36
7	85.1	1.11	84.9	1.43	80.9	0.36	78.2	0.33
8	83.5	0.42	84.3	0.45	79.3	0.34	76.3	0.31
9	81.5	0.36	83.2	0.38	77.7	0.33		
10	79.6	0.35	81.3	0.35	76.6	0.31		
11	77.0	0.31	79.7	0.34	75.4	0.30		
12								
Secchi	13"		13"		11"		11"	

Table 40. 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 2021.

	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	4	13	6	4	16	8	3	1	1	2	1	7	2	3	1	2	3	77	205.3	25.4

nwd6psd.d21

Table 41. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at New Kingfisher Lake during 2003-2021.

	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
2021	72.0	28.1	74.7	19.2	10.7	7.1	48.0	25.7	8.0	8.0	205.3	25.4
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.d21

Table 42. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.375 hours of 7.5-minute diurnal electrofishing runs at New Kingfisher Lake in October 2021.

	Inch class																		
Species	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	SE
Largemouth bass	1	1		4	13	3	6	6	7	1	7	2	5	2	2	1	61	162.7	39.8

nwd6lmb.d21

Table 43. Population assessment for largemouth bass based on spring electrofishing at New Kingfisher Lake from 2003-2021 (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
2021			10.7 (1)	48.0 (4)	8.0 (4)			≥ 11	Good
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 44. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected in 0.5 hours of 7.5-minute diurnal electrofishing runs at New Kingfisher Lake in May 2021.

	Inch class										
Species	2	3	4	5	6	7	8	9	Total	CPUE	SE
Bluegill	5	12	7	12	18	2			56	112.0	31.0
Redear sunfish							1	3	4	8.0	5.7

nwd6bg.d21

Table 45. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at New Kingfisher Lake during 2003-2021.

	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
2021	10.0	10.0	52.0	25.6	40.0	13.5	0.0		0.0		112.0	31.0
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 46. Population assessment for bluegill based on spring electrofishing at New Kingfisher Lake from 2003-2021 (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
2021			40 (2)	0.0 (1)			≥ 5	P - F
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 47. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.333 hours of diurnal electrofishing at Old Kingfisher Lake in April 2021.

	Inch class																	
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	CPUE	SE
Largemouth bass	3	4	3	6	12	4	3	2		3	1	1	2		1	45	135.1	0.0

nwd7psd.d21

Table 48. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Old Kingfisher Lake during 2017-2021.

	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
2021	48.1	0.0	63.1	0.0	12.0	0.0	12.0	0.0	0.0	0.0	135.1	0.0
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.d21

Table 49. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.325 hours of diurnal electrofishing runs at Old Kingfisher Lake in October 2021.

	Inch class																	
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	CPUE	SE
Largemouth bass	1	5	8	3		2	1	5	2	1					1	29	89.2	0.0

nwd7lmb.d21

Table 50. Population assessment for largemouth bass based on spring electrofishing at Old Kingfisher Lake 2017-2021 (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
2021			12.0 (1)	12.0 (2)	0.0 (1)			≥ 6	P - F
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 51. 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 2021.

	Inch class											
Species	1	2	3	4	5	6	7	8	9	Total	CPUE	SE
Bluegill	56	58	32	16	37	64	17			280	746.7	99.7
Redear sunfish	1		1	1			1	4	4	12	32.0	12.2

nwd7bg.d21

Table 52. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Old Kingfisher Lake during 2017-2021.

	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
2021	304.0	122.2	226.7	46.3	216.0	134.4	0.0		0.0		746.7	99.7
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.d21

Table 53. Population assessment for bluegill based on spring electrofishing at Old Kingfisher Lake for 2017-2021 (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
2021			216.0 (4)	0.0 (1)			≥ 7	F - G
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 54. Length frequency and CPUE (fish/hr) of largemouth bass collected during 0.5 hours of diurnal electrofishing at Washburn Lake in April 2021.

	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	6	34	36	8	24	43	22	6		1	1			2		1	2	186	372.0	32.3

nwd8psd.d21

Table 55. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Washburn Lake during spring samples 2001-2021.

	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
2021	168.0	17.0	190.0	22.5	4.0	2.3	10.0	7.6	4.0	4.0	372.0	32.3
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.d21

Table 56. 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 2021.

	Inch class														
Species	3	4	5	6	7	8	9	10	11	12	13	14	Total	CPUE	SE
Largemouth bass	14	33	28	24	2	4	29	16	9	2		2	163	434.7	33.4

nwd8lmb.d21

Table 57. Population assessment for largemouth bass based on spring electrofishing at Washburn Lake 2003-2021 (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
2021		166.0 (4)	4.0 (1)	10.0 (2)	4.0 (4)			≥ 11	F - G
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 58. 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 2021.

	Inch class										
Species	2	3	4	5	6	7	8	9	Total	CPUE	SE
Bluegill	5	8	18	16	4	15	6		72	144.0	38.2
Redear sunfish	1	1	1		10	37	70	14	134	268.0	39.9

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Table 59. Spring electrofishing CPUE (fish/hr) for each length group of bluegill (2001-2021) and redear sunfish (2012-2021) 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
2021	10.0	5.0	84.0	35.0	38.0	8.3	12.0	4.0	0.0		144.0	38.2
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

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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
2021	2.0	2.0	4.0	2.3	94.0	20.5	168.0	24.7	0.0		268.0	39.9
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

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Table 60. Population assessment for bluegill based on spring electrofishing at Washburn Lake 2003-2021 (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
2021			50.0 (2)	12.0 (4)			≥ 8	F - G
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 61. Population assessment for redear sunfish based on spring electrofishing at Washburn Lake 2012-2021 (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
2021			168.0 (4)	0.0 (1)			≥ 7	F - G
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

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

Black bass were collected with diurnal electrofishing in late-April to early-May from both lake arms (Tables 2-5) and once again in the fall (Tables 6-11). A total of 599 black bass were collected in the spring at a rate of 99.8 fish/hr (Table 2). Largemouth bass made up 90% of the total catch while spotted bass made up 10%, and their distribution remains tied to the lower 1/3 of the reservoir. The overall catch rate for largemouth bass (90.0 fish/hr) was the lowest noted in the last 10 years (Table 3), and is due to lower-than-average catch rates of fish <12.0 in. Catch rate of the 8.0- to 11.9-in length group (20.0 fish/hr) suggests a poor 2019 year class and the dampened catch rate of the 12.0- to 14.9-in length group suggests consecutive years of spring flooding negatively affected largemouth bass recruitment. Overwinter survival of the 2020 largemouth year-class was the poorest in the last 10 years (age-1 CPUE = 3.3 fish/hr.; Table 7) despite average numbers of ≥5.0-in yoy bass (CPUE = 32.7 fish/hr; Table 7) entering the winter. The largemouth bass population assessment dropped from "Excellent" to "Good" due to the poor spawn of 2019 (Table 4).

Largemouth bass size structure indices remain on the high end of the range (PSD = 77 and RSD_{15} = 36; Table 5) and were similar to previous years. Spotted bass size structure remains high quality as well (PSD = 93 and RSD_{14} =47), even with the low numbers of fish sampled. The smallmouth bass population remains poorly represented in samples (Tables 2 and 6), but larger fish are reported by anglers.

Fall young of year sampling suggests a very good 2021 year-class. Age-0 CPUE (302.0 fish/hr; Table 7) was the second highest within the past 10 years. Age-0 CPUE ≥5.0 in (70.0 fish/hr) was the highest it has been for the past 10 years. Age-0 largemouth bass mean length (4.3 in) was right around average for the past 10 years. Though age-0 largemouth bass production was highest in the Barren River arm of the lake (Walnut Creek and Peter Creek sites), Beaver Creek fish grew faster and yielded more ≥5.0-in bass than all other sites combined (Table 6). Poorer growth and numbers characterized the lower end of the lake (the Peninsula sites). Largemouth bass made up most of the fall sample (95%), while spotted bass made up the other 5% (Table 6). Smallmouth bass were nearly nonexistent in these samples.

Largemouth and spotted bass were aged in the fall (Tables 8-11). The largemouth bass population is carried by the 2018 year class when the young of year are removed from the total (Table 8). Largemouth bass reached 15.0 inches in 4.1 years (calculated from Von Bertalanffy equation; FAST 3.0 software). Spotted bass needed 3.9 years to reach 12.0 in (Von Bertalanffy equation; FAST 3.0 software). The largemouth bass age sample had 11 year classes represented with the oldest representative coming from the 2009 year class (12+ years old).

Crappie

Trap netting for crappie yielded 1811 total crappie (877 black crappie and 934 white crappie) in 74 net-nights (Table 12). The crappie population appears to remain an even mix of both species (51% white and 48% black). Age-0 catch rates of both species represented 8% of the total crappie catch (6% of white crappie and 10% of black crappie catch rates; Tables 13-16). The population is carried by the 2018 and 2019 year classes with 80% of the fish sampled from these two year classes. The 2020 and 2021 year classes were present in very low numbers for both white crappie (CPUE age-1 = 1.3 fish/nn and CPUE age-0 = 0.8 fish/nn) and black crappie (CPUE age-1 = 1.4 fish/nn and CPUE age-0 = 1.2 fish/nn; Tables 17 and 18). White crappie reached harvestable size (10.0 in) in 3.5 years (calculated from Von Bertalanffy equation; FAST 3.0 software). Black crappie reached harvestable size (10.0 in) in 5.2 years (calculated from Von Bertalanffy equation; FAST 3.0 software). The assessment rating increased to "Good" for black crappie and remained "Good" for white crappie (Tables 17 and 18) and resulted in an increase in the overall crappie

assessment rating to "Good" (Table 19). White crappie size structure indices increased from previous sampling while black crappie indices decreased (White – PSD: 85, RSD: 16 and Black – PSD:15, RSD: 1; Table 20). The length-weight equations for black crappie (n=788) and white crappie (n=892) were similar to prior years:

Black crappie Log_{10} (weight) = -5.4803+3.2645* Log_{10} (Length)
White crappie Log_{10} (weight) = -5.9873+3.4636* Log_{10} (Length)

Blue Catfish

Blue catfish were collected with diurnal electrofishing in mid-August and early-September from both lake arms. A total of 80 blue catfish were collected at a rate of 35.6 fish/hr (Table 21). Fish <15.0 inches in length were taken for aging to assess spawning contributions from non-stocking years (2020 and 2021). Two age-0 naturally spawned fish were noted (Table 22). All other fish came from previous stockings.

Creel Survey: Results of a roving, daytime creel survey are presented in Tables 23-33. Anglers made an estimated 40,565 trips and fished for 199,952 hours with the average trip approximating 4.93 hours. The number of trips is up slightly from the 2016 creel survey (38,867 in 2016) and anglers caught 112,208 more fish but harvested 38,637 less fish compared to 2016 (Table 23). Overall, anglers caught 336,364 fish and harvested 58,570 of the fish caught. Black bass continue to be the most sought-after fish species, accounting for 47% of effort followed by crappie (21%), anything (12%), catfish (11%), morone (6%), and panfish (3%; Table 24).

Bass angler trips (19,101), hours fished by bass anglers (94,150), and the catch rate (0.73 fish/hr) increased from the 2016 creel survey (18,097 trips, 75,782 hours, and 0.47 fish/hr, respectively; Tables 26 and 30). The estimated 81,059 largemouth bass caught is an increase from the previous two creel surveys (2016: 31,315 and 2010: 65,300). The estimated largemouth bass harvest (14,141) also increased from the previous two creels (2016: 8,670 and 2010: 6,677; Tables 25 and 26).

Crappie angler trips (8,585) decreased by 4,395 from the 2016 creel and the number of hours fished for crappie decreased by 12,037 (42,317 hours in 2021; Tables 27 and 31). High water levels during early spring likely reduced angler hours and trips. The crappie catch rate (3.90 fish/hr) was up from the 2016 survey, but the harvest rate (0.51 fish/hr) was down by almost half from the 2016 survey (1.15 fish/hr). Crappie harvest only represented 12% of total crappie caught (201,280). The crappie catch was dominated by white crappie at 81% (162,229 fish; Table 25) and sublegal fish.

Morone angler trips (2,547) increased by 77% and the hours fished for morone (12,554) increased by 65% from the 2016 creel survey (Tables 28 and 32). The Morone catch rate (0.46 fish/hr) and harvest rate (0.29 fish/hr) were similar to 2016. The morone catch was dominated by hybrid striped bass (69%) and over half (63%) of the fish harvested were ≥15.0 in (Table 25).

Catfish angler trips (4,575) increased from the previous two creel surveys (2016: 2,078 and 2010: 3,169) and the hours fished for catfish (22,549) significantly increased from the two previous surveys (2016: 8,704 and 2010:13,303; Tables 29 and 33). The estimated 15,833 catfish caught increased from the two previous surveys (2016: 12,902 and 2010: 11,952); however, the estimated harvest for 2021 (9,737) decreased slightly from 2016 (9,760) but was still significantly higher than 2010 (894). More channel catfish were caught (10,883) than either blue catfish (4,444) or flathead catfish (502). However, of those channel catfish caught, only 57% were harvested, while 73% of the blue catfish and 71% of the flathead catfish caught were harvested (Table 25).

Angler Attitude Survey: Angler attitude results are presented in Figure 1. Anglers identified bass (47.4%) as the species they fished for the most, which is similar to the 2016 creel survey (44.3%). Crappie (32.9%) were the next most fished for species, but this number decreased from 2016 (41.5%). Catfish (13.2%) were the third most fished for and this number more than doubled from 2016 (5.2%). Hybrid striped bass (2.8%) was the least popular fish, coming in behind "Other" (3.8%), and it also decreased from 2016 (5.2%). Overall satisfaction (very satisfied to somewhat satisfied) for bass, crappie, hybrid striped bass, and catfish ranged from 54-82%.

Response of catfish anglers to what methods they used most included hook and line (86%), floating jugs (29%), and hand fishing (2%).

Most of the anglers (60%) at Barren River Lake prefer brush pile type fish attractors followed by no preference (23%), hinge-cut/laydown tree (12%), and plastic (5%). When asked if they had fished plastic structures, most of the anglers (79%) did not use the plastic structures that KDFWR has put in the lake. Of those anglers that have fished plastic structures, about half (54%) like the plastic trees the best followed by the Mossbacks (26%), and then other (20%). When asked for the reason why they liked plastic fish attractors, "Doesn't hang up as much" (35%), "Durability" (24%), and "Holds a lot of fish" (18%) were the top three answers. When asked for the reason why they disliked plastic fish attractors, anglers top three reasons were "Other" (37%), "Doesn't hold many fish" (30%), and "Harder to locate" (16%). Some of the responses for the other category were "not enough", "brush is better", "can't locate".

Most anglers (82%) fished Barren River Lake with regularity (more than 10 time annually) and not surprisingly, the majority of the anglers were from Kentucky (98%) and 71% of those anglers traveled less than 30 miles to fish the lake. Two states were represented by out-of-state anglers (n=4; TN and AL), comprising only 2% of anglers compared to the 6% of nonresident anglers identified by the creel survey.

Briggs Lake (18 acres)

Sunfish

The sunfish population was sampled by diurnal electrofishing on May 6 (Table 34). Overall CPUE of bluegill (529.3 fish/hr) was the second highest over the past twelve years (Table 35). The catch rates of bluegill in the 3.0- to 5.9-in length group (325.3 fish/hr) and 6.0- to 7.9-in length group (176.0 fish/hr) were the highest they have been in the past 12 years, but the ≥8.0-in length group saw the lowest catch rate (1.3 fish/hr) from the past 12 years. Redear sunfish CPUE (162.7 fish/hr) was higher than the average from previous years (Table 34). The catch rate of the ≥10.0-in length group (2.7 fish/hr) was below the average for the previous years (Table 36), while the catch rate of the 6.0- to 7.9-in length group (105.3 fish/hr) was the highest is has been in the past 12 years. Size structure indices for bluegill (PSD = 35) dipped from 2019 (PSD = 39) while indices for redear sunfish (PSD = 70) continued to reflect a high-quality fishery (Table 37). The population assessment for bluegill dipped to "Good", while the redear sunfish remained "Excellent" (Tables 38 and 39).

Black Bass

Nocturnal largemouth bass electrofishing samples were collected in April (Tables 40-42). The catch rate (182.4 fish/hr) was the lowest it has ever been over the past 15 years (Table 41). The PSD value (37) was lower than in 2016 but remained higher than 2012 (Table 42). Since the lake is managed for bluegill/redear sunfish, the bass population assessment table was not included.

Marion County Lake (25 acres)

Sunfish

Diurnal electrofishing results for bluegill and redear sunfish are presented in Tables 43-48. The overall catch rate for bluegill (427.0 fish/hr) was above average for the past 14 years, while the catch rate for redear sunfish (125.0 fish/hr) was the second highest over the past 14 years (Tables 43-45). The size structure of both populations was very good (bluegill PSD = 62, redear PSD = 70) when compared to previous years (Table 46). The catch rate of ≥6.0-in bluegill (248.0 fish/hr) was the highest it has been in the past 14 years and the catch rate of ≥8.0-in bluegill (10.0 fish/hr) was the third highest when compared to the past 14 years. As a result, the bluegill population assessment was "Excellent" (Table 47). The catch rate of ≥8.0-in redear (59.0 fish/hr) was the second highest over the past 14 years and more than doubled the management objective of 25.0 fish/hr (Table 48). The catch rate of ≥10.0-in fish (4.0 fish/hr) decreased from the previous sample but was still above average. The redear sunfish population assessment achieved an "Excellent" rating (Table 48).

West Fork Drakes Reservoir

Black Bass

Results of diurnal bass electrofishing in May (Tables 49-52) were well below average at 68.0 fish/hr due to lower catch rates of all length groups <15.0 in (Table 50). Size structure (PSD 46; Table 51) deceptively "improved" due to the lack of sub- 15.0-in fish. Poor recruitment seems to have plagued this system despite it being a shallow river-run system with gizzard shad, good productivity (secchi depths in 2- to 3-foot range), and immense shallow cover or nursery areas. Erratic spring conditions (high rainfall) seems to be the overriding factor in the poor recruitment. The largemouth bass population assessment remained "Fair" due to slight increases in the number of larger (≥15.0-in and ≥20.0-in) fish (Table 52).

Sunfish

Electrofishing results for bluegill and redear sunfish from mid-May were similar to prior years for all length groups except larger fish (Tables 53-58). Lack of larger fish influenced the size structure assessments for both species (redear PSD = 35; bluegill PSD = 7), causing the redear population assessment rating to drop to "Poor" and bluegill population assessment remaining "Fair" (Tables 56-58). Reduction in bass numbers may be a causative factor in reduction of larger sunfish.

Green River Lake

Muskellunge

High water (3-17 ft above summer pool) during late-winter through mid-April did not permit muskie sampling either by electrofishing or fyke nets in 2021. This marks the third year muskie sampling has been knocked out by high water.

Black Bass

Nocturnal bass electrofishing was conducted on the upper and lower ends of each lake arm (Green River and Robinson Creek) during late April and early May (Tables 1 and 59). The overall largemouth CPUE of 125.8 fish/hr was similar to the last few years (2019 = 140.5; 2018 =137.2; Table 60) as were most length group catch rates. Catch rate of smaller largemouth bass (<8.0 in; 16.5 fish/hr) was slightly lower than average as expected based on low 2020 fall catch rates of YOY bass (Table 64). Largemouth size structure indices (PSD = 61; RSD=29) were similar to previous years' (PSD=69; RSD=32; Table 61). The population assessment for largemouth bass remained "Excellent"; similar to the last ten years (Table 62). The age-1 CPUE (14.67 fish/hr; Table 64) of the 2020 largemouth bass year class was average in relation to prior years.

The spotted bass catch rate (45.8 fish/hr; Table 59) was less than the previous two years (2019 = 79.17; 2018=66 fish/hr) but was still in the normal range. The population continues to produce notable numbers of fish ≥12.0 inches in length (PSD =31; Table 61) which was rare prior to the appearance of alewife in 2004.

Fall YOY sampling (Tables 63 and 64) suggests a moderately-strong 2021 largemouth bass year class as age-0 CPUE ≥5.0 in (24.5 fish/hr) was slightly higher than the average of the last 10 years. The lower lake sites from both lake arms continue to produce less age-0 fish. Higher overall catch rate of age-0 largemouth (70.2 fish/hr) was bolstered by larger age-0 fish from upper lake sites, perhaps giving better odds for the 2021 year-class to be stronger than average.

Metcalfe County Lake (22 acres)

Bluegill

Information from diurnal bluegill sampling on April 27 (Table 1) is presented in Tables 65-68. Overall CPUE (667.2 fish/hr; Table 66) and length group CPUE's were similar to recent years. Size structure index (PSD = 48; Table 67) returned to historic values (PSD = 37-47 for 2005-2016) after a slight dip in 2018 (PSD = 26). The bluegill population assessment remained "Good" (Table 68), similar to previous years.

Mill Creek Lake (109 acres)

Sunfish

Results of diurnal sunfish electrofishing on May 18 are presented in Tables 69-72. The overall bluegill CPUE (659.0 fish/hr) was similar to previous years (Table 70). The bluegill population size structure remains dominated by intermediate-size fish (435.0 fish/hr; PSD = 7), similar to previous years (Tables 70 and 71). The population assessment remains "Poor" (Table 63) despite a substantial stocking of largemouth bass (n=542; 5 bass/A; 5.0-11.0 in) in May of 2020. Redear sunfish catch in 2021 was the highest seen at the lake (61.0 fish/hr; Table 69). Previous samples never exceeded 17.0 fish/hr. This increase may be the result of increased bass predation pressure. However, the presence of a substantial gizzard shad population and lower productivity seem the likely factors hindering overall sunfish population improvements.

Shanty Hollow Lake (136 acres)

Black Bass

Nocturnal bass sampling on April 15 yielded an overall largemouth bass CPUE of 207.7 fish/hr (Table 73); slightly less than historical average (Table 74). The size structure index (PSD = 21, Table 75) was well below previous years due to reduced presence of the 12.0- to 14-in bass (Table 74). The largemouth bass population still suffers from persisting poor recruitment to larger length classes (Table 76). The population assessment retained a "Good" rating similar to most years. Removal of smaller-size bass (n=171) plus resumption of fertilization in 2016 did not seem to improve bass size structure or bluegill production. Chronic low water levels (6-12 ft reductions) from late summer through fall still plague the lake annually and likely serves to confound bass and sunfish interactions.

Sunfish

Sunfish (bluegill and redear) were sampled by nocturnal electrofishing on May 27 after two substandard diurnal attempts on May 19 and 23 (Tables 1 and 77). Catch rate of intermediate-size bluegill dipped substantially from 2019 and was below historic ranges (Table 78). Bluegill size structure (PSD = 48; Table 80) improved markedly from 2017 and 2019 (PSD = 27 and 31, respectively) reflecting an increase in larger sizes (6.0- to 7.9-in fish). Large fish abundance (8.0-in plus) remained low, similar to prior years. The bluegill population assessment remains "Good", similar to the last 10 years (Table 81).

The redear sunfish population remains low density (CPUE = 28.7 fish/hr; Tables 77 and 79) with good size structure (PSD = 50, Table 80) outside of a consistent absence of large fish (10.0-in plus). The population assessment rated "Good", similar to previous years (Table 82).

Spurlington Lake (25 acres)

Sunfish

The sunfish population was sampled by diurnal electrofishing on May 20 (Tables 1 and 83). Overall catch rate (1190.0 fish/hr.) and most size group catch rates were similar to previous years (Table 84). Catch rate of the 6.0- to 7.9-in length group (186.0 fish/hr) was significantly higher than recent years (Table 84). Bluegill size structure is still dominated by intermediate-size fish (PSD = 22; Table 86), but the population assessment remained "Excellent" (Table 87).

The redear sunfish population overall catch rate was at an all-time high (164.0 fish/hr; Tables 83 and 85); however, the population assessment is not available due to the lack of age data.

Channel Catfish

Tandem hoop nets were deployed from August 20-26 with fair results for channel catfish (n=36; Table 88). Channel catfish representing five year classes (age-1+ to 6+; Table 89) suggests some reproduction occurs, but stocked year classes carry the fishery. Recent stocking rate changes may explain some of decline in catch as the lake was only stocked once in the last 3 years (2016; at 25 fish/ac). Channel catfish of all length groups were represented and condition of all length groups was good (Table 90).

Table 1. Lake sampling conditions in the Southwestern Fisheries District in 2021.

Lake	Date	Species	Water temp. surface (F)	Conductivity (umhos)	Secchi (in.)	Comments
Barren River	4/20	Bass	65	114	36	1.5 ft above summer pool & steady; 3624 cfs outflow
	5/3	Bass	68	137	25	1-ft above summer pool & steady; 497 cfs outflow
	5/4	Bass	68-71	106 & 115	40-46	1-3 ft above summer pool w / rising w ater, 500 cfs outflow
	10/27	YOY bass	63-67	145	24	1-ft below summer pool & falling, 3150 cfs outflow
	11/1	YOY bass	63	175	22	3-ft below summer pool & falling w ith 3100 cfs outflow
	11/2	YOY bass	63	150	26	7-ft below summer pool & falling w ith 3900 cfs outflow
	11/16	YOY bass	58	153	36	16-ft below summer pool & falling w ith 3900 cfs outflow
	11/2 -11/5	Crappie	56-59			5 to 7-ft below summer pool & falling w ith 3850 cfs outflow
	11/7-11/10	Crappie	53-55			6 to 7-ft below summer pool & falling w ith 2630 cfs outflow
Briggs	4/20	Largemouth bass	63-64	140	22	Normal
	5/6	Bluegill & Redear	66	117	54	Normal
Green River	4/25	Bass	61	73	36	Summer pool & steady w / 335 cfs outflow
	4/26	Bass	62-63	74		Summer pool & steady w / 335 cfs outflow
	4/27	Bass	60-63	68	36	Summer pool & steady w / 335 cfs outflow
	5/5	Bass	65	70	36	2-ft above summer pool & rising w / 346 cfs outflow
	10/4	YOY bass	74-75	88-101	60-108	summer pool & steady w / 400 cfs outflow
	10/5	YOY bass	74	88-91	48-90	summer pool & steady w / 400 cfs outflow
Marion	4/26	Bluegill & Redear	66-68	69	24	Normal
Metcalfe Co.	4/26	Bluegill	68-70	170	18	Normal
Mill Creek	5/18	Bluegill & Redear	67-69	125	50	Normal
Shanty Hollow	4/15	Largemouth bass	64	66	42	Normal
	5/27	Bluegill & Redear	78	61	54-60	Normal
Spurlington	5/20	Bluegill & Redear	62-73	94		Normal
	8/17-8/23	Channel catfish	79			Normal
West Fork Drakes Cr.	5/17	Bass, Bluegill & Redear	63-66	167	25	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 in late April to early May 2021.

		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 err
Peninsula	Smallmouth bass																			0		
	Spotted bass							1	1	3	3	5	5	5	3					26	17.3	9.6
	Largemouth bass	1	1	2	2	2	4	14	16	7	5	11	15	20	10	8	5	1		124	82.7	15.7
Beaver Creek	Smallmouth bass																			0		
	Spotted bass												2							2	1.3	0.7
	Largemouth bass				1	1		3	17	10	10	32	35	21	12	19	4	2	3	170	113.3	15.5
Peter Creek	Smallmouth bass																			0		
	Spotted bass							1		3	1	7	4	4						20	13.3	7.5
	Largemouth bass	2	1		4	2	3	3	9	11	11	25	21	15	11	9	7	1		135	90.0	3.1
Walnut Creek	Smallmouth bass																			0		
	Spotted bass							1		1	1	3	3	2						11	7.3	3.3
	Largemouth bass						1	2	14	6	5	26	18	14	8	4	10	2	1	111	74.0	5.0
TOTAL	Smallmouth bass																			0		
	Spotted bass							3	1	7	5	15	14	11	3					59	9.8	3.3
	Largemouth bass	3	2	2	7	5	8	22	56	34	31	94	89	70	41	40	26	6	4	540	90.0	6.6

swdbrlbb.d21

Table 3. Spring diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Barren River Lake 2011-2021.

	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
2021	3.2	1.1	20.0	1.9	35.7	4.5	31.2	3.2	0.7	0.4	90.0	6.6
2020	no data due to flooding											
2019	no data due to flooding											
2018	no data due to flooding											
2017	31.7	9.5	27.8	5.5	30.0	3.3	35.2	5.5	0.5	0.3	124.7	12.9
2016	7.5	1.6	16.5	2.8	48.0	4.9	23.5	3.9	0.5	0.3	95.5	7.4
2015	10.5	3.1	44.3	6.7	40.2	5.8	24.7	4.3	1.2	0.4	119.7	12.2
2014	26.9	10.0	45.8	6.1	48.7	5.5	44.0	7.2	2.0	0.8	165.3	18.5
2013	no data due to flooding											
2012	31.3	9.0	52.7	7.3	65.2	7.0	54.7	5.6	2.7	0.6	203.8	15.8
2011	no data due to flooding											

swdbrlbb.d11-d21

Table 4. Population assessment of largemouth bass based on spring sampling at Barren River Lake 2010-2021 (scoring based on statewide assessment).

	2021*		2017		2016		2015		2014*		2012		2010	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Growth														
Mean length age-3 at capture	15.8	4	14.6	4	14.6	4	14.6	4	14.6	4	14.4	4	14.4	4
Size structure														
Spring CPUE 12.0-14.9 in	35.7	4	30.0	3	48.0	4	40.2	4	48.7	4	65.2	4	36.7	4
Size structure														
Spring CPUE ≥15.0 in	31.2	4	35.2	4	23.5	4	24.7	4	44.0	4	54.7	4	28.8	4
Size structure														
Spring CPUE ≥20.0 in	0.7	3	0.5	3	0.5	3	1.2	3	2.0	4	2.7	4	0.7	3
Recruitment														
Spring CPUE age-1	3.3	1	39.5	3	8.0	1	19.2	2	44.5	4	43.8	4	35.7	3
Instantaneous mortality (z)	-0.619								-0.558					
Annual mortality (A)%	46.1								44.2					
Total score		16		17		16		17		20		20		18
Assessment rating		Good		Excellent		Good		Excellent		Excellent		Excellent		Excellen

sw dbrlbb.d10-d21

sw dbrlag.d21

* - age data collected in fall

Table 5. PSD and RSD values obtained for each black bass species collected during 6.0 hours (12-0.50-hour runs) of spring diurnal electrofishing at each area of Barren River Lake in late April to early May 2021. 95% confidence intervals are in parentheses.

Area	Species	No. ≥stock size	PSD	RSD[A]
Peninsula	Largemouth bass	116	65 (8)	38 (9)
	Spotted bass	26	92 (10)	50 (20)
Beaver Creek	Largemouth bass	168	82 (6)	36 (7)
	Spotted bass	2	100 (0)	100 (0)
Peter Creek	Largemouth bass	126	79 (7)	34 (8)
	Spotted bass	20	95 (10)	40 (22)
Walnut Creek	Largemouth bass	111	49 (9)	14 (6)
	Spotted bass	11	91 (18)	45 (30)
Total	Largemouth bass	521	77 (4)	36 (4)
	Spotted bass	59	93 (6)	47 (12)

[A] Largemouth bass = RSD_{15}, spotted bass = RSD_{14}.

swdbrlbb.d21

Table 6. 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 late October to early November 2021.

		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					2	1.3	1.3
	Spotted bass	3	5		1	3		2	2	4	5	7	4	11	3						50	33.3	3.7
	Largemouth bass	41	19	9	8	13	16	20	12	10	6	20	19	22	28	19	22	5	3	1	293	195.3	39.4
Beaver Creek	Smallmouth bass																				0		
	Spotted bass			1			1					1									3	2.0	1.2
	Largemouth bass		40	162	77	47	93	61	3	3	4	12	18	13	19	10	4	3		1	570	380.0	81.0
Peter Creek	Smallmouth bass															1					1	0.7	0.7
	Spotted bass	1	20	5						1	3	1	2	4	1	1					39	26.0	11.4
	Largemouth bass	42	270	36	20	21	15	5	12	2	6	16	14	21	20	13	5		1		519	346.0	68.9
Walnut Creek	Smallmouth bass																				0		
	Spotted bass	2	11	4	2					2			1								22	14.7	6.6
	Largemouth bass	48	565	160	20	25	18	2	5	4	7	7	5	5	5			2			878	585.3	75.1
TOTAL	Smallmouth bass													1		2					3	0.5	0.4
	Spotted bass	6	36	10	3	3	1	2	2	7	8	9	7	15	4	1					114	19.0	4.6
	Largemouth bass	131	894	367	125	106	142	88	32	19	23	55	56	61	72	42	31	10	4	2	2260	376.7	51.0

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Table 7. 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 2011-2021.

	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
2021	4.3	0.04	302.0	59.5	70.0	20.1		
2020	3.8	0.03	244.0	66.9	32.7	9.1	3.3	2.0
2019	4.2	0.04	116.8	20.7	27.8	6.0	ND	
2018	3.9	0.05	215.2	24.1	48.8	13.2	ND	
2017	4.0	0.04	150.2	36.3	23.5	3.8	ND	
2016	4.3	0.04	191.8	38.9	46.5	13.9	39.5	12.1
2015	3.8	0.03	167.7	23.5	18.7	3.4	8.0	1.7
2014	4.4	0.08	108.5	27.5	33.0	6.3	19.2	
2013	3.9	0.03	369.3	92.2	61.5	10.0	44.5	13.1
2012	5.1	0.08	70.0	16.7	32.7	11.0	ND	
2011	4.5	0.05	175.5	33.7	65.7	10.8	43.8	9.4

[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

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swdbrlyy. d11 - d21

Table 8. Age frequency and CPUE (fish/nn) of largemouth bass collected during 6.0 hours (12- 0.50-hour runs) of diurnal electrofishing at Barren River Lake from late October to early November 2021.

	Inch class																					Std.
Age	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent	CPUE	error
0+	131	894	367	125	106	120	64	3												1810	80	301.7	59.0
1+						22	24	29	14	15		5	5							114	5	19.0	2.9
2+									5	8	46	31	9							99	4	16.5	2.2
3+											9	20	47	60	17	3				156	7	26.0	4.1
4+														6	13	14	1			34	2	5.7	1.4
5+														6	8	7	4			25	1	4.2	0.9
6+																	1			1	0	0.2	0.1
7+																3				3	0	0.5	0.2
8+																3	2	1	2	8	0	1.3	0.5
9+															4		1	1		6	0	1.0	0.3
12+																		1		1	0	0.2	0.1
Total	131	894	367	125	106	142	88	32	19	23	55	56	61	72	42	30	9	3	2	2257	100		
%	6	40	16	6	5	6	4	1	1	1	2	2	3	3	2	1	0	0	0	100			

swdbrlyy.d21; brlyyag.d21

Table 9. Age frequency and CPUE (fish/nn) of spotted bass collected during 6.0 hours (12- 0.50-hour runs) of diurnal electrofishing at Barren River Lake from late October to early November 2021.

	Inch class																		Std.
Age	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total	Percent	CPUE	error
0+	6	36	10	3												55	49	9.2	3.0
1+					3	1										4	4	0.7	0.3
2+							2	1	3	3	1					10	9	1.7	0.7
3+								1	3	5	5	5	2			21	19	3.5	1.2
4+									1			2	2	1		6	5	1.0	0.4
5+											3		9	1		13	12	2.2	0.9
6+														1	1	2	2	0.3	0.2
7+													2			2	2	0.3	0.1
Total	6	36	10	3	3	1	2	2	7	8	9	7	15	3	1	113	100		
%	5	32	9	3	3	1	2	2	6	7	8	6	13	3	1	100			

swdbrltn.d21; brlyyag.d21

Table 10. Mean back calculated length (in) at each annulus for largemouth bass collected from Barren River Lake in late October and early November 2021, including the range of largemouth 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	10	11	12
2020	30	6.5											
2019	24	6.3	10.6										
2018	31	7.2	11.9	14.0									
2017	9	8.4	12.7	15.0	16.2								
2016	9	8.7	12.4	14.5	15.8	16.8							
2015	1	7.1	12.3	14.7	15.9	17.0	17.6						
2014	1	8.3	12.0	14.2	15.4	16.1	16.7	17.3					
2013	6	6.3	9.7	12.1	14.1	15.4	16.5	17.4	18.4				
2012	3	5.1	8.1	9.9	11.7	13.3	14.6	15.6	16.6	17.4			
2009	1	4.1	7.1	8.8	10.5	11.8	12.8	13.9	14.9	15.9	16.9	17.9	18.9
Mean		6.9	11.3	13.8	15.0	15.6	15.8	16.6	17.5	17.1	16.9	17.9	18.9
No.	115												
Smallest		3.8	6.8	8.2	10.5	11.8	12.8	13.9	14.9	15.9	16.9	17.9	18.9
Largest		12.3	15.0	17.9	17.4	18.4	17.8	18.5	19.6	18.9	16.9	17.9	18.9
Std error		0.2	0.2	0.2	0.4	0.4	0.6	0.5	0.5	0.7			
95% CI (+/-)		0.4	0.4	0.5	0.7	0.9	1.1	1.1	1.1	1.4			

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

swdbrlag.d21

Table 11. Mean back calculated length (in) at each annulus for spotted bass collected from Barren River Lake in late October and early November 2021, including the range of spotted bass at each age and the 95% confidence interval for each age.

		Age						
Year class	No.	1	2	3	4	5	6	7
2020	3	4.0						
2019	10	5.1	8.4					
2018	18	5.6	9.0	10.9				
2017	5	4.8	9.0	11.1	12.6			
2016	8	5.3	9.0	11.4	12.6	13.4		
2015	2	6.4	10.1	12.3	13.5	14.3	15.1	
2014	1	3.9	7.0	9.9	11.4	12.2	13.2	14.0
Mean		5.3	8.9	11.1	12.6	13.5	14.5	14.0
No.	47							
Smallest		3.1	6.5	8.5	10.0	12.0	13.2	14.0
Largest		9.1	12.1	13.6	14.1	14.8	15.6	14.0
Std error		0.2	0.2	0.2	0.3	0.3	0.7	
95% CI (+/-)		0.3	0.4	0.5	0.6	0.5	1.4	

Otoliths were used for age-growth determinations; intercept = 0
swdbrlag.d21

Table 12. Length frequency and CPUE (fish/nn) of each inch class of white and black crappie collected by trap net (74 net-nights) at Barren River Lake from early November 2021.

		Inch class														Std.
Location	Species	2	3	4	5	6	7	8	9	10	11	12	13	Total	CPUE	error
Beaver Creek	White crappie		1	32	22	1	59	232	232	83	22	5	1	690	23.0	5.1
	Black crappie		27	10	25	112	237	60	19	6	1			497	16.6	3.5
Walnut Creek	White crappie		4			7	46	90	63	28	5		1	244	5.5	1.8
	Black crappie	1	39	10	28	149	123	21	5	1	3			380	8.6	2.5
TOTAL	White crappie		5	32	22	8	105	322	295	111	27	5	2	934	12.6	2.5
	Black crappie	1	66	20	53	261	360	81	24	7	4			877	11.9	2.1

swdbrltn.d21

Table 13. Age frequency and CPUE (fish/nn) of black crappie collected during 74 net-nights at Barren River Lake from early November 2021.

	Inch class													Std.
Age	2	3	4	5	6	7	8	9	10	11	Total	Percent	CPUE	error
0+	1	66	20								87	10	1.2	0.3
1+				49	52						101	12	1.4	0.3
2+				4	209	216	6				435	50	5.9	1.1
3+						144	69	16	3		232	26	3.1	0.6
4+							6	6	2	1	15	2	0.2	<0.1
5+										1	1	0	<0.1	<0.1
6+									1	1	2	0	<0.1	<0.1
7+									1		1	0	<0.1	<0.1
8+								2		1	3	0	<0.1	<0.1
Total	1	66	20	53	261	360	81	24	7	4	877	100		
%	0	8	2	6	30	41	9	3	1	0	100			

swdbrltn.d21; brlyyag.d21

Table 14. Age frequency and CPUE (fish/nn) of white crappie collected during 74 net-nights at Barren River Lake from early November 2021.

	Inch class														Std.
Age	3	4	5	6	7	8	9	10	11	12	13	Total	Percent	CPUE	error
0+	5	32	22									59	6	0.8	0.3
1+				5	21	69						95	10	1.3	0.3
2+				3	70	253	275	63	6			670	72	9.1	1.8
3+					14		20	48	21	4		107	11	1.4	0.3
6+											1	1	0	<0.1	<0.1
7+										1	1	2	0	<0.1	<0.1
Total	5	32	22	8	105	322	295	111	27	5	2	934	100		
%	1	3	2	1	11	34	32	12	3	1	0	100			

swdbrltn.d21; brlyyag.d21

Table 15. Mean back calculated length (in) at each annulus for black crappie collected from Barren River Lake in early November 2021, including the range of black crappie at each age and the 95% confidence interval for each age.

		Age							
Year class	No.	1	2	3	4	5	6	7	8
2020	15	4.0							
2019	23	4.2	6.0						
2018	29	4.3	6.6	7.9					
2017	7	4.3	7.0	8.4	9.2				
2016	1	4.7	7.0	8.9	10.3	10.7			
2015	2	4.7	6.6	8.0	9.0	9.9	10.5		
2014	1	4.0	5.8	7.1	8.0	9.1	9.1	10.0	
2013	2	4.0	5.7	7.3	7.9	8.5	9.1	9.6	10.1
Mean		4.2	6.4	7.9	8.9	9.4	9.8	9.7	10.1
No.	80								
Smallest		2.7	5.1	6.8	7.5	7.9	8.4	9.0	9.5
Largest		5.5	7.6	9.9	11.1	10.7	11.1	10.2	10.6
Std error		0.1	0.1	0.1	0.3	0.4	0.4	0.4	0.6
95% CI (+)		0.1	0.2	0.2	0.5	0.8	0.9	0.7	1.2

Otoliths were used for age-growth determinations; intercept = 0
swdbrlag.d21

Table 16. Mean back calculated length (in) at each annulus for white crappie collected from Barren River Lake in early November 2021, including the range of black crappie at each age and the 95% confidence interval for each age.

		Age						
Year class	No.	1	2	3	4	5	6	7
2020	9	5.0						
2019	53	5.4	7.8					
2018	28	5.3	8.0	9.9				
2015	1	4.7	6.9	8.4	10.4	12.0	12.9	
2014	2	3.4	6.1	8.2	9.7	10.8	12.0	12.5
Mean		5.3	7.8	9.7	9.9	11.2	12.3	12.5
No.	93							
Smallest		2.9	5.4	6.8	9.6	10.6	11.7	12.2
Largest		7	10.7	13.5	10.4	12.0	12.9	12.9
Std error		0.1	0.1	0.2	0.2	0.4	0.3	0.4
95% CI (+)		0.1	0.2	0.5	0.4	0.8	0.7	0.7

Otoliths were used for age-growth determinations; intercept = 0
swdbrlag.d21

Table 17. Black crappie assessment from fall trap netting at Barren River Lake from 2008 - 2021 (scoring based on statewide assessment).

	CPUE excluding age-0		CPUE age-1		CPUE age-0		CPUE ≥8.0 in		Mean length age 2+ at capture			
Year	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Total score	Rating
2021	10.7	4	1.4	2	1.2	3	1.6	3	7.0	1	13	G
2019	4.2	3	3.4	3	1.8	3	0.6	1	8.5	2	12	F
2017	3.7	3	1.4	2	2.4	4	1.3	2	8.0	1	12	F
2015	3.1	2	1.4	2	7.0	4	0.4	1	7.8	1	10	F
2013	9.7	4	0.7	2	12.3	4	8.5	4	8.7	2	16	G
2012	5.2	3	1.0	2	0.1	1	3.3	3	8.3	1	10	F
2011	5.3	3	2.3	3	0.2	1	3.1	3	9.0	2	12	F
2010	5.7	3	1.4	2	0.8	2	3.6	4	8.7	2	13	G
2009*	5.9	3	4.3	4	0.4	2	0.6	1	8.0	1	11	F
2008*	1.8	2	0.2	1	1.4	3	1.6	3	9.7	3	12	F

* Age assessment data extrapolated from previous age data
swdbrltn.D08 - D21
swdbrlag.D08 - D21

Table 18. White crappie assessment from fall trap netting at Barren River Lake from 2008 - 2021 (scoring based on statewide assessment).

	CPUE excluding age-0		CPUE age-1		CPUE age-0		CPUE ≥8.0 in		Mean length age 2+ at capture			
Year	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Total score	Rating
2021	11.8	3	1.3	2	0.8	2	10.3	4	9.0	2	13	G
2019	4.9	2	4.4	3	3.5	3	1.5	2	11.5^	4	14	G
2017	4.2	2	0.4	1	0.2	1	4.0	3	9.7	3	10	F
2015	7.0	3	3.7	3	4.8	4	3.6	3	10.2	3	16	G
2013	5.6	2	0.2	1	11.9	4	5.6	3	10.1	3	13	G
2012	7.5	3	2.5	2	0.1	1	6.5	4	9.9	3	13	G
2011	4.7	2	4.5	3	0.2	1	2.8	2	10.9	4	12	F
2010	0.7	1	0.3	1	0.6	2	0.7	1	10.9	4	9	F
2009*	4.4	2	4.0	3	<0.1	1	4.0	3	10.2	3	12	F
2008*	0.0	1	0.0	1	0.2	1	0.0	1	10.8	4	8	P

* Age assessment data extrapolated from previous age data

^number based on only one age 2+ fish

swdbrltn.D08- D21

swdbrlag.D08- D21

Table 19. Population assessment for all crappie from Barren River Lake trap net data collected from 2009-2021 (scoring based on statewide assessment).

	Year																	
	2021		2019		2017		2015		2013		2012		2011		2010		2009	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Population density (CPUE age-1 and older)	22.5	4	9.1	3	8.0	3	10.1	3	15.4	4	12.7	3	10.0	3	6.4	2	10.3	3
Recruitment (CPUE age-1)	2.7	2	7.8	3	1.8	2	5.0	3	0.9	1	3.5	2	6.8	3	1.7	2	8.3	4
Recruitment (CPUE age-0)	2.0	2	5.3	4	2.7	3	11.7	4	24.2	4	0.2	1	0.5	1	1.4	2	0.4	1
Size structure (CPUE ≥8.0 in)	11.9	4	2.1	1	5.3	3	4.0	2	14.1	4	9.8	4	5.8	3	4.3	3	4.6	3
Growth (Mean length age-2 at capture)	8.2	1	8.5*	1	9.0	1	9.1	1	9.5	2	9.3	2	9.0	1	8.9	1	9.1	1
Instantaneous mortality (Z)		-0.758		-0.853		-0.859		-1.1		-0.688		NA		NA		-1.08		ND
Annual mortality (A)%		53.1		57.4		57.6		66.7		49.7						66.1		
Total score:		13		12		12		13		15		12		11		10		12
Assessment rating:		Good		Fair		Fair		Good		Good		Fair		Fair		Fair		Fair

*number weighted by black crappie because only one white crappie was aged 2+

NA - data not amenable to mortality estimates

ND - no age data taken

sw dbrltn.D08 - D21

Table 20. Proportional stock density (PSD) and relative stock density (RSD_{10}) of white and black crappie collected by trap nets (74 net-nights) at Barren River lake from early November 2021. Numbers in parentheses represent 95% confidence intervals.

Species	No. ≥ stock size	PSD	RSD_{10}
White crappie	897	85 (2)	16 (3)
Black crappie	790	15 (3)	1 (1)

swdbrltn.D21

Table 21. Length frequency and CPUE (fish/hr) for blue catfish collected by electrofishing 2.25 hours (27 - 0.083 hour runs) from mid-August and early September at Barren River Lake, KY 2021.

	Inch class																																				Std.
Species	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	33	34	35	36	37	38	39	40	Total	CPUE	error
Blue catfish	1		1					6	8	15	17	2	1	2	1		2		1	2	7	2	2	2		1	1	2	1	1						1	1	80	35.6	0.8

sw dbrlbc.d21

Table 22. Age frequency and CPUE (fish/hr) of blue catfish collected from electrofishing mid-August and early September at Barren River Lake, 2021.

	Inch class													Std.
Age	4	6	7	8	9	10	11	12	13	14	Total	Percent	CPUE	error
0	1	1									2	4	0.9	0.5
2							6	8	15	15	44	88	19.6	13.0
3										2	2	4	0.9	0.8
Total	1	1	0	0	0	0	6	8	15	17	48	96		
%	2	2	0	0	0	0	13	17	31	35	100			

swdbrlbc.D21; brlblcag.D21

Table 23. Fish harvest statistics derived from a creel survey at Barren River Lake (10,000 acres) from April through November 2021.

Fishing trips			
	Number of fishing trips (per acre)	40,565	(4.06)
	Average trip length	4.93	
Fishing pressure			
	Total man-hours (SE)	199,952	(5509.1)
	Man-hours/acre	20	
Catch/harvest			
	Number of fish caught (SE)	336,364	(40809.0)
	Number of fish harvested (SE)	58,570	(6714.7)
	Pounds of fish harvested	76,848	
Harvest rates			
	Fish/hour	0.28	
	Pounds/hour	0.61	
	Fish/acre	5.86	
	Pounds/acre	7.68	
Catch rates			
	Fish/hour	1.43	
	Fish/acre	33.64	
Miscellaneous characteristics (%)			
	Male	88.94	
	Female	11.06	
	Resident	94.25	
	Non-resident	5.75	
Method (%)			
	Still fishing	21.29	
	Casting	65.08	
	Spider Rigging	2.39	
	Trolling	7.36	
	Jugging	3.60	
	Noodling	0.29	
Mode (%)			
	Boat	88.60	
	Bank	9.21	
	Dock	2.00	
	Kayak	0.19	

Table 24. Fish harvest statistics derived from a creel survey at Barren River Lake from April through November 2021.

	Blue catfish	Channel catfish	Flathead catfish	Hybrid striped bass	White bass	Yellow bass	Bluegill	Smallmouth bass	Spotted bass	Largemouth bass	White crappie	Black crappie
No. caught	4,445	10,884	503	8,143	2,706	915	20,797	360	5,186	81,060	162,231	39,053
(per acre)	(0.4)	(1.1)	(0.1)	(0.8)	(0.3)	(0.1)	(2.1)	(0.04)	(0.5)	(8.1)	(16.2)	(3.9)
No. Harvested	3,227	6,156	355	2,731	479	90	6,500	118	1,193	14,142	19,426	4,153
(per acre)	(0.3)	(0.6)	(0.0)	(0.3)	(0.05)	(0.01)	(0.7)	(0.012)	(0.1)	(1.4)	(1.9)	(0.4)
% total harvest	5.5	10.5	0.6	4.7	0.82	0.2	11.1	0.20	2.0	24.1	33.2	7.1
Lb harvested	14,059.3	8,606.4	3,400.9	7,822.9	377.9	11.8	687.7	209.6	1,376.0	26,218.8	11,284.1	2,792.2
(per acre)	(1.4)	(0.9)	(0.3)	(0.8)	(0.038)	(0.001)	(0.1)	(0.021)	(0.1)	(2.6)	(1.1)	(0.3)
% of total lb harvested	18.3	11.2	4.4	10.2	0.49	0.02	0.9	0.27	1.8	34.1	14.7	3.6
Mean length (in)	21.6	17.5	28.9	17.1	13.6	7.0	5.6	15.3	14.5	15.4	10.7	10.5
Mean w eight (lb)	4.0	1.9	11.5	2.7	1.0	0.1	0.1	1.7	1.3	1.9	0.6	0.6

	Catfish group	Morone group	Panfish group	Black bass group	Crappie group	Anything
No. of fishing trips for that species	4,575	2,547	1,069	19,101	8,585	4,689
% of all trips	11.3	6.28	2.6	47.1	21.2	11.6
Hours fishing for that species	22,549.2	12,553.8	5,270.3	94,150.4	42,316.6	23,112.0
No. harvested fishing for that species	7,001	2,995	5,673	15,058	22,637	
Lb harvested fishing for that species	21,582.9	7,863.3	589.1	27,204.5	13,483.2	
No./hour harvested for that species	0.3	0.2	1.7	0.1	0.5	
% success fishing for that species	32.4	34.3	54.8	17.6	40.4	10.4

Table 25. Length distribution and species composition (released fish lengths were estimates) for each species of fish harvested at Barren River Lake from April through November 2021.

		Inch class																																				
Species	Status	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	27	28	29	30	31	32	33	34	35	36	40	41
Blue	Harvest									34				34	172	69	34	378	103	515	172	206	240	378	137	137	34	103	34	103	34	69		69	69	69	33	
catfish	Released											107		72	72	36	143	251	36	72		72	36	36		36				72	72		36		36	33		
Channel	Harvest							88		293	147	821	176	616	410	938	469	704	264	410	88	147	59	322	59	59	59		26									
catfish	Released					183	61	31	61	397	305	1098	275	427	366	549	92	397	31	244		122	31	31		27												
Flathead	Harvest																35	35	35				35	35				71	35	35							38
carfish	Released									30								60						30											28			
Hybrid	Harvet									28	84		279	307	167	111	167	167	362	530	111	56	84	223	55												
striped bass	Released			83	208		83	250	83	333	42	666	167	375	708	583	208	375	42	1041				83	81												
White	Harvest											399	53		26																						
bass	Released			85		28		197	85	282	28	1438	84																								
Yellow	Harvet						89																														
bass	Released					59	147	295	324																												
Bluegill	Harvest		109	218	3237	2339	517	27		53																											
	Released		972	2884	4044	5424	941	31																													
Smallmouth	Harvest													30	59		29																				
bass	Released									35		35		35	104	32																					
Spotted	Harvest											108	325	434	181	108	37																				
bass	Released					81		40	81	403	323	1331	565	887	121	81	40	39																			
Largemouth	Harvest										82	536	948	2680	3546	3463	1526	1072	165	41	82																
bass	Released							2004	520	5159	4862	10466	10429	17184	7609	3637	2561	1670	482	260	75																
White	Harvest									8435	7376	2337	840	329	108																						
crappie	Released	376	878	1255	2802	16978	20323	44660	54069	627	544	251		41																							
Black	Harvest									1810	1739	568		35																							
crappie	Released			115	842	3291	5434	10217	14542	421			37																									

Table 26. Monthly black bass angling success at Barren River Lake during the 2021 daytime creel survey period (April - November).

Month	Total number of black bass caught	Total number of black bass harvested	Number of black bass fishing trips	Hours fished by black bass anglers	Number caught by bass anglers	Number caught/hour by bass anglers	Number harvested by bass anglers	Number harvested/hour by bass anglers
April	8,331	1,097	1,878	9,259	6,816	0.73	914	0.10
May	7,724	1,784	3,429	16,900	7,240	0.35	1,708	0.08
June	25,246	4,027	4,508	22,221	24,825	1.08	3,921	0.17
July	5,027	727	1,764	8,693	5,007	0.57	727	0.08
August	4,006	747	1,233	6,079	3,917	0.66	728	0.12
September	8,363	202	1,060	5,227	7,958	1.43	202	0.04
October	15,394	2,697	2,972	14,648	14,977	0.92	2,696	0.17
November	12,516	4,172	2,257	11,124	11,515	0.95	4,172	0.34
Total	86,606	15,454	19,101	94,150	82,255	0.73	15,068	0.12

Table 27. Monthly crappie angling success at Barren River Lake during the 2021 daytime creel survey period (April - November).

Month	Total number of crappie caught	Total number of crappie harvested	Number of crappie fishing trips	Hours fished by crappie anglers	Number caught by crappie anglers	Number caught/hour by crappie anglers	Number harvested by crappie anglers	Number harvested/hour by crappie anglers
April	54,137	9,558	2,973	14,653	52,518	3.52	9,140	0.61
May	18,023	1,861	1,171	5,771	17,334	3.00	1,810	0.31
June	13,411	1,541	737	3,634	12,151	3.56	1,471	0.43
July	4,320	332	281	1,384	4,279	5.09	332	0.40
August	18,296	1,375	572	2,819	18,147	5.36	1,375	0.41
September	24,077	2,495	1,060	5,227	23,268	4.78	2,428	0.50
October	12,282	1,577	904	4,458	12,239	3.33	1,576	0.43
November	56,737	4,839	887	4,370	50,229	18.52	4,505	1.66
Total	201,283	23,579	8,585	42,317	190,165	3.90	22,637	0.51

Table 28. Monthly morone angling success at Barren River Lake during the 2021 daytime creel survey period April - November).

Month	Total number of morone caught	Total number of morone harvested	Number of morone fishing trips	Hours fished by morone anglers	Number caught by morone anglers	Number caught/hour by morone anglers	Number harvested by morone anglers	Number harvested/hour by morone anglers
April	3,447	1,019	196	966	3,003	1.9	783	0.5
May	586	51	151	742	356	0.5	51	0.1
June	3,467	1,366	1,243	6,126	2,136	0.3	1,296	0.2
July	1,267	685	618	3,045	997	0.3	685	0.2
August	538	179	340	1,674	359	0.2	180	0.1
September	0	0	0	0	0	0	0	0
October	456	0	0	0	0	0	0	0
November	2,002	0	0	0	0	0	0	0
Total	11,764	3,300	2,547	12,554	6,851	0.46	2,995	0.20

Table 29. Monthly catfish angling success at Barren River Lake during the 2021 daytime creel survey period (April - November).

Month	Total number of catfish caught	Total number of catfish harvested	Number of catfish fishing trips	Hours fished by catfish anglers	Number caught by catfish anglers	Number caught/hour by catfish anglers	Number harvested by catfish anglers	Number harvested/hour by catfish anglers
April	1,436	810	278	1,369	600	0.5	365	0.3
May	2,218	867	1,037	5,111	968	0.2	535	0.1
June	4,517	2,626	1,180	5,815	1,855	0.2	1,610	0.2
July	1,973	1,558	685	3,378	1,662	0.4	1,371	0.3
August	2,900	2,302	697	3,436	2,213	0.7	1,884	0.6
September	1,416	742	343	1,691	809	0.6	404	0.3
October	871	332	194	955	579	0.8	331	0.5
November	501	501	161	795	501	0.5	501	0.5
Total	15,833	9,737	4,575	22,549	9,187	0.38	7,001	0.29

Table 30. Black bass catch and harvest statistics for all anglers derived from a 2021 (April - November) daytime creel survey at Barren River Lake (10,000 acres) for each species.

	Largemouth bass						Spotted bass						Smallmouth bass					
	Harvest			Catch and release			Harvest			Catch and release			Harvest			Catch and release		
	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total
Total number of bass	4,164	9,895	14,142	38,079	16,294	66,918	867	326	1,193	2,783	282	5,186	30	88	118	70	137	360
% of black bass harvested by number			91.5						7.7						0.8			
Total weight of fish (lb)			26,218.8	45,096.0	19,265.7	64,361.7			1,376.0	2,283.0	233.2	2,516.2			209.6	80.0	159.5	239.5
% of bass harvested by weight			94.3						4.9						0.8			
Mean length (in)			15.4						14.5						15.3			
Mean weight (lb)			1.9						1.3						1.7			
Rate (fish/hour)			0.06						0.005						0.0006			

Table 31. Crappie catch and harvest statistics for all anglers derived from a 2021 (April - November) daytime creel survey at Barren River Lake (10,000 acres) for each species.

	White crappie					Black crappie				
	Harvest		Catch and release			Harvest		Catch and release		
	≥10.0 in	Total	<10.0 in	≥10.0 in	Total	≥10.0 in	Total	<10.0 in	≥10.0 in	Total
Total number of crappie	19,425	19,426	141,341	1,464	142,805	4,152	4,153	34,441	459	34,900
% of crappie harvested by number		82.4					17.6			
Total weight of fish (lb)		11,284.4	30,398.0	313.4	30,711.4		2,792.2	9,614.0	128.3	9,742.3
% of crappie harvested by weight		80.2					17.6			
Mean length (in)		10.7					10.5			
Mean weight (lb)		0.6					0.6			
Rate (fish/hour)		0.09					0.02			

Table 32. Morone catch and harvest statistics for all anglers derived from a 2021 (April - November) daytime creel survey at Barren River Lake (10,000 acres) for each species.

	Hybrid striped bass						Yellow bass						White bass					
	Harvest			Catch and release			Harvest			Catch and release			Harvest			Catch and release		
	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	<12.0 in	≥12.0 in	Total	<12.0 in	≥12.0 in	Total	<12.0 in	≥12.0 in	Total	12.0-14.9 in	≥15.0 in	Total
Total number of morone	586	2,033	2,731	1,208	3,121	4,329	90		90	825		825		479	479	1,522		1,522
% of morone harvested by number			82.8						2.7						14.5			
Total weight of fish (lb)			7,822.9	2,275.0	5,883.1	8,158.1			11.8						377.9			
% of morone harvested by weight			95.3						0.1						4.6			
Mean length (in)			17.1						7.0						13.6			
Mean weight (lb)			2.7						0.1						1.0			
Rate (fish/hour)			0.02						0.0005						0.003			

Table 33. Catfish catch and harvest statistics for all anglers derived from a 2021 (April - November) daytime creel survey at Barren River Lake (10,000 acres) for each species.

	Blue catfish						Channel catfish						Flathead catfish					
	Harvest			Catch and release			Harvest			Catch and release			Harvest			Catch and release		
	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total	12.0-14.9 in	≥15.0 in	Total
Total number of catfish	34	3,158	3,227	179	1,039		1,613	4,014	6,156	1,800	1,891			118	355		119	
% of catfish harvested by number			33.1						63.2						3.6			
Total weight of fish (lb)			14,059.3	627.0	3,637.8	4,264.8			8,606.4	1,615.0	1,698.8	3,313.8			3,400.9		625.9	625.9
% of catfish harvested by weight			53.9						33.0						13.0			
Mean length (in)			21.6						17.5						28.9			
Mean weight (lb)			4.0						1.9						11.5			
Rate (fish/hour)			0.02						0.03						0.002			

Table 34. Length frequency and CPUE (fish/hr) of bluegill, redear sunfish and warmouth collected in 0.75 hours (6 - 450-sec runs) of diurnal electrofishing at Briggs Lake on 6 May 2021.

	Inch class												Std.
Species	1	2	3	4	5	6	7	8	9	10	Total	CPUE	error
Bluegill	2	18	52	126	66	72	60	1			397	529.3	116.2
Redear sunfish			1		10	26	53	23	7	2	122	162.7	28.3
Warmouth		1	7	4	2	3	5	1			23	30.7	11.9
Black Crappie			7	5	1	2	4	12	3	1	35	46.7	21.2

swdbrgbg.d21

Table 35. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Briggs Lake from mid-April to mid-May 2009-2021. Standard errors are in parentheses.

	Length group				
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	Total
2021	26.7	325.3	176.0	1.3	529.3
	(9.2)	(94.7)	(32.1)	(1.3)	(116.2)
2019	14.0	182.0	102.0	14.0	312.0
	(6.0)	(69.7)	(47.5)	(8.3)	(126.7)
2017	16.0	114.0	70.0	18.0	218.0
	(8.6)	(38.1)	(15.8)	(8.3)	(63.5)
2015*	174.0	112.0	170.0	108.0	564.0
	(59.5)	(23.8)	(26.6)	(25.4)	(104.4)
2014	3.2	27.2	128.0	9.6	168.0
	(2.0)	(10.3)	(25.7)	(4.7)	(32.4)
2013	4.8	40.0	81.6	19.2	145.6
	(2.0)	(13.6)	(26.5)	(4.1)	(43.1)
2012	56.0	158.0	62.0	16.0	292.0
	(32.2)	(32.7)	(21.3)	(7.3)	(53.7)
2011	66.0	94.0	60.0	24.0	244.0
	(15.1)	(39.2)	(19.7)	(3.3)	(60.7)
2010	20.8	94.4	153.6	52.8	321.6
	(14.2)	(38.0)	(81.0)	(41.9)	(159.3)
2009	19.2	137.6	17.6	19.2	193.6
	(10.3)	(19.5)	(6.9)	(6.5)	(21.5)

swdbrgbg.D09 - D21

* nocturnal electrofishing used due to high water clarity

Table 36. Spring electrofishing CPUE (fish/hr) for each length group of redear sunfish collected at Briggs Lake during mid-April to mid-May 2009-2021. Standard errors are in parentheses.

	Length group					
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	≥10.0 in	Total
2021	na	14.7 (3.8)	105.3 (15.1)	42.7 (15.7)	2.7 (1.7)	162.7 (28.3)
2019	na	4.0 (2.3)	42.0 (9.5)	58.0 (11.5)	12.0 (5.2)	104.0 (19.0)
2017	na	20.0 (8.3)	56.0 (7.3)	126.0 (38.8)	2.0 (2.0)	202.0 (50.5)
2015*	na	34.0 (15.5)	72.0 (5.7)	108.0 (21.0)	12.0 (5.2)	214.0 (20.8)
2014	1.6 (1.6)	8.0 (3.6)	96.0 (12.9)	67.2 (13.1)	8.0 (4.4)	178.2 (24.0)
2013	1.6 (1.6)	41.6 (16.7)	48.0 (18.8)	56.0 (11.9)	6.4 (3.9)	147.2 (37.6)
2012	4.0 (2.3)	58.0 (19.2)	94.0 (33.1)	6.0 (3.8)	2.0 (2.0)	162.0 (49.9)
2011	na	4.0 (4.0)	14.0 (2.0)	28.0 (10.6)	12.0 (4.0)	46.0 (14.4)
2010	na	9.6 (3.9)	16.0 (7.2)	17.6 (9.6)	1.6 (1.6)	43.2 (19.9)
2009	1.6 (1.6)	8.0 (6.2)	54.4 (14.8)	17.6 (12.0)	4.8 (3.2)	81.6 (25.1)

swdbrgbg.D09 - D21

* nocturnal electrofishing used due to high water clarity

Table 37. Proportional stock density (PSD) and relative stock density (RSD) of bluegill and redear sunfish collected by diurnal electrofishing at Briggs Lake on 6 May 2021. Numbers in parentheses represent 95% confidence intervals.

Species	N	PSD	RSD[a]
Bluegill	377	35 (5)	<1 (<1)
Redear sunfish	121	70 (8)	7 (4)

[a] Bluegill=RSD_8; redear sunfish=RSD_9

swdbrgbg.d21

Table 38. Bluegill population assessment for Briggs Lake 2010 - 2021 (scoring based on statewide assessment).

	Year																	
	2021		2019		2017		2015		2014		2013		2012		2011		2010	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Growth																		
Mean length age-2 at capture	4.6*	3	4.6	3	4.7*	3	4.7*	3	4.7*	3	4.7*	3	4.7	3	4.9*	4	4.9*	4
Growth																		
Years to 6.0 in	2.9*	4	2.9	4	2.6*	4	2.6*	4	2.6*	4	2.6*	4	2.6	4	2.7*	4	2.7*	4
Size structure																		
CPUE ≥6.0 in	177.3	4	116.0	4	88.0	3	278.0	4	137.6	4	100.8	4	78.0	3	84.0	3	206.4	4
Size structure																		
CPUE ≥8.0 in	1.3	2	14.0	4	18.0	4	108.0	4	9.6	4	19.2	4	16.0	4	24.0	4	52.8	4
Instantaneous mortality (z)			-0.38952															
Annual mortality (A)%			32.3															
Total score:	13		15		14		15		15		15		14		15		16	
Assessment rating:	Good		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	

*No age data collected; values carried over from 2007, 2012 (spring collected), and 2019 fall collection

sw dbrgbg.D09 - D21

Table 39. Redear sunfish population assessment for Briggs Lake 2010 - 2021 (scoring based on statewide assessment).

	Year																	
	2021		2019		2017		2015		2014		2013		2012		2011		2010	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Growth																		
Mean length age-3 at capture	8.2*	4	8.2	4	8.6*	4	8.6*	4	8.6*	4	8.6*	4	8.6*	4	8.6*	4	8.6*	4
Growth																		
Years to 8.0 in	2.6*	4	2.6	4	2.7*	4	2.7*	4	2.7*	4	2.7*	4	2.7*	4	2.7*	4	2.7*	4
Size structure																		
CPUE ≥8.0 in	42.7	4	58.0	4	126.0	4	108.0	4	67.2	4	62.4	4	6.0	2	28.0	4	17.6	3
Size structure																		
CPUE ≥10.0 in	2.7	4	12.0	4	2.0	4	12.0	4	8.0	4	6.4	4	2.0	4	12.0	4	1.6	3
Instantaneous mortality (z)			-0.53															
Annual mortality (A)%			41.3															
Total score:	16		16		16		16		16		16		14		16		14	
Assessment rating:	Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent	

*No age data collected; values carried over from 2007 and 2019 fall collection

sw dbrgbg.D09 - D21

Table 40. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 0.625 hours (5- 0.125 hour runs) of nocturnal electrofishing at Briggs Lake on 20 April 2021.

	Inch class																				
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	Std err
Largemouth bass	3	3	2	5	11	12	22	19	9	10	5	3	4	2	1	1	1		1	114	182.4	22.3

swdbrgbb.d21

Table 41. Spring nocturnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Briggs Lake 2005-2021.

	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
2021	20.8	7.4	102.4	24.8	38.4	3.0	20.8	2.0	3.2	2.0	182.4	22.3
2016	35.2	10.3	121.2	10.6	76.8	13.5	19.2	6.0	1.6	1.6	262.4	14.8
2012	42.0	11.0	138.0	10.5	48.0	17.3	6.0	3.8	4.0	2.3	234.0	12.4
2011	132.0	14.8	308.0	20.0	24.0	3.3	6.0	3.8	4.0	2.3	470.0	11.5
2010	34.0	10.5	236.0	29.7	32.0	8.0	10.0	5.0	NA		312.0	24.2
2009	108.0	21.4	168.0	16.6	44.8	12.3	6.4	3.0	1.6	1.6	328.0	16.8
2008	154.0	16.1	286.0	19.7	36.0	6.9	14.0	6.8	8.0	5.7	490.0	30.9
2007	38.0	6.8	412.0	32.4	18.0	2.0	2.0	2.0	NA		470.0	31.4
2006	56.0	4.4	171.2	9.7	25.6	4.7	11.2	5.4	3.2	2.0	264.0	12.1
2005	46.0	6.8	194.0	21.3	28.0	5.2	26.0	5.0	6.0	3.8	294.0	27.4

swdbrgbb.d05 - d21

Table 42. PSD and RSD_{15} values obtained for largemouth bass collected during 0.625 hours (5 - 0.125-hour runs) of spring nocturnal electrofishing at Briggs Lake on 20 April 2021. 95% confidence intervals are in parentheses.

Species	No. of fish ≥stock size	PSD	RSD_{15}
Largemouth bass	101	37 (10)	13 (6)

swdbrgbb.d21

Table 43. Length frequency and CPUE (fish/hr) of each inch class of bluegill and redear sunfish collected by 1.0 hour of diurnal electrofishing (8- 0.125-hour runs) at Marion Co. Lake on 26 April 2021.

	Inch class													Std.
Species	1	2	3	4	5	6	7	8	9	10	11	Total	CPUE	error
Bluegill	9	16	22	50	82	140	98	10				427	427.0	53.8
Redear sunfish		2	1		10	26	27	49	6	3	1	125	125.0	26.4

swdmclbg.d21

Table 44. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Marion Co. Lake 2007-2021. Standard errors are in parentheses.

	Length group				
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	Total
2021	25.0	154.0	238.0	10.0	427.0
	(10.7)	(19.1)	(34.7)	(5.6)	(53.8)
2018	18.3	46.9	29.7	6.9	101.7
	(9.5)	(11.9)	(9.0)	(3.7)	(20.0)
2016	52.0	138.0	141.0	9.0	340.0
	(18.0)	(24.5)	(39.6)	(4.1)	(65.4)
2014	49.0	267.0	112.0	1.0	429.0
	(19.0)	(72.6)	(28.9)	(1.0)	(101.8)
2012	270.0	213.0	32.0	7.0	522.0
	(86.0)	(45.5)	(4.3)	(3.8)	(95.5)
2011	499.4	107.4	73.1	14.9	694.9
	(112.4)	(16.3)	(10.7)	(2.7)	(126.5)
2010	55.0	72.0	25.0	5.0	157.0
	(27.7)	(10.5)	(9.1)	(2.1)	(25.8)
2009	48.0	109.7	58.3	1.1	217.1
	(22.2)	(20.9)	(10.6)	(1.1)	(35.4)
2008	60.0	73.0	130.0	11.0	274.0
	(31.6)	(13.6)	(14.6)	(4.0)	(45.1)
2007	73.0	291.0	39.0	3.0	406.0
	(22.8)	(39.5)	(7.5)	(1.5)	(50.1)

swdmclbg.d07 - d21

Table 45. Spring electrofishing CPUE (fish/hr) for each length group of redear sunfish collected at Marion Co. Lake 2007-2021. Standard errors are in parentheses.

	Length group					
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	≥10.0 in	Total
2021	2.0	11.0	53.0	59.0	4.0	125.0
	(1.3)	(4.8)	(15.3)	(14.5)	(1.5)	(26.4)
2018		8.0	21.7	26.3	10.3	56.0
		(2.5)	(3.8)	(9.8)	(5.4)	(11.7)
2016	3.0	19.0	8.0	52.0	2.0	82.0
	(2.1)	(6.4)	(3.0)	(8.9)	(1.3)	(8.7)
2014	1.0	38.0	20.0	25.0	5.0	84.0
	(1.0)	(12.4)	(6.6)	(5.9)	(2.1)	(21.7)
2012	1.0	3.0	5.0	48.0		57.0
	(1.0)	(2.1)	(2.1)	(18.1)		(18.0)
2011	1.1	14.9	45.7	74.3	4.6	136.0
	(1.1)	(5.9)	(10.7)	(23.4)	(4.6)	(39.5)
2010	7.0	20.0	20.0	15.0		62.0
	(7.0)	(6.1)	(6.9)	(2.8)		(12.5)
2009		52.6	34.3	17.1	2.3	104.0
		(10.2)	(6.9)	(5.4)	(2.3)	(14.8)
2008	1.0	37.0	9.0	28.0	6.0	75.0
	(1.0)	(15.6)	(3.2)	(9.1)	(3.3)	(16.1)
2007		21.0	7.0	11.0	1.0	39.0
		(6.2)	(2.4)	(6.6)	(1.0)	(11.9)

swdmclbg.d07 - d21

Table 46. Proportional stock density (PSD) and relative stock density (RSD) of bluegill and redear sunfish collected by diurnal electrofishing at Marion Co. Lake on 26 April 2021. Numbers in parentheses represent 95% confidence intervals

Species	No. of fish ≥stock size	PSD	RSD[A]
Bluegill	402	62 (5)	2 (2)
Redear sunfish	122	70 (8)	8 (5)

[A] Bluegill=RSD_8; redear sunfish=RSD_9

swdmclbg.d21

Table 47. Bluegill population assessments from 2008-2021 at Marion County Lake (scoring based on statewide assessment).

	Year																	
	2021		2018		2016		2014		2012		2011		2010		2009		2008	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-2 at capture	4.3*	3	4.3*	3	4.3*	3	4.3*	3	4.3	3	3.7*	1	3.7*	1	3.7*	1	3.7*	1
Years to 6.0 in	2.8*	4	2.8*	4	2.8*	4	2.8*	4	2.8	4	3.7*	3	3.7*	3	3.7*	3	3.7*	3
CPUE ≥6.0 in	248.0	4	36.6	2	150.0	4	113.0	4	39.0	2	88.0	3	30.0	2	59.4	3	141.0	4
CPUE ≥8.0 in	10.0	4	6.9	4	9.0	4	1.0	2	7.0	4	14.9	4	5.0	4	1.1	2	11.0	4
Instantaneous mortality (z)									-0.746									
Annual mortality (A)									52.6									
Total score:	15		13		15		13		13		11		10		9		12	
Assessment rating	Excellent		Good		Excellent		Good		Good		Good		Good		Fair		Good	

*No age data, values carried over from years with age data

sw dmclag.d07, sw dmclag.d12

sw dmclbg.d07 - d21

Table 48. Redear sunfish population assessments from 2007-2021 at Marion County Lake (scoring based on statewide assessment).

	Year																	
	2021		2018		2016		2014		2012		2011		2010		2009		2008	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-3 at capture	8.3*	4	8.3*	4	8.3*	4	8.3*	4	8.3	4	8.3*	4	8.3*	4	8.3*	4	8.3*	4
Years to 8.0 in	2.8*	4	2.8*	4	2.8*	4	2.8*	4	2.8	4	2.8*	4	2.8*	4	2.8*	4	2.8*	4
CPUE ≥8.0 in	59.0	4	26.3	4	52.0	4	25.0	4	48.0	4	74.3	4	15.0	3	17.1	3	28.0	4
CPUE ≥10.0 in	4.0	4	10.3	4	2.0	4	5.0	4	0.0	0	4.6	4	0.0	0	2.3	4	6.0	4
Instantaneous mortality (z)									NA									
Annual mortality (A)									NA									
Total score:	16		16		16		16		12		16		11		15		16	
Assessment rating	Excellent		Excellent		Excellent		Excellent		Good		Excellent		Good		Excellent		Excellent	

*No age data or too little for calculation, values carried over from years with age data

NA (data not amenable to calculations)

sw dmclag.d02, sw dmclag.d12

sw dmclbg.d07 - d21

Table 49. Largemouth bass length frequency and CPUE (fish/hr) collected during 1.0 hour (4- 900-sec runs) of diurnal electrofishing at West Fork Drakes Reservoir 17 May 2021.

	Inch class																				
Species	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	Std err
Largemouth bass	4	3	3	10	6	9	6	5	6	4	2	2	2	3		1		1	1	68	68.0	17.5

swdwfdbb.d21

Table 50. Spring diurnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at West Fork Drakes Reservoir from 2007 - 2021. Missing years are non-sampling years.

	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
2021	20.0	7.1	26.0	8.4	12.0	3.3	10.0	7.6	2.0	2.0	68.0	17.5
2018	36.0	16.3	47.0	15.3	27.0	11.5	4.0	4.0	0.0		114.0	24.6
2015	28.0	7.3	42.0	7.4	67.0	10.5	8.0	2.3	2.0	1.2	145.0	10.0
2012	45.0	8.4	104.0	16.3	31.0	3.0	12.0	1.6	5.0	1.0	192.0	25.8
2009	42.0	11.0	47.0	5.7	16.0	2.3	9.0	2.5	1.0	1.0	114.0	11.5
2007	27.0	15.3	31.9	5.7	29.9	5.8	6.0	2.7	2.0	1.3	95.0	23.7

swdwfdbb.d07-21

Table 51. Proportional stock density (PSD) and relative stock density (RSD_{15}) for largemouth bass collected by spring diurnal electrofishing at West Fork Drakes Reservoir on 17 May 2021. Numbers in parentheses represent 95% confidence intervals.

Species	No. of fish ≥stock size	PSD	RSD_{15}
Largemouth bass	48	46 (14)	21 (12)

swdwfdbb.d21

Table 52. Population assessment of largemouth bass based on diurnal spring sampling at West Fork Drakes Reservoir from 2007-2021 (scoring based on statewide assessment). Missing years are non-sampling years.

	Year											
	2021		2018		2015		2012		2009		2007	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-3 at capture	11.3*	3	11.3*	3	11.3*	3	11.3	3	11.3	3	11.3	3
Spring CPUE age-1	12.0	2	28.0	3	28.0	3	21.0	2	34.0	3	19.0	2
Spring CPUE 12.0-14.9 in	12.0	1	27.0	3	67.0	4	31.0	3	16.0	2	29.9	3
Spring CPUE ≥15.0 in	10.0	2	4.0	1	8.0	2	12.0	2	9.0	2	6.0	2
Spring CPUE ≥20.0 in	2.0	3	0.0	1	2.0	3	5.0	4	1.0	2	2.0	3
Instantaneous mortality (z)							-0.451					
Annual mortality (A)%							36.3					
Total score	11		11		15		14		12		13	
Assessment rating	Fair		Fair		Good		Good		Fair		Good	

*No age data collected, value carried over from 2012
swdwfdag.d12
swdwfdbb.d07-21

Table 53. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected by 0.5 hours (4- 450-sec runs) of diurnal electrofishing at West Fork Drakes Reservoir on 17 May 2021.

	Inch class									Std.
Species	1	2	3	4	5	6	7	Total	CPUE	error
Bluegill	2	13	43	78	66	13	2	217	434.0	102.8
Redear sunfish			1	7	11	22	22	63	126.0	82.1

swdwfdbg.d21

Table 54. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at West Fork Drakes Reservoir from 2007 - 2021. Standard errors are in parentheses. Missing years are non-sampling years.

	Length group				
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	Total
2021	30.0	374.0	30.0	0.0	434.0
	(11.5)	(89.9)	(20.0)		(102.8)
2018	42.0	282.0	46.0	0.0	370.0
	(31.7)	(34.2)	(8.3)		(58.3)
2015	24.0	376.0	194.0	0.0	594.0
	(3.3)	(28.5)	(6.0)		(33.5)
2012	8.0	264.0	90.0	0.0	362.0
	(4.6)	(72.3)	(29.1)		(73.0)
2009	38.0	390.0	180.0	0.0	608.0
	(13.6)	(68.7)	(51.7)		(115.5)
2007	10.0	392.0	156.0	0.0	558.0
	(7.6)	(68.4)	(25.0)		(88.3)

swdwfdbg.D07 - D21

Table 55. Spring electrofishing CPUE (fish/hr) for each length group of redear sunfish collected at West Fork Drakes Reservoir from 2007 - 2021. Standard errors are in parentheses. Missing years are non-sampling years.

	Length group					
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	≥10.0 in	Total
2021	0.0	38.0	88.0	0.0	0.0	126.0
		(13.2)	(74.8)			(82.1)
2018	0.0	32.0	92.0	6.0	0.0	130.0
		(9.8)	(32.7)	(3.8)		(43.3)
2015	10.0	30.0	132.0	28.0	0.0	200.0
	(3.8)	(11.9)	(20.8)	(10.1)		(37.4)
2012	0.0	92.0	104.0	0.0	0.0	196.0
		(29.3)	(37.2)			(59.0)
2009	2.0	112.0	198.0	8.0	0.0	320.0
	(2.0)	(50.3)	(32.9)	(4.6)		(80.5)
2007	0.0	38.0	32.0	18.0	0.0	88.0
		(22.2)	(12.7)	(8.3)		(36.5)

swdwfdbg.D07 - D21

Table 56. Proportional stock density (PSD) and relative stock density (RSD) of bluegill and redear sunfish collected by diurnal electrofishing at West Fork Drakes Reservoir on 17 May 2021. Numbers in parentheses represent 95% confidence intervals.

Species	No. of fish ≥stock size	PSD	RSD[a]
Bluegill	202	7 (3)	0
Redear	62	35 (12)	0

[a] Bluegill=RSD_8; redear sunfish=RSD_9

swdwfdbg.d21

Table 57. Bluegill population assessments from 2007 - 2021 at West Fork Drakes Reservoir (scoring based on statewide assessment). Missing years are non-sampling years.

	Year											
	2021		2018		2015		2012		2009		2007	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-2 at capture	4.3*	3	4.3*	3	4.3*	2	4.2*	2	4.2	2	4.2*	2
Years to 6.0 in	3.8*	3	3.8*	3	3.4*	3	3.4*	3	3.4	3	3.4	3
CPUE ≥6.0 in	30.0	2	46.0	2	194.0	4	88.0	3	180.0	4	156.0	4
CPUE ≥8.0 in	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1
Instantaneous mortality (z)									-1.03168			
Annual mortality (A)									64.4			
Total score:	9		9		10		9		10		10	
Assessment rating:	Fair		Fair		Good		Fair		Good		Good	

*No age data collected; values carried over from 2009 or 2019

swdwfdag.d09 & d19

swdwfdbg.D07 - D21

Table 58. Redear sunfish population assessments from 2007 - 2021 at West Fork Drakes Reservoir (scoring based on statewide assessment). Missing years are non-sampling years.

	Year											
	2021		2018		2015		2012		2009		2007	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-3 at capture	6.7*	2	6.7*	2	6.7*	2	6.6*	2	6.6	2	6.6	2
Years to 8.0 in	5.0*	2	5.0*	2	5.0*	2	5.0*	2	5.0	2	5.0	2
CPUE ≥8.0 in	0.0	1	6.0	2	28.0	4	0.0	1	8.0	2	18.0	3
CPUE ≥10.0 in	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1
Instantaneous mortality (z)									-0.641846			
Annual mortality (A)									47.4			
Total score:	6		7		9		6		7		8	
Assessment rating	Poor		Fair		Fair		Poor		Fair		Fair	

* No age data collected; values carried over from closest year aged (2009 or 2019)
swdwfdag.d09 & d19
swdwfdbg.D07 - D21

Table 59. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 6.0 hours (12- 0.50-hour runs) of nocturnal electrofishing at Green River Lake from April 25-27 and May 5, 2021.

		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						3		1				1									5	3.3	0.7
	Spotted bass		1	2	1	9	12	7	3	2	1	2										40	26.7	11.9
	Largemouth bass		2	6	16	9	8	12	25	32	19	23	24	27	23	12	10	12	5	3	1	269	179.3	24.7
Ramp 1	Smallmouth bass		1		2	7	2	2	1		4											19	12.7	10.7
	Spotted bass		3	1	8	12	5	8	5	8	5	5	1	3								64	42.7	8.1
	Largemouth bass	1	2	3	1	3	11	16	11	3	5	12	12	20	11	14	15	11	4	1	1	157	104.7	8.4
Robinson Creek Arm																								
Smith Ridge	Smallmouth bass							4					1									5	3.3	1.3
	Spotted bass		1	4	4	11	19	5	9	4	3	4	3	1								68	45.3	10.4
	Largemouth bass		1	6	10	10	3	7	10	29	18	18	13	13	17	8	6	7	2		1	179	119.3	11.2
Lone Valley	Smallmouth bass		2	2	4	5	3	3	2		1			2				1				25	16.7	1.8
	Spotted bass		6	4	8	11	9	9	13	13	13	7	3	3	3	1						103	68.7	8.7
	Largemouth bass		1	1	1	2	2	4	12	5	5	13	11	24	17	19	16	10	5	2		150	100.0	11.7
TOTAL	Smallmouth bass		3	2	6	12	8	9	4		5		2	2				1				54	9.0	2.9
	Spotted bass		11	11	21	43	45	29	30	27	22	18	7	7	3	1						275	45.8	6.2
	Largemouth bass	1	6	16	28	24	24	39	58	69	47	66	60	84	68	53	47	40	16	6	3	755	125.8	11.6

sw dgrlbb.d21

Table 60. Spring diurnal electrofishing CPUE (fish/hr) of largemouth bass by length group collected at Green River Lake during late-April to early-mid May since 1997.

	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
2021	16.5	3.0	35.5	6.3	35.0	4.2	38.8	2.5	1.5	0.5	125.8	11.6
2020	no data due to flooding											
2019	26.7	4.8	35.7	3.8	40.7	3.9	37.5	4.6	2.8	0.5	140.5	5.6
2018	13.3	3.8	37.8	6.4	40.2	4.2	45.8	4.4	2.7	0.7	137.2	16.1
2017	21.8	5.9	41.5	6.3	40.8	6.4	59.8	4.7	4.0	0.9	164.0	11.7
2016	15.0	3.7	13.0	2.7	25.0	4.7	40.0	5.8	2.5	0.7	93.5	9.1
2015	9.2	1.8	23.3	6.0	23.7	3.7	51.7	5.9	2.7	0.7	107.8	15.0
2014	no data due to flooding											
2013	4.2	0.7	23.7	3.7	44.0	4.8	52.8	5.3	3.3	0.7	124.7	11.7
2012	16.5	4.3	54.8	6.3	35.3	6.4	38.0	5.4	1.3	0.5	144.7	16.3
2011	no data due to flooding											
2010	no data due to flooding											
2009	7.2	1.8	11.3	3.4	13.0	2.7	42.8	7.9	1.7	0.8	74.3	12.3
2008	22.8	9.5	25.8	4.7	27.8	4.0	30.2	2.7	0.8	0.4	106.7	17.0
2007	3.8	1.0	20.5	2.5	33.7	5.8	22.2	3.6	0.5	0.3	80.2	10.3
2006	15.1	2.0	44.4	3.6	23.1	2.8	18.9	2.1	0.3	0.2	96.2	5.3
2005	67.8	8.0	30.7	2.8	11.7	1.9	16.8	2.5	1.5	0.7	127.0	12.5
2004	17.3	2.7	22.8	2.1	11.6	1.8	15.6	2.6	0.9	0.3	67.3	6.4
2003	5.8	1.4	12.3	2.1	5.8	1.8	18.2	3.0	1.8	0.7	42.2	4.1
2002	5.0	1.1	9.5	1.5	20.5	2.5	13.0	2.5	1.2	0.4	48.0	4.2
2001	10.2	2.5	26.7	3.0	32.2	6.5	12.5	1.5	1.7	0.4	81.5	7.8
2000	2.5	0.9	41.0	4.4	24.2	3.4	14.7	3.4	3.2	1.0	82.3	8.6
1999	21.4	3.8	53.5	7.2	19.4	4.0	14.3	1.7	2.8	0.8	108.6	12.5
1998	33.5	7.7	9.0	1.8	8.8	2.0	17.5	1.8	2.0	0.7	68.8	8.6
1997	3.7	1.0	22.3	2.5	23.3	2.8	23.2	2.1	1.2	0.5	72.5	5.2

swdgrlbb.D97-D21

Table 61. PSD and RSD values for each black bass species collected during 6.0 hours (12- 0.50-hour runs) of nocturnal electrofishing by area at Green River Lake from April 25-27 and May 5, 2021. 95% confidence intervals are in parentheses.

Area	Species	No. ≥stock size	PSD	RSD[A]
Green River Arm				
Holmes Bend	Largemouth bass	228	61(6)	29(6)
	Spotted bass	27	11(12)	*
	Smallmouth bass	5	*	*
Ramp 1	Largemouth bass	136	74(7)	42(8)
	Spotted bass	40	35(15)	*
	Smallmouth bass	9	44(34)	*
Robinson Creek Arm				
Smith Ridge	Largemouth bass	149	57(8)	28(7)
	Spotted bass	48	23(12)	*
	Smallmouth bass	5	*	*
Lone Valley	Largemouth bass	117	82(6)	48(8)
	Spotted bass	74	41(11)	9(6)
	Smallmouth bass	12	33(28)	*
Total	Largemouth bass	683	68(4)	36(4)
	Spotted bass	342	31(8)	6(4)
	Smallmouth bass	58	32(17)	*

[A] Largemouth bass = RSD_{15}, spotted bass and smallmouth bass = RSD_{14}.

swdgrlbb.d21

Table 62. Population assessment of largemouth bass based on nocturnal spring sampling at Green River Lake from 2003-2021 (scoring based on statewide assessment).

	2008		2009		2012		2013		2015		2016		2017		2018		2019		2021	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-3 at capture	14.4	4	14.6	4	14.6	4	14.6	4	13.1	4	13.1	4	13.1	4	13.1	4	13.1	4	13.1	4
Spring CPUE age-1	22.8	3	7.2	1	15.5	2	3.8	1	16.0	2	17.3	2	34.5	3	17.7	2	34.3	3		3
Spring CPUE 12.0-14.9 in	27.8	3	13.0	1	35.3	4	44.0	4	23.7	3	25.0	3	40.8	4	40.2	4	40.7	4	35.0	4
Spring CPUE ≥15.0 in	30.2	4	42.8	4	39.3	4	52.8	4	51.7	4	40.0	4	59.8	4	45.8	4	37.5	4	38.8	4
Spring CPUE ≥20.0 in	0.8	3	1.7	4	1.3	4	3.3	4	2.7	4	2.5	4	4.0	4	2.7	4	2.8	4	1.5	2
Instantaneous mortality (z)			-0.610						-0.473											
Annual mortality (A)%			45.7						37.71											
Total score		17		14		18		17		17		17		19		18		19		17
Assessment rating		Excellent		Good		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellen

sw dgrlag.D03, D09, 15

sw dgrlbb.D02-D21

Table 63. 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 October 5-6, 2021.

		Inch class																				
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE	Std err
Green River Arm																						
Holmes Bend	Smallmouth bass					1					1		1							3	2.0	1.2
	Spotted bass		18	30	6	6	2	2	2		1		3	1						71	47.3	13.3
	Largemouth bass	3	65	42	48	20	8			3		2		2		1	1	1		196	130.7	19.7
Ramp 1	Smallmouth bass	3	5		5	2	1	2	1				1				1			21	14.0	8.1
	Spotted bass	6	6	2		2	7	6	1	1	1	1	1							34	22.7	12.7
	Largemouth bass	10	3	7	2	4		1		1	1	1			1	2	1		1	35	23.3	10.4
Robinson Creek Arm																						
Smith Ridge	Smallmouth bass							1		2										3	2.0	1.2
	Spotted bass	1	32	11		2	6	5	6	4		3	3	1		1				75	50.0	18.0
	Largemouth bass		62	55	24	29	9	3	5	4	2		2	1			1	1		198	132.0	10.1
Lone Valley	Smallmouth bass	4	3	3	1	4		1	1	2	2	2	1							24	16.0	4.2
	Spotted bass	4	15	3	2	2	10	5	1	2	2		2	3	1					52	34.7	2.9
	Largemouth bass	8	13	1	1	2		1		1		1			1	1		2		32	21.3	2.4
TOTAL	Smallmouth bass	7	8	3	6	7	1	4	2	4	3	2	3				1			51	8.5	2.8
	Spotted bass	11	71	46	8	12	25	18	10	7	4	4	9	5	1	1				232	38.7	6.4
	Largemouth bass	21	143	105	75	55	17	5	5	9	3	4	2	3	2	4	3	4	1	461	76.8	17.3

sw dgrlyy.d21

Table 64. Largemouth bass mean length (in) at age-0 and catch rates at age 0 and age 1 collected at Green River Lake since 2002.

	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
2021	4.6	0.1	69.3	16.4	24.5	7.3		
2020	4.3	<0.1	79.5	15.3	19.7	4.9	14.7	3.1
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 - D21

swdgrlag. D10 - D21

swdgrlyy. D10 - D13, 15-

ND = no data due to spring flooding

Table 65. Length frequency and CPUE (fish/hr) of bluegill collected by diurnal electrofishing (0.5 hours; 4- 450-second runs) at Metcalfe County Lake on 27 April 2021 .

	Inch class										Std.
Species	2	3	4	5	6	7	8	9	Total	CPUE	error
Bluegill	15	48	77	83	143	51			417	667.2	75.3
White crappie					1	44	36	1	82	131.2	59.3

swdmetbg.D21

Table 66. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Metcalfe County Lake during early-mid May from 2005-2021 . Standard error in parentheses.

Year	Length group				Total
	<3.0 in	3.0-5.9 in	6.0-7.9 in	>8.0 in	
2021	24.0	332.8	310.0	0.0	667.2
	(10.4)	(35.8)	(59.4)		(75.3)
2018	18.0	510.0	182.0	0.0	710.0
	(10.5)	(63.1)	(29.1)		(72.6)
2016	116.0	274.0	160.0	0.0	550.0
	(44.1)	(99.6)	(53.4)		(193.2)
2014	22.4	326.4	288.0	0.0	636.8
	(9.3)	(53.2)	(50.0)		(107.7)
2011	102.0	1032.0	194.0	0.0	1328.0
	(25.6)	(156.7)	(39.1)		(196.9)
2007	108.0	886.0	568.0	0.0	1562.0
	(33.1)	(171.7)	(132.8)		(270.1)
2005	66.8	807.7	366.2	0.0	1240.7
	(9.4)	(113.5)	(61.8)		(165.1)

swdmetbg.D05, D07, D11, D14, D16, D18, D21

Table 67. PSD and RSD_{15} values obtained for bluegill collected during 0.5 hours (4 - 0.125 hour runs) of spring diurnal electrofishing at Metcalfe Co. Lake on 27 April 2021. 95% confidence intervals are in parentheses.

Species	No. ≥3.0 in	PSD (± 95% CI)	RSD_8 (± 95% CI)
Bluegill	402	48 (5)	*

swdmetbg.D21

*No fish greater than 8.0 in collected

Table 68. Bluegill population assessments from 2005 - 2021 at Metcalfe County Lake (scoring based on statewide assessment).

	Year													
	2021		2018		2016		2014		2011		2007		2005	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-2 at capture	4.4*	3	4.4*	3	4.4*	3	4.4*	3	4.4*	3	4.4	3	4.4*	3
Years to 6.0 in	3.6*	3	3.6*	3	3.6*	3	3.6*	3	3.6*	3	3.6	3	3.6*	3
CPUE ≥6.0 in	310.4	4	182.0	4	160.0	4	288.0	4	194.0	4	568.0	4	366.2	4
CPUE ≥8.0 in	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Instantaneous mortality (z)											1.07			
Annual mortality (A)											66.0			
Total score:		10		10		10		10		10		10		10
Assessment rating		Good		Good		Good		Good		Good		Good		Good

*No age data, values carried over from years with age data
swdmetag.D07
swdmetbg.D05 - D21

Table 69. Length frequency and CPUE (fish/hr) of bluegill and redear collected during 1.0 hour (7- 450-sec runs) of diurnal electrofishing at Mill Creek Lake (Monrone Co.) on 18 May 2021.

	Inch class										Std.
Species	1	2	3	4	5	6	7	8	Total	CPUE	error
Bluegill	17	174	160	174	101	19	13	1	659	659.0	102.8
Redear		3	8		13	23	11	3	61	61.0	18.0

swdmilbg.D21

Table 70. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Mill Creek Lake from 2005 - 2021. Standard errors are in parentheses. No data collected in missing years.

	Length group				
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	>8.0 in	Total
2021	191.0	435.0	32.0	1.0	659.0
	(47.0)	(70.0)	(7.1)	(1.0)	(102.8)
2018	6.9	420.6	35.4	0.0	462.9
	(4.4)	(82.1)	(6.7)		(85.1)
2016	59.0	549.0	31.0	0.0	639.0
	(15.2)	(50.1)	(5.3)		(52.5)
2013	184.0	412.0	47.2	0.0	644.0
	(76.5)	(43.8)	(6.4)		(96.0)
2010	74.4	568.0	56.0	0.0	698.4
	(20.1)	(75.6)	(11.1)		(76.1)
2005	76.8	350.4	88.8	0.0	516.0
	(32.0)	(53.4)	(20.7)		(72.8)

SWDMILBG.D05 - D21

Table 71. Proportional stock density (PSD) and relative stock density (RSD) of bluegill and redear collected by diurnal electrofishing at Mill Creek Lake on 18 May 2021. Numbers in parentheses represent 95% confidence intervals.

Species	N	PSD	RSD[a]
Bluegill	468	7 (2)	0
Redear	50	28 (13)	NA

[a] Bluegill=RSD_8; redear=RSD_9

swdmilbg.D21

Table 72. Bluegill population assessments from 2005, 2010, 2013, 2016, 2018, and 2021 at Mill Creek Lake (scoring based on statewide assessment).

	2021		2018		2016		2013		2010		2005	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-2 at capture	3.6*	1	3.6*	1	3.6*	1	3.6	1	3.6*	1	3.6*	1
Years to 6.0 in	4.3*	2	4.3*	2	4.3*	2	4.3*	2	4.3	2	4.3*	2
CPUE ≥6.0 in	33.0	2	35.4	2	31.0	2	47.2	2	56.0	3	88.8	3
CPUE ≥8.0 in	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Instantaneous mortality (z)		ND		ND		ND		ND	-0.75661		ND	
Annual mortality (A)									53.1			
Total score:		5		5		5		5		6		6
Assessment rating		Poor		Poor		Poor		Poor		Poor		Poor

* - age data carried over from nearest year collected
swdmilag.d10
swdmilbg.D05 - D21

Table 73. Largemouth bass length frequency and CPUE (fish/hr) collected during 1.50 hours (6 runs; 900sec/run) of nocturnal electrofishing at Shanty Hollow Lake on 15 April 2021.

	Inch class																					
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	Std err
Largemouth bass	1	5	11	10	1	28	73	59	61	26	12	7	2	6	2				2	1	307	207.7	18.5

swdshlbb.D21

Table 74. Spring nocturnal electrofishing CPUE (fish/hr) of each length group of largemouth bass collected at Shanty Hollow Lake during mid-late April / May, 2001-2021. Missing years are non-sampling years.

	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
2021	18.7	6.8	147.3	14.2	30.0	4.1	8.7	3.3	2.0	1.4	207.7	18.5
2018	25.3	5.2	139.3	14.6	76.0	7.9	8.7	2.4	1.3	0.8	249.3	20.4
2015	68.0	7.3	140.5	9.8	47.5	7.1	8.0	1.7	4.5	1.2	264.0	11.3
2012	81.0	11.4	210.0	11.4	56.5	4.8	14.5	2.4	1.0	0.7	362.0	13.8
2011	77.0	8.5	128.5	9.1	66.5	5.1	11.0	2.4	1.0	0.7	283.0	5.2
2010	26.0	5.2	165.0	12.4	74.5	4.7	11.5	2.7	1.5	0.7	277.0	15.3
2009	21.1	4.0	140.6	8.7	88.0	5.7	12.0	3.9	2.9	1.7	261.7	11.4
2008	30.0	6.9	204.5	13.5	57.5	4.7	5.5	1.5	1.0	0.7	297.5	12.3
2007	8.0	2.4	124.5	16.8	13.0	3.1	8.5	1.4	4.0	1.1	154.0	21.0
2006	86.0	15.8	214.7	11.4	30.0	3.1	11.3	3.8	5.3	2.0	342.0	26.7
2005	76.7	10.8	174.0	18.2	44.7	3.8	16.0	3.6	1.3	1.3	311.3	28.0
2004	19.4	3.6	133.7	9.7	36.6	5.0	24.0	2.8	3.4	0.6	213.7	17.0
2003	17.7	4.0	125.1	12.5	76.6	6.7	32.0	5.0	8.0	2.0	251.4	18.0
2002	20.0	4.1	52.0	8.0	69.7	6.2	16.0	2.6	1.1	0.7	157.7	11.1
2001	17.1	3.4	49.1	7.3	45.1	8.6	21.7	3.6	1.7	0.8	133.1	6.5

swdshlbb.D00 - D21

Table 75. Proportional stock density (PSD) and relative stock density (RSD_{15}) values from spring nocturnal electrofishing at Shanty Hollow Lake on April 2021. Numbers in parentheses represent 95% confidence intervals.

Species	N	PSD	RSD_{15}
Largemouth bass	279	21 (5)	5 (2)

swdshlbb.D21

Table 76. Population assessment of largemouth bass based on nocturrnal spring sampling at Shanty Hollow Lake from 2007-2021 (scoring based on statewide criteria). Missing years are non-sampling years.

	2021		2018		2015*		2012		2011		2010		2009		2008		2007	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-3 at capture	12.6	4	12.6	4	12.6	4	12.8	4	12.8	4	12.8	4	12.8	4	13.7	3	13.7	3
Spring CPUE age-1	18.0	2	23.3	3	52.5	3	78.5	4	59.5	4	21.5	3	20.0	2	22.0	3	6.0	1
Spring CPUE 12.0-14.9 in	30.0	3	76.0	4	47.5	4	56.5	4	66.5	4	74.5	4	88.0	4	57.5	4	13.0	1
Spring CPUE ≥15.0 in	8.7	2	8.7	2	8.0	2	14.5	3	11.0	2	11.5	2	12.0	2	5.5	1	8.5	2
Spring CPUE ≥20.0 in	2.0	3	1.3	2	4.5	4	1.0	2	1.0	2	1.5	2	2.9	3	1.0	2	4.0	4
Instantaneous mortality (z)													-0.682					
Annual mortality (A)%													49.4					
Total score		14		15		17		17		16		15		15		13		11
Assessment rating		Good		Good		Excellent		Excellent		Good		Good		Good		Good		Fair

*Age data collected in the fall. Previous years age data derived from spring samples.

sw dshlag.d04, d09, d15

sw dshlbb.D03-D21

Table 77. Length frequency and CPUE (fish/hr) of each inch class of bluegill and redear collected by 1.5 hours (12 runs; 450 sec./run) of nocturnal electrofishing at Shanty Hollow Lake on 27 May 2021.

	Inch class											Std.
Species	1	2	3	4	5	6	7	8	9	Total	CPUE	error
Bluegill	108	254	70	51	48	69	81	3		684	456.0	90.4
Redear		2	3	1	12	6	10	5	4	43	28.7	7.3
Warmouth		1	2	8	8	5	1	1	1	27	18.0	7.2

swdshlbg.d21

Table 78. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Shanty Hollow Lake from 2001-2021.

	Length group									
	<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in		Total	
Year	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2021	241.3	55.7	112.7	16.5	100.0	24.8	2.0	1.0	456.0	90.4
2019	99.3	16.5	253.3	26.0	74.7	21.0	5.3	1.8	432.7	53.7
2017	23.2	8.0	97.6	9.8	41.6	5.8	3.2	2.4	165.6	26.7
2015	38.7	14.6	51.3	9.6	67.3	10.5	3.3	1.2	160.7	26.7
2012	192.8	25.9	452.0	70.1	59.2	11.5	0.8	0.8	704.8	82.6
2010	66.0	11.2	181.3	24.6	29.3	5.8	0.7	0.7	277.3	27.5
2009	16.0	8.1	184.0	41.7	28.7	8.0	*		228.7	51.2
2008	115.1	23.9	142.8	11.5	108.9	18.4	*		366.8	31.5
2007	197.1	33.0	321.5	38.2	94.6	18.2	0.7	0.7	613.8	64.2
2006	134.0	45.3	78.7	8.9	98.7	13.9	12.7	4.7	324.0	50.2
2005	76.3	16.5	194.5	23.2	124.3	15.3	1.2	0.8	396.3	43.3
2004	85.7	26.7	285.2	53.0	157.1	27.6	*		590.8	100.1
2003	43.3	10.4	346.7	34.6	106.0	17.0	5.3	2.8	501.3	47.6
2002	78.0	15.2	391.3	55.2	121.3	15.0	10.7	2.8	601.3	67.1
2001	99.9	28.2	224.7	57.5	239.4	67.8	4.4	3.5	573.3	153.3

swdshlbg.D01 - D21

Table 79. Spring electrofishing CPUE (fish/hr) for each length group of redear sunfish collected at Shanty Hollow Lake from 2001 - 2021.

	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. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2021	1.3	0.9	10.7	2.5	10.7	3.7	6.0	4.0	*		28.7	7.3
2019	2.0	1.4	0.8	0.8	5.3	1.8	5.3	2.7	*		16.0	4.3
2017	*		9.6	2.0	3.2	1.8	6.4	1.1	*		19.2	3.6
2015	*		3.3	1.5	6.0	2.2	16.0	3.6	0.7	0.7	25.3	4.2
2012	4.0	2.2	20.8	5.6	5.6	2.4	9.6	3.1	*		40.0	8.2
2010	*		12.7	3.4	8.7	2.3	2.0	1.4	*		23.3	4.1
2009	3.3	2.1	16.0	3.6	6.0	4.0	6.0	3.7	*		31.3	9.2
2008	1.2	0.8	3.1	1.9	9.2	3.0	11.7	6.2	*		25.2	9.2
2007	1.5	1.0	9.5	2.8	34.2	6.4	2.9	1.2	*		48.0	7.3
2006	*		8.0	3.3	6.0	2.2	8.7	2.9	*		22.7	5.6
2005	1.2	1.2	3.7	1.5	9.2	2.7	3.7	1.5	*		17.9	3.8
2004	1.2	0.8	8.0	2.6	8.0	2.2	9.9	3.2	*		27.1	4.8
2003	*		2.7	1.1	1.3	0.9	10.7	6.0	*		14.7	5.9
2002	*		3.3	1.2	6.7	2.2	6.7	3.1	*		16.9	5.1
2001	*		0.8	0.8	13.8	5.3	42.1	8.7	*		60.0	8.3

swdshlbg.D01 - D21

Table 80. Proportional stock density (PSD) and relative stock density (RSD) of bluegill and redear sunfish collected by nocturnal electrofishing at Shanty Hollow Lake on 27 May 2021. Numbers in parentheses represent 95% confidence intervals.

Species	N	PSD	RSD[a]
Bluegill	322	48 (5)	N/A
Redear	38	50 (17)	N/A

[a] Bluegill=RSD_8; redear sunfish=RSD_9

swdshlbg.D21

Table 81. Bluegill population assessments from 2007 - 2021 at Shanty Hollow Lake (scoring based on statewide assessment).

	Year																	
	2021		2019		2017		2015		2012		2010		2009		2008		2007	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-2 at capture	3.4*	1	3.4*	1	3.4*	2	3.4	2	3.7*	2	3.7*	2	3.7*	2	3.7	4	4.8*	3
Years to 6.0 in	3.0*	3	3.0*	3	3.0*	3	3.0	3	2.7*	4	2.7*	4	2.7*	4	2.7	4	2.6*	4
CPUE ≥6.0 in	102.0	4	74.7	3	44.8	2	70.7	3	60.0	3	30.0	2	28.7	2	108.9	4	95.3	3
CPUE ≥8.0 in	2.0	3	5.3	4	3.2	3	3.3	3	0.8	1	0.7	1	0.0	1	0.0	1	0.7	2
Instantaneous mortality (z)							NA									-0.75		
Annual mortality (A)																52.9		
Total score:		11		11		10		11		10		9		9		13		12
Assessment rating:		Good		Good		Good		Good		Good		Fair		Fair		Good		Good

*No age data collected, value carried over from years with age data

NA - data collected, but no amenable for use

sw dshlag.d02, 08, 15

sw dshlbg.D02 - D21

Table 82. Redear population assessments from 2002 - 2021 at Shanty Hollow Lake (scoring based on statewide assessment).

	Year																	
	2021		2019		2017		2015		2012		2010		2009		2008		2007	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-3 at capture	8.8	4	8.8	4	7.5	4	7.5	4	7.8	4	7.8	4	7.8	4	7.8	4	7.2	4
Years to 8.0 in	3.7	4	3.7	4	3.7	4	3.7	4	3.7	4	3.7	4	3.7	4	3.7	4	3.9	4
CPUE ≥8.0 in	6.0	2	5.3	2	6.4	2	16.0	3	9.6	2	2.0	2	6.0	2	11.7	3	2.9	1
CPUE ≥10.0 in	0.0	1	0.7	2	0.0	1	0.7	2	0.0	1	0.0	1	0.0	1	0.0	1	0.0	1
Instantaneous mortality (z)																		
Annual mortality (A)																		
Total Score:		11		12		11		13		11		11		11		12		10
Assessment rating:		Good		Good		Good		Good		Good		Good		Good		Good		Good

ND - data collected

sw dshlag.d02, 08, 15, 18 (2018 age data from hoopnets)

sw dshlbg.D02 - D21

Table 83. Length frequency and CPUE (fish/hr) of bluegill collected by diurnal electrofishing (4- 0.125-hour runs) at Spurlington Lake on 20 May 2021.

	Inch class														Std.
Species	1	2	3	4	5	6	7	8	9	10	11	15	Total	CPUE	error
Bluegill	17	105	135	157	75	49	44	12	1				595	1190.0	168.9
Redear		14	12	2		9	17	20	6	2			82	164.0	38.3
Warmouth					3	3	1						7	14.0	8.9
White crappie			1	4	3		3	5	3		1	1	21	42.0	9.5

swdsplbg.d21

Table 84. Diurnal spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Spurlington Lake from 2005-2021. Standard errors are in parentheses.

	Length group				
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	>8.0 in	Total
2021	244.0	734.0	186.0	26.0	1190.0
	(93.6)	(102.1)	(35.2)	(15.8)	(168.9)
2018	222.0	604.0	52.0	26.0	904.0
	(116.8)	(90.4)	(7.7)	(6.0)	(201.0)
2016	92.0	276.0	92.0	10.0	470.0
	(28.8)	(99.2)	(20.0)	(3.8)	(145.5)
2014	104.0	465.0	204.8	22.4	796.8
	(37.4)	(76.5)	(40.5)	(6.9)	(131.8)
2012	150.0	788.0	60.0	14.0	1012.0
	(42.4)	(178.0)	(7.7)	(5.0)	(227.6)
2011	713.6	1057.6	156.8	8.0	1936.0
	(111.1)	(187.3)	(54.4)	(3.6)	(256.1)
2010	310.0	468.0	100.0	2.0	880.0
	(134.0)	(75.7)	(42.1)	(2.0)	(195.7)
2009	246.4	571.2	156.8	14.4	988.8
	(37.6)	(82.8)	(30.2)	(7.8)	(119.6)
2008	198.0	550.0	120.0	14.0	882.0
	(38.4)	(145.6)	(43.2)	(14.0)	(236.3)
2007	496.0	606.0	50.0	4.0	1156.0
	(85.2)	(73.5)	(18.3)	(4.0)	(137.4)
2006	138.0	302.0	46.0	14.0	482.0
	(47.7)	(54.7)	(8.9)	(2.0)	(100.2)
2005	66.0	216.0	50.0	16.0	348.0
	(14.4)	(45.7)	(15.8)	(8.6)	(68.9)

sw dsplbg.D05 - D21

Table 85. Spring electrofishing CPUE (fish/hr) for each length group of redear sunfish collected at Spurlington Lake durng early-mid May 2009-2021. Standard errors are in parentheses.

	Length group					
Year	<3.0 in	3.0-5.9 in	6.0-7.9 in	≥8.0 in	≥10.0 in	Total
2021	28.0	28.0	52.0	56.0	4.0	164.0
	(5.2)	(5.2)	(14.8)	(29.0)	(2.3)	(38.3)
2018	2.0	6.0	10.0	8.0		26.0
	(2.0)	(3.8)	(7.6)	(8.0)		(15.5)
2016	2.0	6.0	10.0	8.0		26.0
	(2.0)	(3.8)	(7.6)	(8.0)		(15.5)
2014	*	8.0	30.4	11.2	*	49.6
		(2.6)	(17.8)	(6.0)		(22.4)
2012	*	8.0	18.0	8.0	*	34.0
		(5.7)	(6.8)	(0.0)		(3.8)
2011	3.2	40.0	59.2	11.2	1.6	113.6
	(3.2)	(10.1)	(22.6)	(9.3)	(1.6)	(34.3)
2010	24.0	18.0	10.0	12.0	*	64.0
	(12.7)	(10.5)	(5.0)	(5.2)		(27.1)
2009	1.6	6.4	28.8	24.0	*	60.8
	(1.6)	(3.0)	(12.6)	(11.0)		(22.4)

swdsplbg.D09-21

Table 86. Proportional stock density (PSD) and relative stock density (RSD) of bluegill and redear sunfish collected by diurnal electrofishing at Spurlington Lake on 20 May 2021. Numbers in parentheses represent 95% confidence intervals.

Species	N	PSD	RSD[A]
Bluegill	473	22 (4)	3 (1)
Redear	56	80 (12)	14 (9)

[A] Bluegill=RSD_8; redear sunfish=RSD_9

* No fish of sufficient size were collected during sampling.

swdsplbg.d21

Table 87. Bluegill population assessments from 2007 - 2021 at Spurlington Lake (scoring based on statewide assessment).

	Year																			
	2021		2018*		2016		2014		2012		2011		2010		2009		2008		2007	
Parameter	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Mean length age-2 at capture	5.1	4	5.1	4	5.1	4	5.6	4	5.6	4	5.6	4	5.6	4	5.6	4	5.6	4	5.6	4
Years to 6.0 in	3.9	3	3.9	3	3.9	3	3.2*	3	3.2*	3	3.2*	3	3.2*	3	3.2*	3	3.2	3	3.2*	3
CPUE ≥6.0 in	212.0	4	78.0	3	102.0	4	227.2	4	74.0	3	164.8	4	102.0	4	171.2	4	134.0	4	54.0	3
CPUE ≥8.0 in	26.0	4	26.0	4	10.0	4	22.4	4	14.0	4	8.0	4	2.0	3	14.4	3	14.0	3	4.0	3
Instantaneous mortality (z)	ND		ND		ND		ND		ND		ND		ND		ND		-1.091		ND	
Annual mortality (A)																	66.4			
Total Score:		15		14		15		15		14		15		14		14		14		13
Assessment rating	Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Excellent		Good	

ND - no age data collected

*Age data collected in fall, unmarked years age collected in the spring

sw dsplag.d08 & d18

sw dsplbg.D03 - D21

Table 88. Length frequency and CPUE (fish/net set) of channel catfish collected from 6 sets of tandem hoop nets (3 sets with 3 nets each with 72 hour soak time) at Spurlington Lake from 20-26 August 2021.

	Inch class																							
Species	4	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
Channel catfish									1	6	6	5	4					1	3	5	3	2	36	6.0	2.9
Yellow bullhead				1		6	15	20	17	5													64	10.7	3.9
Bluegill	4	36	13	5																			58	9.7	3.3
Redear		5	6	2	5	4																	22	3.7	1.4

swdsplcc.d21

Table 89. Age frequency and CPUE (fish/set) of channel catfish collected from late-summer tandem hoopnetting at Spurlington Lake in 2021.

	Inch class																	Std.
Age	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total	Percent	CPUE	error
0																		
1		1	3	1											5	15	0.9	0.5
2	1	5	3	4	4						1			2	20	54	3.3	1.6
3										1					1	3	0.2	0.2
4											1	3	2		6	15	0.9	0.5
5																		
6											1	3	1		5	13	0.8	0.4
Total	1	6	6	5	4					1	3	6	3	2	37	100.0		
%	3	16	16	14	11					3	8	16	8	5	100			

swdsplcc.D21, swdsplag.D21

Table 90. Relative weight (Wr) for each length group of channel catfish collected by tandem set hoopnets (3 sets with 3 nets each with 72 hour soak time) at Sprulington Lake from 20-26 August 2021. Standard errors are in parentheses.

	Length group		
	11.0-15.9 in	16.0-23.9 in	≥24.0 in
Wr	95 (1)	98 (2)	99 (1)
N	18	13	5

swdsplcc.D21

CENTRAL FISHERIES DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Lake sampling conditions for 2021 are summarized in Table 1.

Taylorsville Lake (3,050 acres)

Spring nocturnal electrofishing was completed in April 2021 to assess the black bass population. Three sections (Big Beech Creek, Ashes/Jacks Creek, and Van Buren area) of Taylorsville Lake were sampled for 7.5 hours (2.5 hours per section; 15-minute runs). Length distribution and CPUE for largemouth bass are presented in Tables 2 and 3. The catch rate of bass collected in 2021 (149.3 fish/hr) was higher than the lake's historic average of 120.4 fish/hr. Catch rate for keeper-size bass (≥15.0 in) was 20.9 fish/hr; higher than the lake average (19.0 fish/hr). The Ashes Creek area recorded the highest catch rate for largemouth bass. The PSD for largemouth bass was 72, which was higher than the lake's average of 57 (Table 4). Additionally, the RSD_{15} value was 15, which is less than the lake's average of 22. The largemouth bass population assessment score, based on spring electrofishing data, was "Excellent", which is above the average rating of "Good" at Taylorsville Lake (Table 5). Length frequency, relative weights, and index for year class strength at age-0 for largemouth bass, based on October 2021 electrofishing data, are presented in Tables 6-8. Average body condition for largemouth bass in 2021 (W_r =92; Table 7) was acceptable, but lower than the lake's historic average (W_r =96). Catch rate of age-0 largemouth bass in the fall of 2021 (18.9 fish/hr) was lower than the lake's historic average of 38.4 fish/hr (Table 8). The year class strength model indicated below average recruitment for young-of-the-year largemouth bass in 2021, this was the fourth straight year of below average recruitment. A total of 25,002 (8.2 fish/acre) surplus largemouth bass (3.8 – 4.2 in) were stocked into Taylorsville Lake in August 2021. An additional 633 (0.2 fish/acre) largemouth bass (4.0 – 11.0 in), removed from Beaver Lake, were stocked into Taylorsville Lake in June 2021.

Trap netting effort for crappie (Table 9) resulted in the collection of 720 white crappie and 100 black crappie. Crappie were sampled with trap nets for 48 net-nights. PSD and RSD_{10} values are shown in Table 10. Age and growth determinations and age frequency for black and white crappie were completed using otoliths (Tables 11-14). Age studies indicated both white and black crappie start reaching the 10.0-in size limit between age-2 and age-3. The crappie population assessment scores (Tables 15 and 16) rated white crappie as "Good" and black crappie as "Fair". Historically, the crappie population at Taylorsville Lake has been very cyclic with peaks occurring every 7 to 9 years. More recently, there have been significant spawns in 2013, 2015 and 2019 based off trap net data. Body condition of white and black crappie in the fall of 2021 was acceptable (Table 17).

Fall gill netting for hybrid striped bass, white bass, and saugeye was conducted in October 2021 (Tables 18–29). Hybrid striped bass were captured in 8 net-nights for a CPUE of 5.0 fish/nn. Age and growth studies were completed for hybrid striped bass using otoliths (Tables 19 and 20). Hybrid striped bass continue to show good growth, reaching 15.0 in between age-1 and age-2. The relative weight (W_r) index for hybrid striped bass was 86 in 2021 which is equal to the historic average (W_r = 86) at Taylorsville Lake (Table 21). The population assessment for hybrid striped bass was rated at "Fair" (Table 22). Taylorsville Lake was stocked with 61,254 (20.1 fish/acre; 1.3 in) reciprocal crossed hybrid striped bass in June 2021. No original cross hybrid striped bass were stocked in 2021. Data for white bass collected during fall 2021 gill netting studies are presented in Tables 18 and 23-26. Age and growth studies indicate white bass average over 11.0 in by age-2 and good year classes were produced in 2018, 2019, and 2020 (Tables 23 and 24). Relative weight values (W_r=90) revealed less than average body conditions for all sizes of white bass in 2021 (Table 25). The white bass population assessment was rated "Fair"; an average rating for white bass at Taylorsville Lake (Table 26).

Saugeye were collected during fall gill netting in October 2021. A total of 84 saugeye were collected ranging from 10 to 25 in (Table 18). 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 27). All

seven stocked year classes were represented in the age and growth sample (Table 28). The relative weight (W_r) index for saugeye (95) showed good body condition (Table 29). Taylorsville Lake was stocked with 360,026 saugeye fry (118.0 fish/acre) in April and an additional 74,145 saugeye (24.3 fish/acre; 1.23 in) in May 2021.

Summer diurnal low-pulse electrofishing was completed in July 2021 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 (15-minute runs). Two hundred and ninety-four blue catfish were collected in the lower section compared to 157 blue catfish collected in the upper section of the lake (Table 30). The number of blue catfish collected in 2021 (150.3 fish/hr) was higher than the lake's historic average of 127.9 fish/hr (Table 31). Relative weight values revealed good body condition for all sizes of blue catfish (Table 32). A total of 24,000 (7.9 fish/acre) blue catfish (6.5 in) were stocked in Taylorsville Lake during March 2021.

Herrington Lake (2,410 acres)

Diurnal electrofishing studies were completed in March and April 2021 to monitor the crappie population. Upper, middle, and lower lake sections were sampled for a total of 4.5 hours. A total of 44 crappie were collected in 2021 (Table 33). The PSD's for both white (100) and black (97) crappie were similar to the lake's historical averages of 97 for both species (Table 34). The overall catch was dominated by black crappie, which made up 84.1% of the crappie sampled at Herrington Lake in 2021. Age and growth studies were only completed on the black crappie population due to low numbers of white crappie in the sample. Age and growth studies showed black crappie reached 10.0 in between age-2 and age-3 (Table 35). The black crappie population was dominated by the age-2-year class (2019 year class) in 2021 (Table 36). A population assessment was developed for spring electrofishing for white and black crappie at Herrington Lake. The population assessment for white crappie indicated a "Poor" population in 2021, below the lake's average of "Fair" (Table 37). The population assessment for black crappie was "Poor" for 2021 (Table 38), also below the lake's average of "Fair". Herrington Lake was stocked with 19,758 black crappie (1.4 in) in May and an additional 40,134 black crappie (2.3 in) in August 2021. Therefore, a total of 59,892 (24.9 fish/acre; 1.4 – 2.3 in) black crappie were stocked in 2021.

Spring diurnal electrofishing studies were completed in April 2021 to monitor the black bass population. Upper, middle, and lower sections were sampled for a total of 7.5 hours (2.5 hours per section). Species composition, relative abundance, and CPUE of black bass collected in the spring are presented in Table 39. Largemouth bass (85.3%) dominate the black bass fishery at Herrington Lake. Catch rate of largemouth bass in 2021 (76.8 fish/hr) was lower than the lake's historic average of 116.0 fish/hr (Table 40). Fluctuations in the overall catch rates at Herrington Lake seems to be related to lake level during sampling. The higher the lake level the lower the catch rate of bass. Catch rate for keeper bass (≥12.0 in) was 44.7 fish/hr, lower than the lake's historic average (49.6 fish/hr). The PSD for largemouth bass was 74, higher than the lake's average of 58 (Table 41). Additionally, the RSD_{15} value was 45, which is higher than the lake average of 25. The largemouth bass population assessment score, based on spring electrofishing data, was "Good", which is an average rating for Herrington Lake (Table 42). Length frequency, relative weight, and index of year class strength at age-0 of largemouth bass based on October 2021 electrofishing data at Herrington Lake are presented in Tables 43-45. Largemouth bass condition (W_r =93) was higher than the lake's historic average (W_r =92; Table 44). Age-0 CPUE for largemouth bass (48.7 fish/hr) was higher than the lake average (34.2 fish/hr; Table 45). No largemouth bass were stocked in 2021.

Herrington Lake was stocked with 48,227 (20.0 fish/acre; 1.3 in) reciprocal crossed hybrid striped bass in June 2021.

Guist Creek Lake (317 acres)

Spring nocturnal electrofishing studies were completed for length frequency, CPUE, and population assessment for largemouth bass in April 2021 (Table 46). The total largemouth bass catch rate (154.3 fish/hr) was lower than the lake average of 167.6 fish/hr (Table 47). The PSD for largemouth bass was 61 compared to the lake average of 66 (Table 48). The RSD_{15} was 37 compared to the lake average of 40. The largemouth bass population assessment score, based on spring electrofishing data, was "Excellent", which has been the rating at Guist Creek Lake since 2015 (Table 49). Fall largemouth bass sampling was conducted for length frequency, relative weight, and index of

year class strength at age-0 (Tables 50-52). Relative weight indicated good body condition for bass, especially for bass over 15.0 in (Table 51). The catch rate of age-0 largemouth bass (23.7 fish/hr) was lower than the lake average (avg. = 44.6 fish/hr; Table 52). Largemouth bass were stocked at 14.2 fish/acre (4,515 fish) that averaged 4.0 in at Guist Creek Lake in August 2021. Additionally, largemouth bass removed from Kinman Lake, were stocked at 2.3 fish/acre (740 fish) ranging between 4.0 - 10.0 in during November 2021.

Saugeye were collected during the spring and fall largemouth bass samples. During the spring sample only one 18.0-in saugeye was collected for a catch rate of 0.3 fish/hr (Table 46). The fall sample yielded one 8.0-in saugeye for a catch rate of 0.3 fish/hr (Table 50). During October, gill nets were used to assess the saugeye population. A total of 7 saugeye were collected from the 19.0- to 21.0-in size classes. Age and growth studies indicate saugeye reach the 14.0-in size limit between age-1 and age-2. Guist Creek Lake was stocked with 31,726 (100.1 fish/acre; 1.5 in) saugeye in 2021.

Fall gill netting at Guist Creek Lake resulted in two hybrid striped bass (11.0 in and 26.0 in) being collected. No other data is available due to small sample size. Guist Creek Lake was stocked with 9,566 (30.2 fish/acre; 1.7 in) reciprocal-cross hybrid striped bass in June 2021.

White crappie, collected during fall gill netting, ranging in size from 6.0 to 9.0 in were used to collect age and growth information. White crappie averaged 7.0 in at age-2 and 8.8 in at age-4.

Guist Creek Lake was stocked with 3,170 (10.0 fish/acre; 7.0 in) channel catfish in June 2021.

Beaver Lake (158 acres)

A spring diurnal electrofishing sample was completed in April 2021 to assess the black bass population (Table 53). The CPUE for all sizes was 278.0 fish/hr, greater than the lake average of 259.4 fish/hr (Table 54). The PSD and RSD_{15} for largemouth bass were 32 and 9, respectively, compared to the lake average of 27 and 4, respectively (Table 55). The population assessment score indicated an "Excellent" bass population (Table 56), which was above the average assessment rating of "Good" for Beaver Lake. Fall diurnal electrofishing was conducted for relative weight and index age-0 year class strength of largemouth bass (Tables 57-59). The overall relative weight indicates less than preferred condition ($W_r = 85$); the lake average is 85 (Table 58). Fall sampling indicated below average numbers of age-0 bass, (69.3 fish/hr; average = 139.0 fish/hr) and the average size of largemouth bass (4.1 in) was lower than the lake's average of 4.3 in (Table 59). During June an effort was made to reduce the crowded largemouth bass population at Beaver Lake. Seven hundred and twenty-two (4.6 fish/acre) largemouth bass were removed from Beaver Lake in 2021. Largemouth bass removed ranged in size from 4.0 to 11.0 in (<8.0 in = 336 (46.5%); 8.0-10.9 in = 295 (40.9%); 11.0 in = 91 (12.6%)).

Fall diurnal electrofishing was completed in October 2021 for age and growth and relative weight for panfish populations at Beaver Lake (Tables 60-62). Age and growth studies indicated bluegill averaged 6.0 in between age-3 and age-4 (Table 60). Redear sunfish averaged 8.0 in between age-2 and age-3 (Table 61). Overall, relative weight data for bluegill was fair while the body condition of redear sunfish was good (Table 62). Redear sunfish (31,600 fish; 200.0 fish/acre) were stocked in September 2021 at an average size of 1.6 in.

Channel catfish were sampled in December 2021 using tandem hoop nets. Length frequency results for channel catfish showed a size distribution between the 11.0- and 23.0-in size class (Table 63). PSD and RSD_{24} were 20 and 0, respectively (Table 64). Relative weight indicated good body condition for channel catfish ($W_r = 92$; Table 65). Overall, catch rates at Beaver Lake in 2021 (35.4 fish/set) remained slightly lower than the lake average of 41.8 fish/set (Table 66). Channel catfish stocking has been temporarily suspended to install spawning boxes in spring 2022 to determine their affects to the channel catfish population in Beaver Lake.

In May, 675 lbs of granular 10-52-4 fertilizer was applied in Beaver Lake. Three applications of aquatic herbicides were applied in June and September of 2021 to maintain the bank fishing areas, boat ramp, and fishing pier at Beaver Lake.

Ten rock piles (reefs) were constructed at Beaver Lake using 96 tons of shot rock.

Benjy Kinman Lake (88 acres)

A spring nocturnal electrofishing sample was completed in April 2021 at Benjy Kinman Lake to assess the black bass population (Table 67). The CPUE for all sizes was 263.5 fish/hr, compared to the lake average of 162.2 fish/hr (Table 68). The PSD and RSD_{15} for largemouth bass were 11 and 7, respectively (Table 69). The population assessment score indicated a "Fair" bass population (Table 70). Fall largemouth bass sampling was conducted for relative weight, age and growth, and index of year class strength at age-0 in September 2021 (Tables 71-74). Overall, relative weight indicated below average body condition for bass (W_r = 87) with larger fish exhibiting better condition compared to smaller length groups (Table 72). The better condition of larger fish is due to the gizzard shad forage base. Age and growth studies on largemouth bass show largemouth bass are growing to 12.0 in between age-3 and age-4 (Table 73). Fall sampling indicated above average numbers of age-0 bass, (100.7 fish/hr; average = 79.1 fish/hr) and the average size of largemouth bass (4.6 in) was equal to lake's average of 4.6 in (Table 74). During November, an effort was made to reduce the crowded largemouth bass population at Benjy Kinman Lake. Seven hundred and forty (8.4 fish/acre) largemouth bass were removed from Benjy Kinman Lake and stocked into Guist Creek Lake. Largemouth bass removed ranged in size from 4.0 to 10.0 in (<8.0 in = 290 (39.2%); 8.0-10.9 in = 450 (60.8%)).

Relative weight for bluegill and redear sunfish were collected during the fall bass sample at Benjy Kinman Lake (Table 75). Overall, relative weight for panfish were acceptable.

A diurnal electrofishing study to evaluate the crappie population was completed in October 2021. A total of 26 crappie (3 white crappie and 23 black crappie) were collected in 1.5 hrs of electrofishing (Table 76). Age and growth assessment of black crappie indicated they reach 9.0 in between age-4 and age-5 (Table 77). Age and growth assessment is not reported on white crappie due to a low sample size. Relative weight indicated below average body condition for white crappie (W_r = 81) and acceptable condition for black crappie (W_r = 92; Table 78).

Channel catfish were sampled in December 2021 using tandem hoop nets. Length frequency results for channel catfish showed a size distribution between the 11.0- and 24.0-in size class (Table 79). PSD and RSD_{24} were 86 and 14, respectively (Table 80). Overall, catch rate (1.4 fish/set) in 2021 was lower than the historic average of 8.0 fish/set (Table 81). Relative weight indicated good body condition for channel catfish (W_r = 96, Table 82). In 2020, 15 wooden catfish spawning boxes were installed to promote channel catfish spawning. These boxes were monitored for usage in 2021. All boxes were evaluated for usage weekly beginning on June 7th and were observed through June 29th. Of the 15 boxes, fish were observed using eight (53.3%) of these boxes in 2021. This was an increase from only two (13.3%) boxes used in 2020. Spawning activity was observed in five different boxes, with one box recording multiple spawns. One box was observed with a spawning pair, four boxes with adult catfishes and eggs, and one box with an adult catfish and fry.

Ten rough fish removal events took place from March 2021 - December 2021 resulting in a total of 185 bigmouth buffalo, smallmouth buffalo, grass carp, silver carp, common carp, freshwater drum, and longnose gar being removed from Benjy Kinman Lake. The average weight of rough fish removed in 2021 was 10.0 lbs. Therefore, it was estimated that 1,850 lbs of rough fish were removed. The eight-year total for rough fish removed from Benjy Kinman Lake is 4,417 fish (50.2 fish/acre) at an estimated weight of 34,342 lbs (390.3 lbs/acre). The slight increase in the numbers of rough fish, plus additional species, was due to the Kentucky River flooding Benjy Kinman Lake in the late winter/early spring of 2021.

Three hundred and fifty pounds of granular fertilizer (10-52-4) was applied in May 2021 at Benjy Kinman Lake.

Water willow collected from the spillway at McNeely Lake was transplanted into Benjy Kinman Lake to create 4 new water willow beds during the summer 2021.

Boltz Lake (92 acres)

Spring nocturnal electrofishing was completed in April 2021 to assess the black bass population (Table 83). Results indicated the largemouth bass catch rate (188.5 fish/hr) was slightly lower than the lake's historic average (192.7 fish/hr; Table 84). The PSD for largemouth bass was 62 compared to the lake average of 45 (Table 85). The RSD_{15} was 23, higher than the lake average of 17. The population assessment indicated a "Good" bass population (Table 86). Fall diurnal electrofishing was conducted for relative weight and index of age-0 year class strength in October 2021 (Tables 87-89). Relative weight indicated acceptable body condition ($W_r = 92$), higher than the lake's average relative weight of 90 (Table 88). Fall sampling indicated above average numbers of age-0 bass, (250.0 fish/hr; average= 79.2 fish/hr) and the average size (3.9 in) was smaller than the lake's historic average size of 4.2 in (Table 89). No bass were stocked into Boltz Lake in 2021.

Saugeye were collected during the spring largemouth bass sample in April 2021 (Table 83). A total of 5 saugeye were collected at 2.5 fish/hr ranging in size from the 8.0- to 21.0-in size class. Saugeye were collected during fall largemouth bass sampling at a rate of 6.7 fish/hr with fish ranging between the 19.0- and 25-in size class (Table 87). Saugeye were not stocked into Boltz Lake in 2021. The next planned stocking will be in 2023.

Relative weight data for bluegill and redear sunfish was collected during the fall bass sample at Boltz Lake (Table 90). The relative weight index reflected acceptable body condition for both bluegill ($W_r = 92$) and redear sunfish ($W_r = 101$).

Diurnal electrofishing studies to evaluate the crappie population were completed in October 2021. A total of 43 white crappie were collected in 1.25 hrs of electrofishing (Table 91). Age and growth studies indicated that white crappie generally reach 9.0 in between age-2 and age-3 (Table 92). Relative weights indicated a slightly below average body condition for white crappie ($W_r = 89$; Table 93).

Boltz Lake was stocked with 2,160 (23.5 fish/acre; 7.0 in) channel catfish in June 2021.

Bullock Pen Lake (134 acres)

Spring diurnal electrofishing was completed in April 2021 to assess the black bass population (Table 94). The total catch rate of largemouth bass (265.0 fish/hr) was higher than the lake's average catch rate of 153.6 fish/hr (Table 95). The PSD for largemouth bass was 47, lower than the lake average of 69 (Table 96). The RSD_{15} for largemouth bass was 24, lower than the lake average of 39. The population assessment for largemouth bass was rated "Excellent"; which is better than the lake's average rating of "Good" (Table 97). Fall diurnal electrofishing was conducted in September 2021 to determine length frequency, relative weight, and index of age-0 year class strength for largemouth bass (Tables 98-100). Relative weight indicated acceptable body condition for bass ($W_r = 90$) but was lower than the lake's average ($W_r = 93$; Table 99). Larger fish exhibited better condition compared to smaller length groups, which is a function of the shad forage base. Age-0 CPUE (16.0 fish/hr) was lower than the lake average (22.9 fish/hr); however, no largemouth bass were stocked in 2021 (Table 100).

Saugeye were collected during the spring and fall largemouth bass samples. Five saugeye were collected during the spring sample at 2.5 fish/hr between the 14.0- and 25.0-in size classes (Table 94). Six saugeye (4.0 fish/hr) were collected in September 2021 between the 17.0- and 26.0-in size classes (Table 98). Bullock Pen Lake was stocked with 13,543 (101.1 fish/acre; 1.6 in) saugeye in May 2021.

Bullock Pen Lake was stocked with 2,430 (18.1 fish/acre; 7.0 in) channel catfish in June 2021.

Corinth Lake (96 acres)

Spring nocturnal electrofishing was completed in April 2021 to assess the black bass population (Table 101). The total catch rate of largemouth bass (302.0 fish/hr) was higher than the lake's average catch rate of 248.8 fish/hr (Table 102). The PSD for largemouth bass was 36, higher than the lake average of 23 (Table 103). The RSD_{15} for largemouth bass was 9, higher than the lake average of 7. The population assessment for largemouth bass was rated

"Good"; the average rating since 2005 (Table 104). Fall diurnal electrofishing for largemouth bass was conducted to determine length frequency, relative weight, and index of year class strength at age-0 (Tables 105-107). Relative weight of largemouth bass continues 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 2021 (W_r = 82) was lower than the historic average at Corinth Lake (W_r = 84; Table 106). Age-0 CPUE (85.3 fish/hr) was lower than the lake average (87.4 fish/hr); however, no largemouth bass were stocked in 2021 (Table 107).

Fall diurnal electrofishing for bluegill and redear sunfish was conducted for relative weight. Relative weight indicated fair condition for bluegill (89) and good condition for redear sunfish (95; Table 108).

Corinth Lake was stocked with 1,945 (20.3 fish/acre; 7.0 in) channel catfish in June 2021.

In May 2021, 70 gallons of 9-18-9 fertilizer was applied at Corinth Lake.

Elmer Davis Lake (149 acres)

Spring diurnal electrofishing studies were conducted in April 2021 for length frequency, PSD and CPUE for largemouth bass (Table 109). The total catch rate (270.5 fish/hr) was lower than the historical lake average of 305.3 fish/hr (Table 110). Largemouth bass PSD and RSD_{15} were 30 (average = 33) and 6 (average = 8), respectively (Table 111). The population assessment indicated a "Good" bass population, which has been the average rating since 2004 (Table 112). Fall electrofishing for largemouth bass was completed to evaluated age and growth, relative weight, and index of year class strength at age-0 (Tables 113-115). Largemouth bass relative weight (W_r =87) was equal to the historical lake average (W_r =87; Table 114). The year class strength model indicated that 2021 was below average for young-of-year largemouth bass. Age-0 CPUE (91.3 fish/hr) was lower than the lake average (140.1 fish/hr; Table 115). No largemouth bass were stocked during 2021.

Diurnal spring electrofishing for length frequency, CPUE, and population assessment data was conducted for bluegill and redear sunfish in May 2021 (Tables 116). The total bluegill catch rate (293.6 fish/hr) remains higher than the lake average of 255.3 fish/hr (Table 117). The PSD value for bluegill (42) was higher than the lake average of 34 (Table 118). The RSD_8 (7) was higher than the lake average of 3. The population assessment for bluegill was "Excellent" (Table 119). The total catch rate of redear sunfish (56.8 fish/hr) was lower than the lake average of 69.5 fish/hr (Table 120). The PSD for redear sunfish was 63 compared to the lake average of 58. The RSD_9 was 31 compared to the lake average of 20 (Table 118). The redear sunfish population assessment indicated an "Excellent" population, which is the highest rating since 2013 (Table 121). Age and growth results indicate that bluegill reach 6.0 in between age-2 and age-3 (Table 122). Redear sunfish reach 8.0 in between age-2 and age-3 (Table 123). Relative weight index reflects good condition for both bluegill (W_r = 93) and redear sunfish (W_r = 101; Table 124). Elmer Davis Lake was stocked with 3,000 (20.1 fish/acre) redear sunfish in September 2021.

Channel catfish were sampled on 6 and 9 December 2021 using tandem hoop nets. Length frequency results for channel catfish showed a size distribution between the 17.0- and 27.0-in size classes (Table 125). PSD and RSD_{24} were 100 and 41, respectively (Table 127). Relative weight indicated excellent body condition for channel catfish (W_r = 104; Table 128). In May 2021, 25 wooden catfish spawning boxes were installed to promote spawning. Three spawning boxes were missing at the first usage evaluation and were not replaced until the end of the evaluation period. Therefore, only 22 boxes were part of the weekly usage evaluation from June 7th through June 28th. Of the 22 boxes, fish were observed using 16 of them. Eleven boxes were observed with adult fish guarding an egg mass, one box recorded multiple spawns, and one box was observed with an adult catfish and fry.

Time-lapse cameras were installed at two boat ramp access areas at Elmer Davis Lake from March 2021- February 2022 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 these sites 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 (10 week and 6 weekend 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 6,482 trips (43.5 trips/acre) were taken to Elmer Davis Lake from March 2021-February 2022 (Table 129). Monthly trip totals ranged from 6 trips in January 2022 to 1,484 trips in May 2021 (Figure 1). Overall, the average trip length for the year was 3.0 hours. Average trip lengths ranged from 1.2 hours in February 2022 to 4.3 hours in April 2021. May (5,668 hours) and June (4,029 hours) recorded the highest usage rates (Figure 2). It was estimated that Elmer Davis Lake received 23,046 hours (154.7 hours/acre) of recreational pressure during this 12-month study period (Table 129).

Kincaid Lake (183 acres)

Spring diurnal electrofishing studies were conducted in May 2021 for length frequency, PSD, and CPUE for largemouth bass (Table 130). Total catch rate (229.0 fish/hr) was above the lake average of 215.4 fish/hr (Table 131). Largemouth bass PSD and RSD_{15} were 63 (average = 68) and 43 (average = 45), respectively (Table 132). The population assessment indicated an "Excellent" bass population, which is above the average assessment rating of "Good" at Kincaid Lake (Table 133). Diurnal fall electrofishing for largemouth bass in October 2021 was completed to collect length frequency, age and growth, relative weight, and index year class strength at age-0 (Tables 134-137). Growth rates at Kincaid Lake indicated that largemouth bass reach harvestable size (12.0 in) between age-3 and age-4 (Table 135). Additionally, largemouth bass reach 15.0 in at age-5. Relative weight was acceptable (W_r = 92) and equal to the lake's average (Table 136). CPUE for age-0 bass (20.0 fish/hr) was lower than the lake average of 37.9 fish/hr (Table 137). However, no largemouth bass were stocked in Kincaid Lake in 2021.

Kincaid Lake was stocked with 2,200 (12.0 fish/acre; 7.0 in) channel catfish in June 2021.

McNeely Lake (51 acres)

Diurnal fall electrofishing for largemouth bass in October 2021 was completed to collect length frequency, relative weight, and index year class strength at age-0 (Table 138 -140). Relative weight (87) was less than the lake average (W_r = 89; Table 139). CPUE for age-0 bass (132.0 fish/hr) was higher than the lake average of 123.6 fish/hr (Table 140).

Bluegill and redear sunfish were sampled in May 2021 for length frequency, CPUE, and population assessment (Table 141). The bluegill PSD was 43, equal to the lake average (Table 142). RSD_8 was 0, compared to the lake average of 1. Catch rate for bluegill (428.8 fish/hr) was higher than the lake average catch rate of 341.3 fish/hr (Table 143). The population assessment rating for bluegill was "Good" (Table 144). The total catch rate for redear sunfish (83.2 fish/hr) was higher than the lake average (62.8 fish/hr; Table 145). The PSD for redear sunfish was 62 compared to the lake average of 50 and the RSD_9 was 4 compared to the lake average of 7 (Table 142). The redear sunfish population assessment rated this fishery as "Good" in 2021 (Table 146). Age and growth and relative weight for bluegill and redear sunfish were collected during the fall diurnal electrofishing sample. Age and growth studies show that bluegill continue to reach 6.0 in around age-3 (Table 147). Redear sunfish reach 8.0 in between age-3 and age-4 (Table 148). Overall, conditions for both bluegill (90) and redear sunfish (95) were acceptable (Table 149).

McNeely Lake was stocked with 1,275 (25.0 fish/acre; 7.0 in) channel catfish in October 2021.

Doe Run Lake (49 acres)

Relative abundance and CPUE of fish collected at Doe Run Lake in May 2021 are shown in Table 150. Largemouth bass were collected from the 2.0- to 20.0-in size classes. Bluegill were collected up to the 7.0-in size class. White crappie and channel catfish were also collected during this sample. Doe Run Lake has an abundant population of common carp and gizzard shad.

Kentucky River WMA (Boone Tract: Prather Pond, 6-acre pond and 15-acre pond)

Prather Pond (4 acres)

Length frequency, relative abundance, and CPUE of fishes collected in June 2021 by electrofishing at Prather Pond are shown in Table 151. 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. Crappie were also collected. During the sample, gizzard shad were observed which indicates the rotenone treatment completed in December 2020 was unsuccessful.

On May 1, 2021, twenty-five pounds of granular Aquathol Super K was used to treat curly-leafed pondweed in Prather Pond.

Boone Tract 6-acre pond

Length frequency, relative abundance, and CPUE of fishes collected in June 2021 by electrofishing at the Boone Tract 6-acre pond are shown in Table 152. Largemouth bass were collected from the 5.0- to 13.0-in size classes. Bluegill were collected up to the 8.0-in size class. Redear sunfish, black crappie, and channel catfish were also collected. No gizzard shad were collected or observed during this survey indicating positive results from the rotenone treatment completed in December 2020.

During February and October 2021, a total of 2,000 rainbow trout were stocked averaging 10.0 in to provide a put and take winter fishing opportunity.

Boone Tract 15-acre pond

Length frequency, relative abundance, and CPUE of fishes collected in June 2021 by electrofishing at the Boone Tract 15-acre pond are shown in Table 153. 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. Redear sunfish and black crappie were also collected.

Kleber WMA Pond (3 acres)

Length frequency, relative abundance, and CPUE of fish collected by electrofishing at Kleber WMA Pond (Owen Co.) in September 2021 are shown in Table 154. Largemouth bass were collected from the 4.0- to 13.0-in size class. Bluegill and redear sunfish were collected up to the 7.0-in and 8.0-in size classes, respectively. Black crappie and channel catfish were also represented in the sample.

Kleber WMA Pond was stocked with 150 (50.0 fish/acre) channel catfish in October 2021.

Lincoln Homestead Lake (9 acres)

Length frequency, relative abundance and CPUE of fish collected by electrofishing at Lincoln Homestead Lake (Washington Co.) in May 2021 are shown in Table 155. Largemouth bass were collected from the 5.0- to 19.0-in size classes and bluegill up to the 9.0-in size class. Trophy size (≥10.0 in) redear sunfish were sampled. White crappie were also represented in the sample.

Long Run Park Lake (27 acres)

Length frequency, relative abundance and CPUE of fish collected by electrofishing at Long Run Park Lake (Jefferson Co.) in November 2021 are shown in Table 156. Largemouth bass were collected from the 3.0- to 19.0-in size classes. Both bluegill and redear sunfish were collected up to the 8.0-in size class. Black crappie were represented in the sample.

Reformatory Lake (54 acres)

Length frequency, relative abundance and CPUE of fish collected by electrofishing at Reformatory Lake (Oldham Co.) in May 2021 are shown in Table 157. Largemouth bass were collected from the 3.0- to 20.0-in size classes, bluegill from the 1.0- to 7.0-in size classes, and redear sunfish from the 1.0- to 10.0-in size classes. Other species observed included white crappie, black crappie, yellow bass, channel catfish, and flathead catfish.

Reformatory Lake was stocked with 1,090 (20.2 fish/acre) channel catfish in June 2021.

Sympson Lake (127 acres)

Relative abundance and CPUE of largemouth bass collected in April 2021 are shown in Table 158. Largemouth bass were collected from the 3.0- to 20.0-in size classes. Good numbers of bass were present above the 15.0-in size limit. Good numbers and size distribution of white crappie was observed during this sample. An abundant population of common carp are also present in the lake.

Sympson Lake was stocked with 1,910 (15.0 fish/acre) channel catfish in June 2021.

Thurman Hutchins Lake (2 acres)

Length frequency, relative abundance, and CPUE of fish collected by electrofishing at Thurman Hutchins Lake (Jefferson Co.) in November 2021 are shown in Table 159. Largemouth bass were collected from the 4.0- to 19.0-in size classes. Majority of the bluegill collected were in the 6.0- to 7.0-in size classes, with redear sunfish collected up to the 10.0-in size class. Other species collected included white and black crappie.

Veterans WMA Pond (3 acres)

Length frequency, relative abundance, and CPUE of fish collected by electrofishing at Veterans WMA Pond (Scott Co.) in September 2021 are shown in Table 160. Largemouth bass were collected from the 4.0- to 22.0-in size classes. Bluegill were collected up to the 8.0 in size class with good numbers greater than 6.0 in. No other species were collected.

Willisburg Lake (126 acres)

Relative abundance and CPUE of largemouth bass collected in April 2021 are shown in Table 161. Largemouth bass were collected from the 2.0- to 20.0-in size classes. Good numbers of bass were present above the 12.0-in size limit.

Willisburg Pond (1 acre)

Length frequency, relative abundance, and CPUE of fish collected by electrofishing at Willisburg Pond (Washington Co.) in June 2021 are shown in Table 162. Largemouth bass were collected from the 13.0- to 18.0-in size class. Bluegill were collected up to the 6.0-in size class. Channel catfish was the only other species collected in this sample.

Largemouth bass, removed from Beaver Lake, were stocked at 55.0 fish/acre (55 fish) ranging between the 3.0-in and 10.0-in size classes in September 2021.

Willisburg Pond was stocked with 50 (50.0 fish/acre; 7.25 in) channel catfish in June 2021.

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
Herrington Lake	Crappie	3/29 3/30 4/5	1000 1100 1000	Shock	Sunny Mostly sunny Sunny	56 56 60	737.8 738.1 739.2	-	Good	Good sample
Willisburg Lake	LMB	4/7	1030	Shock	Cloudy / Calm	60	Full	25	Good	Good sample
Sympson Lake	LMB	4/8	1030	Shock	Cloudy / Rain	61	Full	-	Good	Good sample
Beaver Lake	LMB	4/12	1000	Shock	Sunny / Breezy	60	Full	49	Good	Good sample
Corinth Lake	LMB	4/12	2000	Shock	Clear	60	Full	-	Good	Good sample
Benjy Kinman Lake	LMB	4/13	2000	Shock	Mostly Clear / Cool	63	Above normal	48	Good	Good sample
Elmer Davis Lake	LMB	4/14	1000	Shock	Cloudy / Rain / Cool	60	Above normal	38	Good	Good sample
Bullock Pen Lake	LMB	4/19	1100	Shock	Sunny/Light cool breeze	61	Low from construction	32	Good	Good sample
Boltz Lake	LMB	4/19	2000	Shock	Cold	58	Full	-	Good	Good sample
Kincaid Lake	LMB	4/20	1200	Shock	Sunny / Light breeze	62	Full	34	Good	Good sample
Guist Creek Lake	LMB	4/20	2000	Shock	Cold windy – major cold front with snow	61	Full	28	Good/Fair	The sample was completed during rapidly changing weather conditions
Herrington Lake (Cane Run)	LMB	4/26	1000	Shock	Sunny	61	734.9	144	Good	Good sample
Taylorsville Lake (Big Beech)	LMB	4/26	2000	Shock	Clear	62	547.5	-	Good	Good sample
Taylorsville Lake (Chowning Lane)	LMB	4/26	2000	Shock	Clear	60	547.5	-	Good	Good sample
Herrington Lake (Gwinn Island)	LMB	4/27	1000	Shock	-	62	734.9	46	Good	Good sample
Herrington Lake (Kings Mill)	LMB	4/27	1000	Shock	Sunny	62	734.9	29	Good	Good sample – Assisted by habitat crew
Taylorsville Lake (Ashes Creek)	LMB	4/27	1800	Shock	-		547.3	52	Good	Good sample
Lincoln Homestead Lake	LMB/BG/RESF	5/10	1400	Shock	Cool / Light breeze	63	Full	25	Good	Good sample
Doe Run Lake	Sportfish	5/11	1200	Shock	Sunny	63	Full	26	Good	Good sample
Reformatory Lake	LMB/BG/RES	5/14	1000	Shock	-	65	Full	48	Good	Good sample
Elmer Davis Lake	BG/RES	5/25	1030	Shock	-	79	Full	44	Good	Good sample
McNeely Lake	BG/RES	5/26	1000	Shock	Cloudy	76	Full	84	Good	Good sample
Prather Pond, 6- and 15-acre Ponds on Boone Tract	Sportfish	6/30	1000	Shock		85	Full		Good	Good
Taylorsville Lake	Blue catfish	7/6	0800	Shock	Sunny / Warm	84	547.2	30	Good	Good sample
Taylorsville Lake	Blue catfish	7/7	0800	Shock	Mostly sunny	83	547.2	24	Good	Good sample
Kleber WMA Pond	Sportfish	9/15	1000	Shock		76	Full	96	Good	Good sample
Veterans WMA Pond	Sportfish	9/15	1300	Shock		76	Full	46	Good	Good sample
Guist Creek Lake	LMB/Saugeye	9/17	1030	Shock	Mostly sunny	77	Full	24	Good	Good sample

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	LMB	9/21	1000	Shock	Cloudy / light rain	76	Full	32	Good	Good sample
Guist Creek Lake	LMB/Saugeye	9/23	1000	Shock	Sunny / Windy Post / Front Conditions	71	Up about 8"	-	Good	Good sample
Bullock Pen Lake	LMB/Saugeye	9/24	1030	Shock	Sunny	71	Full	38	Good	Good sample
Elmer Davis Lake	LMB/BG/RESF	9/27	1030	Shock	Sunny	67	Full	26	Good	Good sample
Boltz Lake	LMB/BG/RESF	9/28	1000	Shock	Mostly cloudy	70	Full	66	Good	Good sample
Beaver Lake	LMB/BG/RESF	9/29	1000	Shock		70	Full	54	Good	Good sample
Corinth Lake	LMB/BG/RESF	9/30	1030	Shock			Full	42		
Taylorsville Lake	LMB	10/1 10/11 10/12	1000 1000 1000	Shock Shock Shock	Mostly sunny Mostly sunny Mostly sunny	74 74 72	547.1 549.3 548.6	28 34 *	Good Good Good	Good sample
Kincaid Lake	LMB	10/4	1000	Shock	Partly cloudy	70	Full	48	Good	Good sample
McNeely Lake	LMB/BG/RESF	10/5	1030	Shock		70	Full		Good	Good sample
Benjy Kinman Lake	LMB	10/7	1000	Shock	-	-	Down 1 foot	-	Good	Good sample
Boltz lake	Crappie	10/13	1100	Shock	Partly cloudy / breezy	72	Full		Good	Good sample
Benjy Kinman Lake	Crappie	10/14	1000	Shock	Sunny	74	Down 9"	36	Good	Good sample
Herrington Lake (Gwinn Island)	LMB	10/18	1030	Shock	Sunny	71	739.3	56	Good	Good sample
Taylorsville Lake	LMB	10/19	1030	Shock	Sunny	70	747.3	*	Good	Wr's only
Herrington Lake (Cane Run)	LMB	10/20	1030	Shock	Sunny	70	737.4	54	Good	Good sample
Herrington Lake (Kings Mill)	LMB	10/22	1030	Shock	Cloudy	68	736.6	30	Good	Good sample
Bullock Pen Lake	LMB	10/20	1000	Shock	Sunny	66	Full	24	Good	Good sample – Habitat crew sample for wr's only
Guist Creek Lake	LMB	10/22	1000	Shock	Cloudy	64	Full		Good	Good sample – Habitat crew sample for wr's only
Kincaid Lake	LMB	10/26	1100	Shock	Cloudy	62	Full	48	Good	Good sample – Habitat crew sample for wr's only
Taylorsville Lake	Morones/ crappie	10/26 10/27 10/28 10/29	1030	Gillnet Trap net	Cool / Breezy Mostly sunny Cool / Cloudy Rain	64 64 60 62	547.2 547.2 547.1 547.1	---	Good	Good sample
Guist Creek Lake	Morones/ Saugeye	11/1	1030	Gillnet	Sunny	---	Full		Good	Good sample
Long Run Park	LMB/BG/RESF	11/8	1030	Shock	Sunny	55	Full		Good	Good sample
Thurman Hutchison Park Lake	LMB/BG/RESF	11/8	1300	Shock	Sunny	55	Full		Good	Good sample
Benjy Kinman Lake	LMB	11/9	1000	Shock	-	-	Down 2 feet	-	Good	Good sample – Wr's only
Benjy Kinman Lake	LMB	11/17	1000	Shock	-	-	Down 2 feet	-	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
Beaver Lake	Channel catfish	12/2	1000	Hoop Net	Mostly sunny	45	Full	-	Good	Good sample
Benjy Kinman Lake	Channel catfish	12/3	1000	Hoop Net	Sunny	45	Full	-	Good	Good sample
Elmer Davis Lake	Channel catfish	12/6	1000	Hoop Net	Overcast, windy	45	Full	-	Good	Good sample

Table 2. Length distribution and CPUE (fish/hr) of black bass and saugeye collected in 7.5 hours of 15-minute electrofishing runs in Taylorsville Lake in April 2021; 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	22	23	Total	CPUE
Van Buren																						
Largemouth bass	1	2	6	10	7	3	19	37	43	68	47	13	6	2			1				265	106.0 (7.4)
Saugeye													1	2	1	1		2	1		8	3.2 (1.4)
Ashes Creek																						
Largemouth bass	7	13	17	30	9	9	39	67	80	85	80	22	12	4	1	6	3				484	193.6 (14.0)
Saugeye															1	1	1	2		1	6	2.4 (0.8)
Big Beech Creek																						
Largemouth bass		4	6	5	9	13	25	46	56	56	64	54	14	8	6	2	1	2			371	148.4 (12.4)
Saugeye															1	1	1	1		1	5	2.0 (0.6)
Total																						
Largemouth bass	8	19	29	45	25	25	83	150	179	209	191	89	32	14	7	8	5	2			1,120	149.3 (11.4)
Saugeye													1	2	3	3	2	5	1	2	19	2.5 (0.5)

Dataset = cfdpstvl.d21

Table 3. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Taylorsville Lake from 2012-2021; 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
2021	13.5 (2.9)	37.7 (3.1)	77.2 (5.6)	20.9 (3.7)	0.9 (0.3)	149.3 (11.4)
2020	Sampling was not conducted due to COVID-19 pandemic restrictions					
2019	20.7 (2.6)	77.5 (5.4)	46.8 (3.6)	19.6 (2.0)	0.3 (0.2)	164.5 (9.3)
2018	24.7 (3.6)	83.5 (7.6)	41.3 (4.1)	35.3 (3.6)	0.4 (0.2)	184.4 (14.5)
2017	22.5 (2.7)	27.2 (2.5)	74.4 (4.7)	46.9 (3.6)	0.5 (0.3)	171.1 (7.5)
2016	15.9 (2.5)	59.2 (4.8)	98.8 (6.6)	44.8 (3.4)	0.9 (0.4)	218.7 (13.2)
2015	18.5 (3.9)	39.3 (5.3)	32.7 (3.2)	19.3 (2.7)	0.3 (0.2)	109.9 (11.7)
2014	17.1 (2.8)	40.5 (7.6)	35.1 (4.1)	21.3 (2.3)	0.5 (0.3)	114.0 (13.4)
2013	19.6 (2.1)	49.9 (4.6)	42.0 (4.5)	22.1 (2.9)	0.4 (0.2)	133.6 (10.5)
2012	27.9 (4.0)	59.1 (6.0)	36.9 (3.0)	14.5 (1.2)	0.3 (0.2)	138.4 (8.6)

Dataset = cfdpstvl.d12– .d21

Table 4. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in each area of Taylorsville Lake in 2021; confidence intervals are in parentheses.

Area	Species	No. ≥8.0 in	PSD	RSD_{15}
Big Beech	Largemouth bass	356	74 (± 5)	24 (± 4)
Ashes Creek	Largemouth bass	417	70 (± 4)	11 (± 3)
Van Buren	Largemouth bass	246	73 (± 6)	9 (± 4)
Total	Largemouth bass	1,019	72 (± 3)	15 (± 2)

Dataset = cfdpstvl.d21

Table 5. Population assessment for largemouth bass collected during spring electrofishing at Taylorsville Lake from 2012-2021 (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
2021	Value	13.4*	15.1	77.2	20.9	0.9				
	Score	4	2	4	4	3			17	Excellent
2020	Value									
	Score					No Sample				
2019	Value	13.4*	42.8	46.8	19.6	0.3				
	Score	4	4	4	3	2			17	Excellent
2018	Value	13.4	26.3	41.3	35.3	0.4				
	Score	4	3	4	4	2			17	Excellent
2017	Value	12.9*	21.2	74.4	46.9	0.5				
	Score	3	2	4	4	3			16	Good
2016	Value	12.9*	24.6	98.8	44.8	0.9				
	Score	3	3	4	4	3			17	Excellent
2015	Value	12.9*	16.8	32.7	19.3	0.3				
	Score	3	2	4	3	2			14	Good
2014	Value	12.9	23.6	35.1	21.3	0.5				
	Score	3	3	4	4	3			17	Excellent
2013	Value	13.1*	17.2	42.0	22.1	0.4				
	Score	3	2	4	4	2			15	Good
2012	Value	13.1*	28.1	39.9	14.5	0.3				
	Score	3	3	4	3	2			15	Good

* Age data not collected

^Calculations based on age data gathered in previous years

Table 6. Length distribution and CPUE (fish/hr) of largemouth bass and saugeye collected in 4.5 hours of 15-minute electrofishing runs for black bass in Taylorsville Lake in October 2021; 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	21	22	23	Total	CPUE
Van Buren																							
Largemouth bass	1	14	15	3	1		2	4	3	4	5	7	3	1	2							65	43.3 (7.3)
Saugeye																						0	
Ashes Creek																							
Largemouth bass	1	12	13	11	8	3	4	7	12	10	13	7	2		1							104	69.3 (5.6)
Saugeye																	1			3	1	5	3.3 (1.9)
Big Beech Creek																							
Largemouth bass			2	3	1	2	1	3	1	5	7	10	6	5	1			1				48	32.0 (4.8)
Saugeye													1		1	1			1	1	2	7	4.7 (2.6)
Total																							
Largemouth bass	2	26	30	17	10	5	7	14	16	19	25	24	11	4				1				217	48.2 (5.0)
Saugeye													1		1	1	1		1	4	3	12	2.7 (1.1)

Dataset = cfdwrtvl.d21

Table 7. Numbers of fish and the relative weight (W_r) for each length group of largemouth bass collected at Taylorsville Lake in October 2021; 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	9	95 (2)	16	99 (2)	6	95 (2)	31	97 (1)
	Ashes	26	90 (1)	30	92 (2)	3	92 (8)	59	91 (1)
	Big Beech	7	92 (2)	22	89 (2)	13	94 (3)	42	91 (1)
	Main Lake	11	90 (3)	38	89 (2)	14	93 (3)	63	90 (1)
	Total	53	91 (1)	106	91 (1)	36	94 (2)	195	92 (1)

Dataset = cfdwrtvl.d21

Table 8. 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
2021	Total	5.6	0.1	18.9	3.6	12.7	2.4		
2020	Total	5.9	0.1	9.8	2.6	8.0	2.2	15.1	3.0
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

Dataset = cfdwrtvl.d21
*Data only collected at Van Buren and Ashes Creek due to YOY stocking

Table 9. Length distribution and CPUE (fish/nn) of each species of crappie collected at Taylorsville Lake in 48 net-nights in October 2021.

	Inch class													Std.
Species	3	4	5	6	7	8	9	10	11	12	13	Total	CPUE	error
White crappie	8	24	1	59	229	113	141	117	25	2	1	720	15.0	2.4
Black crappie		1		7	38	19	24	8	2	1		100	2.1	0.4

Dataset = cfdtntvl.d21

Table 10. PSD and RSD_{10} values calculated for crappie collected at Taylorsville Lake in 48 net-nights during October 2021.

Species	No. ≥ 5.0 in	PSD	RSD_{10}
White crappie	688	58 (± 4)	21 (± 3)
Black crappie	99	55 (± 10)	11 (± 6)

Dataset = cfdtntvl.d21

Table 11. Mean back calculated lengths (in) at each annulus for otoliths from white crappie trap netted at Taylorsville Lake in 2021.

Year		Age					
class	No.	1	2	3	4	5	6
2020	41	4.6					
2019	31	5.2	8.6				
2018	3	5.5	10.2	11.7			
2016	1	5.1	7.6	8.8	9.7	10.4	
2015	11	4.9	7.5	8.5	9.6	10.4	11.0
Mean	87	4.9	8.4	9.2	9.6	10.4	11.0
Smallest		3.4	6.4	7.4	8.7	9.3	9.8
Largest		6.5	10.5	12.4	11.2	11.9	12.7
Std error		0.1	0.2	0.4	0.2	0.2	0.3
95% ConLo		4.8	8.1	8.4	9.2	10.0	10.5
95% ConHi		5.0	8.7	9.9	10.1	10.8	11.5

Intercept value = 0.00
Dataset = cfdagtvl.d21

Table 12. Age frequency and CPUE (fish/nn) per inch class of white crappie trap netted for 48 net-nights at Taylorsville Lake in 2021.

	Inch class														Std
Age	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	err
0+	8	24										32	4	0.7	0.3
1+				59	196	61	12					328	46	6.8	1.2
2+					33	52	129	74	9			298	41	6.2	1.1
3+									2	1	1	4	1	0.1	<0.1
4+												0	0	0.0	0.0
5+								11				11	1	0.2	<0.1
6+								32	14	1	1	47	7	1.0	0.2
Total	8	24	0	59	229	113	141	117	25	2	2	720	100	15.0	2.4
(%)	1	3	0	8	32	16	20	16	3	<1	<1	100			

Dataset = cfdtntvl.d21 and cfdagtvl.d21
CPUE of ≥8.0 in white crappie = 8.3 ± 1.5 fish/nn; ≥10.0 in = 3.0 ± 0.6 fish/nn

Table 13. Mean back calculated lengths (in) at each annulus for otoliths from black crappie trap netted at Taylorsville Lake in 2021.

Year		Age						
class	No.	1	2	3	4	5	6	7
2020	31	4.5						
2019	27	4.7	8.3					
2018	2	5.2	8.9	10.0				
2016	2	5.2	7.4	8.6	9.7	10.8		
2014	5	4.2	7.7	8.7	9.2	9.7	10.4	11.0
Mean	67	4.6	8.2	9.0	9.4	10.0	10.4	11.0
Smallest		2.7	6.5	7.6	8.6	9.2	9.8	10.0
Largest		6.6	11.0	10.1	10.7	11.4	11.3	11.9
Std error		0.1	0.1	0.3	0.3	0.3	0.3	0.3
95% ConLo		4.4	7.9	8.5	8.8	9.5	9.9	10.3
95% ConHi		4.7	8.5	9.5	9.9	10.6	11.0	11.6

Intercept value = 0.00
Dataset = cfdagtvl.d21

Table 14. Age frequency and CPUE (fish/nn) per inch class of black crappie trap netted for 48 net-nights at Taylorsville Lake in 2021.

	Inch class												Std
Age	4	5	6	7	8	9	10	11	12	Total	%	CPUE	err
0+	1									1	1	0.0	0.0
1+			7	38	5					50	50	1.0	0.2
2+					14	24	5		1	44	44	0.9	0.2
3+							2			2	2	0.0	0.0
4+										0	0	0.0	0.0
5+							1	1		2	1	0.0	0.0
6+										0	0	0.0	0.0
7+							1	2	1	4	3	0.1	<0.1
Total	1	0	7	38	19	24	9	3	2	103	100	2.1	0.4
%	1	0	7	37	18	23	9	3	2	100			

Dataset = cfdtntvl.d21 and cfdagtvl.d21
CPUE of ≥8.0 in black crappie = 1.1 ± 0.3 fish/nn; ≥10.0 in = 0.2 ± 0.1 fish/nn

Table 15. Population assessment for white crappie collected during fall trap netting at Taylorsville Lake from 2012-2021 (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
2021	Value	14.3	9.4	8.3	6.8	0.7		
	Score	3	2	4	3	2	14	Good
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

* Age data not collected

Table 16. Population assessment for black crappie collected during fall trap netting at Taylorsville Lake from 2012-2021 (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
2021	Value	2.1	9.4	1.1	1.0	0.0		
	Score	2	3	2	2	1	10	Fair
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	0.0		
	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

* Age data not collected

Table 17. Number of fish and the relative weight (Wr) for each length group of crappie at Taylorsville Lake in October 2021.

Species	Area	Length group						Total	
		5.0–7.9 in		8.0–9.9 in		≥10.0 in			
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
White crappie	Total	289	94 (1)	254	90 (1)	145	90 (1)	688	92 (1)
Black crappie	Total	45	88 (1)	43	87 (1)	11	86 (2)	99	88 (1)

Dataset = cfdtntvl.d21

Table 18. 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 2021: numbers in parentheses are standard errors.

Species	Inch class																				Total	CPUE
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26		
White bass	1	3	1	6	13	12	4														40	5.0 (1.4)
Hybrid striped bass	1	2				8	9	1		1	2	5	4			1	2		3	1	40	5.0 (1.9)
Reciprocal	1	2				8	9	1		1	1	3	3				1		1	1	32	4.0 (1.9)
Original											1	2	1			1	1		2		8	1.0 (0.7)
Saugeye				1				1	5		9	8	10	15	7	9	7	10	2		84	10.5 (3.2)

Dataset = cfdgntvl.d21

Table 19. Mean back calculated lengths (in) at each annulus for otoliths from hybrid striped bass gill netted at Taylorsville Lake in 2021.

		Age							
Year class	No.	1	2	3	4	5	6	7	8
2020	18	7.5							
2019	11	11.5	16.7						
2018	3	11.1	17.5	21.1					
2017	1	11.2	16.2	20.3	22.3				
2016	3	11.3	15.3	20.6	22.4	23.7			
2013	1	13.0	17.3	20.9	22.1	23.0	24.3	25.0	26.2
Mean	37	9.5	16.6	20.8	22.3	23.5	24.3	25.0	26.2
Smallest		6.5	13.6	18.7	21.2	22.2	24.3	25.0	26.2
Largest		13.0	19.3	23.2	23.8	24.9	24.3	25.0	26.2
Std error		0.4	0.3	0.5	0.4	0.6			
95% ConLo		8.8	16.0	19.7	21.5	22.4			
95% ConHi		10.3	17.2	21.8	23.1	24.7			

Intercept Value = 0.00
Dataset = cfdagtvl.d21

Table 20. Age frequency and CPUE (fish/nn) per inch class of hybrid striped bass gill netted for 8 net-nights at Taylorsville Lake in 2021.

	Inch class																						Std
Age	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	%	CPUE	err
0+	1	2																			3	8	0.4	0.4
1+						8	9	1													18	45	2.3	1.6
2+										1	2	5	3								11	28	1.4	0.6
3+													1				1		1		3	8	0.4	0.3
4+																	1				1	3	0.1	0.1
5+																1			2		3	8	0.4	0.3
6+																					0	0	0.0	0.0
7+																					0	0	0.0	0.0
8+																				1	1	3	0.1	0.1
Total	1	2	0	0	0	8	9	1	0	1	2	5	4	0	0	1	2	0	3	1	40	100	5.0	1.9
%	3	5	0	0	0	20	23	3	0	3	5	13	10	0	0	3	5	0	8	3	100			

Dataset = cfdagtvl.d21 and cfdgntvl.d21

Table 21. Number of fish and the relative weight (W_r) for each length group of hybrid striped bass collected at Taylorsville Lake in October 2021.

		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	2	93 (5)	18	85 (1)	19	85 (2)	39	86 (1)

Dataset = cfdgntvl.d21

Table 22. Population assessment for hybrid striped bass collected during fall gill netting at Taylorsville Lake from 2011-2021 (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
2021	Value	4.6	18.4	2.4	2.3	-	-		
	Score	2	3	2	2			9	Fair
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

Table 23. Mean back calculated lengths (in) at each annulus for otoliths from white bass gill netted at Taylorsville Lake in 2021.

		Age		
Year class	No.	1	2	3
2020	18	8.7		
2019	16	8.9	11.5	
2018	2	9.9	12.0	13.3
Mean	36	8.9	11.6	13.3
Smallest		5.3	10.1	13.1
Largest		10.0	12.7	13.5
Std error		0.1	0.1	0.2
95% ConLo		8.6	11.3	12.9
95% ConHi		9.1	11.8	13.7

Intercept Value = 0.00
Dataset = cfdagtvl.d21

Table 24. Age frequency and CPUE (fish/nn) per inch class of white bass gill netted for 8 net-nights at Taylorsville Lake in 2021.

	Inch class										Std
Age	7	8	9	10	11	12	13	Total	%	CPUE	err
0+	1	3						4	10	0.5	0.3
1+			1	6	11			18	45	2.3	1.0
2+					2	12	2	16	40	2.0	0.5
3+							2	2	5	0.3	0.1
Total	1	3	1	6	13	12	4	40	100	5.0	1.4
%	3	8	3	15	33	30	10	100			

Dataset = cfdagtvl.d21 and cfdgntvl.d21

Table 25. Number of fish and the relative weight (W_r) for each length group of white bass collected at Taylorsville Lake in October 2021.

		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	4	89 (1)	20	90 (1)	16	89 (1)	40	90 (1)

Dataset = cfdgntvl.d21

Table 26. Population assessment for white bass collected during fall gill netting at Taylorsville Lake from 2012-2021 (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
2021	Value	4.5	12.5	2.0	2.3				
	Score	2	2	2	2			8	Fair
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

* Age data not collected because no fish were captured at this age

Table 27. Mean back calculated lengths (in) at each annulus for otoliths from saugeye gill netted at Taylorsville Lake in 2021.

		Age					
Year class	No.	1	2	3	4	5	6
2020	6	12.1					
2019	32	12.5	17.0				
2018	10	11.8	16.3	18.9			
2017	20	11.9	17.1	20.3	22.3		
2016	3	12.3	17.5	20.9	22.3	23.3	
2015	1	14.6	18.3	20.4	21.6	23.1	24.1
Mean	72	12.2	17.0	20.0	22.3	23.2	24.1
Smallest		9.1	14.0	16.5	19.8	22.4	24.1
Largest		14.6	19.9	22.7	24.3	23.7	24.1
Std error		0.1	0.1	0.2	0.2	0.3	
95% ConLo		11.9	16.7	19.5	21.8	22.6	
95% ConHi		12.4	17.2	20.4	22.7	23.8	

Intercept Value = 0.00
Dataset = cfdagtvl.d21

Table 28. Age frequency and CPUE (fish/nn) per inch class of saugeye gill netted for 8 net-nights at Taylorsville Lake in 2021.

	Inch class																			Std
Age	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total	%	CPUE	err
0+	1																1	1	0.1	0.1
1+					1	5											6	7	0.8	0.4
2+								8	6	10	10	4	1				39	46	4.8	1.3
3+								1	2		4	2	3				12	14	1.4	0.5
4+											1	2	5	6	7	2	23	27	2.9	1.0
5+														1	2		3	4	0.4	0.1
6+															1		1	1	0.1	0.1
Total	1	0	0	0	1	5	0	9	8	10	15	8	9	7	10	2	85	100	10.5	3.2
%	1	0	0	0	1	6	0	11	10	12	18	8	11	8	12	2	100			

Dataset = cfdagtvl.d21 and cfdgntvl.d21

Table 29. Number of fish and the relative weight (W_r) for each length group of saugeye collected at Taylorsville Lake in October 2021.

		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	2	95 (1)	32	93 (1)	50	97 (1)	84	95 (1)

Dataset = cfdgntvl.d21

Table 30. 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 2021; numbers in parentheses are standard errors.

	Inch class																												
Area	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	40	Total	CPUE
Upper		3	8	8		1			5	23	52	32	12	6	2	2	1		1				1						157	104.7 (50.6)
Lower	1	39	34	7	1	2	1	5	13	18	46	39	39	21	14	6	4	1				1					1	1	294	196.0 (59.2)
Total	1	42	42	15	1	3	1	5	18	41	98	71	51	27	16	8	5	1	1			1	1				1	1	451	150.3 (39.6)

Dataset = cfdpstvl.d21

Table 31. Electrofishing CPUE (fish/hr) for each length group of blue catfish collected from Taylorsville Lake from 2012-2021; 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
2021	34.7 (17.7)	104.0 (32.5)	11.0 (3.8)	0.7 (0.5)	150.3 (39.6)
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)

Dataset = cfdpstvl.d12-.d21

Table 32. Numbers of fish and the relative weight (W_r) for each length group of blue catfish collected at Taylorsville Lake on 6 and 7 July 2021; 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	129	95 (1)	7	95 (4)			136	95 (1)
	Lower	181	94 (1)	26	94 (1)	2	123 (4)	209	94 (1)
	Total	310	94 (1)	33	94 (1)	2	123 (4)	345	94 (1)

Dataset = cfdpstvl.d21

Table 33. Species composition, relative abundance, and CPUE (fish/hr) of crappie collected in 4.5 hours of 15-minute electrofishing runs in Herrington Lake, March, and April 2021; numbers in parentheses are standard errors.

	Inch class													
Location/Species	3	4	5	6	7	8	9	10	11	12	13	14	Total	CPUE
Upper														
White crappie													0	0.0 (0.0)
Black crappie				1		2	1	1			1	2	8	5.3 (3.8)
Middle														
White crappie													0	0.0 (0.0)
Black crappie	1					2	6	2		2	2	2	17	11.3 (3.8)
Lower														
White crappie							3	1	1	1	1		7	4.7 (2.6)
Black crappie						2	7	1	1		1		12	8.0 (2.1)
Total														
White crappie							3	1	1	1	1		7	1.6 (1.0)
Black crappie	1			1		6	14	4	1	2	4	4	37	8.2 (1.9)

Dataset = cfdpsher.d21

Table 34. PSD and RSD_{10} values calculated for crappie electrofished from Herrington Lake during March 2021.

Species	No. ≥5.0 in	PSD	RSD_{10}
White crappie	7	100 (± 0)	57 (± 39)
Black crappie	36	97 (± 5)	42 (± 16)

Dataset = cfdpsher.d21

Table 35. Mean back calculated lengths (in) at each annulus for otoliths from black crappie electrofished at Herrington Lake in 2021.

		Age						
Year class	No.	1	2	3	4	5	6	7
2020	1	3.7						
2019	20	5.1	9.2					
2018	1	6.4	10.5	11.6				
2017	3	4.6	10.0	12.2	13.3			
2016	2	5.1	9.1	11.6	12.8	13.3		
2015	4	5.0	9.5	11.7	12.9	13.4	13.9	
2014	1	4.3	7.0	10.6	12.2	13.2	13.6	13.9
Mean	32	5.0	9.3	11.7	12.9	13.4	13.9	13.9
Smallest		3.7	6.3	10.6	12.2	12.7	13.6	13.9
Largest		6.6	11.2	13.1	14.3	13.9	14.1	13.9
Std Error		0.1	0.2	0.2	0.2	0.2	0.1	
95% ConLo		4.8	9.0	11.3	12.5	13.0	13.7	
95% ConHi		5.2	9.7	12.1	13.3	13.7	14.0	

Intercept value = 0.00
Dataset = cfdagher.d21

Table 36. Age frequency and CPUE (fish/hr) per inch class of black crappie collected during 4.5 hours of electrofishing at Herrington Lake in 2021.

	Inch class															Std
Age	3	4	5	6	7	8	9	10	11	12	13	14	Total	%	CPUE	err
1	1												1	3	0.2	0.2
2				1		6	14	4					25	66	5.6	1.5
3									1				1	3	0.2	0.2
4										1	1	1	3	8	0.7	0.3
5										1	1		2	5	0.4	0.3
6											2	3	5	13	1.0	0.4
7											1		1	3	0.2	0.1
Total	1	0	0	1	0	6	14	4	1	2	5	4	38	100	8.2	1.9
%	3	0	0	3	0	16	37	11	3	5	13	11	100			

Dataset = cfdpsher.d21 and cfdagher.d21
CPUE of ≥8.0 in black crappie = 7.8 ± 1.7 fish/hr; ≥10.0 in = 3.3 ± 1.1 fish/hr

Table 37. Population assessment for white crappie collected during spring electrofishing at Herrington Lake from 2012-2021 (scoring based on lake-specific assessment).

Year		Total CPUE	Mean length age-2 at capture	Spring CPUE ≥8.0 in	Spring CPUE ≥10.0 in	CPUE age-2	Total score	Assessment rating
2021	Value	1.6	8.8*	1.6	0.9	0.3^		
	Score	1	3	1	1	1	7	Poor
2020	Value				No sample			
	Score							
2019	Value				No sample			
	Score							
2018	Value				No sample			
	Score							
2017	Value				No sample			
	Score							
2016	Value	10.9	8.8*	10.9	9.1	1.8^		
	Score	1	3	1	2	1	8	Poor
2015	Value				No sample			
	Score							
2014	Value	16.7	8.8	16.2	15.1	0.9		
	Score	2	3	2	2	1	10	Fair
2013	Value				No sample			
	Score							
2012	Value	72.0	8.0	69.6	48.9	12.1		
	Score	4	1	4	4	1	14	Good

* Age data not collected
^Calculations based on age data gathered in previous years

Table 38. Population assessment for black crappie collected during spring electrofishing at Herrington Lake from 2012-2021 (scoring based on lake-specific assessment).

Year		Total CPUE	Mean length age-2 at capture	Spring CPUE ≥8.0 in	Spring CPUE ≥10.0 in	CPUE age-2	Total score	Assessment rating
2021	Value	8.2	9.3	7.8	3.3	5.6	8	Poor
	Score	1	4	1	1	1		
2020	Value				No Sample			
	Score							
2019	Value				No Sample			
	Score							
2018	Value				No Sample			
	Score							
2017	Value				No Sample			
	Score							
2016	Value	34.4	8.9*	34.2	22.4	11.8^		
	Score	3	3	4	4	2	16	Good
2015	Value				No Sample			
	Score							
2014	Value	4.6	8.9	4.6	3.6	2.8		
	Score	1	3	1	1	1	7	Poor
2013	Value				No Sample			
	Score							
2012	Value	12.4	9.3	12.2	10.0	2.8		
	Score	2	4	2	2	1	11	Fair

* Age data not collected
^Calculations based on age data gathered in previous years

Table 39. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected in 7.5 hours of 15-minute electrofishing runs in Herrington Lake, April 2021; numbers in parentheses are standard errors.

	Inch class																					
Location/Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Upper																						
Largemouth bass			2	13	10	15	12	3	10	18	14	10	3	7	4	5	4	3	1	1	135	54.0 (8.6)
Spotted bass		1	1	2			3			2		1									10	4.0 (1.3)
Middle																						
Largemouth bass	1	2	2	8	9	17	7	6	15	25	33	11	13	29	30	13	10	5			236	94.4 (9.2)
Spotted bass						2	1	1	9	2	2	1									18	7.2 (2.1)
Lower																						
Largemouth bass		2	7	13	10	12	7	4	10	3	13	7	23	35	36	11	10	2			205	82.0 (9.8)
Spotted bass			1		2	1		5	15	20	15	5	4	2	1						71	28.4 (8.0)
Total																						
Largemouth bass	1	4	11	34	29	44	26	13	35	46	60	28	39	71	70	29	24	10	1	1	576	76.8 (6.0)
Spotted bass		1	2	2	2	3	4	6	24	24	17	7	4	2	1						99	13.2 (3.4)

Dataset = cfdpsher.d21

Table 40. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Herrington Lake from 2012-2021; 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	
2021	16.4 (2.7)	16.0 (2.5)	16.9 (1.9)	27.5 (3.9)	0.3 (0.2)	76.8	(6.0)
2020	No Sample						
2019	32.7 (4.8)	27.6 (2.6)	40.0 (3.7)	37.5 (3.1)	0.5 (0.3)	137.7	(9.7)
2018	45.3 (7.9)	50.8 (5.9)	58.5 (5.1)	29.9 (3.1)	1.5 (0.5)	184.5	(13.8)
2017	26.4 (3.0)	40.5 (4.4)	30.8 (3.6)	16.3 (1.6)	1.2 (0.4)	114.0	(6.5)
2016	32.8 (4.7)	43.1 (5.5)	16.4 (1.9)	17.7 (2.1)	1.1 (0.4)	110.0	(9.0)
2015	32.9 (3.4)	16.8 (2.2)	20.9 (1.9)	17.6 (2.5)	0.8 (0.3)	88.3	(6.1)
2014	30.1 (4.1)	20.5 (2.0)	28.5 (2.7)	18.0 (2.4)	1.3 (0.4)	97.2	(6.4)
2013	11.7 (2.2)	29.6 (4.0)	18.5 (2.7)	12.9 (1.9)	1.5 (0.6)	72.8	(7.0)
2012	69.6 (10.1)	70.7 (10.9)	40.9 (4.6)	14.8 (2.1)	1.1 (0.5)	196.0	(23.7)

Dataset = cfdpsher.d12- .d21

Table 41. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in each area of Herrington Lake in 2021; confidence intervals are in parentheses.

Area	Species	No. ≥8.0 in	PSD	RSD_{15}
Lower	Largemouth bass	161	85 (± 6)	10 (± 7)
Middle	Largemouth bass	197	73 (± 6)	44 (± 7)
Upper	Largemouth bass	95	55 (± 10)	26 (± 9)
Total	Largemouth bass	453	74 (± 4)	45 (± 5)

Dataset = cfdpsher.d21

Table 42. Population assessment for largemouth bass collected during spring electrofishing at Herrington Lake from 2010-2021 (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
2021	Value	13.6	16.4	16.9	27.5	0.3				
	Score	4	2	2	4	2			14	Good
2020	Value					No Sample				
	Score									
2019	Value	13.4*	20.5	40.0	37.5	0.5				
	Score	4	2	4	4	3			17	Excellent
2018	Value	13.4*	39.6	58.5	29.9	1.5				
	Score	4	3	4	4	4			19	Excellent
2017	Value	13.4*	31.1	30.8	16.3	1.2				
	Score	4	3	3	3	3			16	Good
2016	Value	13.4*	59.2	16.4	17.7	1.1				
	Score	4	4	2	3	3			16	Good
2015	Value	13.4	36.8	20.9	17.6	0.8				
	Score	4	3	2	3	3			15	Good
2014	Value	13.8*	33.9	28.5	18.0	1.3				
	Score	4	3	3	3	4			17	Excellent
2013	Value	13.8*	15.1	18.5	12.9	1.5				
	Score	4	2	2	2	4			14	Good
2012	Value	13.8*	111.7	40.9	14.8	1.1				
	Score	4	4	4	3	3			18	Excellent

* 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 43. Length distribution and CPUE (fish/hr) of black bass collected in 4.5 hours of 15-minute electrofishing runs in Herrington Lake in October 2021 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	31	7	3	8	2			3	5	3		2	2	5	5	4	1		86	57.3 (13.5)
Spotted bass	1	13																		14	9.3 (3.8)
Middle																					
Largemouth bass	92	9	2	4	3	2	2	3	5	1	1		2	3	4	4	1		1	139	92.7 (9.8)
Spotted bass		2				2						1								5	3.3 (1.6)
Upper																					
Smallmouth bass		4								1		1								6	4.0 (2.5)
Largemouth bass		9	11	12	15	5	2	5	4	3	2	5	3	5	8	12	3	4	2	110	73.3 (7.3)
Spotted bass			1						1											2	1.3 (1.3)
Total																					
Smallmouth bass		4								1		1								6	1.3 (0.9)
Largemouth bass	97	49	20	19	26	9	4	8	12	9	6	5	7	10	17	21	8	5	3	335	74.4 (6.7)
Spotted bass	1	15	1			2			1			1								21	4.7 (1.6)

Dataset = cfdwrher.d21

Table 44. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Herrington Lake on 18, 20, and 22 October 2021. 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	8	89 (2)	5	93 (2)	17	93 (2)	30	92 (1)
	Middle	11	90 (2)	3	95 (1)	13	97 (2)	27	94 (1)
	Upper	14	89 (2)	10	91 (3)	34	97 (1)	58	94 (1)
	Total	33	89 (1)	18	92 (2)	64	96 (1)	115	93 (1)

Dataset = cfdwrher.d21

Table 45. 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 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
2021	Total	3.7	0.1	48.7	6.7	11.8	2.2		
2020	Total	5.0	0.1	16.4	2.8	8.4	1.5	21.1	3.1
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

Dataset = cfdwrher.d21

Table 46. Species composition, relative abundance, and CPUE (fish/hr) of black bass and saugeye collected in 3.0 hours of 15-minute nocturnal electrofishing runs in Guist Creek Lake, April 2021; 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	21	Total	CPUE
Largemouth bass	1	2	7	10	7	9	61	54	45	43	38	26	39	40	30	22	13	12	4	463	154.3 (12.2)
Saugeye																1				1	0.3 (0.3)

Dataset = cfdpsgcl.d21

Table 47. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Guist Creek Lake from 2012-2021; 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
2021	9.0 (1.8)	56.3 (6.6)	35.7 (3.6)	53.3 (7.8)	5.3 (1.6)	154.3 (12.2)
2020	No Sample					
2019	22.7 (5.1)	42.3 (5.7)	57.0 (6.7)	67.7 (5.1)	6.3 (1.2)	189.7 (13.9)
2018	11.0 (1.9)	111.7 (10.3)	64.7 (5.6)	64.3 (8.1)	5.3 (1.4)	251.7 (18.3)
2017	13.0 (3.3)	57.3 (7.3)	36.0 (5.0)	70.0 (11.2)	5.7 (1.7)	176.3 (21.2)
2016	No Sample					
2015	28.7 (8.4)	86.0 (6.5)	47.0 (4.9)	63.7 (10.2)	3.3 (1.2)	225.3 (22.2)
2014	13.3 (2.4)	43.3 (5.4)	32.7 (4.6)	49.3 (6.8)	4.3 (1.3)	138.7 (15.8)
2013	21.3 (7.0)	44.0 (5.1)	51.0 (5.4)	63.0 (7.4)	5.7 (2.0)	179.3 (11.6)
2012	19.7 (5.2)	81.7 (7.5)	30.0 (4.1)	36.7 (3.8)	4.7 (1.2)	168.0 (7.2)

Dataset = cfdpsgcl.d12– d21

Table 48. PSD and RSD_{15} values obtained for largemouth bass from spring nocturnal electrofishing samples in Guist Creek Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	436	61 (± 5)	37 (± 5)

Dataset = cfdpsgcl.d21

Table 49. Population assessment for largemouth bass collected during spring electrofishing at Guist Creek Lake from 2012-2021 (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
2021	Value	12.5*	8.3	35.7	53.3	5.3				
	Score	4	2	3	4	4			17	Excellent
2020	Value					No Sample				
	Score									
2019	Value	12.5*	16.0	57.0	67.7	6.3				
	Score	4	2	4	4	4			18	Excellent
2018	Value	12.5*	7.0	64.7	64.3	5.3				
	Score	4	1	4	4	4			17	Excellent
2017	Value	12.5	12.7	36.0	70.0	5.7				
	Score	4	2	3	4	4			17	Excellent
2016	Value					No Sample				
	Score									
2015	Value	12.2*	13.0	47.0	63.7	3.3				
	Score	4	2	4	4	3			17	Excellent
2014	Value	12.2*	3.7	32.7	49.3	4.3				
	Score	4	1	3	4	4			16	Good
2013	Value	12.2	17.0	51.0	63.0	5.7				
	Score	4	2	4	4	4			18	Excellent
2012	Value	11.0*	13.3	30.0	36.7	4.7				
	Score	3	2	3	4	4			16	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 50. Length distribution and CPUE (fish/hr) of largemouth bass and saugeye collected in 3.0 hours of 15-minute electrofishing runs for black bass in Guist Creek Lake in September 2021; 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	5	25	27	11	6	18	23	6	12	18	35	21	24	29	12	16	16	7	2	2	315	105.0 (8.6)
Saugeye							1														1	0.3 (0.3)

Dataset = cfdwrgcl.d21

Table 51. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Guist Creek Lake on 17 September and 22 October 2021. 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	62	90 (1)	81	94 (1)	110	96 (1)	253	94 (1)

Dataset = cfdwrgcl.d21

Table 52. 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 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
2021	Total	4.1	0.1	23.7	3.2	4.7	1.2		
2020	Total	4.4	0.1	32.0	5.8	9.3	3.2	8.3	1.9
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

Table 53. Length frequency, relative abundance, and CPUE (fish/hr) of largemouth bass collected in 2.0 hours of 15-minute electrofishing runs in Beaver Lake, April 2021; 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	23	Total	CPUE
Largemouth bass	2	75	71	42	20	6	38	76	64	54	50	21	5	10	5	5	2	2	3	4		1	556	278.0 (16.4)

Dataset = cfdpsbvr.d21

Table 54. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Beaver Lake from 2012-2021; 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
2021	108.0 (9.9)	116.0 (8.8)	38.0 (4.1)	16.0 (3.3)	4.0 (1.5)	278.0 (16.4)
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)

Dataset = cfdpsbvr.d12 - .d21

Table 55. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in Beaver Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	340	32 (± 5)	9 (± 3)

Dataset = cfdpsbvr.d21

Table 56. Population assessment for largemouth bass collected during spring electrofishing at Beaver Lake from 2012-2021 (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
2021	Value	11.3*	107.5	38.0	16.0	4.0				
	Score	3	4	3	3	4			17	Excellent
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

* 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 57. 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 October 2021; 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	21	Total	CPUE
Largemouth bass	47	43	16	25	57	45	11	27	44	28	23	18	6	1	3	2	2		1	399	266.0 (38.0)

Dataset = cfdwrbvr.d21

Table 58. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Beaver Lake in fall 2021; standard errors are in parentheses.

		Length group						Total	
Species	Area	8.0–11.9 in		12.0–14.9 in		≥15.0 in			
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	86	83 (1)	66	85 (1)	15	89 (2)	167	85 (1)

Dataset = cfdwrbvr.d21

Table 59. 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.

		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
2021	Total	4.1	0.1	69.3	12.4	9.3	3.4		
2020	Total	3.7	0.1	232.0	26.1	17.3	2.2	107.5	9.8
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

Table 60. Mean back calculated lengths (in) at each annulus for otoliths from bluegill collected from Beaver Lake in fall 2021.

		Age			
Year	No.	1	2	3	4
2020	12	2.7			
2019	21	1.9	4.1		
2018	2	2.3	4.4	5.8	
2017	2	2.4	4.8	6.1	6.5
Mean	37	2.2	4.1	5.9	6.5
Smallest		1.2	3.1	5.6	6.4
Largest		4.0	5.6	6.1	6.5
Std error		0.1	0.1	0.1	0.1
95% ConLo		2.0	3.9	5.7	6.4
95% ConHi		2.4	4.4	6.1	6.5

Intercept value = 0.00
Dataset = cfdagbvr.d21

Table 61. Mean back calculated lengths (in) at each annulus for otoliths from redear sunfish collected from Beaver Lake in 2021.

		Age		
Year	No.	1	2	3
2020	25	3.0		
2019	14	2.9	6.1	
2018	3	3.4	6.7	8.1
Mean	42	3.0	6.2	8.1
Smallest		1.6	4.0	7.5
Largest		4.3	7.6	8.9
Std error		0.1	0.2	0.4
95% ConLo		2.8	5.8	7.3
95% ConHi		3.2	6.6	8.9

Intercept value = 0.00
Dataset = cfdagbvr.d21

Table 62. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Beaver Lake during October 2021; 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	88 (2)	8	74 (3)					84	86 (2)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	7	77 (6)	38	92 (2)	13	94 (1)	1	93 (-)	59	91 (1)

Dataset = cfdwrbvr.d21

Table 63. Length composition, relative abundance, and CPUE (fish/set-night) of channel catfish at Beaver Lake sampled on 2 December 2021. Channel catfish were collected using 5 set-nights of baited, tandem hoop nets (72 hours soak time).

	Inch class														
Species	11	12	13	14	15	16	17	18	19	20	21	22	23	Total	Average per set
Channel catfish	4	8	38	55	36	10	1	2	7	4	7	2	3	177	35.4 (7.7)

Dataset = cfdhnbvr.d21

Table 64. PSD and RSD_{24} values obtained for channel catfish from tandem hoop net samples in Beaver Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥stock size	PSD	RSD_{24}
Channel catfish	177	20 (± 6)	0 (± 0)

Dataset = cfdhnbvr.d21

Table 65. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Beaver Lake in October 2021; 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	141	91 (1)	36	95 (2)	0		177	92 (1)

Dataset = cfdhnbvr.d21

Table 66. CPUE (fish/set-night) for each length group of channel catfish collected by hoop net from Beaver Lake from 2007-2021 numbers in parentheses are standard errors.

	Length group			
Year	≥12.0 in	≥15.0 in	≥20.0 in	Total
2021	34.6 (7.2)	14.4 (4.5)	3.2 (1.5)	35.4 (7.7)
2019	28.3 (2.7)	27.7 (2.4)	7.3 (2.6)	28.3 (2.7)
2017	22.7 (12.2)	21.3 (11.0)	5.7 (3.2)	22.7 (12.2)
2015	16.0 (3.5)	14.3 (3.3)	1.7 (0.3)	16.0 (3.5)
2011	44.8 (14.0)	28.0 (8.7)	1.0 (0.6)	72.8 (24.5)
2010	40.0 (8.2)	25.6 (5.4)	0.6 (0.2)	41.8 (8.8)
2009	71.4 (17.2)	21.6 (5.1)	1.6 (0.9)	94.8 (29.1)
2008	14.0 (4.1)	5.4 (2.0)	0.8 (0.6)	28.2 (8.8)
2007	35.8 (12.6)	6.2 (2.8)	0.4 (0.2)	36.4 (12.8)

Dataset = cfdhnbvr.d07 - .d21

Table 67. 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 April 2021; 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
Largemouth bass	18	52	27	9	151	148	62	15	6	8	3	3	5	7	5	5	2	1	527	263.5 (19.1)

Dataset = cfdpsbkl.d21

Table 68. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Benjy Kinman Lake during 2015-2021; 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
2021	53.0 (9.3)	188.0 (12.4)	8.5 (2.4)	14.0 (3.2)	1.5 (1.1)	263.5 (19.1)
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.d15-.d21

Table 69. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing sample in Benjy Kinman Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	421	11 (± 3)	7 (± 2)

Dataset = cfdpsbkl.d21

Table 70. Population assessment for largemouth bass collected during spring electrofishing at Benjy Kinman Lake from 2015-2021 (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
2021	Value	10.2	48.5	8.5	14.0	1.5				
	Score	2	3	1	3	2			11	Fair
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 71. 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 2021; 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	1	31	74	38	7	17	49	38	28	11	2	1	1	2		2	1		1	304	202.7 (20.8)

Dataset = cfdwrbkl.d21

Table 72. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Benjy Kinman Lake during September, October, and November 2021. 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	101	83 (1)	32	84 (1)	38	100 (2)	171	87 (1)

Dataset = cfdwrbkl.d21

Table 73. Mean back calculated lengths (in) at each annulus for otoliths from largemouth bass collected in the fall from Benjy Kinman Lake in 2021.

		Age							
Year	No.	1	2	3	4	5	6	7	8
2020	21	5.6							
2019	16	6.0	8.9						
2018	14	5.7	8.7	10.2					
2017	12	5.8	9.1	10.5	11.7				
2016	4	5.8	9.1	11.1	12.7	14.4			
2015	1	6.1	10.4	12.7	14.1	15.0	16.7		
2014	2	6.3	9.7	11.7	13.2	14.8	16.3	17.6	
2013	1	5.2	9.3	11.8	14.1	15.7	17.4	18.6	19.9
Mean	71	5.8	9.0	10.6	12.3	14.7	16.7	17.9	19.9
Smallest		4.1	7.8	9.0	9.9	11.7	15.7	16.9	19.9
Largest		7.1	10.7	12.7	14.1	16.9	17.4	18.6	19.9
Std Error		0.1	0.1	0.2	0.3	0.5	0.4	0.5	
95% ConLo		5.6	8.8	10.3	11.7	13.7	16.0	16.9	
95% ConHi		5.9	9.2	11.0	12.9	15.8	17.4	19.0	

Intercept value = 0.00
Dataset = cfdagbkl.d21

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.

		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
2021	Total	4.6	0.1	100.7	17.7	30.0	7.8		
2020	Total	4.8	0.1	104.0	20.2	46.0	7.7	48.5	7.8
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. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Benjy Kinman Lake during September and October 2021; 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	69	98 (2)	82	86 (1)					151	92 (1)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	2	91 (17)	37	97 (1)	32	98 (1)			71	97 (1)

Dataset = cfdwrbkl.d21

Table 76. Length distribution and CPUE (fish/hr) of white and black crappie collected in 1.50 hours of 15-minute electrofishing runs for crappie in Benjy Kinman Lake in October 2021; numbers in parentheses are standard errors.

	Inch class								
Species	5	6	7	8	9	10	11	Total	CPUE
White crappie						2	1	3	2.0 (1.4)
Black crappie	2			5	10	6		23	15.3 (5.9)

Dataset = cfdwrbkl.d21

Table 77. Mean back calculated lengths (in) at each annulus for otoliths from black crappie collected in the fall from Benjy Kinman Lake in 2021.

		Age											
Year	No.	1	2	3	4	5	6	7	8	9	10	11	12
2020	10	5.3											
2019	6	5.1	7.6										
2018	2	4.9	7.9	9.3									
2016	1	3.9	7.2	8.6	9.5	10.1							
2015	1	4.9	7.7	8.4	9.0	9.5	10.0						
2009	1	3.1	5.3	6.6	7.3	7.8	8.0	8.4	8.8	9.1	9.3	9.6	9.8
Mean	21	5.0	7.4	8.4	8.6	9.1	9.0	8.4	8.8	9.1	9.3	9.6	9.8
Smallest		3.1	5.3	6.6	7.3	7.8	8.0	8.4	8.8	9.1	9.3	9.6	9.8
Largest		6.2	9.5	9.9	9.5	10.1	10.0	8.4	8.8	9.1	9.3	9.6	9.8
Std Error		0.1	0.4	0.5	0.7	0.7	1.0						
95% ConLo		4.8	6.7	7.4	7.3	7.8	7.0						
95% ConHi		5.3	8.2	9.5	9.9	10.5	11.0						

Intercept value = 0.00
Dataset = cfdagbkl.d21

Table 78. Number of fish and the relative weight (Wr) for each length group of crappie at Benjy Kinman Lake in October/November 2021.

		Length group							
Species	Area	5.0–7.9 in		8.0–9.9 in		≥10.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No	Wr
White crappie	Total					3	81 (<1)	3	81 (<1)
Black crappie	Total	2	104 (0)	15	90 (1)	6	93 (3)	23	92 (1)

Dataset = cfdwrbkl.d21

Table 79. Length composition, relative abundance, and CPUE (fish/set) of channel catfish at Benjy Kinman Lake. Channel catfish were collected using five (5) baited, tandem hoop nets (72 hours soak time) that were set on 30 November 2021.

Species	Inch class														Total	Average per set
	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
Channel catfish	1					1	2	1		1				1	7	1.4 (0.7)

Dataset = cfdhnbkl.d21

Table 80. PSD and RSD_{24} values obtained for channel catfish from tandem hoop net samples in Benjy Kinman Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥stock size	PSD	RSD_{24}
Channel catfish	7	86 (± 14)	14 (± 14)

Dataset = cfdhnbkl.d21

Table 81. CPUE (fish/set) for each length group of channel catfish collected by hoop net from Benjy Kinman Lake from 2015-2021; numbers in parentheses are standard errors.

Year	Length group			Total
	≥12.0 in	≥15.0 in	≥20.0 in	
2021	1.2 (0.6)	1.2 (0.6)	0.4 (0.2)	1.4 (0.7)
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-.d21

Table 82. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Benjy Kinman Lake in December 2021; standard errors are in parentheses.

Species	Length group						Total	
	11.0–15.9 in		16.0–23.9 in		≥24.0 in			
	No.	Wr	No.	Wr	No.	Wr	No.	Wr
Channel catfish	1	97 (-)	5	92 (4)	1	114 (-)	7	96 (4)

Dataset = cfdhnbkl.d21

Table 83. Species composition, relative abundance, and CPUE (fish/hr) of largemouth bass collected in 2.0 hours of 15-minute nocturnal electrofishing runs in Boltz Lake, April 2021; 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	21	22	Total	CPUE
Largemouth bass	3	7	15	5	28	41	31	17	32	47	42	37	37	18	6	9		1		1	377	188.5 (14.8)
Saugeye						1			1									2	1		5	2.5 (1.3)

Dataset = cfdpsbol.d21

Table 84. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Boltz Lake from 2012-2021; 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
2021	29.0 (6.5)	60.5 (2.8)	63.0 (7.5)	36.0 (4.4)	1.0 (0.7)	188.5 (14.8)
2020			No Sample			
2019	21.0 (4.1)	66.0 (6.4)	83.0 (3.2)	17.0 (5.2)	0.5 (0.5)	187.0 (12.8)
2018	14.0 (3.2)	97.5 (7.6)	82.5 (9.7)	25.5 (2.9)	1.5 (1.1)	219.5 (12.7)
2017	29.0 (5.5)	131.5 (9.1)	40.0 (4.3)	18.0 (1.5)	0.5 (0.5)	218.5 (13.0)
2016			No Sample			
2015	47.5 (6.9)	79.5 (8.4)	22.0 (4.3)	21.5 (3.5)	2.0 (1.1)	170.5 (14.1)
2014	68.5 (10.5)	73.0 (6.5)	18.5 (3.5)	16.0 (3.6)	2.5 (0.7)	176.0 (17.2)
2013	66.5 (14.6)	67.5 (6.7)	17.5 (2.0)	13.5 (2.6)	2.5 (1.1)	165.0 (13.6)
2012	4.5 (1.2)	35.0 (4.0)	15.5 (2.8)	11.0 (2.5)	2.5 (1.5)	66.0 (4.9)

Dataset = cfdpsbol.d12 - .d21

Table 85. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in Boltz Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	319	62 (± 5)	23 (± 5)

Dataset = cfdpsbol.d21

Table 86. Population assessment for largemouth bass collected during spring electrofishing at Boltz Lake from 2012 - 2021 (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
2021	Value	11.4*	15.0	63.0	36.0	1.0				
	Score	3	2	4	4	2			15	Good
2020	Value					No Sample				
	Score									
2019	Value	11.4*	8.0	83.0	17.0	0.5				
	Score	3	2	4	3	2			14	Good
2018	Value	11.4*	14.0	85.2	25.5	1.5				
	Score	3	2	4	3	2			14	Good
2017	Value	11.4*	26.0	40.0	18.0	0.5				
	Score	3	3	3	3	2			14	Good
2015	Value	11.4	29.5	22.0	21.5	2.0				
	Score	3	2	2	3	3			13	Good
2014	Value	10.7*	57.0	18.5	16.0	2.5				
	Score	2	3	1	2	3			11	Fair
2013	Value	10.7*	21.5	17.5	13.5	2.5				
	Score	2	2	1	2	3			10	Fair
2012	Value	10.7*	3.5	15.5	11.0	2.5				
	Score	2	1	1	2	3			9	Fair

* Age data not collected
-Instantaneous and annual mortality not calculated in years where age and growth data are not collected

Table 87. 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 October 2021; 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	25	Total	CPUE
Largemouth bass	64	139	126	35	15	23	28	19	12	28	15	13	10	13	5	4					1		550	366.7 (27.9)
Saugeye												1	1					2	1	3	1	1	10	6.7 (2.5)

Dataset = cfdwrbol.d21

Table 88. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Boltz Lake in October 2021. 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	96	90 (1)	71	93 (1)	50	94 (1)	217	92 (1)

Dataset = cfdwrbol.d21

Table 89. 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
2021	375	3.9	0.05	250.0	27.2	30.7	6.0		
2020	359	3.6	0.04	239.3	41.4	20.0	6.0	15.0	4.6
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	0.07	47.3	3.6	6.0	1.4	---	
2014	58	4.0	0.10	38.7	10.9	4.0	3.3	29.5	5.2
2013*	102	4.4	0.09	68.0	16.2	20.0	6.7	4.0	0.8
2012	127	4.4	0.07	84.7	12.2	18.7	5.6	21.5	4.3
2011	91	4.7	0.08	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 90. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Boltz Lake during October 2021. 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	81	95 (2)	31	85 (3)					112	92 (2)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	7	106 (6)	12	101 (2)	11	97 (2)	1	98 (-)	31	101 (2)

Dataset = cfdwrbol.d21

Table 91. Length distribution and CPUE (fish/hr) of white crappie collected in 1.50 hours of 15-minute electrofishing runs for crappie in Boltz Lake in October 2021; numbers in parentheses are standard errors.

	Inch class								
Species	7	8	9	10	11	12	13	Total	CPUE
White crappie	1	5	25	8	3		1	43	28.7 (6.8)

Dataset = cfdwrbol.d21

Table 92. Mean back calculated lengths (in) at each annulus for otoliths from white crappie sampled at Boltz Lake in the fall of 2021.

		Age												
Year class	No.	1	2	3	4	5	6	7	8	9	10	11	12	13
2020	1	5.2												
2019	17	5.8	8.2											
2018	6	5.9	8.2	9.3										
2014	2	4.4	7.1	8.4	9.2	9.8	10.3	10.9						
2013	1	4.0	6.8	8.4	9.2	10.3	11.1	12.1	12.6					
2008	1	3.5	5.5	6.3	6.8	7.3	7.8	8.3	8.8	9.3	9.7	10.2	10.7	11.0
Mean	28	5.6	8.0	8.7	8.6	9.3	9.9	10.5	10.7	9.3	9.7	10.2	10.7	11.0
Smallest		3.5	5.5	6.3	6.8	7.3	7.8	8.3	8.8	9.3	9.7	10.2	10.7	11.0
Largest		6.8	9.3	10.8	9.4	10.3	11.1	12.1	12.6	9.3	9.7	10.2	10.7	11.0
Std Error		0.2	0.1	0.4	0.6	0.7	0.7	0.8	1.9					
95% ConLo		5.3	7.7	8.0	7.4	8.0	8.5	8.9	6.9					
95% ConHi		5.9	8.2	9.5	9.8	10.7	11.3	12.1	14.4					

Intercept Value = 0.00
Dataset = cfdagbol.d21

Table 93. Number of fish and the relative weight (Wr) for each length group of white crappie at Boltz Lake in October 2021.

		Length group							
Species	Area	5.0–7.9 in		8.0–9.9 in		≥10.0 in		Total	
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
White crappie	Total	1	100	30	90 (1)	12	86 (1)	43	89 (1)

Dataset = cfdwrbol.d21

Table 94. Length frequency, relative abundance, and CPUE (fish/hr) of largemouth bass and saugeye collected in 2.0 hours of 15-minute diurnal electrofishing runs in Bullock Pen Lake, April 2021; numbers in parentheses are standard errors.

	Inch class																							
Location/Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total	CPUE
Largemouth bass	3	7	13	6	60	71	57	49	55	45	32	26	22	17	19	13	13	17	4	1				530	265.0 (15.4)
Saugeye												1	1	1									2	5	2.5 (0.7)

Dataset = cfdpsbpl.d21

Table 95. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Bullock Pen Lake from 2012-2021; 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
2021	44.5 (4.6)	116.0 (8.1)	51.5 (5.4)	53.0 (5.8)	11.0 (2.6)	265.0 (15.4)
2020			No sample			
2019	24.0 (2.6)	63.0 (6.2)	47.5 (7.3)	61.5 (8.3)	6.5 (1.7)	196.0 (14.3)
2018	20.0 (3.9)	59.5 (7.6)	67.5 (4.4)	78.0 (10.3)	11.0 (3.0)	225.0 (11.7)
2017	23.0 (4.7)	40.0 (4.9)	66.0 (5.9)	75.5 (7.7)	12.5 (3.9)	204.5 (13.9)
2016			No sample			
2015			No sample			
2014	13.0 (2.7)	61.5 (8.5)	57.0 (6.9)	58.0 (3.2)	4.5 (1.4)	189.5 (14.0)
2013			No sample			
2012	25.5 (2.4)	80.5 (7.9)	43.0 (4.1)	63.5 (10.0)	3.0 (1.3)	212.5 (9.4)

Dataset = cfdpsbpl.d12 - .d21

Table 96. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in Bullock Pen Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	441	47 (± 5)	24 (± 4)

Dataset = cfdpsbpl.d21

Table 97. Population assessment for largemouth bass collected during spring electrofishing at Bullock Pen Lake from 2012 - 2021 (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	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2021	Value	11.5*	14.5	51.5	53.0	11.0				
	Score	3	2	4	4	4			17	Excellent
2020	Value					No Sample				
	Score									
2019	Value	11.5*	17.2	47.5	61.5	6.5				
	Score	3	2	4	4	4			17	Excellent
2018	Value	11.5	15.5	67.5	78.0	11.0				
	Score	3	2	4	4	4			17	Excellent
2017	Value	10.5*	21.0	66.0	75.5	12.5				
	Score	2	2	4	4	4			16	Good
2016	Value					No Sample				
	Score									
2015	Value					No Sample				
	Score									
2014	Value	10.5*	2.5	57.0	58.0	4.5				
	Score	2	1	4	4	4			15	Good
2013	Value					No Sample				
	Score									
2012	Value	10.5*	9.5	43.0	63.5	3.0				
	Score	2	2	3	4	3			14	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 98. 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 2021; 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	23	26	Total	CPUE
Largemouth bass	6	9	6	3	1	13	24	14	32	18	23	15	19	9	9	3	9		10			223	148.7 (10.0)
Saugeye																1		3		1	1	6	4.0 (1.8)

Dataset = cfdwrblp.d21

Table 99. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Bullock Pen Lake in September and October 2021; standard errors are in parentheses.

Species	Area	Length group						Total	
		8.0–11.9 in		12.0–14.9 in		≥15.0 in			
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	88	87 (1)	57	90 (1)	40	98 (1)	185	90 (1)

Dataset = cfdwrblp.d21

Table 100. 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 2019 year class due to COVID-19 work restrictions.

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
2021	Total	3.7	(0.2)	16.0	(3.7)	2.0	(1.4)		
2020	Total	3.9	(0.1)	30.0	(5.9)	3.3	(1.2)	12.5	(2.8)
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

Table 101. Length frequency, relative abundance, and CPUE (fish/hr) of largemouth bass collected in 2.0 hours of 15-minute nocturnal electrofishing runs in Corinth Lake, April 2021; 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	21	Total	CPUE
Largemouth bass	2	20	14	10	15	93	78	77	100	82	45	28	9	8	7	6	5	2	3	604	302.0 (9.6)

Dataset = cfdpscor.d21

Table 102. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Corinth Lake from 2012-2021; 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
2021	30.5 (3.4)	174.0 (8.8)	77.5 (9.0)	20.0 (2.1)	2.5 (1.3)	302.0 (9.6)
2020	No Sample					
2019	24.0 (4.2)	194.5 (16.6)	75.5 (9.2)	26.0 (6.0)	2.5 (1.0)	320.0 (25.9)
2018	45.0 (6.1)	145.0 (8.5)	66.5 (7.8)	20.0 (3.7)	3.0 (1.3)	276.5 (15.6)
2017	107.0 (11.9)	226.5 (24.0)	26.0 (4.4)	21.0 (4.6)	5.0 (2.0)	380.5 (39.7)
2016	No Sample					
2015	93.0 (4.5)	141.0 (3.8)	38.0 (4.1)	16.0 (3.1)	3.5 (1.2)	288.0 (9.0)
2014	33.0 (5.5)	152.5 (9.7)	17.0 (3.8)	15.0 (2.6)	3.0 (1.5)	189.5 (14.0)
2013	24.5 (4.5)	161.0 (15.3)	22.5 (5.4)	24.5 (6.6)	4.5 (1.9)	232.5 (17.3)
2012	32.5 (6.1)	175.0 (15.3)	37.0 (4.9)	23.5 (4.0)	8.5 (2.3)	268.0 (21.2)

Dataset = cfdpscor.d12 – .d21

Table 103. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in Corinth Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	543	36 (± 4)	9 (± 2)

Dataset = cfdpscor.d21

Table 104. Population assessment for largemouth bass collected during spring electrofishing at Corinth Lake from 2012-2021 (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
2021	Value	10.3*	23.0	77.5	20.0	2.5				
	Score	2	3	4	3	3			15	Good
2020	Value					No Sample				
	Score									
2019	Value	10.3	11.0	75.5	26.0	2.5				
	Score	2	2	4	3	3			14	Good
2018	Value	10.8*	4.5	66.5	20.0	3.0				
	Score	3	1	4	3	3			14	Good
2017	Value	10.8*	19.5	26.0	21.0	5.0				
	Score	3	2	3	3	4			15	Good
2015	Value	10.8	29.9	38.0	16.0	3.5				
	Score	3	3	3	2	3			14	Good
2014	Value	11.1*	29.0	17.0	15.0	3.0				
	Score	3	3	1	2	3			12	Fair
2013	Value	11.1*	13.0	22.5	24.5	4.5				
	Score	3	1	2	3	4			13	Good
2012	Value	11.1*	24.5	37.0	23.5	8.5				
	Score	3	3	3	3	4			16	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 105. 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 30 September 2021; standard errors are in parentheses.

	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	46	57	23	2	39	44	27	32	28	31	17	13	3	2	1	3	3	1	372	248.0 (29.1)

Dataset = cfdwrcor.d21

Table 106. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Corinth Lake on 30 September 2021; 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	101	81 (1)	55	82 (1)	13	92 (3)	169	82 (1)

Dataset = cfdwrcor.d21

Table 107. 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.

		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
2021	Total	4.3	0.1	85.3	15.3	16.7	2.4		
2020	Total	4.0	0.1	82.7	9.5	6.7	1.3	23.0	3.5
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	0.04	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

Dataset = cfdwrcor.d12-.d21

Table 108. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Corinth Lake on 30 September 2021; 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	78	93 (2)	38	82 (1)	0				116	89 (2)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	1	105	55	95 (1)	51	95 (1)	8	94 (2)	115	95 (1)

Dataset = cfdwrcor.d21

Table 109. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected in 2.0 hours of 15-minute electrofishing runs in Elmer Davis Lake, April 2021; 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	4	25	22	24	7	7	71	91	69	86	60	33	15	10	4	6	4	1		1	1	541	270.5 (20.8)

Dataset = cfdpselm.d21

Table 110. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Elmer Davis Lake from 2012-2021; 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
2021	44.5 (7.3)	158.5 (11.1)	54.0 (9.8)	13.5 (2.9)	1.0 (0.7)	270.5 (20.8)
2020			No Sample			
2019	80.0 (10.5)	86.5 (8.9)	91.5 (7.9)	32.0 (4.3)	6.5 (2.1)	290.0 (15.5)
2018	91.0 (10.4)	87.0 (12.6)	125.0 (8.8)	28.5 (3.3)	3.5 (1.9)	331.5 (23.6)
2017	65.5 (10.6)	87.5 (5.5)	95.5 (5.9)	31.0 (2.8)	8.0 (1.9)	279.5 (14.4)
2016	57.5 (6.3)	113.0 (10.6)	126.0 (7.9)	44.5 (2.8)	8.0 (1.3)	341.0 (18.1)
2015	34.5 (5.5)	119.0 (7.0)	78.5 (8.9)	19.5 (4.9)	4.0 (1.7)	251.5 (18.3)
2014	27.5 (4.1)	113.5 (13.8)	75.0 (14.2)	23.5 (4.0)	4.5 (1.4)	239.5 (31.7)
2013			No Sample			
2012	83.5 (8.8)	197.5 (10.9)	85.5 (7.3)	27.5 (3.7)	4.5 (1.2)	394.0 (12.4)

Dataset = cfdpselm.d12 – .d21

Table 111. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in Elmer Davis Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	452	30 (± 4)	6 (± 2)

Dataset = cfdpselm.d21

Table 112. Population assessment for largemouth bass collected during spring electrofishing at Elmer Davis Lake from 2012-2021 (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	Instantaneous mortality (z)	Annual mortality (AM)	Total score	Assessment rating
2021	Value	11.0	41.0	54.0	13.5	1.0				
	Score	3	3	4	3	2			15	Good
2019	Value	10.7*	60.0	91.5	32.0	6.5				
	Score	2	4	4	4	4			18	Excellent
2018	Value	10.7*	91.0	125.0	28.5	3.5				
	Score	2	4	4	4	3			17	Excellent
2017	Value	10.7*	60.5	95.5	31.0	8.0				
	Score	2	4	4	4	4			18	Excellent
2016	Value	10.7	46.5	126.0	44.5	8.0				
	Score	2	3	4	4	4			17	Excellent
2015	Value	10.5*	28.0	78.5	19.5	4.0				
	Score	2	3	4	3	4			16	Good
2014	Value	10.5*	8.0	75.0	23.5	4.5				
	Score	2	2	4	3	4			15	Good
2012	Value	10.5	78.0	85.5	27.5	4.5	0.392	32.5		
	Score	2	4	4	4	4			18	Excellent

* 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 113. 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 October 2021; numbers in parentheses are standard errors.

	Inch class																					
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Largemouth bass	1		50	65	21	4	31	32	17	88	72	46	28	12	7	1			1	3	479	319.3 (20.4)

Dataset = cfdwrelm.d21

Table 114. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Elmer Davis Lake on 27 September 2021; 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	91	86 (1)	64	87 (1)	12	89 (3)	167	87 (1)

Dataset = cfdwrelm.d21

Table 115. 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.

		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
2021	Total	4.2	(0.1)	91.3	(11.4)	14.0	(2.8)		
2020	Total	3.8	(0.1)	176.0	(35.6)	14.0	(1.7)	41.0	(6.8)
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

Dataset= cfdwrelm.d12 - .d21

Table 116. 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 Elmer Davis Lake, May 2021; numbers in parentheses are standard errors.

	Inch class											
Species	2	3	4	5	6	7	8	9	10	11	Total	CPUE
Bluegill	14	88	90	25	41	86	23				367	293.6 (58.9)
Redear sunfish	1	3		3	22	13	8	17	3	1	71	56.8 (7.6)

Dataset = cfdpselm.d21

Table 117. Electrofishing CPUE (fish/hr) for each length group of bluegill collected from Elmer Davis Lake from 2012-2021; 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
2021	11.2 (3.8)	162.4 (26.9)	101.6 (30.4)	18.4 (4.8)	293.8 (58.9)
2020			No Sample		
2019	5.6 (2.1)	356.8 (52.2)	74.4 (12.1)	13.6 (2.4)	450.4 (56.5)
2018	24.8 (6.4)	156.0 (15.5)	56.0 (5.3)	5.6 (2.4)	242.4 (18.2)
2017	12.0 (3.4)	84.8 (11.4)	96.0 (19.6)	1.6 (1.6)	194.4 (26.5)
2016			No Sample		
2015	0.8 (0.8)	27.2 (5.0)	18.4 (7.4)	0.0 (0.0)	46.4 (9.6)
2014	17.6 (7.4)	117.6 (25.5)	33.6 (10.2)	0.0 (0.0)	168.8 (26.5)
2013	49.6 (18.2)	179.2 (28.4)	54.4 (14.8)	0.8 (0.8)	284.0 (56.5)
2012	42.4 (7.3)	254.4 (39.6)	68.8 (15.0)	0.8 (0.8)	366.4 (57.9)

Dataset = cfdpselm.d12 - .d21

Table 118. PSD and RSD values calculated for sunfish collected during 1.25 hours of electrofishing at Elmer Davis Lake during May 2021. Fish were collected in 7.5-minute runs.

Species	No. ≥stock size	PSD	RSD[a]
Bluegill	353	42 (± 5)	7 (± 3)
Redear sunfish	67	63 (± 12)	31 (± 11)

[a]Bluegill = RSD_8; Redear = RSD_9
Dataset = cfdpselm.d21

Table 119. Population assessment for bluegill collected during spring electrofishing at Elmer Davis Lake from 2012-2021 (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
2021	Value	4.6	2-2+	120.0	18.4	-	-		
	Score	3	4	4	4			15	Excellent
2020	Value				No Sample				
	Score								
2019	Value	4.5	4-4+	88.0	13.6	-	-		
	Score	3	2	3	4			12	Good
2018	Value	3.8*	4-4+*	61.6	5.6	-	-		
	Score	1	2	3	4			10	Good
2017	Value	3.8*	4-4+*	97.6	1.6	-	-		
	Score	1	2	3	3			9	Fair
2015	Value	3.8	4-4+	18.4	0.0	-	-		
	Score	1	2	1	1			5	Poor
2014	Value	4.1*	3-3+*	33.6	0.0	-	-		
	Score	2	3	2	1			8	Fair
2013	Value	4.1	3-3+	55.2	0.8	-	-		
	Score	2	3	2	2			9	Fair
2012	Value	4.2	2-2+	69.6	0.8	1.305	72.9		
	Score	2	4	3	2			11	Good

* Age data not collected

Table 120. Electrofishing CPUE (fish/hr) for each length group of redear sunfish collected from Elmer Davis Lake from 2012-2021; 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
2021	0.8 (0.8)	4.8 (1.8)	28.0 (7.0)	23.2 (4.8)	3.2 (1.3)	56.8 (7.6)
2020			No Sample			
2019	0.0	14.4 (4.1)	20.0 (6.9)	42.4 (10.1)	12.8 (4.7)	76.8 (18.9)
2018	0.0	10.4 (2.7)	0.8 (0.8)	20.0 (5.0)	10.4 (2.9)	31.2 (5.4)
2017	0.0	0.8 (0.8)	4.0 (1.8)	43.2 (13.0)	0.8 (0.8)	48.0 (13.2)
2016			No Sample			
2015	0.0	11.2 (3.0)	61.6 (8.9)	13.6 (4.0)	0.0	86.4 (13.1)
2014	0.8 (0.8)	146.4 (37.0)	56.8 (19.7)	27.2 (7.8)	0.8 (0.8)	231.2 (53.2)
2013	32.8 (16.3)	149.6 (40.1)	39.2 (13.6)	20.8 (5.6)	0.8 (0.8)	242.4 (67.2)
2012	5.6 (2.6)	31.2 (5.3)	44.0 (9.3)	31.2 (7.2)	4.8 (1.3)	112.0 (11.6)

Dataset = cfdpselm.d12 - .d21

Table 121. Population assessment for redear sunfish collected during spring electrofishing at Elmer Davis Lake from 2012-2021 (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
2021	Value	8.8	2-2+	23.2	3.2		
	Score	4	4	4	4	16	Excellent
2020	Value			No Sample			
	Score						
2019	Value	6.9	4-4+	42.4	12.8		
	Score	2	3	4	4	13	Good
2018	Value	6.7*	4-4+*	20.0	10.4		
	Score	2	3	3	4	12	Good
2017	Value	6.7*	4-4+*	43.2	0.8		
	Score	2	3	4	2	11	Good
2015	Value	6.7	4-4+	13.6	0.0		
	Score	2	3	3	1	9	Fair
2014	Value	7.7*	3-3+*	27.2	0.8		
	Score	3	4	4	2	13	Good
2013	Value	7.7	3-3+	20.8	0.8		
	Score	3	4	3	2	12	Good
2012	Value	7.7	3-3+	31.2	4.8		
	Score	3	4	4	4	15	Excellent

* Age data not collected

Table 122. Mean back calculated lengths (in) at each annulus for otoliths from bluegill collected from Elmer Davis Lake in fall 2021.

		Age							
Year	No.	1	2	3	4	5	6	7	8
2020	22	2.7							
2019	15	2.2	4.6						
2018	10	3.4	5.5	6.8					
2017	6	3.1	5.1	6.7	7.5				
2016	2	2.7	5.5	6.7	7.3	7.7			
2015	1	2.4	4.5	6.6	7.4	7.9	8.3		
2013	1	2.3	3.7	5.2	6.2	6.6	7.1	7.6	8.0
Mean	57	2.7	5.0	6.7	7.3	7.5	7.7	7.6	8.0
Smallest		1.4	3.5	5.2	6.2	6.6	7.1	7.6	8.0
Largest		4.8	6.7	7.6	7.9	8.0	8.3	7.6	8.0
Std error		0.1	0.1	0.1	0.2	0.3	0.6		
95% ConLo		2.5	4.7	6.4	7.0	6.8	6.5		
95% ConHi		2.9	5.2	6.9	7.7	8.1	8.8		

Intercept value = 0.00
Dataset = cfdagelm.d21

Table 123. Mean back calculated lengths (in) at each annulus for otoliths from redear sunfish collected from Elmer Davis Lake in fall 2021.

		Age								
Year	No.	1	2	3	4	5	6	7	8	9
2020	28	3.2								
2019	19	3.2	6.6							
2018	7	3.9	7.2	8.8						
2015	1	2.9	5.1	7.2	8.8	9.8	10.7			
2012	1	2.4	4.8	6.1	7.5	8.1	8.9	9.4	10.0	10.2
Mean	56	3.2	6.6	8.3	8.1	8.9	9.8	9.4	10.0	10.2
Smallest		2.0	4.8	6.1	7.5	8.1	8.9	9.4	10.0	10.2
Largest		4.8	8.0	9.6	8.8	9.8	10.7	9.4	10.0	10.2
Std error		0.1	0.2	0.4	0.7	0.9	0.9			
95% ConLo		3.0	6.3	7.6	6.8	7.3	8.0			
95% ConHi		3.4	7.0	9.1	9.5	10.6	11.6			

Intercept value = 0.00
Dataset = cfdagelm.d21

Table 124. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at Elmer Davis Lake on 27 September 2021; 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	78	96 (2)	50	90 (2)	10	88 (1)			138	93 (1)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	4	115 (13)	64	99 (2)	46	102 (1)	9	99 (2)	123	101 (1)

Dataset = cfdwrelm.d21

Table 125. Length composition, relative abundance, and CPUE (fish/set) of channel catfish at Elmer Davis Lake. Channel catfish were collected using five (5) baited, tandem hoop nets (72 hours soak time) that were set on 3 December and 6 December 2021.

	Inch class													Total	Average per set
Date	16	17	18	19	20	21	22	23	24	25	26	27	28		
6 December			1											1	0.2 (0.2)
9 December		1	7	1	1	4	3	2	4	3	4	3		33	6.6 (2.7)
Total		1	8	1	1	4	3	2	4	3	4	3		34	3.4 (1.7)

Dataset = cfdhnelm.d21

Table 126. CPUE (fish/set) for each length group of channel catfish collected by hoop net from Elmer Davis Lake from 2007-2021; numbers in parentheses are standard errors.

	Length group			
Year	≥12.0 in	≥15.0 in	≥20.0 in	Total
2021	3.4 (1.7)	3.4 (1.7)	2.4 (1.2)	3.4 (1.7)
2018	16.3 (7.0)	16.0 (7.1)	4.3 (1.9)	16.3 (7.0)
2015	54.0 (5.7)	23.7 (3.7)	6.0 (2.0)	66.7 (10.9)
2011	39.8 (14.3)	20.0 (6.6)	2.6 (1.0)	75.0 (25.4)
2010	28.0 (10.8)	17.0 (7.3)	2.0 (1.1)	32.4 (11.8)
2009	103.4 (38.6)	21.4 (7.2)	0.4 (0.2)	106.4 (39.7)
2008	111.8 (14.6)	23.4 (4.7)	0.4 (0.4)	134.0 (17.9)
2007	71.2 (26.0)	14.0 (4.2)	0.2 (0.2)	118.4 (45.2)

Dataset = cfdhnelm.d07 - .d21

Table 127. PSD and RSD_{24} values obtained for channel catfish from tandem hoop net samples in Elmer Davis Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥stock size	PSD	RSD_{24}
Channel catfish	34	100 (± 0)	41 (± 17)

Dataset = cfdhnelm.d21

Table 128. Number of fish and the relative weight (Wr) for each length group of channel catfish collected at Elmer Davis Lake in December 2021; standard errors are in parentheses.

Species	Area	Length group						Total	
		11.0–15.9 in		16.0–23.9 in		≥24.0 in			
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Channel catfish	Total	0		20	102 (2)	14	108 (3)	34	104 (2)

Dataset = cfdhnelm.d21

Table 129. Trail camera counts used to derive usage statistics from March 2021- February 2022 at Elmer Davis Lake (149 acres).

Total Trips*	2021-2022
No. of trips	6,482
Trips/acre	43.5
Pressure*	
Total man-hours	23,046
Man-hours/acre	154.7

*Usage hours (angler and non-angler usage combined)

Figure 1. Number of trips per month at Elmer Davis Lake from March 2021 through February 2022.

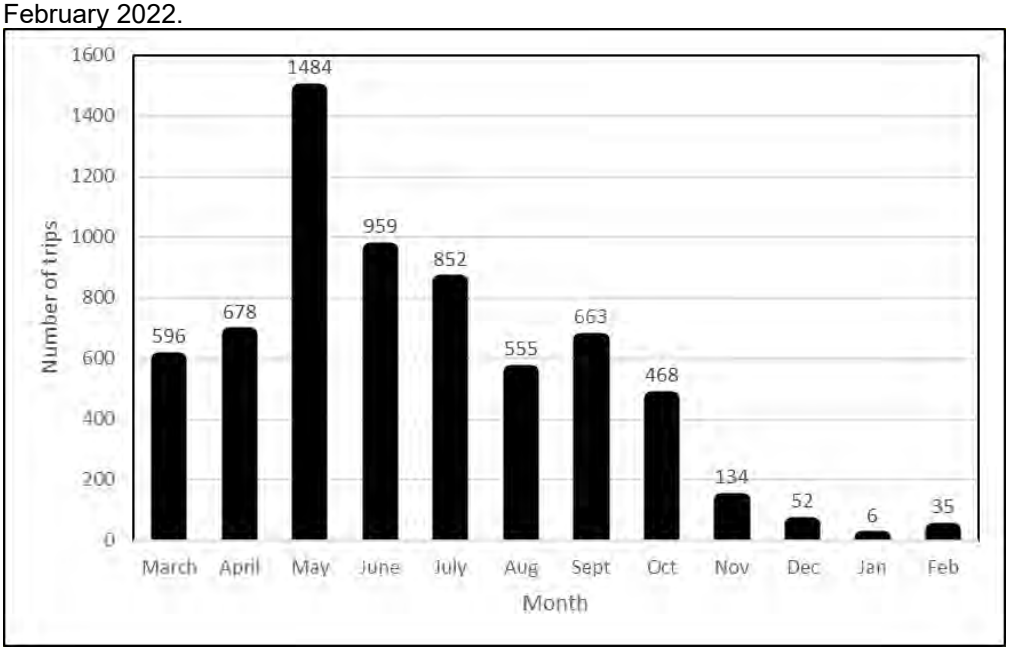
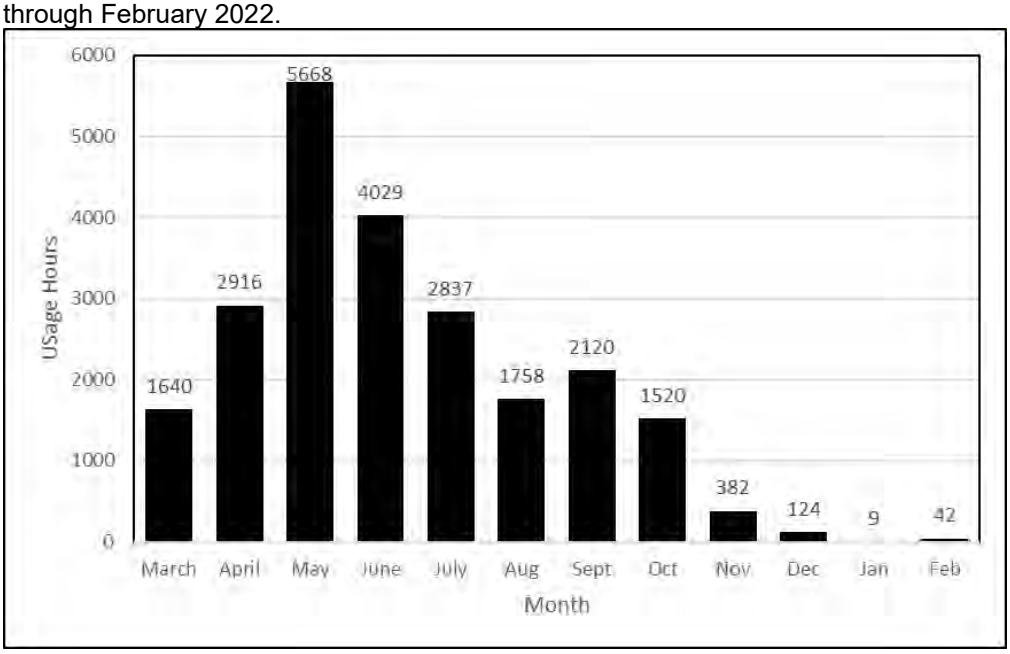


Figure 2. Number of usage hours by month at Elmer Davis Lake from March 2021 through February 2022.



Elmer Davis Lake Angler Attitude Survey 2021

(based on 34 surveys)

1. **On average how many times do you fish at Elmer Davis Lake in a year? (n=34)**
   First time: **8.8%** 1 to 4: **20.6%** 5 to 10: **11.8%** More than 10: **58.8%**

2. Which species of fish do you fish for at Elmer Davis Lake (**circle all that apply**)? (n=34)
   Bass **29.4%** Crappie **50.0%** Bluegill **76.5%** Redear Sunfish **38.2%** Catfish **8.8%** Other **0.0%**

3. Which one species do you fish for the most at Elmer Davis Lake (**circle only one**)? (n=222)
   Bass **14.7%** Crappie **8.8%** Bluegill **61.8%** Redear Sunfish **8.8%** Catfish **5.9%** Other **0.0%**

-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 Elmer Davis Lake? (n=9)
   Very satisfied **11.1%** Somewhat satisfied **33.3%** Neutral **33.3%** Somewhat dissatisfied **22.3%**
   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=4)
   Number of fish **25.0%** Size of fish **75.0%**

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=2)
   Number of fish **100.0%**

Crappie Anglers

5. In general, what level of satisfaction or dissatisfaction do you have with crappie fishing at Elmer Davis Lake? (n=17)
   Very satisfied **17.6%** Somewhat satisfied **17.6%** Neutral **17.6%** Somewhat dissatisfied **47.2%**
   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=6)
   Number of fish **50.0%** Size of fish **50.0%**

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=8)
   Number of fish **100.0%**

Bluegill Anglers

6. In general, what level of satisfaction or dissatisfaction do you have with bluegill fishing at Elmer Davis Lake? (n=26)
   Very satisfied **57.7%** Somewhat satisfied **23.1%** Neutral **7.7%** Somewhat dissatisfied **11.5%**
   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=21)
   Number of fish **23.8%** Size of fish **76.2%**

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=3)
   Number of fish **33.3%** Size of fish **66.7%**

Redear Sunfish Anglers

7. In general, what level of satisfaction or dissatisfaction do you have with redear sunfish fishing at Elmer Davis Lake? (n=12)
   Very satisfied **66.7%** Somewhat satisfied **8.3%** Neutral **0.0%** Somewhat dissatisfied **25.0%** 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=9)
   Size of fish **100.0%**

7b. If you responded with somewhat or very dissatisfied in question (7) - What is the single most important reason for your Dissatisfaction? (n=3)
   Number of fish **33.3%** Size of fish **66.7%**

Catfish Anglers

8. In general, what level of satisfaction or dissatisfaction do you have with catfish fishing at Elmer Davis Lake? (n=3)
   Very satisfied **0.0%** Somewhat satisfied **33.3%** Neutral **33.4%** Somewhat dissatisfied **0.0%** Very dissatisfied **33.3%**

8a. If you responded with very or somewhat satisfied in question (8) - What is the single most important reason for your Satisfaction? (n=1)
   Size of fish **100.0%**

8b. If you responded with somewhat or very dissatisfied in question (8) - What is the single most important reason for your Dissatisfaction? (n=1)
   Number of fish **100.0%**

All Anglers

9. In general, are you satisfied with the current size and creel limits at Elmer Davis Lake? (n=33)
   Yes **97.0%** No **3.0%**

9a. If “no”, which species are you dissatisfied with and what size and creel limits would you prefer?
   Largemouth bass minimum size limit (n=1)

10. In the past 12 months, have you harvested largemouth bass under the 12-15-inch slot limit? (n=32)
   Yes **75.0%** No **25.0%**

11. In general, what level of satisfaction or dissatisfaction do you have with the current facilities (parking lot, boat ramp, fishing pier, courtesy dock) at Elmer Davis Lake? (n=34)
   Very satisfied **76.5%** Somewhat satisfied **17.6%** Neutral **0.0%** Somewhat dissatisfied **5.9%** Very dissatisfied **0.0%**

11a. If you responded with somewhat or very dissatisfied in question (12) - What is the single most important reason for your Dissatisfaction? (n=2)
   Need toilet at dam ramp **50.0%** Need security light on dam ramp **50.0%**

Table 130. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected in 2.0 hours of 15-minute electrofishing runs in Kincaid Lake, May 2021; 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	23	24	Total	CPUE
Largemouth bass	4	4	8	4	5	23	39	33	38	42	28	27	27	23	29	21	38	26	23	13	2		1	458	229.0 (14.3)

Dataset = cfdpskin.d21

Table 131. Electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Kincaid Lake from 2012-2021; 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
2021	24.0 (4.3)	76.0 (9.0)	41.0 (4.3)	88.0 (9.1)	19.5 (3.3)	229.0 (14.3)
2020	No Sample					
2019	16.5 (3.2)	53.5 (7.4)	31.5 (4.4)	86.0 (6.5)	15.0 (2.6)	187.5 (15.2)
2018	No Sample					
2017	20.0 (2.8)	41.5 (3.1)	53.0 (5.6)	106.5 (4.1)	14.0 (1.5)	221.0 (10.4)
2016	No Sample					
2015	16.0 (5.8)	52.0 (5.9)	47.5 (7.4)	79.5 (6.3)	8.5 (11.9)	195.0 (22.3)
2014	No Sample					
2013	34.5 (4.3)	91.5 (11.0)	69.0 (6.3)	83.0 (6.3)	10.5 (2.5)	278.0 (19.6)
2012	12.0 (2.5)	52.0 (5.8)	41.0 (6.7)	63.0 (5.6)	8.5 (1.2)	168.0 (11.1)

Dataset = cfdpskin.d12- .d21

Table 132. PSD and RSD_{15} values obtained for largemouth bass from spring electrofishing samples in Kincaid Lake in 2021; confidence intervals are in parentheses.

Species	No. ≥8.0 in	PSD	RSD_{15}
Largemouth bass	410	63 (± 5)	43 (± 5)

Dataset = cfdpskin.d21

Table 133. Population assessment for largemouth bass collected during spring electrofishing at Kincaid Lake from 2012-2021 (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
2021	Value	11.6	10.0	41.0	88.0	19.5				
	Score	4	2	3	4	4			17	Excellent
2020	Value					No Sample				
	Score									
2019	Value	11.6*	4.5	31.5	86.0	15.0				
	Score	4	1	3	4	4			16	Good
2018	Value					No Sample				
	Score									
2017	Value	11.6	2.0	53.0	106.5	14.0				
	Score	4	1	4	4	4			17	Excellent
2016	Value					No Sample				
	Score									
2015	Value	11.7*	0.5	47.5	79.5	8.5				
	Score	4	1	3	4	4			16	Good
2014	Value					No Sample				
	Score									
2013	Value	11.7	1.0	69.0	83.0	10.5				
	Score	4	1	4	4	4			17	Excellent
2012	Value	9.9*	4.5	41.0	63.0	8.5				
	Score	1	1	3	4	4			13	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 134. Length distribution and CPUE (fish/hr) of largemouth bass collected in 1.5 hours of 15-minute electrofishing runs in Kincaid Lake in October 2021; 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	4	19	6	2	9	17	9	19	26	23	21	12	13	15	10	12	7	7	2	2	235	156.7 (13.5)

Dataset = cfdwrkin.d21

Table 135. Mean back calculated lengths (in) at each annulus for otoliths from largemouth bass collected in the fall from Kincaid Lake in 2021.

		Age											
Year	No.	1	2	3	4	5	6	7	8	9	10	11	12
2020	28	4.3											
2019	31	5.2	8.5										
2018	22	5.5	8.8	11.6									
2017	10	4.9	8.9	11.1	12.8								
2016	6	5.4	9.5	12.3	14.4	15.7							
2015	3	4.4	8.3	10.6	12.6	13.8	14.7						
2014	3	4.3	8.6	11.8	13.2	14.6	15.5	16.3					
2013	2	4.6	10.4	13.2	14.9	16.0	17.0	17.7	18.3				
2012	2	4.7	9.1	11.6	14.1	15.2	16.0	16.5	17.1	17.5			
2011	1	7.6	11.0	12.9	14.5	16.1	17.0	17.7	18.3	19.2	19.9		
2009	1	7.8	8.8	10.9	13.0	15.1	16.2	16.6	17.4	18.1	18.9	19.5	20.2
Mean	109	5.0	8.8	11.6	13.5	15.1	15.8	16.9	17.7	18.1	19.4	19.5	20.2
Smallest		3.0	6.9	9.0	10.7	12.7	14.0	15.5	16.2	16.7	18.9	19.5	20.2
Largest		7.8	11.0	14.1	15.8	17.5	17.3	17.9	18.6	19.2	19.9	19.5	20.2
Std Error		0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.5		
95% ConLo		4.8	8.6	11.3	13.0	14.6	15.2	16.3	17.1	17.1	18.4		
95% ConHi		5.2	9.0	12.0	14.0	15.7	16.4	17.4	18.4	19.1	20.3		

Intercept value = 0.00
Dataset = cfdagkin.d21

Table 136. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at Kincaid Lake during October 2021; standard errors are in parentheses.

Species	Area	Length group						Total	
		8.0–11.9 in		12.0–14.9 in		≥15.0 in			
		No.	Wr	No.	Wr	No.	Wr	No.	Wr
Largemouth bass	Total	77	84 (2)	51	90 (1)	78	100 (1)	206	92 (1)

Dataset = cfdwrkin.d21

Table 137. 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
2021	30	3.6	(0.1)	20.0	(2.9)	0.7	(0.7)		
2020	85	3.2	(0.1)	56.7	(7.5)	2.7	(1.3)	10.0	(2.9)
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)

Dataset = cfdwrkin.d21

Table 138. Length distribution and CPUE (fish/hr) of largemouth bass collected in 0.75 hours of 7.5-minute electrofishing runs in McNeely Lake in October 2021; 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	21	50	27	2	16	18	42	11	14	12	9	3	3	2		2	1	233	310.7 (34.8)

Dataset = cfdwrmcl.d21

Table 139. Number of fish and the relative weight (Wr) for each length group of largemouth bass collected at McNeely Lake on 5 October 2021; standard errors are in parentheses.

Species	Area	Length group 8.0–11.9 in No.	Wr	12.0–14.9 in No.	Wr	≥15.0 in No.	Wr	Total No.	Wr
Largemouth bass	Total	68	85 (1)	24	89 (1)	8	98 (2)	100	87 (1)

Dataset = cfdwrmcl.d21

Table 140. 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.

Year class	Area	Age-0 Mean length	Std. error	Age-0 CPUE	Std. error	Age-0 ≥5.0 in CPUE	Std. error	Age-1 CPUE	Std. error
2021	Total	4.5	(0.06)	132.0	(36.3)	37.3	(14.3)		
2020	Total	4.2	(0.06)	73.0	(10.4)	4.0	(0.0)	NS	
2019	Total	5.0	(0.04)	171.3	(16.0)	88.0	(17.3)	NS	
2018	Total	NS						94.0	30.4
2017	Total	4.4	(0.05)	177.6	(11.6)	32.8	(4.1)	70.0	26.1
2016	Total	5.0	(0.05)	96.0	(21.1)	56.8	(14.3)	NS	
2015	Total	4.2	(0.04)	126.4	(14.9)	12.0	(4.2)	38.0	13.1
2014	Total	NS						109.0	27.8
2013	Total	4.2	(0.04)	86.0	(11.5)	7.3	(2.8)	18.0	7.8
2012	Total	5.0	(0.04)	242.0	(10.0)	124.0	(11.0)	NS	

Dataset = cfdwrmcl.d12-.d21

Table 141. Species composition, relative abundance, and CPUE (fish/hr) of bluegill and redear sunfish collected in 0.625 hour of 7.5-minute electrofishing runs in McNeely Lake, May 2021; numbers in parentheses are standard errors.

Species	Inch class 2	3	4	5	6	7	8	9	Total	CPUE
Bluegill	7	61	67	20	41	72			268	428.8 (91.3)
Redear sunfish	2		6	5	8	15	14	2	52	83.2 (29.8)

Dataset = cfdpsmcl.d21

Table 142. PSD and RSD values calculated for sunfish collected during 0.625 hour of electrofishing at McNeely Lake during May 2021. Fish were collected in 7.5-minute runs.

Species	No. ≥stock size	PSD	RSD_a
Bluegill	261	43 (± 6)	0 (± 0)
Redear sunfish	50	62 (± 14)	4 (± 5)

[a]Bluegill = RSD_8; Redear = RSD_9

Dataset = cfdpsmcl.d21

Table 143. Electrofishing CPUE (fish/hr) for each length group of bluegill collected from McNeely Lake from 2012-2021; 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
2021	11.2 (5.4)	236.8 (69.3)	180.8 (49.7)		428.8 (91.3)
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)

Dataset = cfdpsmcl.d12- .d21

Table 144. Population assessment for bluegill collected during spring electrofishing at McNeely Lake from 2012-2021 (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
2021	Value	4.3	2-2+*	180.8	0				
	Score	3	4	4	1			12	Good
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	Value					No Sample			
	Score								
2017	Value	5.4*	2-2+*	171.2	4.8	-	-		
	Score	4	4	4	4			16	Excellent
2016	Value					No Sample			
	Score								
2015	Value	5.4	2-2+	126.4	8.0	-	-		
	Score	4	4	4	4			16	Excellent
2014	Value					No Sample			
	Score								
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

* Age and growth data was not collected.

Table 145. Electrofishing CPUE (fish/hr) for each length group of redear sunfish collected from McNeely Lake from 2012-2021; 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
2021	3.2 (3.2)	17.6 (6.4)	36.8 (9.0)	25.6 (16.3)	0.0	83.2 (29.8)
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)

Dataset = cfdpsmcl.d12 - .d21

Table 146. Population assessment for redear sunfish collected during spring electrofishing at McNeely Lake from 2012-2021 (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
2021	Value	7.6	3-3+	25.6	0.0		
	Score	3	4	4	1	12	Good
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	Value			No Sample			
	Score						
2017	Value	8.2*	3-3+*	30.4	0.0		
	Score	4	4	4	1	13	Good
2016	Value			No Sample			
	Score						
2015	Value	8.2	3-3+	13.6	2.4		
	Score	4	4	3	4	15	Excellent
2014	Value			No Sample			
	Score						
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

* Age data not collected

Table 147. Mean back calculated lengths (in) at each annulus for otoliths from bluegill collected in the fall from McNeely Lake in 2021.

		Age				
Year	No.	1	2	3	4	5
2020	20	2.3				
2019	14	2.3	4.3			
2018	7	2.8	4.8	6.3		
2017	5	2.3	4.3	5.7	6.2	
2016	3	2.5	4.9	6.1	6.7	7.0
Mean	49	2.4	4.5	6.1	6.4	7.0
Smallest		1.4	3.5	5.5	6.1	6.7
Largest		3.5	5.4	6.6	7.2	7.5
Std Error		0.1	0.1	0.1	0.1	0.2
95% ConLo		2.2	4.3	5.9	6.2	6.5
95% ConHi		2.5	4.7	6.2	6.6	7.5

Intercept value = 0.00
Dataset = cfdagmcl.d21

Table 148. Mean back calculated lengths (in) at each annulus for otoliths from redear sunfish collected in the fall from McNeely Lake in 2021.

		Age				
Year	No.	1	2	3	4	5
2020	20	2.8				
2019	15	2.9	5.4			
2018	8	3.3	6.1	7.6		
2017	2	3.0	6.2	7.8	8.5	
2016	6	3.1	6.0	7.6	8.2	8.7
Mean	51	2.9	5.8	7.6	8.3	8.7
Smallest		1.7	3.5	6.9	7.8	8.4
Largest		4.6	7.1	8.3	8.8	9.3
Std Error		0.1	0.2	0.1	0.1	0.1
95% ConLo		2.8	5.5	7.4	8.1	8.5
95% ConHi		3.1	6.1	7.8	8.6	9.0

Intercept value = 0.00
Dataset = cfdagmcl.d21

Table 149. Number of fish and the relative weight (Wr) for each length group of bluegill and redear sunfish collected at McNeely during October 2021; 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	75	93 (1)	37	84 (1)					112	90 (1)
	1.0–3.9 in		4.0–6.9 in		7.0–9.0 in		≥9.0 in		Total	
Redear sunfish	2	93 (12)	34	94 (1)	34	95 (1)			77	95 (1)

Dataset = cfdwrmcl.d21

Table 150. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.75 hours of electrofishing in Doe Run Lake, May 2021; 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	24	Total	CPUE
Largemouth bass	1	2	2		1	6	2	7			3	4	4	4	3	9	3	1	1		53	70.7 (15.7)
Bluegill	8	8	46	109	45	2															218	290.7 (57.5)
White crappie				1	5	3	1	1													11	14.7 (9.1)
Channel catfish									1			1					1		1	1	5	6.7 (3.8)

Dataset = cfdpsdoe.d21

Table 151. 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, June 2021.

	Inch class																		CPUE
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	(fish/hr)
Largemouth bass			2	5	5	1			4		2	7	5				1	32	128.0
Bluegill	4	10	17	4	5	1												41	164.0
Redear sunfish		2			3	2	1											8	32.0
Black crappie				1														1	4.0

Table 152. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.32 hours of electrofishing in 6-acre pond on the Boone Tract of the Kentucky River WMA, June 2021.

	Inch class														CPUE
Species	3	4	5	6	7	8	9	10	11	12	13	…	17	Total	(fish/hr)
Largemouth bass			3		2	1	8	4			3			21	65.7
Bluegill	3	2	6	10	13	1								35	109.6
Redear sunfish		1		1	2	1								5	15.7
Black crappie				2										2	6.3
Channel catfish													1	1	3.1

Table 153. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.5 hours of electrofishing in 15-acre pond on KY River WMA Boone Tract, June 2021; numbers in parentheses are standard errors.

	Inch class															
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	CPUE
Largemouth bass			4				2	8	9	7	10	8	3	2	53	106.0
Bluegill	5	16	42	13	4	5	3								88	176.0
Redear sunfish		2						2							4	8.0
Black crappie		2		1	2		3	1	1	1					11	22.0

Table 154. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.31 hours of electrofishing in Kleber WMA Pond, September 2021.

	Inch class																		CPUE
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	…	20	Total	(fish/hr)
Largemouth bass				3	6	8	7	1	1	6	5	13	2					52	170.2
Bluegill	3	14	10	1	6	1	3											38	124.4
Redear sunfish			3	2			5	2										12	39.3
Black crappie			1	4			1	1	2	1								10	32.7
Channel catfish													1		1		1	3	9.8

Table 155. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.375 hours of electrofishing in Lincoln Homestead Lake, May 2021; 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	Total	CPUE
Largemouth bass				6	11	3	1	11	23	3	5	6	4	4	1			1	79	210.7 (46.5)
Bluegill	2	1	10	35	29	37	16	1											131	349.3 (32.8)
Redear sunfish				1	1	5	17	7	6	1									38	101.3 (29.3)
White crappie							1	1	1										3	8.0 (8.0)

Dataset = cfdpslhl.d21

Table 156. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.5 hours of electrofishing in Long Run Park Lake, November 2021; 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	5	26	32	6	10	25	13	18	21	14	5	4	2				1	182	364.0 (92.0)
Bluegill	13	18	17	6	14	10												79	158.0 (50.0)
Redear sunfish	12	25	7	1	2	4												51	102.0 (42.0)
Black crappie								1		1								2	4.0 (4.0)

Dataset = cfdpslrp.d21

Table 157. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 1.0 hour of electrofishing in Reformatory Lake, May 2021; numbers in parentheses are standard errors.

	Inch class																					
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE
Largemouth bass			1	8	3	3		3	15	23	7	9	9	7	15	10	3	2		1	119	119.0 (9.0)
Bluegill	1	29	27	119	76	118	68														438	438.0 (140.2)
Redear sunfish	2	3	8	10	15	33	49	39	15	1											175	175.0 (62.3)

Dataset = cfdpsref.d21

Table 158. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 2.0 hours of electrofishing in Sympson Lake, April 2021; 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	2	2	1	13	12	7	10	6	9	14	18	24	25	24	25	19	10	1	223	111.5 (6.5)

Dataset = cfdpssym.d21

Table 159. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.25 hours of electrofishing in Thurman Hutchison Park Pond, November 2021.

	Inch class																		CPUE
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	(fish/hr)
Largemouth bass		2			2	3	2	3	4	2	1	1					1	21	84.0
Bluegill	14	10	12	2														38	152.0
Redear sunfish		6	10	7	1													24	96.0
Black crappie							2	3										5	20.0
White crappie								1										1	4.0

Table 160. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.39 hours of electrofishing in Veterans WMA Pond, September 2021.

	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			5	1	5	7	6	19	17	16	5	1	1	1						1	1	86	221.1
Bluegill	7	16	12	5	9	8	10															67	172.3

Table 161. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 2.0 hours of electrofishing in Willisburg Lake, April 2021; 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	1	4	12	12	6	17	35	21	19	30	22	19	17	17	19	16	10	6	3	286	143.0 (12.3)

Dataset= cfdpswlb.d21

Table 162. Species composition, relative abundance, and CPUE (fish/hr) of fish collected in 0.2 hours of electrofishing in Willisburg Pond, June 2021.

	Inch class																		CPUE
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	(fish/hr)
Largemouth bass												1	3	3		1	1	9	46
Bluegill	1	6	29	13	2													51	262
Channel catfish							1											1	5

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
Due to high water and high discharge events at optimal sampling times the lake was not sampled in 2021 for muskellunge. This is reflected in the lake assessment table (Table 2).

Black bass sampling (Spring)
On April 26-27 and 03 May, the upper, middle, and lower sections of Cave Run Lake were nocturnally electrofished for assessment of the black bass population. In total, 1,422 fish were captured. The majority of these fish were largemouth bass (71%), followed by spotted bass (28%) and smallmouth bass (1%; Table 3). As is normally the case, the percentage of the population represented by spotted and smallmouth bass increases as you head from the upper sections of the lake to the lower sections of the lake. Catch rates were higher than the 1990-2020 average for largemouth bass less than 8.0 in, as well as in the 8.0- to 11.9-in, over 15.0-in, and over 20.0-in ranges (Table 4). Catch rates of the larger fish continue to be better now than the pre-slot limit time periods. PSD and RSD_{15} values for largemouth bass demonstrate that most of the fish in the lake are below 12.0 in and that there is an even spread of this small fish abundance across lake areas (Table 5). Overall, the largemouth bass population was rated as "good" (Table 6) and the spotted bass population was rated as "fair" (Table 7). It should be noted, however, that the parameter "Spring CPUE age-1" continues to be debilitatingly high for largemouth bass.

Grayson Lake (1,512a)

Black bass sampling (Spring/Fall)
The black bass population of Grayson Lake was nocturnally electrofished on 19 – 21 of April. In total, 1,169 fish were collected ranging in size from 3.0 to 21.0 in (Table 8). Most of these fish (85%) were largemouth bass and the remainder were spotted bass (15%). Catch rates by length group were higher than the average from 1999-2020 except for fish in the 12.0– to 14.9-in range which were slightly lower (Table 9). Of those largemouth bass over 8.0 in, the majority were under 12.0 in as demonstrated by PSD values. In addition, the upper portions of the lake have a higher ratio of larger fish to smaller fish (although the upper section also produced the lowest catch rates of fish overall; Table 10). In September, a subsample of fish from each in class was sacrificed for determination of age and growth characteristics. This analysis showed that there is potential for fish to reach 15.0 inches in their third year, but on average it takes 5 or 6 years to hit this mark (Table 11). This subsample of fish was equally collected from each section of the lake to determine if there were potential differences. This analysis showed similar results regardless of area of the lake (Table 12). Lastly, this same data was further broken down to look for differences between the sexes. This analysis showed similar results between males and females until age-5 when the females begin to show a higher growth rate (Table 13). Combining this age and growth data with the spring sampling data gives a 2021 assessment of "fair" for Grayson Lake largemouth bass (Table 14).

While collecting fish for age and growth in September, data was also collected to determine relative weights and spawning strength of largemouth bass in Grayson Lake. From 27 – 29 September, 1,198 fish were collected (Table 15). Overall, relative weights were in the middle 70's to 80's range (Table 16). Larger fish seemed to exhibit better growth but were caught in far lower numbers. Indices of year class strength for largemouth bass continue to be on the high end (Table 17) and the lake was once again not stocked with young of year largemouth bass in 2021.

Creel Survey
From 01 April to 31 October, a roving creel survey was conducted on Grayson Lake. There were over 18,000 angling trips made on the lake during this time (Table 18). While the number of trips was much higher than previous years, all catch rate parameters (fish per hour and fish per acre) as well as harvest rate parameters (fish per

hour, fish per acre, and pounds per acre) were all similar to previous years. This showed that trends remained similar year to year. As in previous years, most anglers were casting male residents fishing from a boat. Crappie made up most of the fish caught (45,391.5), followed by black bass (41,858.1) and panfish (17,075.6; Table 19). Most of the trips made on Grayson Lake were for black bass (48.4%), followed by crappie (14.2%) and panfish (5.3%). Table 20 shows the number of fish harvested and released by in class. As has been the case in previous years, almost every largemouth bass caught is released (<1% harvested overall, 2.6% harvest rate of legal (≥15.0 in) fish). Crappie anglers harvest rates of fish under 9.0 in were less than 50% but over 9.0-in harvest rates picked up to well above 50% (this is the case for both black and white crappie). The best months for largemouth bass fishing are May, June, and September (Table 21). The best months for crappie fishing were April and May (Table 22). The best months for catfish angling were May and August (Table 23).

Angler Attitude Survey

In conjunction with the creel survey, anglers were asked a series of questions pertaining to their attitudes towards fishing on Grayson Lake (Table 24). As has been the case in previous years the most fished for species were bass and crappie and most of those anglers are satisfied with their fishing experience. The majority of catfish anglers utilized hook and line as their primary method (followed by jug fishing, hand fishing, and limb or trot lines) and overall, catfish anglers were satisfied with their angling experience. Similarly, hybrid striped bass anglers were overall happy with their experiences. When ranking largemouth bass regulation options, more anglers opposed the concept of a 12-in minimum size limit (27.1% opposed) followed by a 15-in minimum size limit (18.6% opposed), and a slot limit (16.3% opposed). Although it should be noted that most of the anglers support any regulation; meaning similar numbers of folks' support or oppose any regulation that might be imposed. Most anglers rate the existing habitat on the lake as good and those that fish department-placed habitat have good experiences with it.

Lake Carnico (114a)

Black bass sampling (Fall)

On 27 September, Lake Carnico was diurnally electrofished to assess the fish population. In total, 100 largemouth bass were collected ranging from 2.0 to 18.0 in (Table 25). This sampling effort was used to collect fish for assessment of relative weights and age and growth. Relative weights were all in the upper 80's to lower 90's for the population as a whole and for each size range (Table 26). The subsample of fish used to determine age and growth characteristics showed that fish could reach 15.0 in by their 4th year but most took 5 years (Table 27). This age and growth analysis also gave a mean length of 11.8 in for age-3 fish in the spring which can be rated as excellent when compared to lakes of similar sizes (Table 28).

Saugeye

On 02 and 03 of November, Lake Carnico was gill netted (150', 5 panel gill nets) and on 08 November the lake was nocturnally electrofished (6, 15-minute sampling runs on DC low, 60 pulses per second (pps) and 3-4 amps) for an assessment of the saugeye population and comparison of sampling techniques. Gill netting captured 23 fish across 2 nights and electrofishing captured 8 fish (Table 29). Gill netting captured a few different fishes as by-catch; channel catfish were the only species that accounted for a significant number of fish (11 fish captured; Table 30). The saugeye captured represented 3 different age classes of fish (age-0, age-2, and age-4; Table 31) and relative weights were good for all fish less than 18.0 in (Table 32). Saugeye ≥18.0 in had only moderate relative weights.

Clear Creek Lake (40a)

Black bass sampling (Spring/Fall)

On 03 May, Clear Creek lake was diurnally electrofished for an assessment of the largemouth bass population. During this sampling event 128 fish were collected ranging in size from 2.0 to 20.0 in (Table 33). Apart from the 12.0- to 14.9-in size class of fish, all catch rates were down in 2021 over previous years (Table 34). Similarly, PSD and RSD_{15} values were lower than historical norms (Table 35). These lower catch rates resulted in a "Fair" assessment in 2021 (Table 36).

Channel Catfish (Fall)

On 27 of October, 4- 50-hook trot lines were set on Clear Creek Lake to begin assessment of the use of channel catfish nesting boxes in the lake. In total, 27 fish were caught ranging in size from 16.0 to 21.0 in (Table 37). Weights of these fish were in the upper 80 percentile (Table 38). Ultimately, trot lines have proven to be ineffective

at this point in determining the successes of the channel catfish nesting boxes. It is believed that the hook size used was likely too large for the smaller fish that would be the result of the catfish nesting box experiment.

Greenbo Lake (181a)

Black bass sampling (Spring/Fall)
On 30 April, Greenbo Lake was diurnally electrofished for an assessment of the largemouth bass population. In total, 314 fish were captured ranging in size from 2.0 to 23.0 in (Table 39). Except for the 12.0- to 14.9-in class of fish, all size classes had similar or higher results when compared to previous years (Table 40). PSD values were similar to previous years, but RSD_{15} values were significantly higher, indicating a better population of fish over 15.0 in when compares to past years (Table 41). During the fall, a sample of fish was collected to determine age and growth characteristics of the largemouth bass. This sample demonstrated that fish could reach legal size (12.0 in) as early as their 3rd year, but on average it took 4 years to hit this size (Table 42). Females of this population seemed to grow faster than the males, but low sample numbers should raise a bit of caution when examining this data (Table 43). These age and growth characteristics coupled with the spring catch data have resulted in an assessment rating of "good" for the largemouth bass population at Greenbo Lake when compared to other lakes of similar size (Table 44).

On 30 September, the lake was sampled to determine relative weights and the strength of the spawning class. During this sampling period we collected 192 fish ranging in size from 2.0 to 23.0 in (Table 45). Relative weights were in the mid to upper 80% range and were consistent with previous years' samples (Table 46). Assessment of the spawning class showed a slightly higher than normal year class of fish produced (Table 47).

Sunfish
On 24 May, Greenbo Lake was diurnally electrofished for assessment of the bluegill and redear sunfish populations. During this sampling period, 222 bluegill and 173 redear sunfish were collected (Table 48). For the bluegill, this sample was a little lower than previous years, except for the larger fish which were slightly higher than average (Table 49). Similarly, PSD values were right at average, but the RSD_8 values were significantly higher than previous years (Table 50). Catch rates of fish over 6.0 in and 8.0 in were fair and excellent, respectively (Table 51). Redear sunfish samples were much higher than previous years, with all inch class groups exceeding the averages apart from the larger fish which just met the average (Table 52). Because of the high numbers of smaller fish collected, PSD and RSD_9 values were significantly lower than previous years (Table 53). With this being said, catch rates of fish over 8.0 in and 10.0 in were excellent and good, respectively (Table 54).

Mill Creek Lake (41a)

Black bass sampling (Spring)
On 05 May, Mill Creek Lake was diurnally electrofished for an assessment of the largemouth bass population. In total, 238 fish were collected ranging in size from 2.0 to 21.0 in (Table 55). Samples in the lake continue to be on track or better than previous years when looking at catch rates by inch classes (Table 56) or PSD and RSD_{15} values (Table 57). The overall assessment of the largemouth bass population was "good" but produced an excellent rating for fish over 20.0 in and a good rating for fish over 15.0 in (Table 58).

Lake Reba (76a)

Black bass sampling (Spring/Fall)
On 19 April, Lake Reba was diurnally electrofished for assessment of the largemouth bass fishery. In total, 309 fish were collected ranging in size from 3.0 to 22.0 in. (Table 59). Catch rates by inch class were very similar to previous years (Table 60) but PSD and RSD_{15} values were slightly lower than the average (Table 61). Overall assessment of the largemouth bass population was "good" for 2021 (Table 62). Fall sampling was used to determine success of the year's spawn and it was on par with previous years (Table 63).

Sunfish
On 19 May, Lake Reba was diurnally electrofished for an assessment of the sunfish (bluegill and redear sunfish) populations. In total 450 bluegill or redear sunfish were captured ranging in size from 3.0 to 11.0 in (Table 64). Overall catch rates of bluegill were slightly lower than the average of the previous years (Table 65). PSD values were on target with previous years and fish over 8.0 in continued to be collected which is an improvement over

historical trends (Table 66). Catch rates of bluegill over 6.0 in and 8.0 in scored "fair" and "good", respectively (Table 67). In spite of lower catch rates of smaller redear sunfish, catch rates of the bigger fish were well above average (Table 68). Similar to the bluegill, PSD values for redear sunfish were on target with previous years and fish over 10.0 in continued to be collected, showing an improvement over previous years (Table 69). Assessment values for redear sunfish over 8.0 in and 10.0 in were fair and excellent, respectively (Table 70).

Smokey Valley (36a)

Black bass sampling (Spring/Fall)

On 29 April, Smoky Valley Lake was diurnally electrofished for assessment of the largemouth bass fishery. In total, 152 fish were captured ranging in size from 3.0 to 22.0 in (Table 71). Catch rates for smaller fish (< 8.0 in and 8.0-11.0 in) were lower than the ten year average, while catch rates for larger fish (12.0-14.9 in, ≥ 15.0 in, and ≥ 20.0 in) were similar to other years in the 10 year average (Table 72). PSD and RSD_{15} values were like previous years (Table 73). Overall, the largemouth bass population was rated as "good" (Table 73).

Lake Wilgreen (131a)

Saugeye

On the 09 and 10 of November, Lake Wilgreen was gill netted (150', 5 panel gill nets) and on the 01 November, the lake was nocturnally electrofished (6, 15-minute sampling runs on DC low, 60 pps and 3-4 amps) for an assessment of the saugeye population and comparison of sampling techniques. Gill netting captured 10 fish across 2 nights and electrofishing captured 7 fish (Table 75). Gill netting captured a few different fishes as by-catch; blue catfish and channel catfish were the only species that accounted for a significant number of fish (18 fish captured total; Table 76). The saugeye captured represented 3 different age classes of fish (age-0, age-2, and age-3; Table 77) and relative weights were good for all size classes of fish (Table 78).

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

Water body	Species	Date (2021)	Time 24hr	Gear	Weather	Water Temp (ºF)	Water level	Secchi (in)	Conditions	Pertinent sampling comments
Cave Run Lake	LMB	4/26	2030	noc.elec	clear	63	730.86	48	good	upper section
Cave Run Lake	LMB	4/27	2030	noc.elec	overcast	61	730.66	36	good	middle section
Cave Run Lake	LMB	5/3	2030	noc.elec	clear	65	730.37	-	good	low er section
Grayson Lake	LMB	4/19	2030	noc.elec	clear	62	645.30	66	good	middle section (Bruin)
Grayson Lake	LMB	4/20	2030	noc.elec	clear	60	645.30	53	good	upper section (Big Caney)
Grayson Lake	LMB	4/21	2030	noc.elec	clear	59	645.35	68	good	low er section (Dam/Deer Creek)
Grayson Lake	LMB	9/27	1930	noc.elec	clear	70	645.75	-	good	upper section (Big Caney)
Grayson Lake	LMB	9/28	1930	noc.elec	clear	74	645.78	-	good	middle section (Bruin)
Grayson Lake	LMB	9/29	1930	noc.elec	clear	-	645.80	-	good	low er section (Dam/Deer Creek)
Lake Carnico	LMB	9/27	2030	dur.elec	clear	70	normal	-	good	
Lake Carnico	Saugeye	11/8	1830	noc.elec	clear/cold	-	normal	-	good	
Lake Carnico	Saugeye	11/2	730	gill net	clear/cold	60	normal	-	good	150' 5 panel nets, 24 hour sets
Lake Carnico	Saugeye	11/3	730	gill net	clear/cold	60	normal	-	good	150' 5 panel nets, 24 hour sets
Clear Creek	LMB	5/3	730	dur.elec	sunny	67	normal	-	good	
Clear Creek	CCF	10/27	730	trot line	sunny	-	normal	-	good	4, 50 hook, cut-bait baited trot lines
Greenbo Lake	LMB	4/22	2030	noc.elec	clear	55	normal	92	good	
Greenbo Lake	Sunfish	5/24	900	dur.elec	sunny	-	normal	156	good	
Greenbo Lake	LMB	9/30	1930	noc.elec	clear	74	normal	-	good	
Mill Creek Lake	LMB	5/5	800	dur.elec	overcast	-	normal	72	good	
Lake Reba	LMB	4/19	900	dur.elec	clear	60	normal	-	good	
Lake Reba	Sunfish	5/19	900	dur.elec	sunny	-	normal	30	good	
Lake Reba	LMB	9/21	900	dur.elec	clear	76	normal	26	good	BSI Only
Smoky Valley	LMB	4/29	800	dur.elec	sunny	53	normal	15	good	
Lake Wilgreen	Saugeye	11/2	1830	noc.elec	clear/cold	-	normal	-	good	
Lake Wilgreen	Saugeye	11/8	730	gill net	clear/cold	-	normal	-	good	150' 5 panel nets, 24 hour sets
Lake Wilgreen	Saugeye	11/9	730	gill net	clear/cold	55	normal	-	good	150' 5 panel nets, 24 hour sets

Table 2. Muskellunge assessment for Cave Run Lake spring electrofishing from 2000-2021.

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
2021*	Value							
	Score							
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		

nedmuscr.d20-09; nedMS2cr.d08; nedMK1cr.d07; nedmuscr.d06-95

* = Lake was not sampled due to high water

Table 3. Length frequency and CPUE (fish/hr) of black bass collected in 1.5 hours (4.5 hours total) of 30-minute nocturnal electrofishing runs in each area of Cave Run Lake from 26-27 April and 03 May.

		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	error
Upper	Largemouth bass	8	17	16	8	9	12	17	19	17	7	5	4	1	4	7	1		1	1	154	102.7	8.5
	Spotted bass	2	1		5		8	4	2												22	14.7	5.8
	Smallmouth bass																				0		
Middle	Largemouth bass	4	34	100	119	34	12	25	28	32	13	4	5	9	7	2	2		1		431	287.3	54.2
	Spotted bass	2	26	26	6	20	39	28	15	6											168	112.0	11.0
	Smallmouth bass		1					2	1	1			1	1							7	4.7	2.7
Lower	Largemouth bass	1	18	54	48	12	37	86	44	38	25	13	15	7	10	7	7	2			424	282.7	32.5
	Spotted bass	7	30	9	28	61	32	24	10	4	1	1									207	138.0	37.0
	Smallmouth bass	2			1	2		1	1	1			1								9	6.0	3.5
Total	Largemouth bass	13	69	170	175	55	61	128	91	87	45	22	24	17	21	16	10	2	2	1	1009	224.2	35.5
	Spotted bass	11	57	35	39	81	79	56	27	10	1	1									397	88.2	21.9
	Smallmouth bass	2	1		1	2		3	2	2			2	1							16	3.6	16.0

nedpsdcr.d21

Table 4. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Cave Run Lake from 1990-2021.

	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
2021	107.1	25.3	81.6	17.7	20.2	4.9	15.3	2.8	0.7	0.3	224.2	35.5
2020*												
2019	185.6	45.1	89.1	13.6	38.4	3.5	21.3	2.2	0.7	0.3	334.4	57.9
2018	34.3	4.9	85.0	13.9	28.0	3.5	16.0	2.5	0.3	0.2	163.3	18.5
2017	73.5	8.0	55.3	7.4	32.3	3.0	21.5	2.8	0.5	0.3	182.7	15.4
2016	83.8	12.7	99.7	9.2	64.3	8.4	25.5	2.9	1.3	0.6	273.3	22.8
2015*												
2014	59.0	7.5	69.3	10.6	23.8	3.4	20.0	3.1	2.0	0.7	172.0	12.9
2013	93.0	6.1	56.7	5.0	20.7	2.3	17.7	2.3	1.5	0.4	188.0	10.1
2012	46.0	6.7	88.0	4.9	25.5	3.6	18.3	2.4	1.3	0.4	177.8	10.7
2011*												
2010*												
2009*												
2008	25.8	6.2	23.3	2.6	8.3	1.8	3.5	1.0	0.5	0.5	61.0	8.5
2007	67.5	7.2	43.3	3.5	19.9	2.8	7.9	1.3	0.3	0.2	138.7	10.7
2006	50.7	10.1	48.5	7.7	14.7	2.0	10.2	1.4	0.2	0.2	124.0	19.1
2005	75.0	13.1	41.7	6.4	14.7	2.7	7.2	1.6	0.7	0.4	138.5	22.2
2004	29.0	3.0	60.7	5.9	26.0	3.0	14.1	13.5	0.3	0.2	129.8	10.1
2003	41.0	6.0	64.6	5.2	24.8	2.3	20.3	2.9	0.8	0.3	150.6	13.0
2002*												
2001	22.8	3.7	54.7	5.4	27.6	2.3	12.6	1.6	0.3	0.2	117.7	8.6
2000	45.1	4.9	78.3	6.5	26.8	2.9	9.0	1.5	0.4	0.3	159.3	10.7
1999	67.6	7.2	51.3	3.5	21.6	1.8	8.6	1.5			149.0	8.7
1998	18.7	3.5	17.9	2.9	20.6	2.1	6.9	1.5			64.0	7.6
1997	37.1	3.6	50.4	5.2	24.6	2.6	4.4	0.8	0.1	0.1	116.5	10.4
1996	58.9	6.5	42.4	4.0	15.3	1.5	4.0	0.7			116.1	9.5
1995	27.8	5.3	80.5	11.5	36.6	3.9	6.4	0.7	0.1	0.1	151.3	17.9
1994	62.5	7.0	54.7	7.9	38.8	3.1	3.7	0.6	0.3	0.2	159.6	15.5
1993	47.1	5.4	110.7	10.3	36.2	4.8	4.9	0.8	0.3	0.1	198.8	15.3
1992	52.0	4.3	77.9	5.1	21.9	1.8	2.8	0.6	0.2	0.1	152.8	6.8
1991	32.5	4.7	64.5	4.9	31.0	2.1	6.3	1.0	0.4	0.2	134.3	7.2
1990	23.3	2.7	43.0	2.7	18.5	2.2	3.4	0.9	0.2	0.1	88.2	5.8

* = No sample

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Table 5. PSD and RSD values obtained for largemouth and spotted bass species taken in spring electrofishing samples in each area of Cave Run Lake; 95% confidence intervals are in parentheses.

Area	Species	No. ≥8.0 in	PSD (± 95%)		RSD_a (± 95%)	
Upper	Largemouth bass	96	32	(± 9)	16	(± 7)
	Spotted bass	14	-		-	
Middle	Largemouth bass	140	31	(± 8)	15	(± 6)
	Spotted bass	108	6	(± 4)	-	
Lower	Largemouth bass	291	30	(± 5)	11	(± 4)
	Spotted bass	133	5	(± 4)	-	
Total	Largemouth bass	527	30	(± 4)	13	(± 3)
	Spotted bass	255	5	(± 3)	-	

[a] Largemouth bass = RSD_{15}, spotted bass = RSD_{14}

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Table 6. Population assessment of largemouth bass based on samples collected at Cave Run Lake 2007-2021 (scoring based on statewide assessment).

Year		Mean length age-3	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)%
2021	Value		20.2	15.3	0.7	102.4	14	Good		
	Score	2	2	3	3	4				
2020	Value									
	Score									
2019	Value		38.4	21.3	0.7	170.2	17	Excellent		
	Score	2	4	4	3	4				
2018	Value	11.9	28.0	16.0	0.3	35.8	13	Good	0.612	45.8%
	Score	2	3	3	3	2				
2017	Value		32.3	21.5	0.5	72.0	17	Excellent		
	Score	2	4	4	3	4				
2016	Value	11.2	64.3	25.5	1.3	81.3	18	Excellent	-0.743	52.4%
	Score	2	4	4	4	4				
2015*	Value									
	Score									
2014	Value		23.8	20.0	2.0	59.0	17	Excellent		
	Score	2	3	4	4	4				
2013	Value		20.7	17.7	1.5	91.3	15	Good		
	Score	2	2	3	4	4				
2012	Value	11.8	25.5	18.3	1.3	45.3	16	Good	0.852	57.3%
	Score	2	3	3	4	4				
2011*	Value									
	Score									
2010*	Value									
	Score									
2009*	Value									
	Score									
2008	Value		8.3	3.5	0.5	24.9	10	Fair	0.786	54.4%
	Score	2	1	1	3	3				
2007	Value	12.4	19.9	7.9	0.3	66.5	12	Fair	0.703	51.0%
	Score	2	2	2	2	4				

* = Lake was not sampled due to high water

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Table 7. Population assessment of spotted bass based on samples collected at Cave Run Lake 2000-2021 (scoring based on statewide assessment).

Year		Mean Length age-3	Spring CPUE 11.0-13.9	Spring CPUE ≥14.0 in	Spring CPUE age-1	Total score	Assessment rating
2021	Value		2.7	0.0	22.9	7	Fair
	Score	1	1	1	4		
2020	Value						
	Score						
2019	Value		4.0	0.2	16.0	7	Fair
	Score	1	1	1	4		
2018	Value		4.2	0.3	39.5	7	Fair
	Score	1	1	1	4		
2017	Value	8.7	5.0	0.5	27.2	8	Fair
	Score	1	1	2	4		
2016	Value		5.3	0.8	24.8	8	Fair
	Score	(1)	1	2	4		
2015*	Value						
	Score						
2014	Value		1.8	0.3	10.8	7	Fair
	Score	(1)	1	1	4		
2013	Value		4.2	0.3	11.8	7	Fair
	Score	(1)	1	1	4		
2012	Value		7.0	0.2	20.0	8	Fair
	Score	(1)	2	1	4		
2011*	Value						
	Score						
2010*	Value						
	Score						
2009*	Value						
	Score						
2008	Value		0.7	0.0	7.8	7	Fair
	Score	(1)	1	1	4		
2007	Value		2.3	0.2	13.6	7	Fair
	Score	(1)	1	1	4		
2006	Value		2.8	0.3	15.3	7	Fair
	Score	(1)	1	1	4		
2005	Value		1.7	0.3	9.2	7	Fair
	Score	(1)	1	1	4		
2004	Value		2.9	0.4	5.9	8	Fair
	Score	(1)	1	2	4		
2003	Value		3.0	0.4	13.3	8	Fair
	Score	(1)	1	2	4		
2002*	Value						
	Score						
2001	Value		2.5	0.3	9.0	7	Fair
	Score	(1)	1	1	4		
2000	Value		2.7	0.0	13.6	7	Fair
	Score	(1)	1	1	4		

* = Lake was not sampled due to high water

nedpsdcr.d00 - d21

Table 8. Length frequency and CPUE (fish/hr) of black bass collected in 5.5 hours (1.5 hours in upper, middle, and lower sections) of nocturnal electrofishing (30-minute runs) for black bass in Grayson Lake on 19 - 21 of April.

	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	error
Upper																						
Largemouth bass	4	16	10	1	15	34	19	6	11	6	2	4	5	4	3	5	2	2		149	99.3	15.7
Spotted bass						2		2												4	2.7	1.8
Middle																						
Largemouth bass	13	173	130	25	7	85	70	36	13	6	3	4	3	5	1		2	2		578	385.3	72.8
Spotted bass	2	16	2	8	13	6	3	2												52	34.7	13.4
Lower																						
Largemouth bass	5	30	29	2	16	59	37	32	24	9	10	3	6		1	2	2		1	268	178.7	12.7
Spotted bass	15	12	4	22	16	20	19	8	2											118	78.7	17.9
Total																						
Largemouth bass	22	219	169	28	38	178	126	74	48	21	15	11	14	9	5	7	6	4	1	995	221.1	47.9
Spotted bass	17	28	6	30	29	28	22	12	2											174	38.7	12.8

nedpsdgl.d21

Table 9. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Grayson Lake from 1999-2021.

	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.
2021	105.8	36.0	94.7	15.1	10.4	1.6	10.2	2.5	1.1	0.5	221.1	47.9
2020*												
2019	145.5	47.4	86.0	17.1	15.0	2.2	9.5	3.0	1.8	1.0	256.0	59.4
2018	130.4	26.9	117.6	22.1	16.7	3.9	8.4	1.7	1.1	0.5	273.1	51.4
2017	90.9	13.7	107.1	17.9	19.8	2.3	8.9	1.3	0.9	0.5	226.7	25.5
2016	178.3	15.4	93.7	7.4	15.7	2.4	11.0	1.5	1.7	1.0	298.7	16.1
2015	55.1	14.2	90.9	12.5	18.9	4.0	14.9	2.6	3.3	0.9	179.8	27.8
2014	53.5	10.7	97.3	11.3	12.7	1.6	13.5	2.0	2.2	0.7	176.9	18.3
2013	75.2	11.3	78.2	5.7	13.2	1.5	16.3	2.1	1.5	0.4	182.8	14.4
2012	67.0	11.4	91.0	6.5	16.8	2.2	13.3	2.8	0.3	0.3	188.0	16.1
2011*												
2010*												
2009	22.8	4.0	41.0	4.2	17.0	2.7	12.7	2.0	0.8	0.3	93.5	10.3
2008	25.7	7.2	22.5	4.4	11.5	2.5	3.7	0.9	0.3	0.2	63.3	11.5
2007	48.0	8.0	46.8	3.8	16.0	2.1	5.0	0.8	0.2	0.2	115.8	11.6
2006	18.8	2.9	55.5	7.4	23.7	3.9	5.3	1.1	0.3	0.2	103.3	10.1
2005	50.1	8.0	70.2	7.9	25.1	3.7	2.9	0.5	0.2	0.2	148.3	15.9
2004	162.3	22.0	77.8	10.1	12.9	1.4	2.9	0.6	0.3	0.2	255.9	31.9
2003	128.3	10.7	79.5	6.5	6.3	0.8	2.2	0.6	0.7	0.4	216.3	15.1
2002	132.5	17.9	54.5	5.5	4.8	1.4	3.0	0.8	0.8	0.4	194.8	22.7
2001	220.8	30.6	54.2	3.2	6.7	0.9	2.2	0.5	0.2	0.2	283.9	30.2
2000	143.3	20.6	65.7	5.9	13.4	1.5	6.7	1.0	0.3	0.2	229.1	25.9
1999	172.7	21.6	102.4	10.1	24.1	2.1	4.6	0.7	0.2	0.2	303.8	31.3

* = No sample

nedpsdgl.d21, d19-d12; d09 - d99

Table 10. PSD and RSD values obtained for spotted and largemouth bass taken in spring electrofishing samples in each area of Grayson Lake; 95% confidence intervals are in parentheses.

Area	Species	No. ≥8.0 in	PSD (± 95%)		RSD_a (± 95%)	
Upper	Spotted bass	4	-		-	
	Largemouth bass	103	32	(± 9)	20	(± 8)
Middle	Spotted bass	24	-		-	
	Largemouth bass	230	11	(± 4)	6	(± 3)
Lower	Spotted bass	65	3	(± 4)	-	
	Largemouth bass	186	18	(± 6)	7	(± 4)
Total	Spotted bass	93	2	(± 3)	-	
	Largemouth bass	519	18	(± 3)	9	(± 2)

Largemouth bass = RSD_{15}, spotted bass = RSD_{14}

nedpsdgl.d21

Table 11. Mean back calculated lengths (in) at each annulus for largemouth bass collected from Grayson Lake in October 2021, includes 95% confidence interval (CI) for mean length for each age class.

		Age					
Year	No.	1	2	3	4	5	6
2020	34	5.3					
2019	30	5.5	8.5				
2018	21	6.0	9.1	10.6			
2017	18	6.0	9.2	11.0	12.3		
2016	8	6.5	9.4	11.0	12.1	13.1	
2015	5	6.1	9.3	11.5	13.6	14.9	16.1
Mean		5.7	9.0	10.9	12.4	13.8	16.1
Number		116	82	52	31	13	5
Smallest		4.1	7.1	9.4	10.2	11.6	12.6
Largest		7.5	11.1	13.3	15.0	16.4	18.4
Std. error		0.1	0.1	0.1	0.2	0.4	1.0
95% CI (±)		0.2	0.3	0.6	0.9	1.6	3.9

nedaaggl.d21

Table 12. Mean back calculated lengths (in) at each annulus for largemouth bass collected from Grayson Lake in October 2021 by lake section.

		Age-1		Age-2		Age-3		Age-4		Age-5		Age-6	
	N	x̄ L	s.e.	x̄ L	s.e.	x̄ L	s.e.	x̄ L	s.e.	x̄ L	s.e.	x̄ L	s.e.
Lower	39	5.6	0.1	9.0	0.1	10.9	0.2	12.6	0.4	14.5	1.9	18.4	-
Middle	40	5.8	0.1	9.2	0.2	11.3	0.3	12.7	0.5	13.9	1.3	17.0	-
Upper	37	5.8	0.1	8.7	0.1	10.5	0.2	12.1	0.3	13.6	0.4	14.9	1.2
Total	116	5.7	0.1	9.0	0.1	10.9	0.1	12.4	0.2	13.8	0.4	16.1	1.0

nedaaggl.d21

Table 13. Mean length at capture by age and differentiated by sex for largemouth bass captured in Grayson Lake in October 2021.

	Age-2			Age-3			Age-4			Age-5			Age-6		
	N	x̄ L	s.e.	N	x̄ L	s.e.	N	x̄ L	s.e.	N	x̄ L	s.e.	N	x̄ L	s.e.
Females	13	9.9	0.2	14	11.7	0.4	11	13.6	0.6	4	14.5	0.5	4	17.8	0.7
Males	13	10.3	0.2	7	11.6	0.5	6	13.2	0.7	4	13.5	0.5	1	12.8	-

nedaaggl.d21

Table 14. Population assessment of largemouth bass based on samples collected at Grayson Lake from 2006-2021 (scoring based on statewide assessment).

Year		Mean length age-3	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)%
2021	Value	11.7	10.4	10.2	1.1	97.1	12	Fair	-0.547	42.10%
	Score	2	1	2	3	4				
2020	Value									
	Score									
2019	Value		15.0	9.5	1.8	142.8	13	Good		
	Score	2	1	2	4	4				
2018	Value		16.7	8.4	1.1	126.9	13	Good		
	Score	2	2	2	3	4				
2017	Value	12.2	19.8	8.9	0.9	85.1	13	Good		
	Score	2	2	2	3	4				
2016	Value		15.7	11.0	1.7	169.3	12	Fair		
	Score	2	1	2	3	4				
2015	Value		18.9	14.9	3.3	53.8	15	Good		
	Score	2	2	3	4	4				
2014	Value		12.7	13.5	2.2	46.9	14	Good		
	Score	2	1	3	4	4				
2013	Value		13.2	16.3	1.5	73.2	14	Good		
	Score	2	1	3	4	4				
2012	Value		16.8	13.3	0.3	48.5	13	Good		
	Score	2	2	3	2	4				
2011	Value									
	Score									
2010	Value									
	Score									
2009	Value		17.0	12.7	0.8	19.9	11	Fair	-0.361	30.30%
	Score	2	2	2	3	2				
2008	Value	11.6	11.5	3.7	0.3	21.3	8	Poor	-0.445	35.90%
	Score	2	1	1	2	2				
2007	Value		16.0	5.0	0.2	45.9	9	Fair	-0.538	41.60%
	Score	1	1	1	2	4				
2006	Value		23.7	5.3	0.3	17.3	9	Fair	-5.350	41.50%
	Score	1	3	1	2	2				

nedpsdgl.d02-d19; nedaaggl.d03,d08,d17

Table 15. Length frequency and CPUE (fish/hr) of black bass collected in 4.5 hours (1.5 hours in upper, middle, and lower sections) of nocturnal electrofishing (30-minute runs) for black bass in Grayson Lake on 27-29 of September.

	Inch class																			Std.
Area/Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE	error
Upper																					
Largemouth bass		15	28	8	2	20	34	43	45	13	4	3	5	1	2	2			225	150.0	18.2
Spotted bass							1			1									2	1.3	0.7
Middle																					
Largemouth bass		14	107	78	8	71	106	38	35	24	6	5	4	3	2		1		502	334.7	77.0
Spotted bass		3	20	1	6	7	4	6	3										50	33.3	15.8
Lower																					
Largemouth bass	1	8	25	12	2	23	43	31	39	14	12	2	1		1			1	215	143.3	6.8
Spotted bass		54	34	18	32	14	22	17	8	5									204	136.0	4.2
Total																					
Largemouth bass	1	37	160	98	12	114	183	112	119	51	22	10	10	4	5	2	1	1	942	209.3	38.8
Spotted bass		57	54	19	38	21	27	23	11	6									256	56.9	20.9

nedwrsgl.d21

Table 16. Number of fish and relative weights (Wr) for each length group of largemouth bass captured at Grayson Lake by section.

	Length group											
	8.0-11.9 in			12.0-14.9 in			≥15.0 in			Overall		
	No.	Wr	se	No.	Wr	se	No.	Wr	se	No.	Wr	se
Upper	127	78	1	15	78	2	2	95	7	144	79	1
Middle	202	78	1	15	79	2	6	89	4	223	78	<1
Lower	134	83	1	12	81	5	5	91	4	151	83	1
Total	463	80	<1	42	79	2	13	90	2	518	80	<1

nedwrsgl.d21

Table 17. 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
2021	Total	4.7	<0.1	67.6	18.9	23.6	10.2		
2020		*		*		*		97.1	36.5
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

nedbsigl.d19-d18, d16-d13 nedwrsgl.d21,d17,d12 - d03; nedpsdgl.d21,d19-d12, d09 - d04 nedaaggl.d03, d08, d17, d21

Table 18. Fishery statistics derived from a daytime creel survey at Grayson Lake during April through October 2021 compared to findings from 2016, 2008, 2002, and 1993 (n/a denotes that the particular method or mode wasn't asked about in previous creel surveys).

	2021	2016	2008	2002	1993
Fishing trips					
No. of fishing trips	18,960	7,589	2,558	8,206	9,592
No. of trips per acre	12.54	5.02	1.69	5.43	6.34
Fishing pressure					
Total man-hours	82,794	32,054	10,305	47,661	57,268
(std. error)	(1862.09)	(1050.51)	(332.11)	(774.00)	(4865.00)
Man hours/acre	54.76	21.20	6.82	31.52	37.9
Catch/harvest					
No. of fish caught	105,560	50,074	20,637	1,091,335	59,771
(std. error)	(8432.88)	(5,564.72)	(1,943.26)	(7,244)	(5,620)
No. of fish harvested	17,600	14,192	11,615	43,206	30,080
(std. error)	(2424.03)	(2,090.20)	(1,206.81)	(3,799)	(3,367)
Lbs. of fish harvested	5,400		3,083	10,782	7,144
Harvest rate					
Fish/hour	0.22	0.41	1.13	0.8	0.12
Fish/acre	11.64	9.39	7.68	28.58	19.89
Lbs/acre	3.54	3.46	2.04	7.13	4.73
Catch rates					
Fish/hour	1.29	1.43	2.03	2.17	1.04
Fish/acre	69.81	33.12	13.65	72.18	39.53
Characteristics (%)					
Male	81.8	86.6	84.8	85.0	90.3
Female	18.2	13.4	15.2	15.0	9.7
Resident	86.6	90.5	86.0	84.0	80.5
Non-resident	13.4	9.5	14.0	16.0	19.5
Method (%)					
Casting	57.7	72.4	55.1	57.0	61.8
Still fishing	40.5	24.9	43.6	41.0	36.6
Trolling	1.1	1.2	0.0	t	0.3
Spider Rigging	0.3	1.5	0.0	0.0	0.0
Handfishing	0.3	n/a	n/a	n/a	n/a
Trotlines/Jugs	0.1	n/a	n/a	n/a	n/a
Fly fishing	0.0	0.0	1.3	2.0	1.3
Mode (%)					
Boat	75.3	86.4	98.7	94.0	92.6
Bank	17.7	8.2	0.7	6.0	7.2
Dock	4.7	4.8	0.7	t	0.3
Kayak	2.3	n/a	n/a	n/a	n/a

(S.E.) = Standard error
t < 0.5%

Table 19. Fish harvest statistics derived from the 2021 creel survey at Grayson Lake (it should be noted this creel is the first record of redear sunfish and redbreast sunfish in the lake).

	White Crappie	Black Crappie	Crappie Group	Largemouth Bass	Spotted Bass	Smallmouth Bass	Illegal Bass	Black Bass Group	Bluegill	Redear Sunfish	Green Sunfish	Misc. Sunfish*	Panfish Group	Hybrid Striped Bass	Channel Catfish	Flathead Catfish	Catfish Group	Anything
Number caught	39,707	5,685	45,392	36,380	5,308	170	23	41,858	11,412	2,509	2,395	759	17,076	788	341	83	424	
(per acre)	26.3	3.8	30.0	24.1	3.5	0.1	0.0	27.7	7.5	1.7	1.6	0.5	11.3	0.5	0.2	0.1	0.3	
Number harvested	10,200	2,120	12,320	35	9103	0	23.42	126	3,112	1,062	459	102	4,735	119	218	58	276	
(per acre)	6.7	1.4	8.1	0.0	0.1		0.0	0.1	2.1	0.7	0.3	0.1	3.1	0.1	0.1	0.0	0.2	
% of total number harvested	58.0	12.0	70.0	0.2	0.5		0.1	0.7	17.7	6.0	2.6	0.6	26.9	0.7	1.2	0.3	1.6	
Pounds harvested	2,806.7	676.6	3,483.3	85.1	40.5		20.2	125.6	396.4	113.4	23.6	9.5	542.9	227.5	330.6	669.4	1,000.0	
(per acre)	1.9	0.4	2.3	0.1	0.0		0.0	0.1	26.2	0.1	0.0	0.0	0.4	0.2	0.2	0.4	0.7	
% of total pounds harvested																		
Mean length (in)	8.6	5.3		16.7	10.1		12.0		5.1	5.9	5.1	5.1		18.6	16.9	28.3		
Mean weight (lbs)	0.3	0.3		2.4	0.5		0.9		0.1	0.2	0.1	0.1		3.9	1.6	12.4		
Number fishing trips for that species			2,698.2					9,168.8					999.6				295.7	5797.5
% of all trips			14.2					48.4					5.3				1.6	30.6
Hours fished for that species			11,782.6					40,038.3					4,365.2				1,291.3	25,316.6
(per acre)			(7.79)					(26.48)					(2.89)				(0.09)	(16.74)
Number harvested fishing for that species			11,581					83					2,916				116	
Pounds harvested fishing for that species			3,354.2					107.8					383.4				742.7	
Number harvested per hour fishing for that species			1.0					0.0					0.8				0.1	
% success fishing for that species			26.4					0.3					19.4				12.5	3.5

* Includes warmouth (560.7 fish caught), redbreast sunfish (139.9 fish caught) and rock bass (58.8 fish caught)

Table 20. Length distribution (length of released fish are estimates) for each species of fish harvested (H) and/or released (R) at Grayson Lake from April through October 2021.

		Inch class																													Total	Total (H+R)
		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	27	28	29	30	44		
Largemouth bass	H															23		12														35	36,380
	R							6179	3917	10155	4357	7262	1738	1464	500	345	143	143	60	48		24				10						36,345	
White crappie	H			23	275	975	895	2180	3018	1767	665	367	35																		10,200	39,706
	R			633	3294	7429	7970	4066	2672	2822	438	92	81	9																	29,506	
Spotted bass	H								23	57	11																				91	14,707
	R		35	35	82	294	377	1566	10448	1095	153	424	71	24	12																14,616	
Bluegill	H	132	108	384	985	565	288	409	180	60																					3,111	11,410
	R	157	1730	2613	2045	956	411	375					12																		8,299	
Black crappie	H				47	140	408	291	687	396	128	22																			2,119	5,684
	R			70	929	1289	488	557	151	70	11																				3,565	
Redear sunfish	H			148	667	185		37	34																						1,071	2,518
	R		312	374	262	287	212																								1,447	
Green sunfish	H		223	112	62	62																									459	2,394
	R	131	724	523	344	213																									1,935	
Hyb striped bass	H											60		12				36					11								119	787
	R			49		49	24	49		195	36	49	36	61	49	36				35											668	
Warmouth	H				80	11																									91	560
	R			36	325	36	48	24																							469	
Channel catfish	H													49	36	24	12	73		12				12							218	340
	R							12		12		37	37						12	12											122	
Smallmouth bass	H																														0	169
	R									138		11			20																169	
Redbreast sunfish	H																														0	139
	R			93	23			23																							139	
Flathead catfish	H																			23								12		12	11	58	82
	R							12				12																			24	
Rock bass	H				10																										10	58
	R					24	12	12																							48	
Illegal bass	H											23																			23	23
	R																														0	

Table 21. Monthly black bass angling success at Grayson Lake during the 2021 creel survey period.

Month	Total no. caught	Total no. harvested	Total no. of trips for	Hours fished for	Catch fishing for	Catch / hour fishing for	No. harvested fishing for	No. harvested / hour fishing for
Apr	4886	31	1126	4917.2	3648	0.7	-	-
May	7022	12	1435	6264.3	5634	0.7	12	0.0
Jun	6654	-	1377	6015.0	5715	0.7	-	-
Jul	6362	13	1353	5909.5	5841	0.8	13	0.0
Aug	4592	-	1036	4523.5	3409	0.7	-	-
Sep	6502	23	1583	6914.5	5865	0.7	11	0.0
Oct	5840	47	1258	5494.4	5532	0.9	47	0.0
Total	41858	126	9169	40038.3	35644		83	
Mean						0.7		0.0

Table 22. Monthly crappie angling success at Grayson Lake during the 2021 creel survey period.

Month	Total no. caught	Total no. harvested	Total no. of trips for	Hours fished for	Catch fishing for	Catch / hour fishing for	No. harvested fishing for	No. harvested / hour fishing for
Apr	11300	3649	736	3211.8	10634	3.0	3513	1.0
May	13947	2201	559	2440.3	12488	4.5	1890	0.7
Jun	8143	1535	360	1572.4	6929	4.0	1466	0.8
Jul	2328	1184	238	1041.2	2251	2.9	1132	1.4
Aug	2282	877	156	681.2	1516	2.4	821	1.3
Sep	3012	1432	287	1252.0	2921	2.6	1387	1.3
Oct	4078	1442	363	1583.7	3606	2.6	1372	1.0
Total	45392	12320	2698	11782.6	40345		11581	
Mean						3.1		1.1

Table 23. Monthly catfish angling success at Grayson Lake during the 2021 creel survey period.

Month	Total no. caught	Total no. harvested	Total no. of trips for	Hours fished for	Catch fishing for	Catch / hour fishing for	No. harvested fishing for	No. harvested / hour fishing for
Apr	31	31	20	85.3	21	0.07	21	0.07
May	96	48	98	427.7	36	0.06	36	0.06
Jun	69	34	57	249.6	11	0.03	11	0.03
Jul	39	13	-	-	-	-	-	-
Aug	97	70	6	27.3	14	0.33	14	0.33
Sep	68	57	46	199.2	34	0.07	34	0.07
Oct	24	24	37	161.6	-	-	-	-
Total	424	276	296	1291.3	116		116	
Mean						0.11		0.11

Table 24: Angler attitude survey carried out in conjunction with 2021 creel survey on Grayson Lake.

2. Which species do you fish for at Grayson Lake (check all that apply)? (N=485)

Bass= 76.9%**; Crappie=** 33.4%**; Catfish=** 4.7%**; Hybrid Striped Bass=** 3.9%**; Other=** 9.7%
(Other includes "Bluegill" (25 anglers) and "panfish" (6 anglers)).

3. Which species do you fish for most at Grayson Lake (check only one)?

Bass= 70.5%**; Crappie=** 21.0%**; Catfish=** 1.9%**; Hybrid Striped Bass=** 0.4%**; Other=** 6.2%
(Other includes "Bluegill" (13 anglers) and "panfish" (4 anglers)).

4. On average, how many times do you fish Grayson Lake in a year? (N=472)

1st Time =	4.0%
1-10 =	30.5%
11-20 =	14.2%
21-30 =	14.0%
≥ 30	37.3%

Bass Anglers

5. What level of satisfaction do you have with bass fishing at Grayson Lake? (N=367)

Very Satisfied	17.7%	**Somewhat Satisfied**	49.9%	**Total**	67.6%
Very Dissatisfied	10.9%	**Somewhat Dissatisfied**	13.1%	**Total**	24.0%
Neutral	8.4%				

5a. If angler responds with somewhat or very dissatisfied in question 5: what is the single most important reason for your dissatisfaction?

Note: These numbers are percentages **ONLY of those who were dissatisfied (24.0%)*

Size of Fish	79.4%	**Number of Fish**	17.2%
"Too many anglers"	2.3%	**Regulations**	1.1%

Crappie Anglers

6. What level of satisfaction do you have with crappie fishing at Grayson Lake? (N=158)

Very Satisfied	27.2%	**Somewhat Satisfied**	48.1%	**Total**	75.3%
Very Dissatisfied	12.1%	**Somewhat Dissatisfied**	2.5%	**Total**	14.6%
Neutral	10.1%				

6a. If angler responds with somewhat or very dissatisfied in question 5: what is the single most important reason for your dissatisfaction?

Note: These numbers are percentages **ONLY of those who were dissatisfied (14.6%)*

Number of Fish	87.0%	**Size of Fish**	13.0%

Catfish Anglers

7. What level of satisfaction do you have with catfish fishing at Grayson Lake? (N=21)

Very Satisfied	38.1%	**Somewhat Satisfied**	47.6%	**Total**	85.7%
Very Dissatisfied	4.8%	**Somewhat Dissatisfied**	9.5%	**Total**	14.3%
Neutral	0.0%				

7a. If angler responds with somewhat or very dissatisfied in question 5: what is the single most important reason for your dissatisfaction?

Note: These numbers are percentages **ONLY of those who were dissatisfied (14.3%)*

Number of Fish	66.7%	**Size of Fish**	33.3%

8. What method categorizes your method of catfishing on Grayson Lake (N=23)?

Hook and Line =	73.9%	**Jug Fishing =**	17.5%
Handfishing =	4.3%	**Limb Line/ Trotline =**	4.3%

Table 24: Angler attitude survey con't.

Hybrid Striped Bass Anglers

9. What level of satisfaction do you have with hybrid striped bass fishing at Grayson Lake? (N=19)

Very Satisfied	26.3%	**Somewhat Satisfied**	52.6%	**Total**	78.9%
Very Dissatisfied	0.0%	**Somewhat Dissatisfied**	21.1%	**Total**	21.0%
Neutral	0.0%				

9a. If angler responds with somewhat or very dissatisfied in question 5: what is the single most important reason for your dissatisfaction?

Note: These numbers are percentages **ONLY of those who were satisfied (21.0%)*

Number of Fish	50.0%	**Size of Fish**	50.0%

10. What method categorizes your method of hybrid striped bass fishing on Grayson Lake (N=18)?

Casting = 66.7% **Trolling =** 33.3%

All Anglers

11. Do you support or oppose the current 15" minimum size limit on largemouth bass at Grayson Lake?

Results from all anglers (N=474)

Support	72.1%	**Oppose**	18.6%	**No Opinion**	9.3%

Results from bass anglers only (N=335)

Support	74.6%	**Oppose**	20.9%	**No Opinion**	4.5%

12. Would you support or oppose changing the 15" minimum size limit to a 12.0 - 15.0" slot limit at Grayson Lake?

Results from all anglers (N=473)

Support	75.5%	**Oppose**	16.3%	**No Opinion**	8.2%

Results from bass anglers only (N=333)

Support	78.1%	**Oppose**	17.4%	**No Opinion**	4.5%

13. Would you support or oppose changing the 15" minimum size limit to a 12.0" minimum size limit at Grayson Lake?

Results from all anglers (N=476)

Support	65.1%	**Oppose**	27.1%	**No Opinion**	7.8%

Results from bass anglers only (N=334)

Support	66.8%	**Oppose**	29.6%	**No Opinion**	3.6%

14. How would you rate the existing fish habitat on Grayson Lake (N=475)?

Very Good	20.2%	**Good**	60.4%	**Total**	80.6%
Fair	12.2%	**No Opinion**	2.7%		
Very Poor	1.3%	**Poor**	3.2%	**Total**	4.5%

15. Do you regularly fish the department habitat? (N=482)

Yes = 21.6% **No** = 78.4%

15a. How would you rate your experience with department placed habitat at Grayson Lake (N=100)?

Very Good	17.0%	**Good**	74.0%	**Total**	91.0%
Fair	7.0%	**No Opinion**	0.0%		
Very Poor	1.0%	**Poor**	1.0%	**Total**	2.0%

Table 25. 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 27 September.

	Inch class																		Std.
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	CPUE	error
Largemouth bass	45	2	4	14	1	2	1	4	2	6	4	2	3	6	1	1	2	100	66.7	8.2

nedwrslc.d21

Table 26. Number of fish and mean relative weight (W_r) values for length groups of largemouth bass collected in Lake Carnico by electrofishing.

	Length group											
	8.0 - 11.9 in			12.0 - 14.9 in			≥ 15.0 in			Overall		
Year	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.
2021	13	95	11	9	87	5	10	92	3	32	92	5
2017	14	96	16	7	89	4	9	90	5	30	93	8
2011	45	90	1	21	90	1	6	99	2	72	90	1
2010	33	89	1	31	90	1	13	98	1	77	91	1
2009	41	86	2	22	88	2	7	92	3	70	87	1
2008	48	85	1	19	86	2	10	80	8	77	85	1
2007	101	96	7	31	88	1	8	90	2	140	94	8
2006	87	83	1	41	85	1	13	91	2	141	84	1

nedwrslc.d21,d17,d11-d06

Table 27. Mean back-calculated lengths (in) at each annulus for largemouth bass collected from Lake Carnico, including size range at each age and 95% confidence intervals.

		Age							
Year	No.	1	2	3	4	5	6	7	8
2020	7	4.7							
2019	18	4.8	8.5						
2018	12	5.4	8.9	11.8					
2017	6	4.1	7.8	11.2	13.5				
2016	3	6.5	9.8	12.7	14.8	15.8			
2015	1	4.8	8.5	11.5	13.9	15.7	16.5		
2014	1	5.3	8.2	10.6	13.5	15.9	17.1	17.8	
2013	1	4.9	9.8	12.8	15.9	16.5	17.2	17.7	18.2
Mean		5.0	8.6	11.7	14.0	15.9	16.9	17.7	18.2
Number		49	42	24	12	6	3	2	1
Smallest		3.4	6.1	8.6	13.0	14.8	16.5	17.7	
Largest		7.3	11.3	14.0	16.6	17.3	17.2	17.8	
Std Error		0.1	0.2	0.3	0.3	0.4	0.2	0.0	
95% CI (±)		0.5	0.7	1.1	1.3	1.4	0.8	1.1	

Otoliths were used for age determination; Intercept = 0
nedaaglc.d21

Table 28. Population assessment of largemouth bass based on samples collected at Lake Carnico from 2006 - 2021 (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)%
2021	Value	11.8							-	-
	Score	4								
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	10	Fair	-0.504	39.60%
	Score	3	2	2	2	1				
2011	Value		9.3	24.0	9.3	0.0	9	Fair	-0.419	34.20%
	Score	3	1	2	2	1				
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				

nedpsdlc.d20 - d04; nedaaglc.d04,d08,d17,d21

[a] = sample not collected

Table 29. Length frequency and CPUE (fish/hr) of saugeye collected in 1.50 hours (6- 15-minute runs; 08 November) of nocturnal electrofishing and 7 net nights of gill netting (2 nights: one with 4 nets, one with 3; 02 and 03 November) in Lake Carnico.

	Inch class																			Std.
Method	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	CPUE	error
Gill netting		1	1	1						1		2	2	4	6	4	1	23	3.3	0.6
Nocturnal electrofishing	1												1	3	2	1		8	5.3	2.0

nedseelc.d21, nedseglc.d21

Table 30. Length frequency and CPUE (fish/hr) of all fish collected while gill netting (7 net nights across 2 nights, one with 4 nets, one with 3; 02 and 03 November) in Lake Carnico.

	Inch class																		Std.
Species	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	CPUE	error
Saugeye	1	1	1						1		2	2	4	6	4	1	23	3.3	0.6
Channel catfish						1	2	1	3	2	1	1	1				12	1.7	0.4
Largemouth bass			1	1	1	1	2	1									7	1.0	0.3
White crappie		2															2	0.3	0.2
Black crappie				1													1	0.1	0.1
Flathead catfish								1									1	0.1	0.1
Grass carp																	1	0.1	0.1

nedseglc.d21

Table 31. Mean back-calculated lengths (in) at each annulus for saugeye collected from Lake Carnico (from both gill netting and electrofishing), including size range at each age and 95% confidence intervals.

		Age				
Year	No.	0	1	2	3	4
2021*	4	9.9				
2020	0	-	-			
2019	27	-	10.6	15.6		
2018	0	-	-	-	-	
2017	24	-	9.9	15.2	19.2	21.3
Mean		9.9	9.9	15.3	19.2	21.3
Number		4	51	51	24	24
Smallest		8.3	8.2	13.3	17.8	19.4
Largest		11.2	12.7	19.1	21.9	23.5
Std Error		0.7	0.2	0.2	0.2	0.2
95% CI (±)		-	0.7	0.9	0.9	0.8

Otoliths were used for age determination; Intercept = 0

* 2021 year class size at age-0 is based on fall size at collection; all other sizes are back-calculated

nedaaglc.d21

Table 32. Number of fish and relative weight (W_r) for each length group of saugeye collected at Lake Carnico in 2021; s.e. = standard error.

	Length group												Total		
	1.0 - 8.9 in			9.0 - 13.9 in			14.0 - 17.9 in			≥ 18.0 in					
Species	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.
Saugeye	1	99	-	3	90	5	1	110	-	26	79	1	31	82	2

nedseelc.d21, nedseglc.d21

Table 33. Length frequency and CPUE (fish/hr) of largemouth bass collected in 0.75 hours (3- 15.0-minute runs) of diurnal electrofishing for black bass in Clear Creek Lake on 03 May.

	Inch class																					Std.
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	CPUE	error
Largemouth bass	1	11	19	4	1	5	15	15	28	14	10	3	1						1	128	170.7	21.8

nedpsdcc.d21

Table 34. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Clear Creek Lake.

	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.
2021	54.7	4.8	96.0	16.0	18.7	1.3	1.3	1.3	1.3	1.3	170.7	21.8
2020[a]												
2019[a]												
2018	88.9	15.5	130.6	26.5	5.6	5.6	11.1	2.8	5.6	2.8	236.1	40.4
2017[a]												
2016[a]												
2015[a]												
2014	205.1	21.9	118.0	33.9	7.7	0.0	18.0	2.6	10.3	5.1	348.7	57.3
2013[a]												
2012	80.0	20.1	234.7	41.4	10.7	2.7	16.0	8.0	8.0	0.0	341.3	49.4
2011[a]												
2010[a]												
2009	82.7	10.7	36.0	9.2	16.0	4.6	8.0	4.6	5.3	2.7	261.3	31.4
2008	378.0	66.4	162.0	13.2	12.0	5.2	10.0	3.8	4.0	2.3	562.0	55.1

nedpsdcc.d21, d18,d14,d12,d09,d08

[a] = Lake not sampled

Table 35. Largemouth bass PSD and RSD_{15} values from spring electrofishing at Clear Creek Lake; confidence limits are in parentheses.

Year	No. ≥ 8.0 in	PSD (± 95%)		RSD_{15} (± 95%)	
2021	87	17	(± 8)	1	(± 2)
2020[a]					
2019[a]					
2018	53	11	(± 9)	8	(± 7)
2017[a]					
2016[a]					
2013					
2014	56	18	(± 10)	13	(± 9)
2013[a]					
2012	98	10	(± 6)	6	(± 5)
2011[a]					
2010[a]					
2009	36	25	(± 14)	8	(± 9)
2008	92	12	(± 7)	5	(± 5)

nedpsdcc.d21, d18,d14,d12,d09,d08

[a] = Lake not sampled

Table 36. Population assessment of largemouth bass based on samples collected at Clear Creek Lake (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)%
2021	Value		48.0	18.7	1.3	1.3	9	Fair		
	Score	1	3	2	1	2				
2020[a]	Value									
	Score									
2019[a]	Value									
	Score									
2018	Value	9.8	83.3	5.6	11.1	5.6	12	Good	-0.877	58.4%
	Score	1	4	1	2	4				
2017[a]	Value									
	Score									
2016[a]	Value									
	Score									
2015[a]	Value									
	Score									
2014	Value	9.1	61.5	7.7	18.0	10.3	12	Good		
	Score	1	3	1	3	4				
2013[a]	Value									
	Score									
2012	Value		65.6	10.7	16.0	8.0	12	Good		
	Score	2	3	1	2	4				

nedpsdcc.d21

[a] = Lake was not sampled

Table 37. Length frequency and CPUE (fish/nn) of channel catfish caught with trot lines (baited with fresh caught cut bait) set for 4 net nights (4, 50-hook trot lines set for one night) in Clear Creek Lake on 27 October.

	Inch class								Std.
Species	16	17	18	19	20	21	Total	CPUE	error
Channel catfish	5	9	4	5	1	3	27	6.8	1.7

nedctlcc.d21

Table 38. Number of fish and relative weight (W_r) for each length group of channel catfish collected at Clear Creek Lake in 2021; s.e. = standard error.

	Length group												Total		
	1.0 - 10.9 in			11.0 - 15.9 in			16.0 - 23.9 in			≥ 24.0 in					
Species	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.
Channel catfish	0			0			27	86	1	0			27	86	1

nedctlcc.d21

Table 39. Length frequency and CPUE (fish/hr) of black bass collected in 1.5 hours of nocturnal electrofishing (6- 15-minute runs) at Greenbo Lake (Greenup Co.) on 30 April.

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	20	21	22	23			
Largemouth bass	4	18	22	11	18	17	23	26	43	21	23	21	14	23	10	4	8	1	2	3	1	1	314	209.3	26.8

nedpsdgb.d21

Table 40. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Greenbo Lake.

	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.
2021	60.0	12.8	75.3	19.5	38.7	4.7	35.3	12.3	4.7	3.0	209.3	26.8
2020*												
2019	31.7	3.9	35.3	6.1	47.7	4.1	9.0	2.2	3.3	1.6	176.0	15.2
2018	63.3	7.8	72.7	10.8	95.3	7.62	20.0	5.0	7.3	3.3	251.3	22.8
2017	24.0	5.6	78.0	13.1	82.7	10.7	16.0	2.3	4.0	1.5	200.7	17.2
2016	40.7	7.8	103.3	5.5	76.7	7.6	18.0	5.5	6.0	2.9	238.7	15.0
2015	38.7	4.8	68.0	7.7	58.0	8.1	12.7	3.0	2.0	1.4	177.3	16.8
2014	28.0	7.2	52.7	3.0	116.0	16.1	7.3	1.6	3.3	1.2	204.0	16.0
2013	14.0	1.7	78.7	7.4	75.3	17.3	8.7	2.2	1.3	0.8	176.7	22.4
2012	25.3	4.8	111.3	11.8	64.7	8.0	8.7	2.8	2.0	0.9	210.0	21.1
2011	46.0	13.1	91.3	9.3	58.0	8.9	6.7	3.2	1.3	0.8	202.0	14.8
2010	78.0	12.9	87.3	3.5	45.3	9.3	13.3	5.8	2.0	1.4	224.0	11.3
2009	44.7	9.4	60.0	8.7	50.0	8.0	18.0	3.4	2.7	1.3	172.7	16.7

nedpsdgb.d21, d19-d09

*Sample not collected

Table 41. Largemouth bass PSD and RSD_{15} values from spring electrofishing at Greenbo Lake; confidence limits are in parentheses.

Year	No. ≥8.0 in	PSD (± 95% CI)		RSD_{15} (± 95% CI)	
2021	224	50	(± 7)	24	(± 6)
2020*					
2019	214	60	(± 6)	11	(± 4)
2018	282	61	(± 6)	11	(± 4)
2017	265	56	(± 6)	9	(± 3)
2016	297	48	(± 6)	8	(± 3)
2015	208	51	(± 7)	9	(± 4)
2014	264	70	(± 6)	4	(± 2)
2013	244	52	(± 6)	5	(± 3)
2012	277	40	(± 6)	5	(± 3)
2011	234	51	(± 6)	4	(± 3)
2010	219	40	(± 7)	9	(± 4)
2009	192	53	(± 7)	14	(± 5)

nedpsdgb.d21, d19-d09

*Sample not collected

Table 42. Mean back calculated lengths (in) at each annulus for largemouth bass collected from Greenbo Lake in October 2021, includes 95% confidence interval (CI) for mean length for each age class.

		Age											
Year	No.	1	2	3	4	5	6	7	8	9	10	11	12
2020	22	4.5											
2019	20	4.3	7.6										
2018	23	4.7	8.1	10.5									
2017	4	5.3	8.6	11.2	13.0								
2016	5	4.4	8.7	11.3	13.1	14.3							
2015	2	4.3	7.7	10.3	11.9	12.5	13.1						
2014	3	4.7	8.3	11.0	12.9	14.3	15.3	16.0					
2013	2	4.3	8.7	11.2	12.8	13.7	14.3	15.0	15.8				
2012	2	4.7	8.5	11.5	12.4	13.0	13.6	14.4	15.0	15.5			
2011	1	4.4	8.8	11.0	12.2	13.3	14.4	14.9	15.4	15.9	16.6		
2009	1	4.4	8.8	11.0	13.2	13.9	14.7	15.2	16.0	16.7	17.4	18.3	19.1
Mean		4.5	8.1	10.8	12.8	13.7	14.3	15.2	15.5	15.9	17.0	18.3	19.1
Number		85	63	43	20	16	11	9	6	4	2	1	1
Smallest		3.1	6.2	9.1	10.9	11.5	12.1	13.2	13.5	13.9	16.6		
Largest		6.8	11.8	14.8	16.9	17.1	18.2	18.7	16.6	17.0	17.4		
Std. error		0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.7	0.4		
95% CI (±)		0.3	0.5	0.6	1.4	1.4	1.9	2.1	1.8	2.8	1.8		

nedaaggb.d21

Table 43. Mean length at capture by age and differentiated by sex for largemouth bass captured in Grayson Lake in October 2021.

	Age-2			Age-3			Age-4			Age-5			Age-6			Age-7		
	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.
Females	10	10.1	0.3	11	12.0	0.3	2	15.3	2.5	1	15.6	-	2	13.4	1.0	3	16.5	1.6
Males	9	9.7	0.3	11	11.9	0.3	2	12.4	0.2	4	14.7	0.8	0			0		

	Age-8			Age-9			Age-10			Age-11			Age-12		
	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.	N	$\bar{x}$ L	s.e.
Females	2	16.1	0.9	1	17.4	-	1	16.9	-	0			1	19.5	-
Males	0			1	14.1	-	0			0			0		

nedaaggl.d21

Table 44. Population assessment of largemouth bass based on samples collected at Greenbo Lake from 2009-2021 (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)%
2021	Value	10.5	44.0	38.7	35.3	4.7	16	Good	-0.311	26.70%
	Score	2	3	3	4	4				
2020*	Value									
	Score									
2019	Value		25.3	47.7	9.0	3.3	14	Good	-	-
	Score	3	2	4	2	3				
2018	Value		22.7	95.3	20.0	7.3	16	Good	-	-
	Score	3	2	4	3	4				
2017	Value		6.0	82.7	16.0	4.0	14	Good	-	-
	Score	3	1	4	2	4				
2016	Value		14.7	76.7	18.0	6.0	16	Good	-1.17	68.80%
	Score	3	2	4	3	4				
2015	Value	11.2	38.7	58.0	12.6	2.0	15	Good	-	-
	Score	3	3	4	2	3				
2014	Value	11.2	21.3	116.0	7.3	3.3	14	Good	-	-
	Score	3	2	4	2	3				
2013	Value	11.2	3.8	75.3	8.7	1.3	12	Good	-	-
	Score	3	1	4	2	2				
2012	Value	11.2	2.0	64.7	8.7	2.0	13	Good	-0.812	56.60%
	Score	3	1	4	2	3				
2011	Value	10.7	9.5	58.0	6.7	1.3	12	Good	-	-
	Score	2	2	4	2	2				
2010	Value	10.7	5.3	45.3	13.3	2.0	13	Good	-0.597	45.00%
	Score	2	1	4	3	3				
2009	Value	10.7	3.2	50.0	18.0	2.7	13	Good	-0.415	34.00%
	Score	2	1	4	3	3				

nedpsdgb.d09-d19

Table 45. Length frequency and CPUE (fish/hr) of black bass collected in 1.0 hour of nocturnal electrofishing (4- 15-minute runs) at Greenbo Lake (Greenup Co.) on 30 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	20	21	22	23			
Largemouth bass	23	21	20	24	14	6	9	15	14	11	11	9	3	3	3	3		2				1	192	192.0	26.0

nedwrsgb.d21

Table 46. Number of fish and mean relative weight (W_r) values for length groups of black bass collected in Greenbo Lake by nocturnal electrofishing. Standard error is in parentheses.

	Length group									Overall		
	8.0-11.9 in			12.0-14.9 in			≥15.0 in					
Year	No.	W_r	(s.e.)	No.	W_r	(s.e.)	No.	W_r	(s.e.)	No.	W_r	(s.e.)
2021	49	87	(1)	23	83	(1)	12	89	(3)	84	86	(1)
2016	47	86	(1)	35	83	(1)	7	83	(3)	89	84	(1)
2010	83	86	(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	97	(5)	64	89	(1)

nedwrsgb.d21, d16, d10 - d07

Table 47. 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
2021	Total	4.0	0.1	88.0	29.3	24.0	9.5		
2020	Total	3.5	0.1	40.0	15.4	1.3	0.8	44.0	11.5
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.d20, d15-d13, nedwrsgb.d21, d16, d12-05; nedpsdgb.d21, d19-d05

nedaaggl.d21, d16, d12, d11-d05

Table 48. Length frequency and CPUE (fish/hr) for sunfish collected in 1.0 hour of nocturnal electrofishing (8- 7.5-minute runs) at Greenbo Lake (Greenup Co.) on 24 May.

	Inch class										Std.
Species	3	4	5	6	7	8	9	10	Total	CPUE	error
Bluegill	46	62	59	30	7	18			222	222.0	30.9
Redear sunfish	2	28	59	43	14	15	11	1	173	173.0	42.7

nedsungb.d21

Table 49. Spring electrofishing CPUE (fish/hr) for each length group of bluegill collected at Greenbo Lake.

	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)
2021			167.0	29.0	37.0	6.6	55.0	7.5	18.0	5.6	222.0	30.9	222.0
2020[a]													
2019[a]													
2018[a]													
2017	173.6	58.04	217.6	27.85	34.4	11.77	44.0	14.6	9.6	3.71	435.2	62.5	261.6
2016[a]													
2015			92.0	6.3	28.0	12.7	41.6	17.8	13.6	5.3	133.6	12.4	133.6
2014[a]	-		-		-				-		-		
2013			96.8	21.9	97.6	19.2	121.6	23.3	24.0	5.2	218.4	31.6	218.4
2012			276.0	65.6	70.4	5.9	77.6	4.8	7.2	2.5	353.6	66.7	353.6
2011	693.6	115.6	340.8	60.2	37.6	7.2	51.2	11.3	13.6	4.8	1085.6	164.2	392.0
2010	721.6	226.2	176.8	40.4	68.0	10.0	92.0	15.9	24.0	6.3	990.4	255.8	268.8
2009	103.2	35.9	194.4	35.6	35.2	9.6	40.8	10.4	5.6	2.7	338.4	76.8	235.2
2008	80.0	15.2	196.8	51.3	40.8	7.6	47.2	8.1	6.4	2.0	324.0	56.6	244.0
2007	286.4	50.8	191.2	47.4	45.6	15.1	52.8	17.5	7.2	2.8	530.4	80.4	244.0

nedsungb.d21, d17, d15, d13 - d05

* Beginning in 2012-2016, <3.0 in were not collected.

[a] = sample not collected

Table 50. Bluegill PSD and RSD_8 values from spring electrofishing at Greenbo Lake; confidence limits are in parentheses.

Year	No. ≥ 3.0 in	PSD		RSD_8	
		Value	± 95% CI	Value	± 95% CI
2021	222	25	±06	24	±06
2020[a]					
2019[a]					
2018[a]					
2017	327	17	±04	4	±02
2016[a]					
2015	167	31	±07	10	±04
2014[a]					
2013	273	56	±06	11	±04
2012	442	22	±04	2	±01
2011	490	13	±03	3	±02
2010	336	34	±10	9	±06
2009	294	17	±04	2	±02
2008	305	19	±04	2	±02
2007	305	22	±05	3	±02

nedsungb.d21, d17, d15, d13 - d05

[a] = sample not collected

Table 51. Population assessment of bluegill based on samples collected at Greenbo Lake from 2006 - 2021 (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)%
2021	Value			55.0	18.0				
	Score			2	4				
2020[a]	Value								
	Score								
2019[a]	Value								
	Score								
2018[a]	Value								
	Score								
2017	Value	4.7	3-3+	44.0	9.6	10	Fair		
	Score	3	3	2	2				
2016[a]	Value								
	Score								
2015	Value			41.6	17.8				
	Score			2	3				
2014[a]	Value								
	Score								
2013	Value			121.6	24.0				
	Score			4	4				
2012	Value			77.6	7.2				
	Score			4	2				
2011	Value	4.9	3.0	51.2	13.6	12	Good	-1.150	68.30%
	Score	3	3	3	3				
2010	Value			92.0	24.0				
	Score			4	4				
2009	Value			40.8	5.6				
	Score			2	2				
2008	Value	4.9	3.0	47.2	6.4	10	Fair	-0.865	57.90%
	Score	3	3	2	2				
2007	Value			52.8	7.2				
	Score			3	2				
2006	Value			28.0	4.8				
	Score			2	2				

nedsungb.d21, d17, d15, d13 - d05 nedaaggb.d17, d11,d08,d05

[a] = sample not collected

Table 52. Spring electrofishing CPUE (fish/hr) for each length group of redear sunfish collected at Greenbo Lake.

	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)
2021			89.0	22.1	57.0	16.0	84.0	24.4	27.0	10.8	1.0	1.0	173.0	42.7	173.0
2020[a]															
2019[a]															
2018[a]															
2017	6.4	4.7	21.6	7.2	2.4	1.0	20.8	5.9	18.4	6.3	1.6	1.0	48.8	7.3	50.4
2014[a]	-		-		-		-		-		-		-		
2015			11.2	2.3	6.4	2.0	14.4	6.0	8.0	5.1	1.6	1.6	25.6	7.1	25.6
2014[a]	-		-		-		-		-		-		-		
2013			1.6	1.1	3.2	1.8	6.4	3.1	3.2	2.4	2.4	2.4	8.0	2.9	8.0
2012			4.8	4.8	0.8	0.8	1.6	1.1	0.8	0.8	0.8	0.8	6.4	4.7	6.4
2011	0.8	0.8	3.2	1.8	6.4	2.0	10.4	3.6	4.0	2.5			14.4	4.1	13.6
2010	4.8	2.1	11.2	4.2	8.0	2.4	12.0	3.2	4.0	2.2	0.8	0.8	28.0	7.3	23.2
2009	0.8	0.8	0.8	0.8	2.4	1.2	2.4	1.2					4.0	1.8	3.2
2008			7.2	3.7	5.6	3.4	6.4	3.3	0.8	0.8			13.6	5.7	13.6
2007	2.4	1.2	12.0	6.1	1.6	1.1	1.6	1.1					16.0	6.9	13.6

nedsungb.d21, d17, d15, d13 - d05

* In 2012, <3.0 in were not collected.

[a] = sample not collected

Table 53. Redear sunfish PSD and RSD_9 values from spring electrofishing at Greenbo Lake.

Year	No. ≥ 4.0 in	PSD Value	PSD ± 95% CI	RSD_9 Value	RSD_9 ± 95% CI
2021	171	8	±04	7	±04
2020[a]					
2019[a]					
2018[a]					
2017	53	45	±14	25	±12
2016[a]					
2015	26	54	±20	23	±17
2014[a]					
2013	8	63	±36	50	±37
2012	5	20	±39	20	±39
2011	17	41	±24	12	±16
2010	22	32	±20	23	±18
2009	4	25	±49	0	±00
2008	13	23	±24	0	±00
2007	11	9	±18	0	±00

nedsungb.d21, d17, d15, d13 - d05

[a] = sample not collected

Table 54. Population assessment of redear sunfish based on samples collected at Greenbo Lake from 2007-2021 (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)%
2021	Value			27.0	1.0				
	Score			4	3				
2020[a]	Value								
	Score								
2019[a]	Value								
	Score								
2018[a]	Value								
	Score								
2017	Value	8.2	3	18.4	1.6	13	Good		
	Score	4	4	4	1				
2016[a]	Value								
	Score								
2015	Value			8.0	1.6				
	Score			2	1				
2014[a]	Value								
	Score								
2013	Value			3.2	2.4				
	Score			1	2				
2012	Value			0.8	0.8				
	Score			1	1				
2011	Value	9.7	3	4.0	0.0	12	Good	-0.271	23.70%
	Score	4	4	3	1				
2010	Value			4.0	0.8				
	Score			3	1				
2009	Value			0.0	0.0				
	Score			1	1				
2008	Value	7.6	4	0.8	0.0	9	Fair	-0.626	46.50%
	Score	4	3	1	1				
2007	Value			0.0	0.0				
	Score			1	1				

nedsungb.d21, d17, d15, d13 - d05 nedaaggb.d17, d11,d08,d05

[a] = sample not collected

Table 55. Length frequency and CPUE (fish/hr) of black bass collected in 1.0 hour (4- 15-minute runs) of diurnal electrofishing in Mill Creek Lake on 05 May.

	Inch class																					Std.
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	error
Largemouth bass	8	11	12	3	1	16	23	37	36	32	27	17	2	3	1	2	2		3	2	238	238.0	25.4

nedpsdmc.d21

Table 56. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Mill Creek Lake.

	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.
2021	51.0	12.4	128.0	18.8	46.0	6.6	13.0	4.4	5.0	3.0	238.0	25.4
2020[a]												
2019[a]												
2018[a]												
2017	46.8	10.3	118.9	13.4	85.2	11.1	6.9	4.0	2.9	1.9	257.6	13.9
2016[a]												
2015[a]												
2014	27.0	3.8	155.0	14.3	32.0	7.8	18.0	2.6	5.0	1.9	232.0	11.9
2013[a]												
2012	27.0	11.5	97.0	12.4	20.0	5.4	14.0	2.6	7.0	3.0	158.0	27.8
2011[a]												
2010	43.0	8.1	65.0	6.6	41.0	10.3	12.0	3.7	1.0	1.0	161.0	10.0
2009	9.0	3.8	52.0	5.4	44.0	3.3	12.0	4.6	4.0	1.6	117.0	3.4
2008	10.0	3.5	89.0	10.8	38.0	3.5	12.0	3.7	3.0	1.9	149.0	11.0
2007	31.0	5.3	84.0	15.9	31.0	9.0	7.0	2.5			153.0	22.3
2006	45.0	18.5	108.0	11.0	22.0	2.0	7.0	4.4			182.0	28.7
2005[a]												
2004	50.4	16.1	68.0	4.6	17.6	2.0	5.6	1.6	1.6	1.6	283.0	35.9
2003[a]												
2002[a]												
2001	36.0	8.5	59.0	10.6	13.0	3.0	7.0	2.5	1.0	1.0	115.0	17.5
2000	39.0	11.4	70.0	11.5	12.0	3.3	4.0	0.0			125.0	21.6
1999	29.0	6.8	4.0	11.4	70.0	3.4	2.0	1.2			78.0	20.9
1998[a]												
1997	27.0	6.6	44.0	6.7	22.0	3.5	6.0	2.6	3.0	1.9	99.0	13.9
1996[a]												
1995[a]												
1994	91.0	21.0	178.0	4.0	8.0	4.0	5.0	1.0	2.0	0.0	282.0	12.0
1993[a]												
1992	90.0	0.0	44.0	6.0	12.0	2.0	4.0	0.0			150.0	4.0
1991	86.1	6.1	31.5	2.5	19.2	0.8	2.3	0.3			176.0	40.0
1990[a]												

nedpsdmc.d21,d17,d14.d12.d10-d06, d04; nedlmbmc.d01-d99,d97,d94,d92-d91

[a] = Lake not sampled

Table 57. Largemouth bass PSD and RSD_{15} values (and 95% confidience intervals) from spring electrofishing at Mill Creek Lake.

Year	No. ≥8.0 in	PSD	±95% CI	RSD_{15}	±95% CI
2021	187	32	±07	7	±04
2020[a]					
2019[a]					
2018[a]					
2017	185	43	±07	3	±02
2016[a]					
2015[a]					
2014	205	24	±06	9	±04
2013[a]					
2012	131	26	±08	11	±05
2011[a]					
2010	118	45	±09	10	±05
2009	108	52	±09	11	±06
2008	139	36	±08	9	±05
2007	122	31	±08	6	±04
2006	137	21	±07	5	±04
2005[a]					
2004	114	25	±08	6	±04
2003[a]					
2002[a]					
2001	79	25	±10	9	±06
2000	86	19	±08	5	±04
1999	49	18	±11	4	±06
1998[a]					
1997	72	39	±11	8	±06
1996[a]					
1995[a]					
1994	191	7	±04	3	±02
1993[a]					
1992	60	27	±11	7	±06
1991	47	40	±14	4	±06
1990[a]					

nedpsdmc.d21,d17,d14.d12.d10-d06, d04; nedlmbmc.d01-d99,d97,d94,d92-d91

[a] = Lake not sampled

Table 58. Population assessment of largemouth bass based on samples collected at Mill Creek Lake from 2005-2021 (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)%
2021	Value		34.0	46.0	13.0	5.0	14	Good		
	Score	1	3	4	3	4				
2020[a]	Value									
	Score									
2019[a]	Value									
	Score									
2018[a]	Value									
	Score									
2017	Value	10.7	31.9	85.2	6.9	2.9	13	Good		
	Score	1	3	3	2	3				
2016[a]	Value									
	Score									
2015[a]	Value									
	Score									
2014	Value		22.0	32.0	18.0	5.0	13	Good		
	Score	2	2	2	3	4				
2013[a]	Value									
	Score									
2012	Value		25.0	20.0	14.0	7.0	12	Good		
	Score	2	2	2	2	4				
2011[a]	Value									
	Score									
2010	Value		1.0	41.0	12.0	1.0	10	Fair	--0.302	26.00%
	Score	2	1	3	2	2				
2009	Value		1.0	44.0	12.0	4.0	12	Good	--0.085	8.10%
	Score	2	1	3	2	4				
2008	Value	10.5	2.0	38.0	12.0	3.0	11	Fair	--0.312	26.80%
	Score	2	1	3	2	3				
2007	Value		14.1	31.0	7.0	0.0	8	Poor	--0.825	56.20%
	Score	2	1	2	2	1				
2006	Value		19.6	22.0	7.0	0.0	9	Fair	--0.425	34.90%
	Score	2	2	2	2	1				
2005[a]	Value									
	Score									

nedpsdmc.d12 - d04; nedlmbmc.d03 - d00

Table 59. 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 19 April.

	Inch class																					Std.
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	error
Largemouth bass	1	31	38	13	11	42	61	27	24	27	13	9	5	3	2			1		1	309	309.0	37.3

nedpsdlr.d21

Table 60. Spring electrofishing CPUE (fish/hr) for various length groups of largemouth bass collected at Lake Reba from 1995-2021.

	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.
2021	94.0	18.9	154.0	19.5	49.0	10.8	12.0	1.6	2.0	1.2	309.0	37.3
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 61. 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)	
2021	215	28	(± 1)	6	(± 3)
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.d21 - d98, d96 - d95

Table 62. Population assessment of largemouth bass based on samples collected at Lake Reba from 2005-2021 (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)%
2021	Value		49.0	12.0	2.0	83.0	16	Good		
	Score	4	4	2	3	4				
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				

nedpsdlr.d20

Table 63. Indices of year class strength at age 0 and age 1 and mean lengths (in) of largemouth bass 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
2021	Total	4.3	<0.1	371.0	54.2	70.0	19.2		
2020	Total	4.6	0.1	122.0	24.5	34.0	11.1	83.0	15.6
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

nedbsdlr.d21, nedpsdlr.d21

Table 64. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected in 1.0 hour (8-7.5-minute runs) of diurnal electrofishing for sunfish at Lake Reba on 19 May.

	Inch class											
Species	3	4	5	6	7	8	9	10	11	Total	CPUE	Std. error
Bluegill	48	120	75	37	15	2				297	297.0	46.6
Redear sunfish	5	4	21	66	38	13	3	2	1	153	153.0	34.9

nedpsdlr.d21

Table 65. Spring electrofishing CPUE (fish/hr) for various length groups of bluegill collected at Lake Reba from 1995-2021.

	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)
2021			243.0	38.0	52.0	15.0	54.0	15.8	2.0	1.3	297.0	46.6	297.0
2020[a]													
2019[a]													
2018[a]													
2017			161.5	24.1	49.2	7.7	52.3	7.8	3.1	1.7	281.5	46.7	213.85
2016[a]													
2015			418.0	83.2	83.0	25.1	84.0	25.1	1.0	1.0	502.0	78.8	502.0
2014[a]													
2013			371.0	84.6	44.0	15.3	44.0	15.3			415.0	415.0	415.0
2012			151.0	26.4	38.0	14.7	38.0	14.7			189.0	36.6	189.0
2011	2169.0	361.1	919.0	141.7	98.0	26.5	99.0	26.7	1.0	1.0	3187.0	448.7	1018.0
2010	514.4	138.5	375.2	35.5	21.6	4.8	21.6	4.8			911.2	144.8	396.8
2009	527.0	93.0	200.0	19.7	22.0	6.4	22.0	6.4			749.0	100.5	222.0
2008	188.0	41.9	194.0	41.1	71.0	11.6	71.0	11.6			453.0	59.1	265.0
2007			73.0	10.8	29.0	7.7	29.0	7.7			102.0	10.9	102.0
2006	843.2	140.7	228.8	22.9	79.2	20.3	79.2	20.3			1151.2	158.5	308.0
2005	279.2	37.0	308.0	42.7	97.6	19.4	97.6	19.4			684.8	74.4	405.6
2004	199.2	39.4	187.2	27.0	23.2	7.0	23.2	7.0			409.6	58.2	210.4
2003	178.4	27.9	356.0	49.7	49.5	20.1	49.5	20.1			584.0	75.3	405.6
2002	266.0	39.7	703.0	102.0	29.0	10.4	29.0	10.4			998.0	138.3	732.0
2001			1210.7	207.6	89.3	16.7	89.3	16.7			1300.0	220.3	1300.0
2000	7.0	4.7	1181.3	152.3	303.5	13.0	303.5	13.0			1327.0	124.5	1320.0
1999	74.0	74.0	700.0	120.0	48.0	16.0	48.0	16.0			822.0	30.0	748.0
1998			1032.0		4.0		4.0				1036.0	0.0	1036.0
1997[a]													
1996	16.0	12.0	722.0	110.0	22.0	18.0	22.0	18.0			760.0	140.0	744.0
1995			338.0	54.0	32.0	0.0	32.0	0.0			1370.0	54.0	1370.0

nedsunlr.d21,d17,d15,d13-d98,d96-d95

[a] = Sample not collected

Table 66. Bluegill PSD and RSD_8 values from spring electrofishing at Lake Reba.

Year	No. ≥ 3.0 in	PSD Value	PSD ± 95% CI	RSD_8 Value	RSD_8 ± 95% CI
2021	297	18	±04	1	±01
2020[a]					
2019[a]					
2018[a]					
2017	278	24	±05	1	±01
2016[a]					
2015	502	17	±03	0	±00
2014[a]					
2013	415	11	±03		
2012	189	20	±06		
2011	1018	10	±02	0	±00
2010	496	5	±02		
2009	222	10	±04		
2008	265	27	±05		
2007	102	28	±09		
2006	385	26	±04		
2005	507	24	±04		
2004	263	11	±04		
2003	507	12	±03		
2002	732	4	±01		
2001	975	7	±02		
2000	1320	21	±02		
1999	374	6	±02		
1998	259	0	±01		
1997[a]					
1996	372	3	±02		
1995	685	2	±01		

nedsunlr.d21,d17,d15,d13-d98,d96-d95

**No BG over 8.0 in sampled from 1995 - 2010 and 2012-2013 to be able to determine RSD_8*

[a] = Sample not collected

Table 67. Population assessment of bluegill based on samples collected at Lake Reba from 1995-2021 (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)%
2021	Value			54.0	2.0				
	Score			2	3				
2020[a]	Value								
	Score								
2019[a]	Value								
	Score								
2018[a]	Value								
	Score								
2017	Value	6.1	3+	52.3	3.1	12	Good		
	Score	4	3	2	3				
2016[a]	Value								
	Score								
2015	Value			84.0	1.0				
	Score			4	1				
2014[a]	Value								
	Score								
2013	Value			44.0	0.0				
	Score			2	1				
2012	Value	4.0	3+	38.0	0.0	8	Fair	-0.112	10.60%
	Score	2	3	2	1				
2011	Value			99.0	1.0				
	Score			4	1				
2010	Value			21.6	0.0				
	Score			1	1				
2009	Value			22.0	0.0				
	Score			1	1				
2008	Value	4.0	3+	71.0	0.0	9	Fair	-0.719	51.30%
	Score	2	3	3	1				
2007	Value			29.0	0.0				
	Score			2	1				
2006	Value			79.2	0.0				
	Score			4	1				
2005	Value			97.6	0.0				
	Score			4	1				
2004	Value			23.2	0.0				
	Score			1	1				
2003	Value	4.1	3+	49.6	0.0	8	Fair	-0.422	34.40%
	Score	2	3	2	1				
2002	Value			29.0	0.0				
	Score			2	1				
2001	Value			89.3	0.0				
	Score			4	1				
2000	Value	5.0	4+	303.5	0.0	11	Fair		
	Score	4	2	4	1				
1999	Value			48.0	0.0				
	Score			2	1				
1998	Value			4.0	0.0				
	Score			1	1				
1997[a]	Value								
	Score								
1996	Value			22.0	0.0				
	Score			1	1				
1995	Value			32.0	0.0				
	Score			2	1				

nedsunlr.d21,d17,d15,d13-d98,d96-d95

[a] = Sample not collected

Table 68. Spring electrofishing CPUE (fish/hr) for various length groups of redear sunfish collected at Lake Reba from 1995-2021.

	Length group														
	<3.0 in		3.0-5.9 in		6.0-7.9 in		≥ 6.0 in		≥ 8.0 in		≥ 10.0 in		Total		Total CPUE
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)
2021			30.0	9.3	104.0	24.2	123.0	29.6	19.0	7.6	3.0	1.5	153.0	34.9	153.0
2020[a]															
2019[a]															
2018[a]															
2017			11.5	4.3	12.3	4.0	50.8	7.6	38.5	5.6	0.8	0.8	63.9	9.9	62.3
2016[a]															
2015			54.0	7.7	198.0	56.5	231.0	56.9	33.0	6.3			285.0	58.6	285.0
2014[a]															
2013			98.0	26.2	143.0	23.6	145.0	23.5	2.0	1.3			243.0	21.2	243.0
2012			79.0	15.2	94.0	24.5	95.0	25.2	1.0	1.0			174.0	33.5	174.0
2011	31.0	12.6	146.0	19.6	204.0	57.8	210.0	59.4	6.0	3.3			387.0	48.7	356.0
2010	14.4	5.8	101.6	19.2	28.0	7.4	28.8	7.9	0.8	0.8			144.8	28.2	130.4
2009	184.0	52.9	150.0	22.9	60.0	4.5	60.0	4.5					394.0	65.7	210.0
2008	10.0	5.0	134.0	18.3	225.0	18.0	226.0	18.5	1.0	1.0			370.0	33.0	360.0
2007			122.0	16.3	33.0	5.9	35.0	5.0	2.0	1.3			157.0	20.3	157.0
2006	111.2	30.7	121.6	17.2	205.6	44.7	206.4	44.8	0.8	0.8			439.2	51.5	328.0
2005	16.8	5.9	39.2	5.5	196.0	33.4	196.0	33.4					252.0	30.7	235.2
2004	17.6	4.6	59.2	18.3	67.2	13.7	67.2	13.7					144.0	30.4	126.4
2003	13.6	5.7	119.2	19.8	178.4	68.8	178.4	68.8					311.2	82.9	297.6
2002	11.0	1.9	424.0	124.1	151.0	47.9	152.0	48.7	1.0	1.0			587.0	160.3	576.0
2001			220.0	46.1	84.0	32.7	85.3	32.4	1.3	1.3			305.3	39.4	305.3
2000			125.8	39.3	134.9	39.6	134.9	39.6					245.0	74.9	245.0
1999	2.0	2.0	92.0	36.0	122.0	22.0	122.0	22.0					216.0	60.0	214.0
1998			80.0		44.0		44.0						124.0	0.0	124.0
1997[a]															
1996			44.0	20.0	14.0	10.0	14.0	10.0					58.0	30.0	58.0
1995															

nedsunlr.d21,d17,d15,d13-d98,d96-d95

[a] = Sample not collected

Table 69. Redear sunfish PSD and RSD_9 values from spring electrofishing at Lake Reba.

Year	No. ≥ 3.0 in	PSD Value	PSD ± 95% CI	RSD_9 Value	RSD_9 ± 95% CI
2021	148	38	±08	4	±03
2020[a]					
2019[a]					
2018[a]					
2017	77	81	±10	25	±10
2016[a]					
2015	265	62	±06		
2014[a]					
2013	237	26	±06		
2012	139	21	±07		
2011	310	22	±05		
2010	118	8	±05		
2009	175	4	±03		
2008	342	11	±03		
2007	141	10	±05		
2006	297	49	±06		
2005	264	19	±05		
2004	146	4	±03		
2003	359	4	±02		
2002	452	6	±02		
2001	158	9	±04		
2000	216	29	±06		
1999	91	4	±04		
1998	27	4	±07		
1997[a]					
1996	28	4	±07		
1995					

nedsunlr.d21,d17,d15,d13-d98,d96-d95

**No RE over 9.0 in sampled from 1995 - 2010, 2012-2013 or 2015 to be able to determine RSD_9*

[a] = Sample not collected

Table 70. Population assessment of redear sunfish based on samples collected at Lake Reba from 1995-2021 (scoring based on statewide assessment).

Year		Mean length age-3 at capture	Years to 8.0 in	Spring CPUE ≥8.0 in	Spring CPUE ≥10.0 in	Total score	Assessment rating	Instantaneous mortality (z)	Annual mortality (A)%
2021	Value			19.0	3.0				
	Score			2	4				
2020[a]	Value								
	Score								
2019[a]	Value								
	Score								
2018[a]	Value								
	Score								
2017	Value	8.3	4+	38.5	0.8	13	Good		
	Score	4	3	4	2				
2016[a]	Value								
	Score								
2015	Value			33.0	0.0				
	Score			4	1				
2014[a]	Value								
	Score								
2013	Value			2.0	0.0				
	Score			1	1				
2012	Value	5.8	>6	1.0	0.0	6	Poor	-0.963	61.80%
	Score	2	1	1	1				
2011	Value			6.0	0.0				
	Score			2	1				
2010	Value			0.8	0.0				
	Score			1	1				
2009	Value			0.0	0.0				
	Score			1	1				
2008	Value	6.3	>7	1.0	0.0	6	Poor	-0.810	55.70%
	Score	3	1	1	1				
2007	Value			2.0	0.0				
	Score			1	1				
2006	Value			0.8	0.0				
	Score			1	1				
2005	Value			0.0	0.0				
	Score			1	1				
2004	Value			0.0	0.0				
	Score			1	1				
2003	Value	6.5	>6	0.0	0.0	7	Fair	-0.322	27.90%
	Score	4	1	1	1				
2002	Value			1.0	0.0				
	Score			1	1				
2001	Value			1.3	0.0				
	Score			1	1				
2000	Value			0.0	0.0				
	Score			1	1				
1999	Value			0.0	0.0				
	Score			1	1				
1998	Value			0.0	0.0				
	Score			1	1				
1997[a]	Value								
	Score								
1996	Value								
	Score								
1995	Value								
	Score								

nedsunlr.d15, d13 - d98, d96 - d95

[a] = Sample not collected

Table 71. 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 April.

	Inch class																					Std.
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	error
Largemouth bass	10	20	18	4	1	7	24	20	22	15	7	3								1	152	202.7	62.2

nedpsdsv.d21

Table 72. Spring electrofishing CPUE (fish/hr) for various length groups of largemouth bass collected at Smoky Valley Lake from 1990-2021.

	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.
2021	70.7	31.4	97.3	15.0	33.3	16.4	1.3	1.3	1.3	1.3	202.7	62.2
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.d21

[a] = Sample not collected

Table 73. 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)	
2021	99	26	(± 9)	1	(± 2)
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)		(± 0)
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.d21

[a] = Sample not collected

Table 74. Population assessment of largemouth bass based on samples collected at Smoky Valley lake from 2005-2021 (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)%
2021	Value		69.3	33.3	1.3	1.3	13	Good		
	Score	3	4	3	1	2				
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	8	Poor		
	Score	1	1	1	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 75. Length frequency and CPUE (fish/hr) of saugeye collected in 1.50 hours (6- 15-minute runs; 01 November) of nocturnal electrofishing and 6 net nights of gill netting (2 nights, 3 nets; 09 and 10 November) in Lake Wilgreen.

	Inch class																Std.
Method	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	error
Gill Netting									1		2	3	3	1	10	1.7	0.4
Nocturnal Electrofishing	1	1								2	1		2		7	4.7	1.6

nedseelw.d21, nedseglw.d21

Table 76. Length frequency and CPUE (fish/hr) of all fish collected while gill netting (6 net nights across 2 nights, one 09 and 10 November) in Lake Wilgreen.

	Inch class																					Std.
Species	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	CPUE	error
Saugeye													1		2	3	3	1			10	1.7	0.4
Blue Catfish								2	2	1			2					1	1	1	10	1.7	0.5
Channel Catfish			2	1		1			1	2						1					8	1.3	0.6
White Crappie		1	3		2	1															7	1.2	0.7
Bluegill	3																				3	0.5	0.5
Largemouth Bass			1					1													2	0.3	0.2

nedseglc.d21

Table 77. Mean back-calculated lengths (in) at each annulus for saugeye collected from Lake Wilgreen (from both gill netting and electrofishing), including size range at each age and 95% confidence intervals.

		Age			
Year	No.	0	1	2	3
2021	2	9.5			
2020	0	-	-		
2019	11	-	11.4	16.6	
2018	4	-	11.1	16.0	19.7
Mean		9.5	11.3	16.4	19.7
Number		2	15	15	4
Smallest		9.0	9.1	14.4	19.4
Largest		10.0	12.6	18.5	20.0
Std Error		0.5	0.3	0.3	0.1
95% CI (±)		-	1.0	1.2	0.5

Otoliths were used for age determination; Intercept = 0
* 2021 year class size at age-0 is based on fall size at collection; all other sizes are back-calculated
nedaaglw.d21

Table 78. Number of fish and relative weight (W_r) for each length group of saugeye collected at Lake Wilgreen in 2021; s.e. = standard error.

	Length group														
	1.0 - 8.9 in			9.0 - 13.9 in			14.0 - 17.9 in			≥ 18.0 in			Total		
Species	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.	No.	W_r	s.e.
Saugeye	0			2	89	1.2	1	90	-	14	95	1.7	17	94	1.5

nedseelw.d21, nedseglw.d21

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.

Black Bass Sampling (Spring)

Diurnal electrofishing studies were conducted at Wolf Creek dam, and in the Faubush Creek, Fishing Creek, and Lily Creek embayments of Lake Cumberland during April and May 2021 to assess the black bass populations. The length-frequency and catch-per-unit-effort (CPUE) of the black bass species collected in each area is shown in Table 2, and the catch-per-hour (by area and length group) of the three black bass species is shown in Tables 3-6. Overall catch rates of largemouth, smallmouth, and spotted bass in 2021 were lower than rates observed in 2019; however, catch rates for the three black bass species remain above average. Catch rates for largemouth bass 12.0-14.9 in showed a marked increase in 2021, and largemouth bass catch rates for fish greater than 15.0 in remain good. Catch rates of smallmouth bass greater than 14.0 in were consistent with previous sampling. Spotted bass catch rates declined across all size classes in 2021, with a large decrease in the fish less than 8.0 in. Table 7 compares the catch-per-hour by length group of black bass in Lake Cumberland to other SEFD lakes sampled in 2021.

Largemouth bass catch rates greatly exceeded three of the four CPUE management objectives, with only the catch rate of fish greater than 20.0 in failing to meet the objective (Table 8). In addition, largemouth bass exceeded the management objective for growth, with the mean length at age-3 being 14.1 in (Table 8). Spotted bass exceeded all three catch rate management objectives (Table 9), while the smallmouth bass population only met the CPUE management objective for fish over 14.0 in (Table 10).

Largemouth bass and smallmouth bass populations exhibited excellent size structure, with a PSD value of 86 ($RSD_{15=}$ 49) for largemouth bass and a PSD value of 87 ($RSD_{14=}$74) for smallmouth bass (Table 11). Spotted bass populations also had a good size structure (PSD=67, RSD_{14}=16; Table 11). Table 12 compares the size structure of black bass populations in Lake Cumberland to other SEFD lakes sampled in 2021.

Black Bass Sampling (Fall)

Diurnal electrofishing was conducted in the Fishing Creek embayment on 29 September 2021 to index largemouth bass year class strength (Tables 13 and 14). Catch rates of age-0 largemouth bass were higher in 2021 than in previous years (Table 14). Table 15 compares the CPUE of age-0 largemouth bass in Lake Cumberland to other SEFD lakes sampled in fall 2021. Relative weight (Wr) values for largemouth bass and spotted bass collected during the September sampling are shown in Table 16. Table 17 compares Wr values for black bass in Lake Cumberland to other SEFD lakes sampled in fall 2021. Age-growth data from largemouth bass collected in 2021 from Lake Cumberland is shown in Table 18. Growth rates for largemouth bass in Lake Cumberland remain good, with bass reaching 14.1 in by age-3.

Crappie Sampling

Fall trap netting was conducted in the Fishing Creek and Wolf Creek embayments of Lake Cumberland during October 2021 to assess the crappie population. Length frequency and CPUE for black and white crappie from each area are shown in Table 19. The PSD and RSD_{10} values for white and black crappie are shown in Table 20. Age-growth data from white and black crappie collected in 2021 are shown in Tables 21 and 22, respectively. Age-2 white crappie (73%) dominated the white crappie catch (Table 23), which corresponds with the high catch rates of age-0 fish in 2019. Age-1 and age-2 black crappie comprised 64% of the black crappie catch, and age-0 fish

comprised an additional 23% of the catch (Table 24). The crappie population assessments (white and black) are shown in Table 25, with both species rating fair. The crappie population met two of the five management objectives (Table 26). Relative weight (Wr) values for black and white crappie are shown in Table 27. Although the number of larger crappie was relatively low in the trap net samples, angler reports and observed crappie collected during other routine sampling at the lake indicates that the crappie population is doing well.

Striped Bass Sampling

Gill nets were used in late November and early December 2021 to evaluate the striped bass population in Lake Cumberland. Twenty net-nights captured 109 striped bass for a catch rate of 5.5 fish/nn. Length-frequency and CPUE of striped bass are shown in Table 28. Striped bass ranged from 8.0 to 31.0 in with the mode being the 27.0-in class (23 fish). Three of the four management objectives were met for the striped bass population, with the CPUE of age-1 fish failing to meet the objective (Table 29). The age-growth data for striped bass collected during 2021 is shown in Table 30. Seven year-classes were represented in the catch (Table 31). The 2017-year class (age-4) remains strong and was the most abundant year class collected (32%; Table 31). The 2020-year class (age-1 fish) comprised an additional 20% of the population (Table 31). The mean length of age-2+ fish at capture (2019 year class) was 24.0 in, which exceeded the growth objective (21.0 in) for the striped bass fishery (Table 29). The striped bass assessment score was 12 (rating=good; Table 32). Striped bass relative weight (Wr) values are shown in Table 33, and values were consistent across all size classes.

Cumberland Tailwater

Trout Sampling (Fall)

Nocturnal electrofishing sampling was conducted November 7 and 8 2021 to assess the trout population in the Lake Cumberland tailwater. Electrofishing was completed in seven different areas of the tailwater. Table 34 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 6,225 fish in 2021, were not observed during the fall sampling. Only one brook trout was observed during sampling. Catch rates of rainbow trout increased across all size groups, except the 18.0-19.9 in group, which decreased compared to rates observed in 2020 (Table 35). Although brown trout catch rates for fish less than 20.0 in improved in 2021, population numbers remain well below the historic average (Table 36). In addition, no brown trout over 20.0 in were observed during the sample. Relative weight (Wr) values for each trout species are shown in Table 37.

Laurel River Lake (6,060 acres)

Black Bass Sampling (Spring)

Electrofishing sampling was conducted during April and May 2021 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 38. The catch-per-hour (by area and length group) of the three black bass species are shown in Tables 39-42. Catch rates for all three species of black bass increased in 2021. Largemouth bass catch rates, which increased for the third consecutive year, were driven by increases in 12.0- to 15.0-in fish and fish greater than 15.0 in. Changes in the catch rates of spotted bass were due to increases in the number of fish in the 11.0- to 14.0-in range. Smallmouth bass catch rates showed an increase in all size classes over 8.0 in. Table 7 compares the catch-per-hour by length group of black bass in Laurel River Lake to other SEFD lakes sampled in spring 2021.

The largemouth bass population met three of the four catch rate objectives, with the CPUE of largemouth bass over 20.0 in (0.0 fish/hr) failing to meet the objective (0.5 fish/hr; Table 43). Spotted bass met two of the three catch rate management objectives, with the catch rate of age-1 fish failing to meet the objective (Table 44). 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 45).

Size structure values were excellent for largemouth bass (PSD=76, RSD_{15} = 21) and smallmouth bass (PSD=74, RSD_{14} = 55; Table 46). Spotted bass exhibited good size structure with a PSD of 57 and an RSD_{14} of 5 (Table 46). Table 12 compares the size structure values of black bass populations in Laurel River Lake to other SEFD lakes sampled in 2021.

Black Bass Sampling (Fall)

Diurnal electrofishing was conducted in the Laurel River arm on 5 October 2021 to index largemouth bass year class strength (Tables 47 and 48). Age-0 catch rates in 2021 were the highest observed rates at Laurel River Lake (Table 48). Table 15 compares the CPUE of age-0 largemouth bass in Laurel River Lake to other SEFD lakes sampled in fall 2021. Relative weight (Wr) values for largemouth and spotted bass collected during October sampling are shown in Table 49. Table 17 compares Wr values for black bass in Laurel River Lake to other SEFD lakes sampled in fall 2021.

Walleye Sampling

Gill nets were used in November 2021 to evaluate the walleye population in Laurel River Lake. A total of 102 walleye were captured in 8 net-nights (nn) for a catch rate of 12.8 fish/nn. Length frequency and CPUE of walleye is shown in Table 50. Walleye ranged from 11.0-22.0 in with the mode being the 20.0-in class (24 fish). All of the catch rate management objectives for walleye were met in 2021 (Table 51). Age-growth data for male and female walleye are shown in Tables 52 and 53, respectively. The age-growth for both sexes combined is shown in Table 54. Eight year-classes were represented in the catch, with age-1 (2020-year class) walleye comprising 37% of the catch, and the 2017-year class accounted for an additional 34% of the catch (Table 55). The walleye assessment score was 16 (rating=excellent; Table 56). Mean length of age-2+ walleye at capture (19.5 in) surpassed the growth objective of 18.0 in (Table 51). Relative weight (Wr) values for walleye are shown in Table 57.

Cedar Creek Lake (784 acres; Lincoln Co.)

Black Bass Sampling (Spring)

Diurnal electrofishing was conducted on 20 April 2021 to assess the largemouth bass population in Cedar Creek Lake. The length-frequency and CPUE of largemouth bass is shown in Table 58. Size structure of largemouth bass was excellent (PSD=79, RSD_{15}=55; Table 59). Table 12 compares the size structure values of largemouth bass populations in Cedar Creek Lake to other SEFD lakes sampled in 2021. The catch-per-hour (by length group) of largemouth bass for 2012-2021 is shown in Table 60. Overall catch rates of largemouth bass in Cedar Creek Lake decreased in 2021, largely due to reduced catch rates of fish in the 8.0- to 15.0-in range (Table 60). Catch rates of bass over 15.0 in and greater than 20.0 in increased in 2021 (Table 60). Table 7 compares the catch-per-hour by length group of largemouth bass in Cedar Creek Lake to other SEFD lakes sampled in 2021. All four CPUE management objectives were exceeded for the largemouth bass population (Table 61).

Black Bass Sampling (Fall)

Diurnal electrofishing was conducted on 30 September 2021 to index the largemouth bass year-class strength (Tables 62 and 63). Catch rates of age-0 largemouth bass in 2021 were higher than in 2020 (Table 63). Table 15 compares the CPUE of age-0 largemouth bass in Cedar Creek Lake to other SEFD lakes sampled in fall 2021. Relative weight (Wr) values for largemouth bass are found in Table 64. Table 17 compares Wr values for largemouth bass in Cedar Creek Lake to other SEFD lakes sampled in fall 2021.

Bluegill/Redear Sunfish Sampling

Diurnal electrofishing was conducted on 19 May 2021 to assess the bluegill and redear sunfish populations in Cedar Creek Lake. The length-frequency and CPUE of bluegill and redear sunfish is shown in Table 65. The catch-per-hour (by length group) of bluegill and redear sunfish is shown in Table 66. Catch rates remain variable for the sunfish population in the lake. Bluegill catch rates have been declining, and no fish over 6.0 in were collected during sampling. The redear sunfish population has increased in both numbers and sizes over the last three years. PSD and RSD values for bluegill and redear sunfish are shown in Table 67. The bluegill population exhibited a poor size structure (PSD=6, RSD_8=0; Table 67). The redear sunfish population exhibited a good size structure (PSD=52, RSD_9=9; Table 67). Age-growth for bluegill collected during fall 2021 is shown in Table 68. The bluegill population assessment score was 5 (rating=poor; Table 69). Age-growth for redear sunfish collected during fall 2021 is shown in Table 70.

The redear sunfish population assessment score was 10 (rating=good; Table 71), with the score being largely influenced by the catch rates of fish over 8.0 and 10.0 in. Relative weight values for bluegill and redear sunfish are shown in Table 72.

Chenoa Lake (33 acres; Bell County)

Largemouth Bass Sampling (Spring)
Diurnal electrofishing was conducted on 13 April 2021 at Chenoa Lake to assess the largemouth bass population. Length frequency and CPUE for largemouth bass is shown in Table 73. Catch rates for largemouth bass were considerably higher in 2021 than observed in 2017 (Table 73). Catch-per-hour (by length group) for largemouth bass is shown in Table 74. The largemouth bass size structure was fair, with a PSD value of 49 (RSD_{15}=17; Table 75).

Bluegill/Redear Sunfish Sampling
Diurnal electrofishing was conducted on 18 May 2021 at Chenoa Lake to assess the bluegill and redear sunfish populations. Length-frequency and CPUE for bluegill and redear sunfish is shown in Table 76. Catch-per-hour (by length group) for bluegill and redear sunfish is in Table 77. The bluegill population exhibited a fair size structure (PSD=37, RSD_8=4) and the redear sunfish population exhibited a good size structure (PSD=67, RSD_9=30; Table 78).

Age-growth for bluegill and redear sunfish collected during fall 2021 is shown in Tables 79 and 80, respectively. The bluegill population assessment score was 9 (rating=fair; Table 81). The redear sunfish population assessment score was 8 (rating=fair; Table 82). Relative weights (Wr) for bluegill and redear sunfish are shown in Table 83.

Dale Hollow Lake (6,614 acres; Clinton County; Kentucky Portion)

Black Bass Sampling (Spring)
Diurnal electrofishing was conducted on 26 April 2021 in the Illwill Creek and Little Sulphur Creek embayments of Dale Hollow Lake to assess the black bass population. Length frequency and CPUE for the three black bass species are shown in Table 84. Catch rates for largemouth and smallmouth bass in 2021 were considerably higher than rates observed in 2018, while catch rates for spotted bass were lower than observed in 2018. The catch-per–hour by length group of the three black bass species are shown in Tables 85-87. Largemouth and smallmouth bass exhibited an excellent size structure, with largemouth bass having a PSD value of 92 (RSD_{15}=64) and smallmouth bass having a PSD value of 81 (RSD_{14}=70; Table 88). These values would typically represent a population that is too heavily skewed towards large fish, but the lack of smaller fish in this case was most likely due to poor sampling habitat for that size of fish. The size structure of spotted bass was poor, having a PSD value of 52 but an RSD_{14} value of 0; Table 88).

Lake Linville (356 acres; Rockcastle County)

Black Bass Sampling (Spring)
Diurnal electrofishing was conducted on 12 April 2021 at Lake Linville to assess the black bass population. Length frequency and CPUE for the black bass populations are shown in Tables 89-91. The population assessment for largemouth bass is shown in Table 92. All five management objectives were met or exceeded. The size structure for the largemouth bass population was good with a PSD value of 70 (RSD_{15}=15) and the spotted bass population is comprised of small individuals (PSD=42, RSD_{14}=0; Table 93).

Wood Creek Lake (625 acres; Laurel Co.)

Black Bass Sampling (Spring)
Diurnal electrofishing was conducted on 15 April 2021 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 94. 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 33 (RSD_{14}=0; Table 95).

Table 12 compares the size structure values of black bass populations in Wood Creek Lake to other SEFD lakes sampled in 2021. Catch-per-hour (by length group) for largemouth and spotted bass are shown in Tables 96 and 97, respectively. Table 7 compares the catch-per-hour by length group of black bass in Wood Creek Lake to other SEFD lakes sampled in 2021. The largemouth bass population assessment is shown in Table 98, with two of the four catch rate management objectives met. The largemouth bass population rated "Fair" in 2021.

Black Bass Sampling (Fall)

Diurnal electrofishing was conducted on 29 September 2021 in the Pump Station and Dock areas of Wood Creek Lake to index largemouth bass year class strength (Tables 99 and 100). Catch rates of age-0 largemouth bass in 2021 were consistent with catch rates observed over the last three years (Table 100). Table 15 compares the CPUE of age-0 largemouth bass in Wood Creek Lake to other SEFD lakes sampled in fall 2021. Relative weight values for largemouth and spotted bass in Wood Creek are shown in Table 101. Table 17 compares Wr values for black bass in Wood Creek Lake to other SEFD lakes sampled in fall 2021.

Table 1. Summary of sampling conditions by waterbody, species sampled, and date for the Southeastern Fisheries District in 2021.

Water body	Location	Species	Date	Time (24hr)	Gear	Weather	Water temp. F	Water level	Secchi (in)	Conditions	Pertinent sampling comments
Lake Cumberland											
	Dam	Black bass	4/27/2021	945	shock	Sunny, 66, S winds at 7 mph	62	723	36	good	Only 4 runs due to boat shifter cable breakage
	Faubush Creek	Black bass	4/30/2021	955	shock	Mostly sunny, 60s, WNW winds 5-10 mph	62	722	18	fair	Water was murkier than usual
	Fishing Creek	Black bass	5/7/2021	910	shock	Sunny, low 50s, W winds at 8 mph	63	723	36	good	
	Lily Creek	Black bass	5/11/2021	1030	shock	Clear, sunny, 50s, N winds at 7 mph	63	723	48	good	
	Fishing Creek	Black bass	9/29/2021	905	shock	Foggy and then sunny, 60s	74	701	30	good	
	Fishing Creek	Crappie	10/25-10/28		trap net	Mix of rain, clouds, sun, 50-60s, some wind	66	693	6-18	good	Water murky; one net cut from bank everyday
	Wolf Creek	Crappie	10/18-10/21		trap net	Mostly sunny, 60-70s, windy	70	696	36	good	Lake dropped 1.5 feet during the week
	Beaver Creek	Striped bass	11/29-12/1		gill net	Sunny, 40-60s, winds at 7-10 with gusts to 13	52	688	60	good	
	Lily/Wolf	Striped bass	11/29-12/1		gill net	Sunny, 40-60s, winds at 7-10 with gusts	54	698		good	
Cumberland Tailwater											
	Above Helms	Trout	11/7/2021	1800	shock	60 degrees, clear and calm	60.2	3570 cfs		good	
	Below Helms	Trout	11/7/2021	1800	shock	60s falling into the 40s, clear, calm, nice	61.3	3570 cfs		good	
	Rainbow Run	Trout	11/7/2021	1800	shock	Gusty winds/clear skies	62.7	3570 cfs		good	
	Big Willis	Trout	11/7/2021	1800	shock	Clear, cool		3570 cfs		good	
	Crocus Creek	Trout	11/7/2021	1800	shock		62	3570 cfs		good	
	Hwy 61 Traces	Trout	11/8/2021	1740	shock	60 falling to 46, clear, calm, nice	61	3850 cfs		good	
	Cloyds	Trout	11/8/2021	1800	shock		59	3850 cfs		good	
Laurel River Lake											
	Dam	Black bass	4/28/2021	840	shock	Increasing clouds and winds, upper 60s	60	1012	168	good	water was very clear
	Spruce Creek	Black bass	5/13/2021	1230	shock	Sunny and clear, mid 60s at start	63	1012	120	good	
	Craig's Creek	Black bass	4/28/2021	1120	shock	upper 70s at start, SW winds at 20 mph	63	1012	132	good	
	312 Bridge	Black bass	5/13/2021	935	shock	Sunny and clear, 50s at start	61	1012	36	good	
	312 Bridge	Black bass	10/5/2021	930	shock	Cloudy and overcast	73	1007	36	good	Lynn Camp Creek running cooler 67 degrees
		Walleye	11/16-11/17		gill net	mix of sun and clouds, 60-70s, windy	57	1006		good	
Cedar Creek Lake		LMB	4/20/2021	945	shock	Mostly sunny, 50s, SE winds 4 mph	60	full	40	good	vegetation was getting thick
		LMB	9/30/2021	1020	shock	Sunny and clear, 66 degrees	72	full	36	fair	vegetation was thick
		BLG/RESF	5/19/2021	950	shock	Mix of sun and clouds, 70s, 8 mph winds	69	full	48	fair	vegetation was thick
		BLG/RESF	10/6/2021	1010	shock	Cloudy with intermittent showers	71	full	42	fair	lots of vegetation; fish for age-growth purposes
Chenoa Lake		LMB	4/13/2021	1050	shock	Cloudy, low 50's, some rain showers	60	full	30	good	Water slightly murky
		BLG/Redear	5/18/2021	1035	shock	Cloudy, low 70's, light winds	65	full	72	fair	Thick vegetation observed
		BLG/Redear	10/11/2021	1035	shock	Mostly sunny, mid 60's	69	full	60	fair	Bluegill and Redear Sunfish collected for age-growth
Dale Hollow Lake											
	Illwill	Black bass	4/26/2021	1000	shock	Sunny, mid 50's-low 70's	60	649	48	good	Water greenish in color
	Little Sulphur	Black bass	4/26/2021	1250	shock		63	649	36	good	
Lake Linville		Black bass	4/21/2021	950	shock	Sunny, 50's, calm winds	57	full	24	good	Water slightly murky
Wood Creek Lake		Black bass	4/15/2021	1000	shock	Mostly sunny, 50s, NW winds 10 mph	59	1020	48	good	no vegetation in the upper part of the lake
		Black bass	9/28/2021	1030	shock	Mostly sunny, 65, 6 mph winds	71	1019.5	66	good	Elodea not present in large quantities

Table 2. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 5.5 hours of 15-minute diurnal electrofishing runs for black bass in Lake Cumberland during April and May 2021; standard error is 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
Dam	Largemouth bass		1						1	1		2	2	8	28	18	16	6	2		85	85.0 (13.5)
	Spotted bass		3	2		1	4	1		4	5	39	24	12	3	3	1				102	102.0 (17.0)
	Smallmouth bass						1						1	3	2	4	3	2	2		18	18.0 (7.4)
Faubush	Largemouth bass	1	1		1	3	1	1		4	6	7	11	17	10	15	12	2	1		93	62.0 (14.4)
Creek	Spotted bass	4	12	2				3	5	9	6	8	11	8		1					69	46.0 (12.8)
	Smallmouth bass	1	1																1		3	2.0 (1.4)
Fishing	Largemouth bass				2	5	5	3	4	7	7	17	21	25	17	13	3	6	3		138	92.0 (5.8)
Creek	Spotted bass		2	1					1	2	1	1	1								9	6.0 (4.5)
	Smallmouth bass															1					1	0.7 (0.7)
Lily	Largemouth bass		3		1	2	6	4	3	2	5	6	6	8	8	8	3			1	66	44.0 (10.2)
Creek	Spotted bass		5		1	4	8	24	16	8	13	14	10	9	5						117	78.0 (9.9)
	Smallmouth bass		4				1	1	2	2	1	1	3	5		3	5	2	1		31	20.7 (5.8)
Total	Largemouth bass	1	5		4	10	12	8	8	14	18	32	40	58	63	54	34	14	6	1	382	69.5 (6.7)
	Spotted bass	4	22	5	1	5	12	28	22	23	25	62	46	29	8	4	1				297	54.0 (9.2)
	Smallmouth bass	1	5			1	1	1	2	2	1	1	4	8	2	8	8	4	4		53	9.6 (2.8)

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Table 3. Comparison of catch-per-hour of black bass (by area) captured during spring electrofishing on Lake Cumberland during the period of 2016-2021.

	Stock					Quality					Preferred				
Species/Area	2016	2017	2018	2019	2021	2016	2017	2018	2019	2021	2016	2017	2018	2019	2021
Largemouth bass															
Dam	46.7	54.7	34.7	61.3	84.0	28.0	45.3	28.7	48.7	82.0	23.3	31.3	26.0	42.0	70.0
Faubush Creek	14.7	63.3	48.0	46.0	57.3	14.0	59.3	41.3	39.3	50.0	8.0	38.7	25.3	31.3	26.7
Fishing Creek	41.3	30.0	38.0	123.3	84.0	25.3	26.0	31.3	94.0	70.0	8.7	10.7	12.7	54.0	28.0
Lily Creek	25.3	28.7	20.0	36.0	36.0	23.3	28.0	18.0	26.7	26.7	11.3	20.7	12.7	20.0	13.3
Mean	32.0	44.2	35.2	66.7	63.6	22.7	39.7	29.8	52.2	54.9	12.8	25.3	19.2	36.8	31.3
Spotted bass															
Dam	41.3	48.7	101.3	75.3	96.0	26.7	43.3	78.0	50.0	87.0	10.0	16.0	27.3	12.7	19.0
Faubush Creek	22.0	13.3	15.3	55.3	34.0	12.0	5.3	6.0	30.7	22.7	1.3	0.0	3.3	8.0	6.0
Fishing Creek	8.0	9.3	11.3	11.3	4.0	1.3	8.0	3.3	7.3	2.0	0.0	0.0	1.3	0.7	0.0
Lily Creek	19.3	40.7	96.0	98.0	71.3	12.7	21.3	50.0	62.0	34.0	2.7	6.0	19.3	18.0	9.3
Mean	22.7	28.0	56.0	60.0	47.3	13.2	19.5	34.3	37.5	31.8	3.5	5.5	12.8	9.8	7.6
Smallmouth bass															
Dam	8.0	8.7	3.3	20.0	17.0	3.3	6.7	2.0	14.0	17.0	2.0	4.7	2.0	11.3	16.0
Faubush Creek	8.7	0.7	4.0	1.3	0.7	6.0	0.7	1.3	0.7	0.7	4.0	0.7	1.3	0.7	0.7
Fishing Creek	0.0	0.0	0.7	0.0	0.7	0.0	0.0	0.7	0.0	0.7	0.0	0.0	0.7	0.0	0.7
Lily Creek	4.7	3.3	21.3	24.7	18.0	4.7	2.0	14.0	19.3	14.0	4.0	1.3	8.0	12.7	10.7
Mean	5.3	3.2	7.3	11.5	8.4	3.5	2.3	4.5	8.5	7.3	2.5	1.7	3.0	6.2	6.2

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 4. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Lake Cumberland April and May 2021.

	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.
2021	5.8	1.6	8.7	1.5	23.6	3.4	31.3	5.2	0.2	0.2	69.5	6.7
2019	18.7	3.4	14.5	2.9	15.3	3.7	36.8	5.2	0.2	0.2	85.3	12.8
2018	4.3	0.8	5.3	1.0	10.7	1.6	19.2	2.8	0.3	0.2	39.5	3.9
2017	2.8	0.7	4.5	1.4	14.3	2.4	25.3	3.5	0.2	0.2	47.0	5.6
2016	5.0	1.8	9.3	3.3	9.8	1.5	12.8	2.4	0.5	0.4	37.0	6.4
2015	6.3	2.3	9.3	2.6	14.2	3.4	8.0	1.7	0.0	0.0	37.8	7.8
2014	9.5	3.7	12.8	4.4	9.7	2.4	8.2	2.0	0.3	0.2	40.2	8.5
2013	1.8	1.1	8.2	2.6	8.2	1.8	4.7	1.1	0.2	0.2	22.8	5.0
2012	15.3	3.8	21.0	3.7	21.7	4.9	11.7	2.4	0.2	0.2	69.7	13.0
2011	5.7	2.7	6.5	2.2	5.2	1.7	3.7	1.1	0.2	0.2	21.0	6.3

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Table 5. Spring electrofishing CPUE (fish/hr) for each length group of spotted bass collected at Lake Cumberland during April and May 2021.

	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.
2021	8.9	2.7	13.3	3.5	24.2	5.4	7.6	1.9	0.2	0.2	54.0	9.2
2019	16.2	3.0	17.8	2.7	27.7	4.3	9.8	2.1	0.0	0.0	71.5	9.9
2018	12.8	2.4	15.5	3.2	21.5	5.3	12.8	3.3	0.3	0.3	62.7	11.7
2017	6.5	1.3	6.7	1.4	14.0	2.4	5.5	2.2	0.0	0.0	32.7	5.2
2016	4.8	1.9	7.2	1.2	9.7	2.4	3.5	1.2	0.0	0.0	25.2	4.5
2015	4.2	1.2	6.0	1.2	10.3	2.5	3.5	1.0	0.0	0.0	24.0	4.2
2014	7.2	1.9	11.2	2.5	7.7	2.4	2.3	1.2	0.0	0.0	28.3	6.0
2013	1.8	0.6	7.7	1.6	9.8	2.4	1.5	0.7	0.0	0.0	20.8	3.8
2012	27.3	4.7	20.5	3.9	8.8	2.6	0.7	0.5	0.0	0.0	57.3	10.1
2011	8.7	1.7	12.2	2.1	5.7	2.4	0.3	0.2	0.0	0.0	26.8	4.6

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Table 6. Spring electrofishing CPUE (fish/hr) for each length group of smallmouth bass collected at Lake Cumberland during April and May 2021.

	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.
2021	1.5	0.6	0.9	0.6	1.1	0.5	6.2	2.0	2.9	1.0	9.6	2.8
2019	2.3	1.4	1.8	0.5	2.3	0.9	6.2	2.3	3.5	1.4	12.7	3.5
2018	2.8	0.8	1.8	0.8	1.5	0.7	3.0	1.0	1.7	0.6	9.2	2.4
2017	0.5	0.3	0.7	0.3	0.7	0.4	1.7	0.9	1.2	0.7	3.5	1.4
2016	4.2	2.2	1.2	0.6	1.0	0.4	2.5	0.8	1.0	0.4	8.8	2.6
2015	1.2	0.7	1.0	0.4	1.7	0.6	5.2	1.8	2.0	0.8	9.0	2.4
2014	1.2	0.6	3.2	1.5	1.7	0.7	2.0	1.1	0.8	0.4	8.0	2.8
2013	1.0	0.6	2.3	0.6	0.3	0.2	1.7	0.5	0.3	0.2	5.3	1.3
2012	4.3	1.4	2.3	0.7	0.3	0.2	1.7	0.7	0.5	0.3	8.7	2.1
2011	0.5	0.4	0.3	0.2	0.7	0.3	0.2	0.2	0.2	0.2	1.7	0.5

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Table 7. Catch-per-hour of black bass captured during spring electrofishing on lakes in the Southeastern Fishery District during 2021.

Species/Lake	Stock*	Quality*	Preferred*
Largemouth bass			
Lake Cumberland	63.6	54.9	31.3
Laurel River Lake	63.3	48.2	13.2
Cedar Creek Lake	149.3	117.3	82.0
Chenoa Lake	139.4	68.6	24.0
Dale Hollow Lake	97.7	90.3	63.0
Lake Linville	177.3	124.7	26.7
Wood Creek Lake	117.3	29.3	12.0
Spotted bass			
Lake Cumberland	47.3	31.8	7.6
Laurel River Lake	31.0	17.7	1.7
Dale Hollow Lake	7.7	4.0	0.0
Lake Linville	47.3	20.0	0.0
Wood Creek Lake	6.0	2.0	0.0
Smallmouth bass			
Lake Cumberland	8.4	7.3	6.2
Laurel River Lake	6.3	4.7	3.5
Dale Hollow Lake	21.0	17.0	14.7

*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 8. Population assessment for largemouth bass based on spring electrofishing at Lake Cumberland from 2011-2021 (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	≥5.0 fish/hr	≥10.0 fish/hr	≥8.0 fish/hr	≥0.5 fish/hr		
2021	Value	14.1	8.7	23.6	31.3	0.2		
	Score	4	1	3	4	2	14	G
2019	Value		29.0	15.3	36.8	0.2		
	Score	4	3	1	4	2	14	G
2018	Value		6.3	10.7	19.2	0.3		
	Score	4	1	1	3	2	11	F
2017	Value		3.8	14.3	25.3	0.2		
	Score	4	1	1	4	2	12	F
2016	Value	13.7	9.2	9.8	12.8	0.5		
	Score	4	1	1	2	3	11	F
2015	Value		8.3	14.2	8.0	0.0		
	Score	4	1	1	2	1	9	F
2014	Value		12.8	9.7	8.2	0.3		
	Score	4	2	1	2	2	11	F
2013	Value		6.6	8.2	4.7	0.2		
	Score	4	1	1	1	2	9	F
2012	Value	14.0	21.0	21.7	11.7	0.2		
	Score	4	2	2	2	2	12	F
2011	Value		6.8	5.2	3.7	0.2		
	Score	4	1	1	1	2	9	F

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Table 9. Population assessment for spotted bass based on spring electrofishing at Lake Cumberland from 2011-2021 (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		≥9.6 in	≥4.0 fish/hr	≥7.0 fish/hr	≥2.0 fish/hr		
2021	Value		5.8	24.2	7.6		
	Score	3	4	4	4	15	E
2019	Value		7.5	27.7	9.8		
	Score	3	4	4	4	15	E
2018	Value		2.5	21.5	12.8		
	Score	3	3	4	4	14	E
2017	Value		0.6	14.0	5.5		
	Score	3	1	4	4	12	G
2016	Value		1.2	9.7	3.5		
	Score	3	2	3	4	12	G
2015	Value		1.7	10.3	3.5		
	Score	3	2	4	4	13	G
2014	Value		1.2	7.7	2.3		
	Score	3	2	2	3	10	G
2013	Value	11.1	0.0	9.8	1.5		
	Score	3	1	3	3	10	G
2012	Value		14.0	8.8	0.7		
	Score	3	4	3	2	12	G
2011	Value		3.9	5.7	0.3		
	Score	3	3	2	1	9	F

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Table 10. Population assessment for smallmouth bass based on spring electrofishing at Lake Cumberland from 2011-2021 (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	≥2.0 fish/hr	≥3.0 fish/hr	≥2.0 fish/hr		
2021	Value		1.1	1.1	6.2		
	Score	1	2	3	4	10	G
2019	Value		0.5	2.3	6.2		
	Score	1	2	4	4	11	G
2018	Value		1.0	1.5	3.0		
	Score	1	2	3	4	10	G
2017	Value		0.0	0.7	1.7		
	Score	1	1	2	3	7	F
2016	Value		2.8	1.0	2.5		
	Score	1	3	3	4	11	G
2015	Value		0.3	1.7	5.2		
	Score	1	1	3	4	9	F
2014	Value		0.2	1.7	2.0		
	Score	1	1	3	4	9	F
2013	Value		0.3	0.3	1.7		
	Score	1	1	2	3	7	F
2012	Value		2.5	0.3	1.7		
	Score	1	3	2	3	9	F
2011	Value		0.0	0.7	0.2		
	Score	1	1	2	1	5	P

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Table 11. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Lake Cumberland during April and May 2021; 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%)
2021	Dam	84	98 (± 3)	83 (± 8)	96	91 (± 6)	20 (± 8)	17	100 (± 0)	94 (± 12)
	Faubush Creek	86	87 (± 7)	47 (± 11)	51	67 (± 13)	18 (± 11)	1	100 (± 0)	100 (± 0)
	Fishing Creek	126	83 (± 7)	33 (± 8)	6	50 (± 44)	0 (± 0)	1	100 (± 0)	100 (± 0)
	Lily Creek	54	74 (± 12)	37 (± 13)	107	48 (± 10)	13 (± 6)	27	78 (± 16)	59 (± 19)
	Total	350	86 (± 4)	49 (± 5)	260	67 (± 6)	16 (± 5)	46	87 (± 10)	74 (± 13)
2019	Total	400	78 (± 4)	55 (± 5)	360	63 (± 5)	16 (± 4)	69	74 (± 10)	54 (± 12)
2018	Total	211	85 (± 5)	55 (± 7)	336	61 (± 5)	23 (± 5)	44	61 (± 15)	41 (± 15)
2017	Total	265	90 (± 4)	57 (± 6)	168	70 (± 7)	20 (± 6)	19	74 (± 20)	53 (± 23)
2016	Total	192	71 (± 6)	40 (± 7)	136	58 (± 8)	15 (± 6)	32	66 (± 17)	47 (± 18)
2015	Total	189	70 (± 7)	25 (± 6)	132	63 (± 8)	16 (± 6)	47	87 (± 10)	66 (± 14)
2014	Total	184	58 (± 7)	27 (± 6)	150	40 (± 8)	9 (± 5)	45	49 (± 15)	27 (± 13)
2013	Total	126	61 (± 9)	22 (± 7)	121	56 (± 9)	7 (± 5)	27	44 (± 19)	37 (± 19)
2012	Total	326	61 (± 5)	21 (± 4)	224	25 (± 6)	2 (± 2)	33	36 (± 17)	30 (± 16)
2011	Total	92	58 (± 10)	24 (± 9)	124	29 (± 8)	2 (± 2)	8	63 (± 36)	13 (± 25)

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Table 12. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Lake Cumberland, Laurel River Lake, Cedar Creek Lake, Chenoa Lake, Dale Hollow Lake, Lake Linville, and Wood Creek Lake during 2021; 95% confidence limits are in parentheses.

	Largemouth bass		Smallmouth bass		Spotted bass	
Lake	PSD	RSD_{15}	PSD	RSD_{14}	PSD	RSD_{14}
Lake Cumberland	86 (±4)	49 (±5)	87 (±10)	74 (±13)	67 (±6)	16 (±5)
Laurel River Lake	76 (±4)	21 (±4)	74 (±14)	55 (±16)	57 (±7)	5 (±3)
Cedar Creek Lake	79 (±5)	55 (±7)				
Chenoa Lake	49 (± 9)	17 (± 6)				
Dale Hollow Lake	92 (± 3)	64 (± 5)	81 (± 10)	70 (± 11)	52 (± 21)	0 (± 0)
Lake Linville	70 (± 6)	15 (± 4)			42 (± 4)	0 (± 0)
Wood Creek Lake	25 (±6)	10 (±4)			33 (±33)	0 (±0)

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Table 13. 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 29 September 2021; standard error is in parentheses.

	Inch class																	
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	CPUE
Largemouth bass	13	1	2	5	7	4	1	2	3	1	8	5	4	1	4	1	62	41.3 (6.8)
Spotted bass	23	21	2	2	8	2	11	1	2	3	5	3	2				85	56.7 (14.1)

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Table 14. 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								
2021	Fishing Creek	4.5	0.3	20.7	4.3	10.0	4.9		
2020	Fishing Creek	4.1	0.4	16.0	5.0	4.7	2.4	12.7	4.4
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

[a] Age-1 largemouth bass CPUE based only on Fishing Creek location

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Table 15. Year class strength at age-0 and mean lengths (in) of largemouth bass collected in September and October 2021 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	4.5	0.3	20.7	4.3	10.0	4.9
Laurel River Lake	Laurel River Arm	3.1	0.0	98.7	18.3	2.0	2.0
Cedar Creek Lake		3.6	0.1	103.3	26.6	6.7	2.5
Wood Creek Lake		3.9	0.1	43.3	6.7	3.3	1.2

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Table 16. Number of fish and mean relative weight (Wr) for each length group of black bass collected in Fishing Creek of Lake Cumberland on 29 September 2021. 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
	7	84 (2)	23	89 (1)	8	95 (4)
	7.0-10.9 in		11.0-13.9 in		≥14.0 in	
Spotted bass	No.	Wr	No.	Wr	No.	Wr
	16	103 (3)	11	91 (2)	2	93 (8)

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Table 17. 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 2021. 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)	7	84 (2)	23	89 (1)	8	95 (4)
	Laurel River Lake (Laurel River Arm)	11	104 (4)	28	98 (2)	13	98 (3)
	Cedar Creek Lake	31	90 (2)	9	97 (3)	4	95 (3)
	Wood Creek Lake	90	86 (1)	13	82 (2)	6	90 (4)
Spotted bass		7.0-10.9 in		11.0-13.9 in		≥14.0 in	
	Lake Cumberland (Fishing Creek)	16	103 (3)	11	91 (2)	2	93 (8)
	Laurel River Lake (Laurel River Arm)	9	108 (4)	5	106 (5)	0	0 (0)
	Wood Creek Lake	4	107 (7)	0	0 (0)	0	0 (0)

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Table 18. Mean back calculated lengths (in) at each annulus for largemouth bass collected from Lake Cumberland during 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age						
Year	No.	1	2	3	4	5	6	7
2020	6	5.8						
2019	20	6.4	11.2					
2018	6	7.3	11.5	13.5				
2017	1	7.2	11.8	14.2	16.1			
2016	1	4.6	9.4	13.1	14.8	15.6		
2015	3	7.4	12.2	14.5	15.6	16.4	16.8	
2014	1	6.9	11.4	13.2	14.5	14.7	15.2	15.7
Mean		6.5	11.3	13.8	15.3	15.9	16.4	15.7
Number		38	32	12	6	5	4	1
Smallest		3.6	9.4	11.5	14.5	14.7	15.2	15.7
Largest		9.5	13.4	15.3	16.3	17.0	17.4	15.7
Std error		0.3	0.2	0.3	0.3	0.4	0.5	
95% CI ±		0.5	0.4	0.6	0.6	0.8	0.9	

Otoliths were used for age-growth determinations; Intercept = 0
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Table 19. Length frequency and CPUE (fish/nn) for each species of crappie collected in the Fishing Creek (27 net-nights) and Wolf Creek (27 net-nights) embayments of Lake Cumberland in 54 net-nights from 18-21 and 25-28 October 2021.

		Inch class															
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	CPUE	Std. error
Fishing Creek																	
	White crappie	4	19	2	5	9	69	85	29	12	4	2	7	2	249	9.2	1.5
	Black crappie	15	25	2	28	11	8	5	1			1			96	3.6	0.8
Wolf Creek																	
	White crappie						1				1				2	0.1	0.1
	Black crappie	4	9	2	5	18	37	21	16	19	7	1	1		140	5.2	1.2
Total																	
	White crappie	4	19	2	5	9	70	85	29	12	5	2	7	2	251	4.7	1.0
	Black crappie	19	34	4	33	29	45	26	17	19	7	2	1		236	4.4	0.7

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Table 20. PSD and RSD_{10} values calculated for crappie collected in trapnets at Lake Cumberland in October 2021; 95% confidence limits are in parentheses.

Species		No. stock size	PSD	RSD_{10}
White crappie				
	Fishing Creek	224	63 (± 6)	12 (± 4)
	Wolf Creek	2	50 (± 98)	50 (± 98)
	Total	226	63 (± 6)	12 (± 4)
Black crappie				
	Fishing Creek	54	13 (± 9)	2 (± 4)
	Wolf Creek	125	52 (± 9)	22 (± 7)
	Total	179	40 (± 7)	16 (± 5)

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Table 21. Mean back calculated lengths (in) at each annulus for white crappie collected from Lake Cumberland during 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age					
Year	No.	1	2	3	4	5	6
2020	13	3.5					
2019	44	4.3	7.3				
2018	4	4.9	10.3	12.3			
2017	1	4.2	9.7	11.3	12.1		
2016	1	4.2	8.7	10.9	12.1	12.6	
2015	5	4.0	7.7	10.3	11.8	12.7	13.3
Mean		4.1	7.6	11.2	11.9	12.7	13.6
Number		68	55	11	7	6	5
Smallest		2.9	5.2	9.3	11.1	11.9	13.1
Largest		6.0	11.7	12.7	12.6	13.5	14.2
Std error		0.1	0.2	0.3	0.2	0.2	0.3
95% CI ±		0.2	0.4	0.7	0.4	0.5	0.6

Otoliths were used for age-growth determinations; Intercept = 0
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Table 22. Mean back calculated lengths (in) at each annulus for black crappie collected from Lake Cumberland during 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age					
Year	No.	1	2	3	4	5	6
2020	24	3.6					
2019	25	3.8	6.4				
2018	9	3.8	6.7	9.0			
2017	1	4.1	7.5	10.2	11.7		
2016	1	3.5	6.5	9.4	11.2	12.2	
2015	1	3.9	6.0	8.1	10.4	11.6	12.5
Mean		3.7	6.5	9.1	11.1	11.9	12.5
Number		61	37	12	3	2	1
Smallest		2.3	4.5	7.7	10.4	11.6	12.5
Largest		5.1	8.6	10.2	11.7	12.2	12.5
Std error		0.1	0.2	0.3	0.4	0.3	
95% CI ±		0.2	0.3	0.5	0.7	0.6	

Otoliths were used for age-growth determinations; Intercept = 0
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Table 23. Age-frequency and CPUE (fish/nn) of white crappie trap-netted at Lake Cumberland in 54 net-nights in October 2021.

	Inch class																Std
Age	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	%	CPUE	error
0+	4	19	2											25	10.0	0.5	0.1
1+				5	6	21								32	12.7	0.6	0.2
2+					3	49	85	29	12	5				183	72.9	3.4	0.8
3+											1	3		4	1.6	0.1	0.0
4+											1			1	0.4	0.0	0.0
5+												1		1	0.4	0.0	0.0
6+												3	2	5	2.0	0.1	0.0
Total	4	19	2	5	9	70	85	29	12	5	2	7	2	251	100.0	4.6	
%	1.6	7.6	0.8	2.0	3.6	27.9	33.9	11.6	4.8	2.0	0.8	2.8	0.8				

CPUE of ≥8.0 in (quality size) crappie = 2.6 fish/nn
CPUE of ≥10.0 in (preferred size) crappie = 0.5 fish/nn
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Table 24. Age-frequency and CPUE (fish/nn) of black crappie trap-netted at Lake Cumberland in 54 net-nights in October 2021.

	Inch class															Std
Age	2	3	4	5	6	7	8	9	10	11	12	13	Total	%	CPUE	error
0+	19	34	1										54	22.9	1.0	0.2
1+			3	33	20	14	3						73	30.9	1.4	0.3
2+					9	31	20	11	8	3			82	34.7	1.5	0.3
3+							3	6	11	4			24	10.2	0.4	0.1
4+											1		1	0.4	0.0	0.0
5+											1		1	0.4	0.0	0.0
6+												1	1	0.4	0.0	0.0
Total	19	34	4	33	29	45	26	17	19	7	2	1	236	100.0	4.4	
%	8.1	14.4	1.7	14.0	12.3	19.1	11.0	7.2	8.1	3.0	0.8	0.4				

CPUE of ≥8.0 in (quality size) crappie = 1.3 fish/nn
CPUE of ≥10.0 in (preferred size) crappie = 0.5 fish/nn
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Table 25. Population assessment for white and black crappie from Lake Cumberland trap net data collected in October 2021 (scoring based on statewide assessment).

	Species			
	White crappie		Black crappie	
Parameter	Assessment value	Assessment score	Assessment value	Assessment score
CPUE age-1 and older	4.2	2	3.4	2
CPUE age-1	0.6	1	1.4	2
CPUE age-0	0.5	2	1.0	3
CPUE $\geq$ 8.0 in	2.6	2	1.3	2
Mean length age-2 at capture	8.6	2	8.3	1
Instantaneous mortality (Z)	0.751		1.081	
Annual mortality (A)	52.8		66.1	
Total score:		9		10
Assessment rating:		F		F

sedtncb.d21
sedagcbc.d21

Table 26. Population assessment for crappie based on fall trap netting at Lake Cumberland from 2003-2021 (scoring based on statewide assessment).

Year		CPUE ≥ age-1 WC	CPUE ≥ age-1 BC	CPUE ≥ age-1 ALL	CPUE age-1 WC	CPUE age-1 BC	CPUE age-1 ALL	CPUE age-0 WC	CPUE age-0 BC	CPUE age-0 ALL	CPUE ≥ 8.0 in WC	CPUE ≥ 8.0 in BC	CPUE ≥ 8.0 in ALL	Mean length age-2 at capture WC	Mean length age-2 at capture BC	Mean length age-2 at capture ALL	Total Score	Assessement rating
Management objective		≥ 5.0 fish/nn			≥ 3.0 fish/nn			≥ 3.0 fish/nn			≥ 2.0 fish/nn			≥ 9.6 in				
2021	Value	4.2	3.4	7.6	0.6	1.4	2.0	0.5	1.0	1.5	2.6	1.3	4.0	8.6	8.3	8.5		
	Score			3			2			2			2			1	10	F
2019	Value	0.4	10.7	11.1	0.1	8.9	9.0	6.1	7.3	13.4	0.4	2.4	2.8	10.5	10.2	10.2		
	Score			3			4			4			2			4	17	E
2017	Value	1.5	3.2	4.6	0.3	0.4	0.8	0.0	0.2	0.2	1.1	1.4	2.6	9.4	7.7	8.5		
	Score			2			1			1			2			1	7	P
2015	Value	0.2	3.7	3.9	0.1	1.4	1.5	0.4	0.3	0.7	0.1	1.6	1.7	11.9*	8.4	8.5		
	Score			1			1			1			1			1	5	P
2013	Value	0.2	0.9	1.1	0.0	0.1	0.1	0.0	34.2	34.2	0.2	0.8	1.0	11.9	9.7	9.9		
	Score			1			1			4			1			3	10	F
2011	Value	2.8	2.7	5.5	2.3	2.2	4.5	0.2	23.3	23.5	1.4	0.7	2.0	10.7	9.8	10.2		
	Score			2			3			4			1			4	14	G
2009	Value	0.8	0.7	1.5	0.8	0.6	1.4	0.6	7.3	7.9	0.6	0.3	0.9	-	-	-		
	Score			1			1			4			1			0	7	P
2007	Value	0.3	7.0	7.3	0.2	6.7	6.9	0.0	0.2	0.3	0.3	0.5	0.8	11.2	9.4	9.9		
	Score			3			3			1			1			3	11	F
2005	Value	0.5	5.2	5.7	0.1	2.8	3.0	0.2	1.2	1.4	0.5	1.4	1.9	10.6	8.1	8.8		
	Score			2			2			2			1			1	8	P
2003	Value	2.3	3.5	5.8	1.8	2.7	4.5	0.2	4.5	4.7	1.2	1.2	2.4	10.4	9.8	10.1		
	Score			2			3			4			2			3	14	G

* No age-2 fish collected. Data is from age-2 white crappie collected in 2013.

sedtncb.d21

sedagcbc.d21

Table 27. Number of fish and mean relative weight (Wr) for each length group of crappie collected in Lake Cumberland in October 2021. Standard error is in parentheses.

		Length group					
		5.0-7.9 in		8.0-9.9 in		≥10.0 in	
Species	Location	No.	Wr	No.	Wr	No.	Wr
White crappie							
	Fishing Creek	83	88 (1)	114	89 (0)	27	87 (1)
	Wolf Creek	1	97 (-)	0	- (-)	1	92 (-)
	Lake Cumberland	84	88 (1)	114	89 (0)	28	88 (1)
Black crappie							
	Fishing Creek	47	91 (1)	6	88 (2)	1	97 (-)
	Wolf Creek	60	96 (1)	37	92 (1)	28	92 (1)
	Lake Cumberland	107	94 (1)	43	92 (1)	29	92 (1)

sedtncb.d21

Table 28. Length frequency and CPUE (fish/nn) of striped bass collected at Lake Cumberland in 20 net-nights on 29 November-1 December 2021.

	Inch class																				
Species	8	9	10	14	16	17	18	19	20	21	23	24	25	26	27	28	29	30	31	Total	CPUE	Std. error
Striped bass	3	4	1	1	1	2	13	5	1	1	4	11	9	15	23	8	3	2	2	109	5.5	1.4

sedgncbs.d21

Table 29. Population assessment for striped bass based on fall gill netting at Lake Cumberland from 2009-2021.

Year		CPUE ≥age 1	Mean length age-2 at capture	CPUE ≥24.0 in	CPUE age-1	Total score	Assessement rating
Management objective		≥4.0 fish/nn	≥21.0 in	≥1.0 fish/nn	≥2.0 fish/nn		
2021	Value	5.0	24.0	3.7	1.1		
	Score	3	4	4	1	12	G
2019	Value	6.9	22.0	2.4	0.7		
	Score	4	2	4	1	11	G
2017	Value	4.0	24.3	1.7	2.2		
	Score	2	4	4	3	13	G
2016	Value	5.0	22.8	2.7	0.9		
	Score	3	4	4	1	12	G
2015	Value	4.6	22.3	1.5	0.9		
	Score	3	3	4	1	11	G
2014	Value	6.1	21.9	0.6	5.2		
	Score	4	2	1	4	11	G
2013	Value	7.2	22.1	2.8	2.6		
	Score	4	3	4	3	14	E
2012	Value	7.3	20.6	1.9	0.8		
	Score	4	1	4	1	10	G
2011	Value	5.9	20.5	1.2	0.6		
	Score	4	1	3	1	9	F
2009	Value	4.0	21.6	1.2	1.8		
	Score	2	2	3	3	10	G

sedgncbs.d21
sedagcbs.d21

Table 30. Mean back calculated lengths (in) at each annulus for striped bass collected from Lake Cumberland during 2021, 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	11
2020	17	12.0										
2019	10	12.2	20.1									
2018	10	11.8	19.4	23.9								
2017	21	13.2	19.7	22.9	25.2							
2016	9	13.0	19.7	23.6	26.3	27.7						
2010	1	12.8	18.4	21.4	23.2	24.4	25.2	26.7	27.6	28.5	28.8	29.4
Mean		12.5	19.7	23.3	25.5	27.3	25.2	26.7	27.6	28.5	28.8	29.4
Number		68	51	41	31	10	1	1	1	1	1	1
Smallest		7.6	16.8	20.4	22.9	24.4	25.2	26.7	27.6	28.5	28.8	29.4
Largest		15.2	22.4	25.9	29.1	30.6	25.2	26.7	27.6	28.5	28.8	29.4
Std error		0.2	0.1	0.2	0.3	0.7						
95% CI ±		0.4	0.3	0.4	0.6	1.4						

Otoliths were used for age-growth determinations; Intercept = 0
sedagcbs.d21

Table 31. Age-frequency and CPUE (fish/nn) of striped bass gill netted for 20 net-nights at Lake Cumberland in November and December 2021.

	Inch class																				Std
Age	8	9	10	14	16	17	18	19	21	23	24	25	26	27	28	29	30	31	Total	%	CPUE	error
0	3	4	1																8	7.4	0.4	0.3
1+				1	1	2	13	5											22	20.4	1.1	0.5
2+									1	4	8								13	12.0	0.7	0.3
3+											3	3	3	7	1				17	15.7	0.9	0.2
4+												6	9	14	4	2			35	32.4	1.8	0.5
5+													3	2	3		2	2	12	11.1	0.6	0.2
11+																1			1	0.9	0.1	0.1
Total	3	4	1	1	1	2	13	5	1	4	11	9	15	23	8	3	2	2	108	100.0	5.4	
%	2.8	3.7	0.9	0.9	0.9	1.9	12.0	4.6	0.9	3.7	10.2	8.3	13.9	21.3	7.4	2.8	1.9	1.9				

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sedagcbs.d21

Table 32. Population assessment for striped bass gill netted at Lake Cumberland in November and December 2021.

Parameter	Actual value	Assessment score
Population density (CPUE age 1 and older)	5.0	3
Growth rate (Mean length age 2+ at capture)	24.0	4
Size structure (CPUE ≥24.0 in)	3.7	4
Recruitment (CPUE age 1)	1.1	1
Instantaneous mortality (Z)	0.022	
Annual mortality (A)	2.2	
Total score		12
Assessment rating		G

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sedagcbs.d21

Table 33. Number of fish and mean relative weight (Wr) for each length group of striped bass collected in Lake Cumberland in November and December 2021. Standard error is in parentheses.

Length group					
12.0-19.9 in		20.0-29.9 in		≥30.0 in	
No.	Wr	No.	Wr	No.	Wr
22	87 (1)	71	87 (1)	4	86 (1)

sedgncbs.d21

Table 34. Species composition, relative abundance, and CPUE (fish/hr) of trout collected during 8.75 hours of 15-minute nocturnal electrofishing runs for trout in Cumberland tailwater during November 2021; standard error is in parentheses.

		Inch class															
Area	Species	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Above Helms	Rainbow trout	5	47	97	43	14	4	2	15	9	6		1		3	246	196.8 (17.1)
	Brown trout	1	2	5	5	3			1	1						18	14.4 (4.3)
	Brook trout			1												1	0.8 (0.8)
Below Helms	Rainbow trout	6	31	44	32	12	2	2	8	4	3					144	115.2 (15.3)
	Brown trout		2	7	3				1							13	10.4 (4.3)
	Brook trout															0	0.0 (0.0)
Rainbow Run	Rainbow trout	1	10	20	20	10	8	3	8		3	4	1		2	90	72.0 (9.6)
	Brown trout			5	9	2	2		2				1			21	16.8 (6.0)
	Brook trout															0	0.0 (0.0)
Big Willis	Rainbow trout	3	11	24	23	18	13	6	6	7	9	2	1			123	98.4 (8.9)
	Brown trout		1	5	6	1					1					14	11.2 (3.2)
	Brook trout															0	0.0 (0.0)
Crocus Creek	Rainbow trout	5	13	30	23	5	8	8	7	10	4	1	4			118	51.2 (6.6)
	Brown trout	1	5	11	3	3			1				1			25	20.0 (4.6)
	Brook trout															0	0.0 (0.0)
Hwy 61 Bridge	Rainbow trout		3	7	9	3	2	5	9	6	6	2	1	1		54	43.2 (15.3)
	Brown trout		1													1	0.8 (0.8)
	Brook trout															0	0.0 (0.0)
Cloyd's Landing	Rainbow trout		3	7	4	3	4		1	1	2	1	2			28	22.4 (2.7)
	Brown trout	1	1	2		1										5	4.0 (1.8)
	Brook trout															0	0.0 (0.0)
Total	Rainbow trout	20	118	229	154	65	41	26	54	37	33	10	10	1	5	803	91.8 (10.0)
	Brown trout	3	12	35	26	10	2		5	1	1		2			97	11.1 (1.7)
	Brook trout			1												1	0.1 (0.1)

sedcbtwn.d21

Table 35. 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 2021. 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.
2021	96.5	9.5	15.8	1.5	2.2	0.7	0.8	0.3
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.t21

*2011 sampling was conducted in February.

Table 36. 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 2021. 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.
2021	13.1	1.7	1.1	0.4	0.3	0.2	0.0	0.0
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.t21

*2011 sampling was conducted in February.

Table 37. Number of fish and mean relative weight (Wr) for each species of trout collected in the Cumberland tailwater during November 2021. Standard error is in parentheses.

	Species			
	Rainbow trout		Brown trout	
Location	No.	Wr	No.	Wr
Above Helms	245	86 (1)	18	81 (2)
Below Helms	142	80 (1)	13	77 (2)
Rainbow Run	90	85 (1)	21	83 (2)
Big Willis	123	84 (1)	14	84 (2)
Crocus Creek	118	84 (1)	25	88 (2)
Hwy 61	54	90 (1)	1	86 (-)
Cloyds	28	89 (2)	5	98 (4)
Total	800	85 (0)	97	84 (1)

sedcbtwn.d21

Table 38. 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 April and May 2021; standard error is in parentheses.

		Inch class																			
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total	CPUE
Dam	Largemouth bass			3	6	20	19	6	2	7	7	11	24	16	10	3	1			135	90.0 (19.8)
	Spotted bass					5	4	1	2		3	1	2							18	12.0 (4.8)
	Smallmouth bass	4	1		2	1	1		1			1	1	1	1	2		1	1	18	12.0 (1.5)
Spruce	Largemouth bass	1	1			1	1	2	2	6	6	12	16	9	5	7	3		2	74	49.3 (9.2)
Creek	Spotted bass		1			1	3	3	3	9	10	9	2	6						47	31.3 (11.2)
	Smallmouth bass		2			1	3		1				2		3	1	1	1		15	10.0 (4.0)
Laurel	Largemouth bass		7	1	4	2	5		8	11	11	28	20	20	9	10	8	5	2	151	100.7 (9.4)
River	Spotted bass		4	3	1	1	2	4	3	11	16	16	3	1						65	43.3 (19.9)
Arm	Smallmouth bass								1		1		1	1		1	1	1		7	4.7 (2.6)
Upper	Largemouth bass			1	1	6	5	4	5	4	10	26	21	7	6	5	3			104	69.3 (11.4)
Craigs	Spotted bass	5			1	8	12	9	3	11	25	5	4	3						86	57.3 (6.8)
Creek	Smallmouth bass						1	1	1			1		1	1		3			9	6.0 (3.2)
Total	Largemouth bass	1	8	5	11	29	30	12	17	28	34	77	81	52	30	25	15	5	4	464	77.3 (7.4)
	Spotted bass	5	5	3	2	15	21	17	11	31	54	31	11	10						216	36.0 (6.7)
	Smallmouth bass	4	3		2	2	5	1	4		1	2	4	3	5	4	5	3	1	49	8.2 (1.5)

sedpsdlr.d21

Table 39. Comparison of catch-per-hour of black bass (by area) captured during spring electrofishing on Laurel River Lake during the period of 2017-2021.

	Stock					Quality					Preferred				
Species/Area	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Largemouth bass															
Dam	54.7	47.3	30.7	40.0	58.0	39.3	36.7	24.7	11.3	43.3	17.3	16.0	8.7	5.3	9.3
Spruce Creek	72.7	50.7	50.7	24.0	46.7	38.0	39.3	42.7	14.0	36.0	29.3	18.0	25.3	10.7	11.3
Laurel River Arm	85.3	75.3	74.0	97.3	88.0	56.7	50.7	46.7	46.7	68.0	21.3	33.3	27.3	19.3	22.7
Craigs Cr. headwaters	69.3	51.3	68.0	36.0	60.7	50.0	36.7	36.7	14.0	45.3	28.0	12.0	13.3	4.0	9.3
Mean	70.5	56.2	55.8	49.3	63.3	46.0	40.8	37.7	21.5	48.2	24.0	19.8	18.7	9.8	13.2
Spotted bass															
Dam	4.0	2.0	3.3	2.7	8.7	4.0	0.7	1.3	0.0	4.0	0.7	0.0	0.0	0.0	0.0
Spruce Creek	24.0	30.0	17.3	14.7	30.0	12.0	12.7	13.3	6.7	18.0	5.3	6.7	1.3	1.3	4.0
Laurel River Arm	18.7	15.3	22.7	33.3	37.3	8.7	3.3	10.0	8.0	24.0	1.3	1.3	1.3	3.3	0.7
Craigs Cr. headwaters	19.3	30.7	18.7	26.0	48.0	12.7	16.0	6.7	11.3	24.7	4.7	4.0	2.0	2.0	2.0
Mean	16.5	19.5	15.5	19.2	31.0	9.3	8.2	7.8	6.5	17.7	3.0	3.0	1.2	1.7	1.7
Smallmouth bass															
Dam	2.0	0.7	4.0	0.0	6.7	1.3	0.0	2.0	0.0	5.3	1.3	0.0	2.0	0.0	4.0
Spruce Creek	2.0	4.0	2.0	2.0	8.0	2.0	2.7	2.0	0.0	5.3	2.0	2.7	1.3	0.0	4.0
Laurel River Arm	2.7	0.7	2.0	3.3	4.7	2.7	0.0	2.0	0.0	4.0	0.0	0.0	2.0	0.0	2.7
Craigs Cr. headwaters	0.0	1.3	1.3	4.0	6.0	0.0	1.3	1.3	4.0	4.0	0.0	0.7	1.3	4.0	3.3
Mean	1.7	1.7	2.3	2.3	6.3	1.5	1.0	1.8	1.0	4.7	0.8	0.8	1.7	1.0	3.5

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 40. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Laurel River Lake during April and May 2021.

	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.
2021	14.0	4.8	15.2	2.2	35.0	3.6	13.2	2.1	0.0	0.0	77.3	7.4
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

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Table 41. Spring electrofishing CPUE (fish/hr) for each length group of spotted bass collected at Laurel River Lake during April and May 2021.

	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.
2021	8.5	1.6	9.8	2.0	16.0	4.2	1.7	0.8	0.0	0.0	36.0	6.7
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

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Table 42. Spring electrofishing CPUE (fish/hr) for each length group of smallmouth bass collected at Laurel River Lake during April and May 2021.

	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.
2021	2.7	0.9	0.8	0.3	1.2	0.5	3.5	1.2	1.5	0.7	8.2	1.5
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

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Table 43. Population assessment for largemouth bass based on spring electrofishing at Laurel River Lake from 2012-2021 (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		
2021	Value		12.2	35.0	13.2	0.0		
	Score	4	2	4	3	1	14	G
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

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Table 44. Population assessment for spotted bass based on spring electrofishing at Laurel River Lake from 2012-2021 (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		
2021	Value		1.7	16.0	1.7		
	Score	1	2	4	3	10	G
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

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Table 45. Population assessment for smallmouth bass based on spring electrofishing at Laurel River Lake from 2012-2021 (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		
2021	Value		1.1	1.2	3.5		
	Score	3	2	3	4	12	G
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

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Table 46. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Laurel River Lake during April and May 2021; 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%)
2021	Dam	87	16 (± 8)	13 (± 9)	13	46 (± 28)	0 (± 0)	10	80 (± 26)	60 (± 32)
	Spruce Creek	70	77 (± 10)	24 (± 10)	45	60 (± 15)	13 (± 10)	12	67 (± 28)	50 (± 30)
	Laurel River Arm	132	77 (± 7)	26 (± 8)	56	64 (± 13)	2 (± 4)	7	86 (± 28)	57 (± 40)
	Upper Craigs Creek	91	75 (± 9)	15 (± 8)	72	51 (± 12)	4 (± 5)	9	67 (± 33)	56 (± 34)
	Total	380	76 (± 4)	21 (± 4)	186	57 (± 7)	5 (± 3)	38	74 (± 14)	55 (± 16)
2020	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)

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Table 47. 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 5 October 2021; standard error is in parentheses.

		Inch class																	
Area	Species	2	3	4	5	6	7	8	9	11	12	13	14	15	16	17	19	Total	CPUE
Laurel River Arm	Largemouth bass	73	64	8	3	3	1	2	4	5	8	10	10	6	2	4	1	204	136.0 (28.7)
	Spotted bass	9	31	2	7	13	3	2	4	4	1							76	50.7 (11.5)
	Smallmouth bass		8								1							9	6.0 (2.7)

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Table 48. 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
2021	Laurel River Arm	3.1	0.0	98.7	18.3	2.0	2.0		
2020	Laurel River Arm	5.0	0.2	12.0	6.0	7.3	4.2	10.7	2.5
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 49. Number of fish and mean relative weight (Wr) for each length group of black bass collected at 312 Bridge in Laurel River Lake on 5 October 2021. 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	104 (4)	28	98 (2)	13	98 (3)
	7.0-10.9 in		11.0-13.9 in		≥14.0 in	
Spotted bass	No.	Wr	No.	Wr	No.	Wr
	9	108 (4)	5	106 (5)	0	- (-)

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Table 50. Length frequency and CPUE (fish/nn) of walleye collected from Laurel River Lake in 8 net-nights in November 2021.

	Inch class												
Species	11	13	15	16	17	18	19	20	21	22	Total	CPUE	Std. error
Walleye	4	1	3	11	22	8	22	24	6	1	102	12.8	1.9

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Table 51. Population assessment for walleye based on fall gill netting at Laurel River Lake from 2002-2021 (scoring based on statewide assessment).

Year		Parameters: CPUE ≥ age-1+	Mean length age-2+ at capture	CPUE ≥ 20.0 in	CPUE age-1+	Total score	Assessment rating
Management objective		≥10.0 fish/nn	≥18.0 in	≥2.5 fish/nn	≥4.0 fish/nn		
2021	Value	12.1	19.5	3.9	4.8		
	Score	4	4	4	4	16	E
2019	Value	13.3	18.9	4.1	0.5		
	Score	4	3	4	1	12	G
2017	Value	11.4	19.2	5.3	1.3		
	Score	4	4	4	2	14	E
2015	Value	16.5	19.5	8.5	4.9		
	Score	4	4	4	4	16	E
2013	Value	18.5	19.4	7.9	4.6		
	Score	4	4	4	4	16	E
2011	Value	15.1	19.1	4.3	1.2		
	Score	4	4	4	2	14	E
2009	Value	15.3	19.0	7.2	5.1		
	Score	4	4	4	4	16	E
2007	Value	21.6	19.1	6.5	8.3		
	Score	4	4	4	4	16	E
2005	Value	25.1	19.5	9.3	8.0		
	Score	4	4	4	4	16	E
2002	Value	10.6	18.8	0.6	6.1		
	Score	4	4	2	4	14	E

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Table 52. Mean back calculated lengths (in) at each annulus for male walleye collected from Laurel River Lake during 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age						
Year	No.	1	2	3	4	5	6	7
2020	21	11.5						
2019	4	13.1	16.8					
2018	2	12.0	17.4	18.9				
2017	21	11.6	16.3	18.3	19.3			
2016	2	10.9	16.1	17.7	18.8	19.8		
2015	1	11.0	17.4	18.8	19.9	20.6	20.9	
2014	1	11.2	13.8	17.0	19.6	20.7	21.4	21.7
Mean		11.7	16.4	18.2	19.3	20.2	21.2	21.7
Number		52	31	27	25	4	2	1
Smallest		7.7	13.8	16.8	18.1	19.6	20.9	21.7
Largest		14.5	18.5	19.8	20.8	20.7	21.4	21.7
Std error		0.2	0.2	0.1	0.1	0.3	0.2	
95% CI ±		0.4	0.4	0.3	0.3	0.5	0.5	

Otoliths were used for age-growth determinations; Intercept = 0
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Table 53. Mean back calculated lengths (in) at each annulus for female walleye collected from Laurel River Lake during 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age			
Year	No.	1	2	3	4
2020	1	11.8			
2019	4	14.1	18.1		
2018	2	12.6	17.5	20.0	
2017	1	9.3	16.3	19.0	21.1
Mean		12.9	17.7	19.7	21.1
Number		8	7	3	1
Smallest		9.3	16.3	19.0	21.1
Largest		15.2	18.6	20.0	21.1
Std error		0.7	0.3	0.3	
95% CI ±		1.3	0.5	0.7	

Otoliths were used for age-growth determinations;
Intercept = 0
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Table 54. Mean back calculated lengths (in) at each annulus for walleye (both sexes) collected from Laurel River Lake during 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age						
Year	No.	1	2	3	4	5	6	7
2020	29	11.7						
2019	8	13.6	17.5					
2018	4	12.3	17.4	19.4				
2017	22	11.5	16.3	18.3	19.4			
2016	2	10.9	16.1	17.7	18.8	19.8		
2015	1	11.0	17.4	18.8	19.9	20.6	20.9	
2014	1	11.2	13.8	17.0	19.6	20.7	21.4	21.7
Mean		11.9	16.6	18.4	19.4	20.2	21.2	21.7
Number		67	38	30	26	4	2	1
Smallest		7.7	13.8	16.8	18.1	19.6	20.9	21.7
Largest		15.2	18.6	20.0	21.1	20.7	21.4	21.7
Std error		0.2	0.2	0.2	0.2	0.3	0.2	
95% CI ±		0.4	0.4	0.3	0.3	0.5	0.5	

Otoliths were used for age-growth determinations; Intercept = 0
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Table 55. Age-frequency and CPUE (fish/nn) of walleye gill netted for 8 net-nights at Laurel River Lake during November 2021.

	Inch class													Std
Age	11	13	15	16	17	18	19	20	21	22	Total	%	CPUE	error
0	4	1									5	4.9	0.6	0.3
1			3	11	21	3					38	37.3	4.8	0.8
2					1	2	6	2	1		12	11.8	1.5	0.3
3						1	2	2	1		6	5.9	0.8	0.2
4						2	14	16	3		35	34.3	4.4	1.0
5								4			4	3.9	0.5	0.1
6									1		1	1.0	0.1	0.1
7										1	1	1.0	0.1	0.1
Total	4	1	3	11	22	8	22	24	6	1	102	100.0	12.8	
%	3.9	1.0	2.9	10.8	21.6	7.8	21.6	23.5	5.9	1.0				

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Table 56. Population assessment for walleye gill netted at Laurel River Lake in November 2021 (scoring based on statewide assessment).

Parameter	Actual value	Assessment score
Population density (CPUE age 1 and older)	12.1	4
Growth rate (Mean length age 2+ at capture)	19.5	4
Size structure (CPUE ≥20.0 in)	3.9	4
Recruitment (CPUE age 1)	4.8	4
Total score		16
Assessment rating		E
Instantaneous mortality (Z)	0.582	
Annual mortality (A)	44.1	

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Table 57. Number of fish and mean relative weight (Wr) for each length group of walleye collected in Laurel River Lake during November 2021. Standard error is in parentheses.

Length group					
10.0-14.9 in		15.0-19.9 in		≥20.0 in	
No.	Wr	No.	Wr	No.	Wr
5	98 (2)	64	92 (1)	30	91 (1)

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Table 58. 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 20 April 2021.

		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. error
Lower	Largemouth bass	2	4	5	10	4	4	10	7	4	7	4	5	10	9	10	10	9	5	1	120	160.0	4.6
Upper	Largemouth bass	2	4	2	1	1	1	5	5	6	4	7	10	17	17	16	17	13	10	6	144	192.0	18.9
Total	Largemouth bass	4	8	7	11	5	5	15	12	10	11	11	15	27	26	26	27	22	15	7	264	176.0	11.3

sedpsccl.d21

Table 59. PSD and RSD_{15} values obtained for largemouth bass taken in spring electrofishing samples in each area of Cedar Creek Lake on 20 April 2021; 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%)
2021	91	69 (± 10)	48 (± 10)	133	85 (± 6)	59 (± 8)	224	79 (± 5)	55 (± 7)
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)

[a] diurnal sampling beginning in 2016

[b] sampling effort was reduced to 1.5 hours beginning in 2015

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Table 60. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected from Cedar Creek Lake from 2012-2021.

		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.
2021	Total	26.7	7.1	32.0	5.7	35.3	5.3	82.0	13.5	4.7	1.9	176.0	11.3
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

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Table 61. Population assessment for largemouth bass based on spring electrofishing at Cedar Creek Lake from 2012-2021 (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		
2021	Value		21.3	35.3	82.0	4.7		
	Score	4	2	3	4	4	17	E
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

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Table 62. Length-frequency and CPUE (fish/hr) of largemouth bass collected during 1.5 hours of diurnal electrofishing (0.75 hours in lower end; 0.75 hours in upper end; 15-minute runs) at Cedar Creek Lake on 30 September 2021; standard error is in parentheses.

	Inch class																
Area	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	Total	CPUE
Lower	24	51	25	7	3	7	6	5	2	2	1	2		1	1	137	182.7 (49.9)
Upper	17	18	10	2	2	4	4	5	3	4	1	3	2	1	1	77	102.7 (4.8)
Total	41	69	35	9	5	11	10	10	5	6	2	5	2	2	2	214	142.7 (28.7)

sedyoycc.d21

Table 63. 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 ≥5.0 in		Age-1	
Year class	Mean length	Std. error	CPUE	Std. error	CPUE	Std. error	CPUE	Std. error
2021	3.6	0.1	103.3	26.6	6.7	2.5		
2020	3.4	0.1	69.3	16.7	5.3	2.5	21.3	5.6
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

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Table 64. Number of fish and mean relative weight (Wr) for each length group of largemouth bass collected in Cedar Creek Lake on 30 September 2021. 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	15	85 (2)	3	85 (2)	2	95 (5)
	Upper	16	95 (2)	6	102 (3)	2	95 (4)
	Total	31	90 (2)	9	97 (3)	4	95 (3)

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Table 65. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected at Cedar Creek Lake in 1.25 hours (7.5-min runs) of diurnal electrofishing on 19 May 2021.

	Inch class													
Species	1	2	3	4	5	6	7	8	9	10	11	Total	CPUE	Std. error
Bluegill	44	126	144	106	48	18						486	388.8	63.9
Redear sunfish		7	14	28	60	59	87	44	24	4	1	328	262.4	53.3

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Table 66. Spring electrofishing CPUE (fish/hr) for each length group of bluegill and redear sunfish collected at Cedar Creek from 2010-2021.

		Length group											
		<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in		≥10.0 in		Total	
Species	Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
Bluegill													
	2021	136.0	42.6	238.4	28.5	14.4	3.1	0.0	0.0			388.8	63.9
	2019	257.6	47.6	204.0	30.3	18.4	4.3	1.6	1.1			481.6	48.7
	2018	492.0	137.7	268.0	31.4	8.8	5.5	0.8	0.8			769.6	150.6
	2016	599.2	108.4	464.0	90.4	8.0	2.7	0.0	0.0			1071.2	164.8
	2015	372.0	51.8	510.4	66.9	12.8	4.8	0.0	0.0			895.2	110.5
	2014	396.5	60.6	367.5	98.4	27.5	5.9	1.0	0.7			792.5	116.2
	2013	410.0	102.7	318.5	48.2	21.5	4.6	0.0	0.0			750.0	126.4
	2012	65.1	14.0	206.9	40.8	16.5	5.3	0.0	0.0			288.5	52.7
	2011	301.0	45.9	411.0	56.7	21.0	4.8	0.0	0.0			733.0	81.1
	2010	411.7	106.5	426.1	48.6	20.3	3.9	0.0	0.0			858.1	145.7
Redear sunfish													
	2021	5.6	3.2	81.6	24.0	116.8	32.6	58.4	29.6	4.0	3.2	262.4	53.3
	2019	10.4	4.0	54.4	14.7	37.6	11.3	15.2	5.9	0.8	0.8	117.6	25.1
	2018	14.4	4.9	52.0	7.1	26.4	7.5	1.6	1.1	0.0	0.0	94.4	12.8
	2016	5.6	2.1	63.2	16.3	24.0	6.5	2.4	1.2	0.0	0.0	95.2	20.7
	2015	1.6	1.1	45.6	9.2	42.4	8.5	8.8	2.8	1.6	1.1	98.4	14.9
	2014	5.0	1.6	45.0	10.8	27.0	7.6	8.5	3.3	0.0	0.0	85.5	16.1
	2013	4.0	2.2	33.0	7.2	163.5	75.4	31.0	10.9	0.5	0.5	231.5	84.4
	2012	2.1	1.2	22.4	5.3	43.7	10.5	3.2	1.3	0.0	0.0	71.5	14.7
	2011	3.0	1.4	56.5	10.7	21.0	3.9	0.5	0.5	0.0	0.0	81.0	14.3
	2010	12.8	4.7	56.0	9.6	26.1	7.0	3.7	1.7	0.0	0.0	98.7	15.2

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Table 67. PSD and RSD values obtained for bluegill and redear sunfish taken in spring electrofishing samples in Cedar Creek Lake on 19 May 2021; 95% confidence levels are in parentheses.

Species	Year	No. ≥ stock size	PSD	RSD[a]
Bluegill				
	2021	316	6 (± 3)	0 (± 0)
	2019	280	9 (± 3)	1 (± 1)
	2018	347	3 (± 2)	0 (± 1)
	2016	590	2 (± 1)	0 (± 0)
	2015	654	2 (± 1)	0 (± 0)
	2014	792	7 (± 2)	0 (± 0)
	2013	680	6 (± 2)	0 (± 0)
	2012	419	7 (± 3)	0 (± 0)
	2011	864	5 (± 1)	0 (± 0)
	2010	837	5 (± 1)	0 (± 0)
Redear sunfish				
	2021	307	52 (± 6)	9 (± 3)
	2019	121	31 (± 8)	2 (± 2)
	2018	82	20 (± 9)	0 (± 0)
	2016	73	19 (± 9)	0 (± 0)
	2015	115	29 (± 8)	4 (± 4)
	2014	144	34 (± 8)	1 (± 2)
	2013	434	65 (± 4)	1 (± 1)
	2012	124	35 (± 8)	1 (± 2)
	2011	140	6 (± 4)	0 (± 0)
	2010	135	28 (± 8)	0 (± 0)

[a] Bluegill = RSD_8, redear sunfish = RSD_9

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Table 68. Mean back calculated lengths (in) at each annulus for bluegill collected from Cedar Creek Lake during fall 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age				
Year	No.	1	2	3	4	5
2020	17	2.2				
2019	9	2.5	3.7			
2018	13	2.3	3.8	5.0		
2017	4	1.8	3.5	4.9	6.0	
2016	2	2.9	4.4	5.3	5.9	6.1
Mean		2.3	3.8	5.0	6.0	6.1
Number		45	28	19	6	2
Smallest		1.3	3.0	4.0	5.4	5.6
Largest		4.0	5.2	6.4	6.5	6.6
Std error		0.1	0.1	0.1	0.2	0.5
95% CI ±		0.2	0.2	0.3	0.3	1.0

Otoliths were used for age-growth determinations; Intercept = 0
sedagccs.d21

Table 69. Population assessment for bluegill collected from Cedar Creek Lake in 2021.

Parameter	Actual value	Assessment score
Mean length age-2 at capture	3.7	1
Years to 6.0 in	4-4+	2
Spring CPUE of ≥ 6.0-in fish	14.0	1
Spring CPUE of ≥ 8.0-in fish	0.0	1
Total score		5
Assessment rating		P

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sedagccs.d21

Table 70. Mean back calculated lengths (in) at each annulus for redear sunfish collected from Cedar Creek Lake during fall 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age					
Year	No.	1	2	3	4	5	6
2020	12	2.5					
2019	6	2.5	4.1				
2018	15	3.0	4.6	5.6			
2017	9	3.0	4.7	5.7	6.4		
2016	5	3.0	4.9	5.9	6.5	7.0	
2015	1	3.7	6.0	7.1	7.7	7.9	8.2
Mean		2.8	4.6	5.7	6.5	7.1	8.2
Number		48	36	30	15	6	1
Smallest		2.1	3.5	4.5	5.9	6.2	8.2
Largest		3.7	6.0	7.1	7.7	7.9	8.2
Std error		0.1	0.1	0.1	0.1	0.3	
95% CI $\pm$		0.1	0.2	0.2	0.3	0.5	

Otoliths were used for age-growth determinations; Intercept = 0
sedagccs.d21

Table 71. Population assessment for redear sunfish collected from Cedar Creek Lake in 2021.

Parameter	Actual value	Assessment score
Mean length age-3 at capture	5.6	1
Years to 8.0 in	6-6+	1
Spring CPUE of $\geq$ 8.0-in fish	58.4	4
Spring CPUE of $\geq$ 10.0-in fish	4.0	4
Total score		10
Assessment rating		G

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sedagccs.d21

Table 72. Number of fish and mean relative weight (Wr) for each length group of bluegill and redear sunfish collected at Cedar Creek Lake on 6 October 2021. Standard error is in parentheses.

Species	Length group					
	3.0-5.9 in		6.0-7.9 in		≥8.0 in	
	No.	Wr	No.	Wr	No.	Wr
Bluegill	34	84 (2)	9	85 (3)	0	-
	1.0-3.9 in		4.0-6.9 in		7.0-8.9 in	
	No.	Wr	No.	Wr	No.	Wr
Redear sunfish	8	92 (5)	31	85 (1)	9	86 (1)

sedwrccs.d21

Table 73. Length frequency and CPUE (fish/hr) of largemouth bass collected at Chenoa Lake in 0.875 hour (7.5-min runs) of diurnal electrofishing on 13 April 2021.

	Inch class																				
Species	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE	Std. error
Largemouth bass	1	1	5	6	6	12	18	26	13	22	4	6	6	3	1	2	1	2	135	154.3	26.7

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Table 74. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Chenoa Lake on 13 April 2021.

	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.
2021	14.9	3.7	70.9	16.9	44.6	8.0	24.0	6.3	3.4	2.4	154.3	26.7
2017	10.0	3.3	31.0	5.3	15.0	4.1	7.0	2.4	3.0	2.1	63.0	10.0
2014	16.0	4.8	52.0	14.7	22.0	3.3	15.0	7.6	2.0	1.3	105.0	20.1
2011	35.2	7.1	35.2	7.8	63.2	9.7	8.8	2.5	0.8	0.8	142.4	18.7
2008	24.0	4.5	49.6	14.1	63.2	10.7	20.0	4.3	1.6	1.1	156.8	23.2
2006	28.0	12.8	44.0	5.7	68.0	9.6	16.8	3.4	3.2	1.5	156.8	19.8

sedpsdcl.d21

Table 75. PSD and RSD_{15} values obtained for largemouth bass taken in spring electrofishing samples in Chenoa Lake on 13 April 2021; 95% confidence levels are in parentheses.

Year	No. ≥ 8.0 in	PSD (+/- 95%)	RSD_{15} (+/- 95%)
2021	122	49 (± 9)	17 (± 6)
2017	53	42 (± 13)	13 (± 9)
2014	89	42 (± 10)	17 (± 8)
2011	134	67 (± 8)	8 (± 5)
2008	166	63 (± 7)	15 (± 5)
2006	161	66 (± 7)	13 (± 5)

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Table 76. Length frequency and CPUE (fish/hr) of bluegill and redear sunfish collected at Chenoa Lake in 1.5 hours (7.5-min runs) of diurnal electrofishing on 18 May 2021.

	Inch class											
Species	1	2	3	4	5	6	7	8	9	Total	CPUE	Std. error
Bluegill	114	140	43	44	42	38	30	8	0	459	306.0	49.7
Redear sunfish	2	8	1	4	1	9	9	7	13	54	36.0	9.3

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Table 77. Spring electrofishing CPUE (fish/hr) for each length group of bluegill and redear sunfish collected at Chenoa Lake from 2008-2021.

		Length group											
		<3.0 in		3.0-5.9 in		6.0-7.9 in		≥8.0 in		≥10.0 in		Total	
Species	Year	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.	CPUE	Std. err.
Bluegill													
	2021	169.3	34.6	86.0	16.3	45.3	7.2	5.3	2.8	0.0	0.0	306.0	49.7
	2014	32.0	7.7	41.0	7.8	30.0	6.9	0.0	0.0	0.0	0.0	103.0	12.8
	2011	68.0	13.7	68.8	10.0	32.0	8.2	0.8	0.8	0.0	0.0	169.6	24.8
	2008	60.8	14.8	88.0	24.6	42.4	7.7	14.4	6.2	0.0	0.0	205.6	40.1
Redear sunfish													
	2021	6.7	3.2	4.0	1.6	12.0	3.5	13.3	3.9	0.0	0.0	36.0	9.3
	2014	0.0	0.0	2.0	1.3	2.0	1.3	4.0	2.1	0.0	0.0	11.0	3.4
	2011	0.0	0.0	4.0	1.3	5.6	2.4	4.0	1.3	0.8	0.8	13.6	3.4
	2008	0.0	0.0	6.4	2.6	3.2	1.3	6.4	6.4	0.8	0.8	16.0	7.9

sedbgcl.d21

Table 78. PSD and RSD values obtained for bluegill and redear sunfish taken in spring electrofishing samples in Chenoa Lake on 18 May 2021; 95% confidence levels are in parentheses.

Species	No. ≥ stock size	PSD	RSD[a]
Bluegill	205	37 (± 7)	4 (± 3)
Redear sunfish	43	67 (± 14)	30 (± 14)

[a] Bluegill = RSD_8, redear sunfish = RSD_9

sedbgcl.d21

Table 79. Mean back calculated lengths (in) at each annulus for bluegill collected from Chenoa Lake during fall 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age							
Year	No.	1	2	3	4	5	6	7	8
2020	12	1.7							
2019	16	1.8	3.1						
2018	9	2.1	3.6	4.8					
2017	9	2.2	3.3	4.5	5.5				
2016	7	1.9	3.7	4.9	6.1	6.8			
2015	3	2.2	3.3	5.0	6.1	6.7	7.0		
2014	1	2.0	3.6	5.0	6.5	7.2	7.7	7.9	
2013	2	1.9	3.3	4.7	5.9	6.6	6.9	7.3	7.5
Mean		1.9	3.3	4.8	5.9	6.8	7.1	7.5	7.5
Number		59	47	31	22	13	6	3	2
Smallest		0.8	2.3	3.8	4.8	5.8	6.6	7.2	7.4
Largest		2.7	4.5	5.9	7.1	7.4	7.8	7.9	7.6
Std error		0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1
95% CI ±		0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.2

Otoliths were used for age-growth determinations; Intercept = 0
sedagcl.d21

Table 80. Mean back calculated lengths (in) at each annulus for redear sunfish collected Chenoa Lake during fall 2021, including the 95% confidence interval (CI) for each mean length per age group.

		Age						
Year	No.	1	2	3	4	5	6	7
2020	13	2.4						
2019	12	2.6	4.6					
2018	10	2.8	5.0	6.5				
2017	1	2.4	4.3	5.8	7.1			
2016	1	2.4	5.3	7.0	7.5	7.8		
2015	2	3.1	6.5	7.9	8.3	8.7	9.1	
2014	1	2.8	5.4	7.8	8.5	8.8	9.0	9.3
Mean		2.6	4.9	6.8	7.9	8.5	9.1	9.3
Number		40	27	15	5	4	3	1
Smallest		2.0	3.3	5.8	7.1	7.8	9.0	9.3
Largest		3.2	6.6	7.9	8.5	8.8	9.1	9.3
Std error		0.0	0.1	0.2	0.3	0.2	0.0	
95% CI ±		0.1	0.3	0.4	0.6	0.5	0.1	

Otoliths were used for age-growth determinations; Intercept = 0
sedagcl.d21

Table 81. Population assessment for bluegill collected from Chenoa Lake in 2021.

Parameter	Actual value	Assessment score
Mean length age-2 at capture	3.3	1
Years to 6.0 inches	4-4+	2
Spring CPUE of ≥ 6.0-in fish	50.7	2
Spring CPUE of ≥ 8.0-in fish	5.3	4
Total score		9
Assessment rating		Fair

sedbgcl.d21
sedagcl.d21

Table 82. Population assessment for redear sunfish collected from Chenoa Lake in 2021.

Parameter	Actual value	Assessment score
Mean length age-3 at capture	6.8	2
Years to 8.0 inches	5-5+	2
Spring CPUE of ≥ 8.0-in fish	13.3	3
Spring CPUE of ≥ 10.0-in fish	0.0	1
Total score		8
Assessment rating		Fair

sedbgcl.d21
sedagcl.d21

Table 83. Number of fish and mean relative weight (Wr) for each length group of bluegill and redear sunfish collected in Chenoa Lake on 11 October 2021. Standard error is in parentheses.

Species	Length group					
	3.0-5.9 in		6.0-7.9 in		>8.0 in	
Bluegill	No.	Wr	No.	Wr	No.	Wr
	24	82 (3)	22	82 (2)	2	80 (3)

	1.0-3.9 in		4.0-6.9 in		7.0-8.9 in		>9.0 in	
Redear Sunfish	No.	Wr	No.	Wr	No.	Wr	No.	Wr
	7	87 (4)	18	88 (2)	12	85 (1)	3	83 (1)

sedwrcl.d21

Table 84. Species composition, relative abundance, and CPUE (fish/hr) of black bass collected during 3.0 hours of 15-minute diurnal electrofishing runs for black bass in Dale Hollow Lake on 26 April 2021; standard error is 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
Illwill	Largemouth bass		1			1	2	3		3	2	8	12	12	16	15	21	18	1		115	76.7
Creek	Spotted bass							1				2									3	2.0
	Smallmouth bass		3	1		1	3	3	1	2		4	3	6	8	8	6	5	2		56	37.3
Little Sulphur	Largemouth bass		1		2	3	2	2	2	5	5	6	16	28	35	23	30	20	7	3	190	126.7
Creek	Spotted bass						2	2	2	4	4	3	3								20	13.3
	Smallmouth bass			1			2			1				1	1	3	2	2			13	8.7
Total	Largemouth bass		2		2	4	4	5	2	8	7	14	28	40	51	38	51	38	8	3	305	101.7
	Spotted bass						2	3	2	4	4	5	3								23	7.7
	Smallmouth bass		3	2		1	5	3	1	3		4	3	7	9	11	8	7	2		69	23.0

sedpsddh.d21

Table 85. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Dale Hollow Lake during April 2021.

	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.
2021	4.0	1.2	7.3	1.8	27.3	4.7	63.0	7.0	1.0	0.5	101.7	12.2
2018	2.0	0.9	5.3	1.6	32.7	3.3	35.7	3.7	1.7	0.8	75.7	6.6
2014	2.0	1.0	13.7	3.1	22.0	3.3	56.0	7.1	0.7	0.5	93.7	8.9
2011	2.3	1.3	10.3	3.3	4.0	1.6	2.3	0.9	0.0	0.0	19.0	5.2
2008	1.0	0.5	3.3	1.1	6.0	1.9	16.7	4.2	0.0	0.0	27.0	5.7
2005	0.0	0.0	0.0	0.0	1.0	1.0	1.0	0.5	0.0	0.0	2.0	1.4

sedpsddh.d21

Table 86. Spring electrofishing CPUE (fish/hr) for each length group of spotted bass collected at Dale Hollow Lake during April 2021.

	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.
2021	0.7	0.7	3.0	1.4	4.0	1.8	0.0	0.0	0.0	0.0	7.7	3.4
2018	5.0	1.1	7.3	2.4	4.3	1.9	0.0	0.0	0.0	0.0	16.7	4.0
2014	1.7	0.6	10.0	2.3	10.0	3.4	2.0	0.8	0.0	0.0	23.7	5.6
2011	22.3	4.1	13.7	1.8	5.7	1.7	1.3	0.8	0.0	0.0	43.0	5.0
2008	8.3	2.6	12.0	3.2	11.0	1.8	3.3	2.0	0.0	0.0	34.7	5.4
2005	6.7	3.6	9.7	4.4	6.0	2.2	3.3	1.4	0.0	0.0	25.7	9.2

sedpsddh.d21

Table 87. Spring electrofishing CPUE (fish/hr) for each length group of smallmouth bass collected at Dale Hollow Lake during April 2021.

	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.
2021	3.7	1.0	2.3	1.2	2.3	1.0	14.7	4.8	5.7	2.1	23.0	7.2
2018	1.0	0.7	1.7	0.9	2.7	0.9	1.3	0.6	0.3	0.3	6.7	1.9
2014	1.0	0.5	2.3	0.9	3.7	1.2	5.0	1.6	2.0	0.8	12.0	2.4
2011	4.0	0.9	2.3	0.8	1.7	0.8	3.0	1.0	0.3	0.3	11.0	2.0
2008	4.3	1.5	2.7	1.0	5.7	1.4	4.7	1.3	1.7	0.9	17.3	3.5
2005	3.0	1.4	3.0	1.0	1.7	0.6	3.3	1.1	2.3	1.2	11.0	1.8

sedpsddh.d21

Table 88. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Dale Hollow Lake on 26 April 2021; 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%)
2021	Illwill Creek	111	93 (± 5)	64 (± 9)	3	67 (± 65)	0 (± 0)	51	82 (± 11)	69 (± 13)
	Little Sulphur Creek	182	92 (± 4)	65 (± 7)	20	50 (± 22)	0 (± 0)	12	75 (± 26)	75 (± 26)
	Total	293	92 (± 3)	64 (± 5)	23	52 (± 21)	0 (± 0)	63	81 (± 10)	70 (± 11)
2018	Total	221	93 (± 3)	48 (± 7)	41	32 (± 14)	0 (± 0)	18	67 (± 22)	22 (± 20)
2014	Total	275	85 (± 4)	61 (± 6)	69	52 (± 12)	9 (± 7)	35	74 (± 15)	43 (± 17)
2011	Total	50	38 (± 14)	14 (± 10)	91	23 (± 9)	4 (± 4)	21	67 (± 21)	43 (± 22)
2008	Total	78	87 (± 7)	64 (± 11)	90	48 (± 10)	11 (± 7)	45	69 (± 14)	31 (± 14)
2005	Total	6	100 (± 0)	50 (± 44)	66	42 (± 12)	15 (± 9)	27	56 (± 19)	37 (± 19)

sedpsddh.d21

Table 89. Length frequency and CPUE (fish/hr) of black bass collected at Lake Linville in 1.5 hours (15-min runs) of diurnal electrofishing on 12 April 2021.

	Inch class																					
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	CPUE	Std. err.
Largemouth bass	3	12	15	9	7	8	21	23	27	67	55	25	15	7	6	4	5	1	1	1	312	208.0	25.3
Spotted bass	2		9	25	15	8	8	10	16	7	7										107	71.3	24.6

sedpsdll.d21

Table 90. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Lake Linville on 12 April 2021.

	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.
2021	30.7	5.4	52.7	5.9	98.0	17.2	26.7	5	2.0	1.4	208.0	25.3
2017	31.3	7.8	62.7	9.6	38.7	5.5	20.0	4.7	4.0	1.5	153.7	6.7
2014	19.3	7.3	95.3	16.4	74.7	7.1	12.0	3.4	2.0	1.4	201.3	19.9
2012	47.3	10.6	135.3	26.2	42.0	5.2	12.0	2.7	0.7	0.7	236.7	40.3
2011	48.0	7.8	108.7	11.0	22.0	5.5	9.3	2.7	1.3	1.3	188.0	18.0
2010	52.0	25.1	194.7	45.4	39.3	8.4	10.7	2.2	4.7	1.2	296.7	71.5
2009	55.6	10.8	93.2	10.9	8.4	1.5	10.4	1.6	2.4	0.9	167.6	17.1
2008	54.0	13.5	144.4	19.9	12.4	3.9	18.4	4.6	2.8	1.2	229.2	28.0
2007	46.4	15.7	101.6	19.6	13.2	1.9	25.6	3.6	4.8	2.1	186.8	32.0
2006	10.0	2.5	47.3	12.6	22.0	4.0	10.0	2.3	2.7	1.3	89.3	11.2

sedpsdll.d21

Table 91. Spring electrofishing CPUE (fish/hr) for each length group of spotted bass collected at Lake Linville on 12 April 2021.

	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.
2021	34.0	18.5	17.3	5.5	20.0	7.5	0.0	0.0	0.0	0.0	71.3	24.6
2017	52.0	22.3	38.7	10.4	17.3	4.7	1.3	0.8	0.0	0.0	109.3	34.4
2014	24.7	8.0	49.3	9.4	18.0	6.2	2.0	0.9	0.0	0.0	94.0	19.3
2012	16.7	6.7	66.7	11.8	22.0	4.5	2.7	0.8	0.0	0.0	108.0	18.3
2011	22.7	5.7	47.3	8.0	9.3	4.0	1.3	0.8	0.0	0.0	80.7	14.4
2010	32.0	8.3	114.0	22.3	20.0	5.3	0.7	0.7	0.0	0.0	166.7	34.4
2009	62.4	11.6	64.0	9.2	2.8	1.0	0.4	0.4	0.0	0.0	129.6	19.5
2008	96.0	14.5	60.4	8.6	8.0	2.2	1.6	0.9	0.0	0.0	166.0	23.6
2007	76.0	26.0	44.8	10.4	15.2	4.5	2.0	1.2	0.4	0.4	138.0	36.5
2006	24.0	7.0	35.3	7.1	10.0	2.7	2.0	1.4	0.0	0.0	71.3	14.5

sedpsdll.d21

Table 92. Population assessment for largemouth bass based on spring electrofishing at Lake Linville from 2006-2021 (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	Assessement rating
Management objectives		≥ 10.8 in	≥ 16.0 f/h	≥ 20.0 f/h	≥ 17.0 f/h	≥ 2.0 f/h		
2021	Value		30.0	98.0	26.7	2.0		
	Score	4	3	4	3	3	17	E
2017	Value	12.3	30.7	38.7	20.0	4.0		
	Score	4	3	3	3	4	17	E
2014	Value		19.3	74.7	12.0	2.0		
	Score	3	2	4	2	3	14	G
2012	Value	11.3	47.3	42.0	12.0	0.7		
	Score	3	3	3	2	2	13	G
2011	Value		48.0	22.0	9.3	1.3		
	Score	3	3	2	2	2	12	F
2010	Value		47.3	39.3	10.7	4.7		
	Score	3	3	3	2	4	15	G
2009	Value		52.0	8.4	10.4	2.4		
	Score	3	3	1	2	3	12	F
2008	Value		34.8	12.4	18.4	2.8		
	Score	3	3	1	3	3	13	G
2007	Value	11.1	39.2	13.2	25.6	4.8		
	Score	3	3	1	3	4	14	G
2006	Value		6.5	22.0	10.0	2.7		
	Score	3	1	2	2	3	11	F

sedpsdll.d21

Table 93. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Lake Linville on 12 April 2021; 95% confidence limits are in parentheses.

	Largemouth bass			Spotted bass		
Year	No. ≥ stock size	PSD (+/- 95%)	RSD_{15} (+/- 95%)	No. ≥ stock size	PSD (+/- 95%)	RSD_{14} (+/- 95%)
2021	266	70 (± 6)	15 (± 4)	71	42 (± 4)	0 (± 0)
2017	182	48 (± 7)	16 (± 5)	109	26 (± 8)	2 (± 3)
2014	273	48 (± 6)	7 (± 3)	133	23 (± 7)	2 (± 3)
2012	284	29 (± 5)	6 (± 3)	146	25 (± 7)	3 (± 3)
2011	210	22 (± 6)	7 (± 3)	96	17 (± 7)	2 (± 3)
2010	367	20 (± 4)	4 (± 2)	229	14 (± 4)	0 (± 1)
2009	280	17 (± 4)	9 (± 3)	247	3 (± 2)	0 (± 1)
2008	438	18 (± 4)	11 (± 3)	288	8 (± 3)	1 (± 1)
2007	351	28 (± 5)	18 (± 4)	204	21 (± 6)	2 (± 2)
2006	119	40 (± 9)	13 (± 6)	83	22 (± 9)	4 (± 4)

sedpsdll.d21

Table 94. 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 15 April 2021; standard error is 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	22	Total	CPUE
Pump	Largemouth bass	1	1	4	1		9	13	4	20	13	13	3	1	1	2	2		1		1	90	120.0 (22.0)
Station	Spotted bass					1		3	1	2	3											10	13.3 (1.3)
Dock	Largemouth bass		6	22	13	1	20	22	15	24	21	6	3		3	3		1	2	1	1	164	218.7 (38.4)
	Spotted bass																					0	0.0 (0.0)
Total	Largemouth bass	1	7	26	14	1	29	35	19	44	34	19	6	1	4	5	2	1	3	1	2	254	169.3 (29.6)
	Spotted bass					1		3	1	2	3											10	6.7 (3.0)

sedpsdwc.d21

Table 95. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples at Wood Creek Lake on 15 April 2021; 95% confidence limits are in parentheses.

		Largemouth bass			Spotted bass		
Year	Area	No. ≥ stock size	PSD (+/- 95%)	RSD_{15} (+/- 95%)	No. ≥ stock size	PSD (+/- 95%)	RSD_{14} (+/- 95%)
2021*	Pump Station	74	32 (± 11)	9 (± 7)	9	33 (± 33)	0 (± 0)
	Dock	102	20 (± 8)	11 (± 6)	0	0 (± 0)	0 (± 0)
	Total	176	25 (± 6)	10 (± 4)	22	33 (± 33)	0 (± 0)
2020*	Total	248	25 (± 5)	10 (± 4)	22	27 (± 19)	0 (± 0)
2019*	Total	320	16 (± 4)	2 (± 2)	12	17 (± 22)	0 (± 0)
2018*	Total	223	33 (± 6)	12 (± 4)	17	41 (± 24)	6 (± 12)
2017*	Total	181	25 (± 6)	4 (± 3)	32	34 (± 17)	3 (± 6)
2016*	Total	110	42 (± 9)	8 (± 5)	23	26 (± 18)	0 (± 0)
2015	Total	259	41 (± 6)	10 (± 4)	37	30 (± 15)	0 (± 0)
2014	Total	334	34 (± 5)	10 (± 3)	61	21 (± 10)	0 (± 0)
2013	Total	256	23 (± 5)	9 (± 4)	79	14 (± 8)	1 (± 2)
2012	Total	215	20 (± 5)	5 (± 3)	60	17 (± 10)	0 (± 0)

* Lower lake area was not sampled

sedpsdwc.d21

Table 96. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Wood Creek Lake during April 2021.

	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.
2021*	52.0	17.9	88.0	15.5	17.3	3.0	12.0	2.7	2.0	0.9	169.3	29.6
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

* Lower lake area was not sampled
sedpsdwc.d21

Table 97. Spring electrofishing CPUE (fish/hr) for each length group of spotted bass collected at Wood Creek Lake during April 2021.

	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.
2021*	0.7	0.7	4.0	2.1	2.0	0.9	0.0	0.0	0.0	0.0	6.7	3.0
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

* Lower lake area was not sampled

sedpsdwc.d21

Table 98. Population assessment for largemouth bass based on spring electrofishing at Wood Creek Lake from 2012-2021 (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		
2021	Value		32.0	17.3	12.0	2.0		
	Score	1	3	2	2	3	11	F
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

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Table 99. 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 28 September 2021; standard error is in parentheses.

		Inch class																		
Area	Species	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	Total	CPUE
Pump station	Largemouth bass	5	13	7	2	1	6	7	8	12	7	3		3						74	98.7 (4.8)
	Spotted bass						1	2												3	4.0 (4.0)
	Smallmouth bass																			0	0.0 (0.0)
Dock	Largemouth bass		16	19	2	8	11	14	21	13	8	3	3	1	2	2	1	1	1	126	168.0 (37.2)
	Spotted bass						1													1	1.3 (1.3)
	Smallmouth bass		1																	1	1.3 (1.3)
Total	Largemouth bass	5	29	26	4	9	17	21	29	25	15	6	3	4	2	2	1	1	1	200	133.3 (22.8)
	Spotted bass						2	2												4	2.7 (2.0)
	Smallmouth bass		1																	1	0.7 (0.7)

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Table 100. 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
2021	3.9	0.1	43.3	6.7	3.3	1.2		
2020	4.2	0.1	43.3	15.3	6.0	2.9	32.0	12.0
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 101. Number of fish and mean relative weight (Wr) for each length group of black bass collected at Wood Creek Lake during 28 September 2021. 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
	90	86 (1)	13	82 (2)	6	90 (4)
	7.0-10.9 in		11.0-13.9 in		≥14.0 in	
Spotted bass	No.	Wr	No.	Wr	No.	Wr
	4	107 (7)	0	-	0	-

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EASTERN FISHERY DISTRICT

Project 1: Lake and Tailwater Fishery Surveys

FINDINGS

Table 1 shows sampling conditions by water body for eastern fishery district lakes in 2021.

Buckhorn Lake

Muskellunge
Our first attempt at late-winter muskie sampling was ineffective due to colder than normal temperatures and lake ice (Tables 2-4). No additional attempts were made due to high water levels for the remainder of the spring season.

Black bass
Spring nocturnal electrofishing studies were conducted in the upper and lower sections of the lake during April 2021 to assess the black bass populations. The overall largemouth bass catch rate (95.0 fish/hr; Table 5) was down slightly from recent years (Table 6). This is potentially due to lower than normal water levels at the time of spring sampling effort. Our boats were not able to reach the backs of coves where more fish are normally collected. Fish in the <8.0-in and 8.0- to 11.9-in length groups were most affected (32.5 and 38.0 fish/hr, respectively). Catch rates for the other three remaining length groups (Table 6) were down slightly from most recent years sampling but within the range of observed values through time. Size structure indices were similar to previous years (PSD=39, RSD_{15} =3; Table 7) and indicative of a population skewed towards smaller individuals. The bass population rates "Fair" based on assessment parameters (Table 8).

Fall nocturnal electrofishing was completed for black bass to determine length frequency and year class strength. Length-frequency data shows that the highest density of fish in the fall 2021 sample ranged from 8.0 to 12.0 inches in length (Table 9). Catch rates of age-0 largemouth bass (58.8 fish/hr) were similar to the results of the fall 2020 survey. Both surveys were down considerably in relation to the catch rates observed over the last several years (Table 10). Mean age-0 largemouth bass length (4.9 in) was slightly above average. Recruitment has been good in recent years with above average CPUE observed for age-0 fish from 2016-2019.

Crappie
Trap netting was conducted in the fall to sample white crappie (Tables 11-15). A total of 2,980 fish were collected in 17 net-nights (nn) for a CPUE of 175.5 fish/nn. Age-0 white crappie were the most numerous age class (28%) with age-2 and age-4 classes also well represented at 23% and 18%, respectively. Catch rates of fish ≥8.0 in (quality size) and fish ≥10.0 in (preferred size) were 74.4 fish/hr and 11.0 fish/hr, respectively. The population assessment was "Excellent" for white crappie primarily due to high numbers of each size class. Growth rates for white crappie at Buckhorn Lake are consistently low. Mean total length of age-2 fish at capture was 6.0 in and failed to reach the 9.0 or 10.0 in size desired for commonly used minimum size limits in Kentucky.

Other species stocked in Buckhorn Lake in 2021 included 400 muskellunge (9.7 in) during August and approximately 5,000 rainbow trout (8.0-12.0 in) stocked in the tailwater during the months of April-June and October-November.

Carr Creek Lake

Black bass
Spring diurnal electrofishing was completed in April to assess the black bass population. The overall largemouth bass CPUE of 118.0 fish/hr was lower than the last two spring samples but consistent with the long term (18 year) average of 109.2 fish/hr (Tables 16 and 17). The recruitment of age-1 fish has consistently remained high since 2013 and is most likely due to the continuing expansion of hydrilla in the lake. The catch rate of largemouth ≥15.0 in (9.0 fish/hr) is slightly below the average (Table 17).

Largemouth bass size structure indices were similar to previous years (PSD=41; RSD_{15}=19; Table 18). The population assessment dipped to "Fair" for largemouth in 2021 (Table 19). Age and growth data has remained fairly consistent since 2013 indicating stable growth rates.

Nocturnal electrofishing was completed in the fall for black bass in October (Tables 20 and 21). Hydrilla continues to dominate shallow, shore-line areas of the lake by late summer into early fall. Zebra mussels first started showing up in 2019 and have reached their apparent carrying capacity. This in turn continues to keep the lake clear, furthering the expansion of the hydrilla. Length frequency for black bass over 11.0 in was low (Table 20). The expansion of hydrilla continues to limit the ability to electrofish shoreline habitat in the fall, likely reducing catch rates of larger fish. Age-0 CPUE (19.6 fish/hr) was observed to be below the average of 25.8 fish/hr (Table 21). Mean age-0 largemouth bass length (5.5 in) was well above average. Fall YOY sampling suggests an average largemouth bass year class in 2021 with good potential for overwinter survival due to the increase in mean length.

Walleye

Diurnal electrofishing samples were collected in the early spring for walleye (Tables 22-24). Additionally, during this sampling effort, broodfish were collected for Minor Clark Fish Hatchery. Over multiple days sampling for broodfish, a total of 141 walleye were sampled for a catch rate of 13.8 fish/hr. The majority of fish were in the 18.0- to 22.0-in size class (Table 22). The total relative weight value was 85 (Table 24) and is down some from last year. This parameter is influenced by the high number of males collected. The $\log_{10}$ length-weight equation for walleye during 2021 sampling was $-3.14 + 2.75(\log_{10}$ length).

Grass carp were stocked jointly by KDFWR and the USACE in an effort to help control hydrilla growth. May stockings totaled 208 fish at 10.0- to 12.0-in average length. A total of 35,132 (1.4 in) walleye were stocked in May. 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. Due to a sudden and unexpected loss of fish at the hatchery, redear sunfish were not stocked in 2021, but stocking is planned to resume in 2022. Due to the recent establishment of zebra mussels, a blue catfish stocking program was initiated in October 2020 and stocking continued in March 2021 with 7,100 (6.5 in) fish. In 2021 a crappie stocking program was initiated with 17,790 black crappie (2.5 in) stocked in August. Tailwater stockings included 4,000 (total) rainbow trout during the months of April, 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. As of 2021, the zebra mussel population appears to have reached carrying capacity and has stabilized. 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 nocturnal electrofishing was completed in May to assess the black bass population. Length distribution and CPUE are presented in Tables 25 and 26. The overall largemouth CPUE of 144.8 fish/hr was down slightly from recent years but within the range of observed values through time. The catch rates for all length groups ≥12.0 in increased slightly since the 2019 spring survey (Table 26). Largemouth bass size structure indices were similar to previous years (PSD=16; RSD_{15}=10; Table 27). The population assessment remained "Good" for largemouth bass in 2021 (Table 28). Cranks Creek Lake receives limited tournament fishing pressure; however, it is considered a location of high angler harvest of all species. Catch rates drop off quickly once largemouth reach the 12.0-in minimum length limit. Age and growth data over time continues to show that largemouth bass growth at Cranks Creek Lake is slow with bass only reaching a mean length of 10.7 in by age 3 (Table 28).

Fall nocturnal electrofishing was completed in September for black bass to determine length frequency and year class strength (Tables 29 and 30). Age-0 CPUE (31.2 fish/hr) was observed to be below average. Mean age-0 length (4.4 in) was average. 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 some fish continue to reach trophy-size at this lake. This has resulted in higher success rates for anglers seeking trophy fish compared to most other eastern lakes. In the spring 2021 survey, 23.0-in and 25.0-in largemouth bass were sampled.

Approximately 4,000 rainbow trout (total) were stocked in the lake during the months of January, April, May, and October. Channel catfish (2,460; 7.0 in) were also stocked in October. No vegetation controls were utilized in 2021; 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

During 2021, spring electrofishing samples were completed for black bass to assess the population during April and May. Due to staff availability, weather, rainfall, and water clarity, the spring survey took place over multiple days during daylight hours. These factors likely affected catch rates which were down considerably for the spring (Table 31). The overall CPUE for largemouth bass in the spring was 68.4 fish/hr, which was well below the lake average of 144.8 fish/hr (Table 32). Largemouth bass size structure indices (PSD = 59; RSD_{15} = 20; Table 33) were similar to previous years, offering anglers good opportunity for catching quality largemouth bass. The spring assessment was "Fair" for largemouth bass (Table 34). The most recent assessments suggest that recruitment of spring age-1 bass is decreasing.

Fall nocturnal electrofishing was completed in October for black bass to determine length frequency and year class strength (Tables 35 and 36). Mean age-0 length in the fall (4.9 in) was slightly above the average of 4.7 in. The total CPUE of age-0 (32.0 fish/hr) and age-0 $\geq$ 5.0 in (15.6 fish/hr) fish was below the lake average (42.8 and 18.6 fish/hr, respectively). When fall age-0 catch data suggest the need for stocking, advanced fingerlings for Dewey Lake can be held over winter for stocking the following spring. Advanced fingerling largemouth bass will be overwintered at Minor Clark fish hatchery and stocked in the spring of 2022.

A total of 11,000 blue catfish (5.0-9.0 in) were stocked in March. An additional 375 muskellunge (9.7 in) were stocked in August. A total of 4,000 rainbow trout (1,000/mo; 9.3-10.0 in) were stocked in the Dewey Lake tailwater in April, May, October, and November.

Fishtrap Lake

Black bass

Spring diurnal electrofishing was completed in April and May to assess the black bass population (Table 37). Catch rates for all length groups of largemouth bass decreased slightly in 2021 when compared to 2020 data, especially for fish <8.0 in (Table 38). PSD data showed a largemouth bass population skewed towards larger sizes (PSD=64, RSD_{15} =19; Table 39). The PSD and RSD_{15} data was nearly identical to that seen in 2020. The spring assessment was "Fair" for largemouth bass (Table 40). Due to limited staff availability and fluctuating water levels, multiple days were required to survey the upper and lower areas of the lake. Unusually high conductivity (787 µS) could potentially be affecting catch rates with fewer fish than normal in the shallow shoreline areas. The most recent assessments suggest that recruitment of spring age-1 bass had been improving; however, the age-1 CPUE for 2021 was the lowest recorded over the last 11 years (Table 40). The spring sample for 2022 will be closely monitored to see if numbers return to normal.

Fall nocturnal electrofishing was completed in September for black bass to determine length frequency and year class strength (Tables 41 and 42). Mean age-0 length (5.2 in) in the fall was above average (4.9 in) for the second year in a row. The total CPUE of age-0 (40.0 fish/hr) and age-0 $\geq$ 5.0-in (21.6 fish/hr) fish was well below average (101.9 and 48.5 fish/hr, respectively). When fall age-0 catch data suggest the need for stocking, advanced fingerlings can be stocked in the fall from hatchery-reared stocks. Fishtrap Lake was stocked at approximately 10 fish/ac (9,720 fish) in September of 2021.

A total of 11,508 blue catfish (6.5 in) were stocked in the lake during March. A total of 23,012 hybrid striped bass (1.5 in) were stocked in June. Rainbow trout (10,000 total) were stocked in the tailwater in April, May, June, October, and November.

Crappie

Trap netting was conducted in the fall to assess the white crappie population (Tables 43-47). A total of 179 fish were collected from 1.8-13.1 in for a total CPUE of 7.5 fish/nn. Size structure indices for white crappie sampled in 2021 (PSD=70, RSD=38) were nearly identical to values sampled in 2019. Age-0 white crappie was the most numerous age class representing approximately 60% of the total catch, while age-3 crappie were the second most numerous age group representing 24% of the total catch. Recruitment of crappie to age-1 and older has been in decline for the last several years as over-all fish abundance has declined. The population assessment was once again "Fair" for white crappie. Mean total length of age-2 fish at capture was 9.5 in, achieving adequate growth to continue to support the current 9.0-in minimum size limit. White crappie will next be surveyed in 2023.

Fishtrap Lake is an aging reservoir with limited habitat currently available to fish populations lake wide. Reductions in recruitment as well as over-all fish abundance of both bass and crappie populations support the need for fish habitat-improvement projects at this location. EFD staff began implementing improvements during the summer of 2021 with hinged, hardwood trees. These efforts were well received by both anglers and USACE personnel. Further habitat improvement work will continue on a broader scale as more staff and resources become available in the near future.

Fishpond Lake

Black bass

Largemouth bass were sampled via nocturnal electrofishing at Fishpond Lake (32 acres) in April 2021. Fish were collected from 5.4-23.2 in (Table 48) and smaller length groups (8.0-11.9 in) showed a decreased CPUE compared to 2019 (Table 49). This lake continues to provide trophy bass with good PSD and RSD_{15} values (Table 50). In 2021, largemouth bass data showed an increase in PSD values going from 41 in 2019 to 61 in 2021. RSD_{15} values have also increased from 18 in 2019 to 24 in 2021. Both are indicators of a trophy bass fishery. With an RSD_{15} value of 24 and a CPUE of 9.1 fish/hr for ≥20.0-in fish, there is good opportunity for a high angler success rate for larger fish.

A total of 4,000 rainbow trout (9.0 in) are stocked annually during January, April, May, and October. Channel catfish (760 fish; 9.0 in) are stocked every other year. Largemouth bass will be sampled again in 2023.

Martins Fork Lake

Black bass

Nocturnal boat electrofishing to sample the black bass population on Martins Fork Lake was conducted on 13 May 2021. A total of 111 largemouth bass were collected in 1.25 hours of spring sampling for a total CPUE of 88.8 fish/hr (Table 51). This catch rate was nearly half of the previous sample (2019) but within the range of values observed over time (Table 52). A total of 32 smallmouth bass were collected ranging from only 4.0-10.0 in (Table 51). Size structure indices for largemouth bass continue to decrease over time (PSD=27, RSD_{15}=5; Table 53). Martins Fork Lake has a 12.0-in minimum size limit and offers anglers limited opportunity to catch trophy bass. Age and growth data was last collected in 2020 and growth rates of largemouth bass have slowly decreased with the mean length of age-3 fish only reaching 10.4 inches in 2021. The spring assessment was "Fair" for largemouth bass (Table 54).

Fall nocturnal electrofishing was completed in September for black bass to determine length frequency and year class strength. Length-frequency data shows that the highest density of largemouth bass fell in the 9.0- to 11.0-in range (Table 55). Mean age-0 largemouth bass length (4.9 in) was slightly above average. The year class strength model indicated that 2021 was an average recruitment year for young-of-year largemouth bass (87.2 fish/hr) while numbers of fish age-0 ≥5.0 in (36.8 fish/hr) were above average (Table 56). No supplemental stocking of age-1 fingerlings was done in the fall.

Like several other flood control reservoirs in the district, Martins Fork Lake is an aging reservoir that is becoming increasingly void of available fish habitat. EFD staff will increase fish habitat improvement efforts here for 2022 as staff and resources allow. The black bass population will be next surveyed in 2022.

Walleye

During March, a day was utilized to electrofish for walleye broodfish; however, no fish were collected. The native-strain walleye have been stocked annually since 2013. While electrofishing for black bass species in May, no walleye were observed once again (Table 51). During the fall survey for black bass species in September, 5 walleye were collected ranging from 7.0-8.0 in (Table 55).

A total of 8,652 native strain walleye (5.1 in) were stocked in August. In addition, 6,700 redear sunfish (1.6 in) were stocked in September. Rainbow trout (750 fish/mo) were stocked at the tailwater in April, May, June, October, and November.

Creel Survey

A random, stratified, roving, daytime creel survey was conducted at Martins Fork Lake from April 01 to October 31, 2021 to estimate angling pressure and angler catch/harvest statistics (Tables 57-64). The survey was scheduled for 16 days of each month. Due to the smaller size of this lake, all data collected was from the same geographical section. Total angler counts were conducted at random times during each creel period. All the creel interviews and angler attitude surveys were collected using an iPad. This device had GPS capabilities that recorded coordinates associated with each interview and survey (Figures 1 and 2). Figure 1 provides a visual representation of the distribution of angler interviews across the lake for the entire creel. The same angler could only be interviewed once per fishing trip for creel data. Figure 2 provides a similar representation of the distribution of angler attitude surveys taken during the survey period. Anglers were only surveyed once for the entire season. The first and only additional creel survey conducted at Martins Fork Lake was in 1998.

The result of this most recent survey shows a decline in estimated angling effort since the 1998 survey. There was an estimated 4,018 fishing trips in 2021 (12.0 trips/acre) which accounted for a total of 16,883 angler-hours (50.6 man-hours/acre) of effort (Table 57). For 1998, there was an estimated 6,203 fishing trips (18.6 trips/acre) which accounted for a total of 21,607 angler-hours (64.7 man-hours/acre). Additionally, 2021 estimates for the total number of fish caught (19,574) and harvested (3,953) were also decreases from 1998 (26,469 fish caught and 8,290 harvested). Anglers in 2021 caught an estimated 8,761 largemouth bass (26.2 fish/acre; Table 58). These estimates are an increase over 1998 survey where only 5,203 largemouth bass were caught (15.6 fish/acre).

In 2021, anglers made an estimated 1643 trips (40.9%) targeting black bass species and 418 trips (10.4%) for white crappie (Table 58). During those trips, 6,902 hours were spent targeting black bass species and 1,757 hours were devoted to crappie angling. There were only 0.21 largemouth bass per acre harvested during the survey period and 7.68 white crappie harvested per acre. A readear sunfish stocking program was initiated at Martins Fork Lake in 2019. For the 2021 survey period, an estimated 1,731 redear sunfish were caught (5.24 fish/acre) and 451 of these were harvested. Additionally, an estimated 3,151 bluegill were caught (9.43 fish/acre) and 658 of them harvested. A total of 903 hours (2.7 man-hours/acre) were devoted to panfish angling in 2021.

An angler attitude survey was conducted during the creel to gather standardized information on angler preferences and satisfaction regarding the fishery at Martins Fork Lake (Appendix A). Anglers were surveyed only one time each during the survey period. A total of 133 anglers were interviewed. Seventy-one (53.4%) anglers fished Martins Fork Lake more than 10 times in a year. The primary species/group fished for was black bass at 77.4% (90.5% in 1998). Bluegill and redear sunfish were fished for by 42.9% of all anglers in 2021 and crappie were fished for by 33.1% of all anglers.

Only 30.4% of anglers who fished for bass were “very” or “somewhat satisfied” with the bass fishery at Martins Fork Lake. Forty six percent (46%) of bass anglers were “Neutral” in terms of their level of satisfaction with the bass fishery. Anglers who were “somewhat satisfied” or “somewhat dissatisfied” were almost evenly split at 21.6% and 20.6% respectively. Reasons for dissatisfaction were evenly distributed (33.3% each) between “numbers of fish” and “size of fish”. Over eighty three percent (83.5%) of anglers surveyed were satisfied with the current size and creel limits at Martins Fork Lake. Angler preference for walleye has substantially decreased since the last survey dropping from 80.9% of all anglers in 1998 to only 3.8% in 2021.

Stockings of Erie-strain walleye were discontinued in 2005 to reestablish a population of native strain walleye to the Upper Cumberland River drainage. Native strain walleye stockings began in Martins Fork Lake in 2013 but the fishery has never recovered and angler effort for the lake walleye fishery has diminished. Anglers who now pursue walleye in the area have transitioned to the immediate tailwaters of the lake and the Cumberland River below in Harlan, KY.

Pikeville City Lake

Black bass
Spring diurnal electrofishing was completed in May to assess the black bass population. Fish were sampled from 3.0-21.0 in (Tables 65 and 66). The fishery remains popular with anglers and has numerous large fish as shown by the PSD and RSD_{15} values (Table 67). The PSD and RSD_{15} values are high but expected with the current catch-and-release-only management regulation. No fish were observed with disease or health issues during this sampling effort; however, annual recruitment at this lake is lower than similar-sized reservoirs managed under statewide regulations. EFD staff have recommended moving this lake to the trophy bass management regulation ("20 inch minimum size limit with a one fish daily creel limit"). This was discussed at a City Council meeting in the spring but, after receiving questions and resistance from one or few members of the public, the council members decided to table the decision for further discussion and consideration.

The primary fisheries at Pikeville City Lake (20 acres) are largemouth bass, rainbow trout, bluegill, white crappie, common carp, and channel catfish. This lake has a catch-and-release only regulation for largemouth bass and contains gizzard shad. During 2017, some new stocking programs were initiated (rainbow trout and channel catfish). Rainbow trout stockings now total 2,500 fish a year with 1,250 in March and 1,250 in November. A total of 600 channel catfish will be stocked every other year (even years) in summer.

Paintsville Lake

Black bass
Boat electrofishing studies were conducted in the upper and lower sections of the lake in April to assess the black bass population. Length-frequency and CPUE of spotted and largemouth bass are shown in Table 68. Catch rates for largemouth bass decreased in 2021, which was primarily due to a decrease in catch rates of fish less than 12.0 in (Table 69). There was a slight increase in catch rate of fish 12.0-14.9 in, the highest since 2015. Largemouth bass exhibited marginal size structure with a population skewed toward smaller fish with a few large fish present (PSD=34, RSD_{15}=10; Table 70). The bass population rates "Fair" based on assessment parameters (Table 71).

Fall nocturnal electrofishing was completed in September for black bass to determine length frequency and year class strength. Length-frequency data shows that the highest density of largemouth bass fell in the 7.0- to 11.0-in range (Table 72). Mean age-0 largemouth bass length (4.5 in) was slightly below average but considerably better than 2020 data. The year class strength model indicated that 2021 was an above average recruitment year for young-of-year largemouth bass (81.8 fish/hr) while numbers of fish age-0 ≥5.0 in (26.7 fish/hr) were average (Table 73). No supplemental stocking of age-1 fingerlings was conducted in the fall. 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.

Spring electrofishing was utilized to sample black and white crappie (Tables 72-74). There are black crappie, black-nosed black crappie, and white crappie present in Paintsville Lake (1,150 acres). Length-frequency data shows that the highest density of white crappie fell in the 5.0- to 7.0-in range (Table 74). Black-nosed crappie were stocked in Paintsville Lake from 2011-2013. Twenty one percent (4) of the black crappie collected during spring sampling were black-nosed black crappie. The white crappie population is currently at a much higher density than black crappie in the lake (Table 74). The catch rate per length group (≥8.0-in) by year and species is shown in Table 75. The total CPUE for white crappie (281.3 fish/hr) was higher in 2021 than any other survey on record, primarily due to higher numbers of small fish.

Walleye broodfish collection was conducted in March, with only one 7.91-lb female collected.

The lake received a stocking of 10,000 rainbow trout (9.7 in) during February and 10,000 brown trout (8.3 in) in March. In addition, 57,430 walleye (1.5 in) were stocked in May.

The tailwater trout fishery received approximately 14,000 rainbow trout from April to July and September to November. Due to an increase in temperature in the tailwater, the brown trout stocking was permanently removed beginning in 2020.

Yatesville Lake

Black bass

Spring nocturnal electrofishing was completed in April to assess the black bass population at Yatesville Lake. Length distribution and CPUE are presented in Tables 77 and 78. The lower lake produced a greater CPUE for largemouth bass versus the upper lake area. The overall largemouth CPUE of 79.0 fish/hr was below the lake's historical average of 136.2 fish/hr. The most notable reduction in catch rate was for largemouth bass ≤12.0 in. Largemouth bass size structure indices were slightly better than previous years (PSD=49; RSD_{15}=21; Table 79). The population assessment remained "Fair" for largemouth bass again in 2021 (Table 80). Recruitment of spring age-1 largemouth has remained mostly above average since 2015, but declined in 2021. Due to heavy angling pressure via tournaments from spring into fall, the population is monitored closely.

Fall nocturnal electrofishing was completed in October to determine length frequency and year class strength of black bass species. Age and growth data from largemouth bass collected in 2021 is shown in Table 81. Growth rates for largemouth bass have increased, with bass now reaching 12.6 in by age 3. Previous growth rates for largemouth bass were slightly lower with age-3 fish attaining lengths of 11.1 inches in 2015 and 12.4 inches in 2012. Largemouth bass made up the majority of the fall sample (98.5%) while spotted bass only made up 1.5% (Table 82). Age-0 overall CPUE (52.7 fish/hr) and age-0 ≥ 5.0-in CPUE (21.0 fish/hr) suggests that the 2021 year class was slightly below average (61.0 fish/hr and 32.7 fish/hr, respectively; Table 83). These values were nearly identical to 2020 data. Mean age-0 largemouth bass length (4.7 in) was average compared to most years.

A total of 19,476 (6.5-in) blue catfish were stocked in the lake in October. Rainbow trout were stocked in the tailwater of Yatesville Lake in April-May and October-November (750 fish each month except October-1,000).

Table 1. Summary of 2021 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	14-Jan	1100	shock	pt. cloudy	38.3	757.7	42	outflow : 234 cfs; bp: 29.93; cond: 371; 1 boat; low er lake; some ice
Buckhorn Lake	LMB	27-Apr	2000	shock	clear	63.1	778.3	48	outflow : 47cfs; bp: 30.09; cond: 479; 1 boat; variable w ater clarity
Buckhorn Lake	LMB	12-Oct	2000	shock	clear	75.0	781.6	97	outflow : 123cfs; bp: 29.99; 2 boats; w ater clear
Buckhorn Lake	crappie	11/22/ 11/24	1000	trap net	cloudy	42.0	765.2	20	outflow : 165cfs; bp: 30.15; upper (middle); crappie A&G
Carr Creek Lake	w alleye	9-Mar	1000	shock	pt. cloudy	52.0	1028.9	10	broodfish collection outflow : 770cfs; bp: 30.51; cond: 172; 2 boats; w hole lake; w ater muddy
Carr Creek Lake	w alleye	11-Mar	1000	shock	pt. cloudy	49.2	1024.3	8	broodfish collection; outflow : 744cfs; bp: 30.03; cond: 240; 2 boats; 2w hole lake; w ater muddy
Carr Creek Lake	w alleye	16-Mar	1000	shock	pt. cloudy	51.2	1017.9	10	broodfish collection; outflow : 76cfs; bp: 29.98; cond: 216; 2 boats; w hole lake; w ater muddy
Carr Creek Lake	LMB	26-Apr	1000	shock	clear/hot	62.7	1025.0	66	outflow : 5cfs; bp: 30.17; cond: 417; 2 boats; w hole lake; w ater clear
Carr Creek Lake	LMB	6-Oct	2000	shock	cloudy	73.9	1027.6	156	outflow : 5cfs; cond: 631; 1 boat; w hole lake; w ater clear
Cranks Creek Lake	LMB	13-May	2000	shock	cloudy	64.4	normal	58	bp: 30.36; cond: 240; 1 boat; w hole lake; w ater turbid
Cranks Creek Lake	LMB	30-Sep	2000	shock	pt. cloudy	74.7	normal	124	bp: 30.14; cond: 261; 1 boat; w hole lake; w ater clear
Dew ey Lake	LMB	19-Apr	1000	shock	cloudy	61.1	650.6	48	outflow : 117.1cfs; bp: 29.95; cond: 371; 2 boats; w hole lake; w ater turbid
Dew ey Lake	LMB	4-May	1000	shock	cloudy	65.8	650.6	34	outflow : 178.8; bp: 29.8; Cond: 560; w hole lake; w ater turbid
Dew ey Lake	LMB	11-Oct	2000	shock	pt. cloudy	75.5	650.6	99	outflow : 23.4cfs; bp: 29.90; cond: 385; 2 boats; w hole lake; w ater clear
Fish Pond	LMB	13-Apr	2000	shock	clear	61.7	normal	214	bp: 30.10; cond: 576; 1 boat; w hole lake; w ater clear
FishTrap	LMB	29-Apr	1000	shock	cloudy	65.8	757.7	165	outflow : 282.1cfs; bp: 29.87; cond: High; 1 boat; Low er lake; w ater clear
FishTrap	LMB	5-May	1000	shock	cloudy	67.4	757.9	57	outflow : 260cfs; bp: 29.89; Cond: 787; 1 Boat; upper lake; w ater clear
FishTrap	LMB	29-Sep	2000	shock	clear	77.0	757.5	60	out flow : 92.2cfs; bp: 29.99; Cond: 690; 2 boats; Water Clear
FishTrap	crappie	11/29/ 12-02	1100	trap net	clear		738.8	68	outflow : 409.89cfs; bp: 30.24; 1 boat; middle lake; w ater clear and falling, crappie A&G
Martins Fk Lake	w alleye	10-Mar	1100	shock	clear/w indy	52.0	1303.0		bp: 30.41; 1 boat; w hole lake 6 runs-no fish; w ater muddy; brood stock collection
Martins Fk Lake	LMB	13-May	2000	shock	clear	64.7	1310.3	97	outflow : minimum; bp: 30.36; cond: 163; 1 boat; w ater clear
Martins Fk Lake	LMB	30-Sep	2000	shock	pt. cloudy	74.0	1310.1	96	outflow : min; bp: 30.14; cond: 190; 1 boat; w hole lake; w ater clear
Paintsville Lake	w alleye	15-Mar	1000	shock	cloudy/rain/cold	47.0	710.6	12	outflow : 691cfs; bp: 30.29; cond: 135; 1 boat; low er lake; w ater muddy; broodfish collection
Paintsville Lake	w alleye	17-Mar	1000	shock	pt. cloudy	49.8	709.5	10	outflow : 466cfs; bp: 30.06; cond: 83; 2 boats; low er (middle) lake; w ater turbid
Paintsville Lake	crappie	22-Apr	1000	shock	cloudy/w ind	54.3	710.0	24	outflow : 30.6cfs; bp: 30.14; cond: 129; 1 boat; upper lake; w ater murkey; spring crappie
Paintsville Lake	LMB	28-Apr	2000	shock	cloudy	62.2	709.9	76	outflow : 43.3cfs; bp: 30.03; cond: 105; 2 boats; lake clear
Paintsville Lake	Redbrest SF	1-Jun	1000	shock	pt. cloudy	72.3	7.9.5	108	outflow : 30.1cfs; bp: 30.24; cond: very low ; 1 boat; low er lake; no fish
Paintsville Lake	LMB	27-Sep	2000	shock	clear	74.6		56	bp: 29.98; cond: 134; 2 boats; w ater clear
Pikeville City Lake	LMB	7-May	1000	shock	cloudy	65.1	low 1-2	34	cond: 562; 1 boat; w hole lake; w ater stained
Yatesville Lake	LMB	20-Apr	2000	shock	pt. cloudy	63.5	630.3	53	outflow : 39.0cfs; bp: 29.85; Cond: 138; 2 boats; w ater stained
Yatesville Lake	LMB	28-Sep	2000	shock	cloudy	75.5	63.4	66	outflow : 33.7cfs; bp: 29.92; Cond:179; 2 boats; A&G sample

[a] cond = conductivity in µS/cm

[b] bp = barometric pressure in inches

Table 2. Length frequency and electrofishing CPUE (fish/hr) of muskellunge collected during spring sampling on Buckhorn Lake from 1998-2021; 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
2021	no sample																																							
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
2021					no sample					
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 ≥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 ≥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 ≥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 ≥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	Exc	Exc	Fair	Exc	Good	Good	Good	Poor	Fair	Fair	Poor	Poor	Poor	Good

EFDBLMSS.D05-D10, D12, D14, D16-D20
LFRBHLSP.D11, D13

Table 5. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 2.0 hours of 15-minute electrofishing samples at Buckhorn Lake (1,230 acres) on 27 April 2021; numbers in parentheses are standard errors.

		Inch class															
Area	Species	4	5	6	7	8	9	10	11	12	13	14	16	17	18	Total	CPUE
Lower	Largemouth bass	7	25	18	3	3	9	9	19	16	9	7	1			126	126.0 (18.6)
Upper	Largemouth bass	1	7	4		2	10	7	17	9	3	1	1	1	1	64	64.0 (9.7)
Total	Largemouth bass	8	32	22	3	5	19	16	36	25	12	8	2	1	1	190	95.0 (15.2)

EFDBLLSS.D21

Table 6. 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
2021	32.5	12.5	38	7.0	22.5	5.1	2.0	1.1	0.0	0.0	95.0	15.2
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-D21

Table 7. PSD and RSD_{15} values for largemouth bass in each area of Buckhorn Lake (1,230 acres) on 27 April 2021. Number of fish (No.) is the number of stock-size or larger fish collected and numbers in parentheses are 95% confidence intervals.

	Largemouth bass		
Area	No.	PSD_8	RSD_{15}
Lower	73	45 (34-57)	1 (0-4)
Upper	52	31 (18-43)	6 (0-12)
Total	132	39 (31-48)	3 (0-6)

EFDBLLSS.D21

Table 8. Population assessment for largemouth bass collected during spring at Buckhorn Lake (1,230 acres). Actual values are in parentheses. Scoring based on statewide assessment.

	Year											
Parameter	2006	2007	2008	2009	2010	2012	2014	2015	2017	2018	2019	2021
Mean length age 3 at capture	3 (12.6)	3 (12.6)	3 (12.6)	3 (13.3)	3 (13.3)	3 (13.3)	2 (12.1)	2 (12.1)	2 (12.1)	2 (12.1)	2 (12.1)	2 (11.7)
Spring CPUE age 1	1 (11.2)	2 (13.0)	1 (11.2)	4 (43.8)	3 (26.1)	3 (36.1)	1 (8.7)	4 (56.0)	4 (90.7)	4 (48.4)	4 (48.7)	3 (37.5)
Spring CPUE 12.0-14.9 in	4 (40.5)	2 (20.5)	2 (21.4)	2 (17.2)	2 (18.3)	1 (7.5)	1 (6.0)	3 (27.1)	4 (34.7)	3 (28.4)	3 (26.7)	2 (22.5)
Spring CPUE ≥15.0 in	3 (15.2)	3 (14.0)	3 (13.8)	3 (14.5)	2 (10.7)	1 (3.5)	1 (2.7)	1 (3.6)	2 (8.7)	1 (2.8)	1 (5.3)	1 (2.0)
Spring CPUE ≥20.0 in	2 (0.3)	3 (0.5)	1 (0.0)	1 (0.0)	2 (0.4)	2 (0.5)	1 (0.0)	3 (0.9)	3 (0.7)	2 (0.4)	4 (2.0)	1 (0.0)
Total score	13	13	10	13	12	10	6	13	15	12	14	9
Assessment rating	Good	Good	Fair	Good	Fair	Fair	Poor	Good	Good	Fair	Good	Fair
Instantaneous mortality (z)	0.48	0.45	0.42	0.64	0.73	0.77						
Annual mortality (A)	38.00	36.40	34.20	47.40	51.80	54.90						

EFDBLLSS.D06-D10, D12, D14-D19, D21
EFDBLLAS.D04, D09
EFDBLLAF.D14

Table 9. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 2.50 hours of 15-minute electrofishing samples at Buckhorn Lake (1,230 acres) on 12 October 2021; numbers in parentheses are standard errors.

		Inch class																	
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	Total	CPUE
Lower	Largemouth bass	12	25	21	6	5	15	9	9	14	17	8			2	1	1	145	116.0 (5.7)
Upper	Largemouth bass	11	33	26	14	1	14	13	22	11	13	3	2					163	130.4 (15.9)
Total	Largemouth bass	23	58	47	20	6	29	22	31	25	30	11	2		2	1	1	308	123.2 (8.3)

EFDBLLSF.D21

Table 10. 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
2021	4.9	0.1	58.8	9.3	26.4	3.6		
2020	4.8	0.1	50.9	6.2	22.9	2.6	37.5	12.2
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-D21
EFDBLLAS.D04, D09
EFDBLLAF.D20
EFDBLLSS.D02-D21

Table 11. Length frequency and CPUE (fish/net-night) for white crappie collected at Buckhorn Lake (1,230 acres) in 17 net-nights, 22-24 November 2021. SE= standard error of CPUE.

Inch class																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	CPUE	SE
5	244	516	64	248	222	420	587	490	142	35	7	2	1	2983	175.5	27.0

EFDBLCTF.D21

Table 12. PSD and RSD_{10} values calculated for white crappie collected in trap nets at Buckhorn Lake (1,230 acres) on 22-24 November 2021; 95% confidence intervals are in parentheses.

No. ≥stock size	PSD	RSD_{10}
2,154	59 (57-61)	9 (7-10)

EFDBLCTF.D21

Table 13. Mean back-calculated length (in) at each annulus for white crappie collected from Buckhorn Lake (1,230 acres) November 2021, including 95% confidence intervals.

Year		Age							
class	No.	1	2	3	4	5	6	7	8
2020	23	4.0							
2019	19	4.2	6.1						
2018	6	4.2	6.1	7.5					
2017	14	4.2	6.2	7.4	8.4				
2016	17	4.3	6.3	7.7	8.8	9.9			
2015	9	4.7	6.7	8.1	9.3	10.3	11.3		
2014	1	4.9	7.3	8.5	9.7	10.7	11.4	12.1	
2013	2	4.5	5.8	6.9	8.2	9.5	11.0	11.7	12.3
Mean		4.3	6.3	7.8	9.1	10.4	11.0	11.6	12.8
Number		91	68	49	43	29	12	3	2
Smallest		3.3	5.1	6.3	7.1	7.7	10.0	11.2	11.9
Largest		5.3	8.1	9.9	10.8	12.0	13.3	12.3	12.7
STD error		0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.4
95% CI LO		4.1	6.1	7.4	8.5	9.7	10.8	11.2	11.4
95% CI HI		4.3	6.4	7.9	9.0	10.4	11.8	12.5	13.2

Intercept = 0
EFDBLCAF.D21

Table 14. Age frequency and CPUE (fish/net-night) of white crappie collected by trap netting for 17 net-nights at Buckhorn Lake (1,230 acres) 22-24 November 2021; numbers in parentheses are standard errors.

	Inch class																
Age	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	Age%	CPUE	
0	244	516	64	19										843	28	49.6	(19.5)
1				229	144									373	13	21.9	(3.2)
2					78	344	261							683	23	40.2	(6.1)
3						76		131						207	7	12.2	(2.0)
4							196	294	36					526	18	30.9	(4.5)
5							130	65	89	22	3			309	10	18.2	(2.6)
6									18	13	3	1	1	36	1	2.1	(0.4)
7												1		1	0	0.0	(0.0)
8											1	1		2	0	0.1	(0.0)
Total	244	516	64	248	222	420	587	490	143	35	7	3	1	2980			
%	8	17	2	8	7	14	20	16	5	1	0	0	0				

CPUE of ≥8 in (quality size) = 74.4

CPUE of ≥10 in (preferred size) = 11.0

EFDBLCAF.D21

EFDBLCTF.D21

Table 15. Population assessment scores for white crappie collected from Buckhorn Lake (1,230 acres). Actual values are in parantheses. Scoring based on statewide assessment.

	Year									
Parameter	2006	2007	2008	2010	2011	2013	2015	2017	2019	2021
CPUE age-1 and older	4 (191.4)	4 (32.5)	4 (60.7)	4 (54.0)	4 (299.7)	4 (52.1)	4 (54.6)	4 (42.2)	4 (27.4)	4 (125.9)
CPUE age 1	4 (58.6)	2 (3.0)	4 (14.5)	4 (32.9)	4 (155.8)	4 (28.4)	4 (12.3)	4 (8.6)	3 (6.5)	4 (21.9)
CPUE age 0	4 (29.8)	2 (0.6)	2 (0.4)	4 (22.3)	4 (51.0)	4 (50.0)	4 (10.0)	4 (20.7)	4 (6.8)	4 (49.6)
CPUE $\geq$ 8.0 in.	4 (17.8)	3 (5.5)	3 (5.9)	4 (12.6)	4 (54.7)	4 (10.9)	4 (27.3)	4 (15.3)	4 (14.0)	4 (74.4)
Mean age 2 length @ capture	1 (7.1)	1 (6.3)	1 (6.3)	1 (7.7)	2 (8.2)	1 (6.9)	1 (7.2)	1 (7.5)	1 (7.4)	1 (6.0)
Total score	17	12	14	17	18	17	17	17	16	17
Assessment rating	Excellent	Fair	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Excellent
Instantaneous mortality (z)	1.52	1.74	1.03	0.87	0.98	0.89	0.61	0.88	0.87	0.89
Annual Mortality (A)	78.00	82.50	64.40	58.20	62.40	59.30	45.90	58.40	58.20	59.1

EFDBLCTF.D06-D21
EFDBLCAF.D06-D21

Table 16. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 2.0 hours of 15-minute electrofishing samples at Carr Creek Lake (710 acres) on 26 April 2021; 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	Total	CPUE	
Lower	Smallmouth bass													1				1	1.0	(1.0)
	Spotted bass		1	6	4	6	2	5					1					25	25.0	(8.7)
	Largemouth bass	7	30	7	9	9	7	8	5	7	2	1	1	2	2	2	1	100	100.0	(14.0)
Upper	Smallmouth bass																	0	0.0	(0.0)
	Spotted bass	1		3	2	2	2	1	1									12	12.0	(5.4)
	Largemouth bass	15	45	16	10	13	7	3	5	7	2	3	2	3	3	2		136	136.0	(16.3)
Total	Smallmouth bass													1				1	0.5	(0.5)
	Spotted bass	1	1	9	6	8	4	6	1				1					37	18.5	(5.3)
	Largemouth bass	22	75	23	19	22	14	11	10	14	4	4	3	5	5	4	1	236	118.0	(12.0)

EFDCLLSS.D21

Table 17. 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
2021	69.5	9.4	28.5	4.7	11.0	3.0	9.0	2.6	0.0	0.0	118.0	118.0
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-D21

Table 18. PSD and RSD values for each species of black bass collected in each area of Carr Creek Lake (710 acres) on 26 April 2021. 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	RSD_{14}	No.	PSD	RSD_{14}	No.	PSD	RSD_{15}
Lower	1	100	100	18	6 (0-16)	6 (0-16)	47	38 (24-52)	17 (6-28)
Upper	0			8	13 (0-37)		50	44 (30-58)	20 (9-31)
Total	1	100	100	26	8 (0-18)	4 (0-11)	97	41 (31-51)	19 (11-26)

EFDCLLSS.D21

Table 19. Population assessment for largemouth bass collected from Carr Creek Lake (710 acres). Actual values are in parentheses. Scoring based on statewide assessment.

Parameter	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2021
Mean length age-3 at capture	4 (12.6)	4 (12.6)	4 (12.6)	4 (12.6)	4 (12.6)	4 (13.5)	4 (13.5)	4 (13.5)	4 (13.5)	4 (13.5)	4 (13.5)	4 (13.1)	4 (13.1)
Spring CPUE age-1	1 (2.4)	1 (3.1)	2 (10.0)	2 (9.0)	2 (13.9)	4 (114.7)	4 (116.0)	4 (71.0)	3 (35.3)	3 (31.0)	4 (111.5)	4 (64.0)	4 (71.0)
Spring CPUE 12.0-14.9 in	2 (24.7)	2 (17.1)	1 (10.8)	1 (5.5)	1 (9.0)	2 (16.0)	2 (25.0)	2 (15.5)	1 (10.7)	1 (12.5)	1 (11.0)	2 (22.5)	1 (11.0)
Spring CPUE ≥15.0 in	3 (23.7)	3 (16.0)	2 (12.6)	3 (16.0)	3 (13.5)	3 (16.7)	3 (18.5)	3 (18.5)	3 (15.3)	3 (17.0)	3 (19.0)	3 (16.5)	2 (9.0)
Spring CPUE ≥20.0 in	2 (0.5)	2 (0.6)	2 (0.9)	2 (1.0)	2 (1.5)	3 (2.7)	2 (1.0)	2 (1.0)	1 (0.0)	2 (0.5)	2 (0.5)	2 (1.0)	1 (0.0)
Total score	12	12	11	12	12	16	15	15	12	13	14	15	12
Assessment rating	Fair	Fair	Fair	Fair	Fair	Good	Good	Good	Fair	Good	Good	Good	Fair
Instantaneous mortality (z)	0.41	0.74	0.34	0.27	0.44								
Annual mortality (A)	33.50	52.30	29.10	23.80	35.80								

BBRPSCFL.D05
EFDCLLSS.D08-D19, D21
EFDCLLAS.D08
EFDCLLAF.D13, D19

Table 20. Length frequency and electrofishing CPUE (fish/hr) of black bass collected in approximately 2.5 hours of 15-minute nocturnal electrofishing samples at Carr Creek Lake (710 acres) on 6 October 2021; 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	0.8 (0.8)
	Spotted bass			2	3	3	3	5	1	2		1						20	16.0 (4.4)
	Largemouth bass		4	7	3	22	29	8	11	4	1					2	1	92	73.6 (9.3)
Upper	Smallmouth bass																	0	0.0 (0.0)
	Spotted bass	4	8	1	7	7	9	7	1	3			1					48	38.4 (12.0)
	Largemouth bass		4	27	7	21	61	16	14	13	3	2	2	1			2	173	138.4 (22.9)
Total	Smallmouth bass					1												1	0.4 (<0.1)
	Spotted bass	4	8	3	10	10	12	12	2	5		1	1					68	27.2 (7.1)
	Largemouth bass		8	34	10	43	90	24	25	17	4	2	2	1		2	3	265	106.0 (15.9)

EFDCLLSF.D21

Table 21. 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
2021	5.5	0.1	19.6	5.4	16.4	4.9		
2020	4.8	0.1	50.9	6.2	22.9	2.6	71.0	9.8
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-D21

EFDCLLAS.D08

EFDCLLSS.D03-D19, D21

EFDCLLAF.D13, D19

Table 22. 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
2021			1					1				9	26	43	38	18	4		1				141	13.8	3.4
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-D21

Table 23. Spring electrofishing catch rate (fish/hr) for each age of walleye collected from Carr Creek Lake (710 acres) from 2010-2021.

	Year											
Age	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1												
2	2.1	1.3	1.6	1.0	0.9	3.2	1.8	1.5	1.7	0.9	0.4	0.5
3	3.2	5.0	7.8	4.2	4.5	9.1	8.1	9.0	5.2	6.6	3.5	5.2
4	2.6	3.6	5.1	2.6	3.6	5.2	5.2	5.7	3.7	4.3	2.4	3.6
5	1.4	1.6	2.9	1.2	1.3	1.6	2.4	2.4	1.6	2.1	1.1	2.0
6	0.3	0.4	0.9	0.5	0.4	0.6	0.8	0.8	0.3	0.6	0.5	0.7
7	0.4	0.4	0.5	0.1	0.1	0.2	0.2	0.2	0.4	0.2	0.2	0.1
8	0.9	0.7	0.8	0.5	0.5	0.6	0.8	0.9	0.5	0.6	0.4	0.6
9	0.8	1.0	1.2	0.5	0.5	0.7	1.0	0.9	1.0	0.9	0.4	0.7
10	0.2	0.3	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.3	0.1	0.2

EFDCLWSS.D09-D21
EFDCLWAS.D09

Table 24. Number of fish and relative weight (Wr) for each length group of walleye collected at Carr Creek Lake (710 acres) on 9-16 March 2021. 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
		1	93	35	88	104	84	140	85
			(<1)		(1)		(1)		(1)

EFDCLWSS.D21

Table 25. Length frequency and CPUE (fish/hr) of black bass collected in 1.25 hours of 15-min electrofishing runs at Cranks Creek Lake (219 acres) on 13 May 2021; numbers in pareneses are standard errors.

	Inch class																				
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	20	21	23	25	Total	CPUE
Spotted bass					2	2		2	1											7	5.6 (3.5)
Largemouth bass	1	32	20	8	2	26	34	24	15	4	3			2	4	2	1	2	1	181	144.8 (7.3)

EFDCCLSS.D21

Table 26. 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
2021	50.4	6.4	79.2	6.6	5.6	2.7	9.6	6.0	4.8	3.9	144.8	7.3
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-D21

Table 27. PSD and RSD values for each species of black bass in each area of Cranks Creek Lake (219 acres) on 13 May 2021. Number of fish (No.) is the number of stock-size or larger fish collected and numbers in parentheses are 95% confidence intervals.

	Largemouth bass			Spotted bass		
	No.	PSD	RSD_{15}	No.	PSD	RSD_{14}
Total	118	16 (9-23)	10 (5-16)	7	14 (0-42)	0

EFDCCLSS.D21

Table 28. Population assessment for largemouth bass collected from Cranks Creek Lake (219 acres). Actual values are in parentheses. Scoring based on statewide assessment.

	Year							
Parameter	2010	2011	2012	2015	2017	2018	2019	2021
Mean length age 3 at capture	3 (11.2)	3 (11.2)	3 (11.2)	1 (10.0)	1 (10.0)	1 (10.0)	2 (10.7)	2 (10.7)
Spring CPUE age 1	4 (68.8)	3 (45.6)	3 (28.0)	2 (19.2)	4 (72.8)	3 (42.4)	4 (115.2)	4 (60.0)
Spring CPUE 12.0-14.9 in	1 (9.6)	1 (9.6)	1 (5.6)	2 (15.2)	2 (18.4)	1 (8.0)	1 (4.0)	1 (5.6)
Spring CPUE ≥15.0 in	3 (14.4)	2 (11.2)	2 (8.8)	3 (13.6)	3 (15.2)	2 (11.2)	2 (6.4)	2 (9.6)
Spring CPUE ≥20.0 in	4 (4.8)	4 (5.6)	3 (2.4)	4 (6.4)	4 (8.8)	4 (6.4)	4 (2.4)	4 (4.8)
Total score	15	13	12	12	14	11	13	13
Assessment rating	Good	Good	Fair	Fair	Good	Fair	Good	Good
Instantaneous mortality (z)	0.49	0.56	0.53					
Annual mortality (A)	38.90	43.10	40.90					

EFDCCLAS.D08
EFDCCLAF.D13,D19
EFDCCLSS.D10-D19, D21

Table 29. Length frequency and CPUE (fish/hr) of black bass collected in 1.25 hours of 15-min nocturnal electrofishing runs at Cranks Creek Lake (219 acres) on 30 September 2021; 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	Total	CPUE
Spotted bass	5	3		2	1		2										13	10.4 (6.4)
Largemouth bass	9	23	7	11	40	23	30	18	10	2	1		1	1		1	177	141.6 (29.7)

EFDCCLSF.D21

Table 30. 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
2021	4.4	0.1	31.2	5.4	5.6	2.0		
2020	4.3	0.1	43.2	17.6	8.0	4.2	60.0	9.1
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-D21
EFDCCLAS.D08
EFDCCLSS.D00-D01, D04-D05, D08, D10-D12, D15, D17-D19, D21
EFDCCLAF.D13, D19

Table 31. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 2.5 hours of 15-minute nocturnal electrofishing samples by area at Dewey Lake (1,100 acres) on 19 April and 4 May 2021. Standard errors are in parentheses.

		Inch class																				
Area	Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Lower	Spotted bass				2	6	3		1												12	9.6 (2.7)
	Largemouth bass	2	5	5	4	3	6	10	8	6	9	12	4	2	2	3	1		4		86	68.8 (12.5)
Upper	Spotted bass																				0	0.0 (0.0)
	Largemouth bass			2	5	2	8	5	4	12	13	9	8	7	2	1	4	2		1	85	68.0 (8.7)
Total	Spotted bass				2	6	3		1												12	4.8 (2.1)
	Largemouth bass	2	5	7	9	5	14	15	12	18	22	21	12	9	4	4	5	2	4	1	171	68.4 (7.2)

EFDDLLSS.D21

Table 32. 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
2021	11.2	3.0	23.6	4.1	22.0	3.3	11.6	2.1	2.0	0.9	68.4	7.2
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-D21
BBRPSDEW.D03-D05

Table 33. PSD and RSD values for each species of black bass collected in each area of Dewey Lake (1,100 acres) on 19 April and 4 May 2021. Numbers in parentheses are 95% confidence

	Largemouth bass			Spotted bass		
Area	No.	PSD	RSD_{15}	No.	PSD	RSD_{14}
Lower	67	55 (43-67)	18 (9-27)	10	0	0
Upper	76	62 (51-73)	22 (13-32)	0		
Total	143	59 (51-67)	20 (14-27)	10	0	0

EFDDLLSS.D21

Table 34. Population assessment for largemouth bass collected from Dewey Lake (1,100 acres). Actual values are in parentheses. Scoring based on statewide assessment.

	Year										
Parameter	2009	2010	2012	2013	2014	2015	2016	2017	2018	2019	2021
Mean length age-3 at capture	2 (11.3)	2 (11.3)	2 (11.3)	2 (11.3)	2 (11.3)	2 (11.3)	2 (11.3)	2 (11.3)	2 (11.8)	2 (11.8)	2 (11.8)
Spring CPUE age-1	4 (55.6)	2 (16.4)	2 (19.5)	2 (20.8)	1 (10.8)	2 (17.2)	2 (20.5)	2 (21.3)	3 (29.2)	1 (11.0)	1 (11.2)
Spring CPUE 12.0-14.9 in	2 (18.8)	1 (12.3)	4 (34.9)	4 (54.0)	4 (31.2)	4 (43.2)	4 (47.0)	2 (20.0)	3 (28.0)	4 (34.0)	2 (22.0)
Spring CPUE ≥15.0 in	3 (14.4)	2 (8.3)	2 (10.7)	3 (17.2)	4 (20.0)	4 (24.0)	4 (24.0)	4 (23.3)	4 (23.2)	4 (25.0)	2 (11.6)
Spring CPUE ≥20.0 in	3 (0.5)	1 (0.0)	2 (0.4)	3 (1.2)	3 (1.2)	3 (0.8)	3 (1.0)	4 (1.3)	4 (1.6)	3 (1.0)	4 (2.0)
Total score	14	8	12	14	14	15	15	14	16	14	11
Assessment rating	Good	Poor	Fair	Good	Good	Good	Good	Good	Good	Good	Fair
Instantaneous mortality (z)	0.48	0.77	0.64								
Annual mortality (A)	38.40	53.90	35.80								

EFDDLLSS.D09-D10, D13-D19, D21
EFDDLLAS.D08
EFDDLLAF.D13, D18

Table 35. 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 11 October 2021. 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	21	Total	CPUE
Lower	Spotted bass			1		1	1	1	3	1	2											10	8.0 (2.8)
	Largemouth bass		5	10	15	6	5	8	7	4	1	3	12	5	2	1	1	3	1	1		90	72.0 (17.3)
Upper	Spotted bass																					0	0.0 (0.0)
	Largemouth bass	1	13	12	6	12	5	12	19	15	12	9	12	4	7	3	4			1	1	148	118.4 (26.9)
Total	Spotted bass			1		1	1	1	3	1	2											10	4.0 (1.9)
	Largemouth bass	1	18	22	21	18	10	20	26	19	13	12	24	9	9	4	5	3	1	2	1	238	95.2 (16.9)

EFDDLLSF.D21

Table 36. 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
2021	4.9	0.1	32.0	8.3	15.6	5.3		
2020	4.6	0.2	11.6	3.55	2.8	1.34	11.2	3.0
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	<0.1	75.6	14.2	37.6	9.4	61.2	9.4

BBRPSDEW.D03-D05
BBRDLLSF.D02
BBRWRDEW.D03-D04
BBRSCDEW.D03
EFDDLLSF.D02-D21
EFDDLLSS.D06-D10, D12-D19, D21
EFDDLLAS.D08
EFDDLLAF.D13, D18

Table 37. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 2.5 hours of 15-minute electrofishing samples at Fishtrap Lake (1,143 acres) on 29 April and 5 May 2021; numbers in parentheses are standard errors.

		Inch class																		
Area	Species	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Lower	Smallmouth bass	1												2					3	2.4 (2.4)
	Spotted bass		1	1			1	1	1										5	4.0 (4.0)
	Largemouth bass		4	7		10	4	6	9	16	7	6	4	6	3			1	83	66.4 (10.0)
Upper	Smallmouth bass										1								1	0.8 (0.8)
	Spotted bass																		0	0.0 (0.0)
	Largemouth bass		2	4	9	7	12	10	22	12	6	6	2		2	1			95	76.0 (9.0)
Total	Smallmouth bass	1									1			2					4	1.6 (1.2)
	Spotted bass		1	1			1	1	1										5	2.0 (2.0)
	Largemouth bass		6	11	9	17	16	16	31	28	13	12	6	6	5	1		1	178	71.2 (6.6)

EFDFLLSS.D21

Table 38. 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.
2021	6.8	2.24	23.2	4.87	28.8	2.59	12.4	2.7	0.4	0.4	71.2	6.6
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-D21

Table 39. PSD and RSD values for each species of black bass in each area of Fishtrap Lake (1,143 acres) on 29 April and 5 May 2021. 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	RSD_{14}	No.	PSD	RSD_{14}	No.	PSD	RSD_{15}
Lower	2	100 (100-100)	100 (100-100)	4	50 0-107)	0	72	72 (62-83)	28 (17-38)
Upper	1	100	100	0			89	57 (47-68)	12 (5-19)
Total	3	100 (100-100)	100 (100-100)	4	50 (0-107)	0	161	64 (57-71)	19 (13-25)

EFDFLLSS.D21

Table 40. 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	2021
Mean length age 3 at capture	4 (13.6)	4 (13.6)	4 (13.6)	2 (11.7)	2 (11.7)	2 (11.7)	2 (11.7)	2 (11.8)	2 (11.8)	2 (11.8)	2 (11.8)
Spring CPUE age 1	3 (28.3)	3 (38.5)	4 (44..2)	4 (51.6)	4 (50.8)	3 (24.2)	2 (22.1)	4 (61.3)	3 (35.6)	4 (64.0)	1 (10.4)
Spring CPUE 12.0-14.9 in	4 (33.0)	4 (32.0)	2 (20.4)	2 (20.4)	1 (12.0)	4 (35.2)	4 (33.6)	2 (20.7)	4 (31.2)	4 (38.0)	3 (28.8)
Spring CPUE ≥15.0 in	2 (7.9)	2 (9.4)	2 (9.9)	2 (10.4)	2 (12.7)	3 (16.8)	3 (18.0)	1 (4.0)	2 (6.8)	3 (15.3)	2 (12.4)
Spring CPUE ≥20.0 in	3 (1.2)	1 (0.0)	3 (0.6)	2 (0.4)	4 (3.3)	4 (3.2)	4 (2.4)	3 (0.7)	2 (0.4)	4 (1.3)	2 (0.4)
Total score	16	14	15	12	13	16	15	12	13	17	10
Assessment rating	Good	Good	Good	Fair	Good	Good	Good	Fair	Good	Excellent	Fair
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-D21
EFDFLLAS.D04, D10
EFDFLLAF.D17

Table 41. 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 29 September 2021; 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	Total	CPUE
Lower																						
	Smallmouth bass		1							2		1		1		3					8	6.4 (3.0)
	Spotted bass	1	1		1	1	1				3										8	6.4 (3.7)
	Largemouth bass	10	19	9	12	5	8	12	11	7	12	19	14	4	6	6	1	4	3	1	163	130.4 (11.9)
Upper																						
	Smallmouth bass											1	1								2	1.6 (1.0)
	Spotted bass																				0	0.0 (0.0)
	Largemouth bass	6	11	14	18	5		3	1	10	13	15	6	3	2	2		4	1		114	91.2 (14.7)
Total																						
	Smallmouth bass		1							2		2	1	1		3					10	4.0 (1.7)
	Spotted bass	1	1		1	1	1				3										8	3.2 (2.1)
	Largemouth bass	16	30	23	30	10	8	15	12	17	25	34	20	7	8	8	1	8	4	1	277	110.8 (11.1)

EFDFLLSF.D21

Table 42. 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
2021	5.2	0.1	40.0	9.8	21.6	5.3		
2020	5.2	0.1	66.0	15.9	34.8	10.8	10.4	2.5
2019	4.8	0.1	58.5	19.6	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	61.33*	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-D21
EFDFLLSS.D04-D21
EFDFLLAS.D04, D10
EFDFLLAF.D17

Table 43. Length frequency and CPUE (fish/net-night) for white crappie collected at Fishtrap Lake (1,143 acres) in 25 net-nights on 30 November - 2 December 2021.

Inch class															
1	2	3	4	5	6	7	8	9	10	11	12	13	Total	CPUE	SE
1	1	5	66	32	6	4	2	22	24	11	4	1	179	7.5	(1.6)

EFDFLCTF.D21

Table 44. PSD and RSD values calculated for white crappie collected in trap nets at Fishtrap Lake (1,143 acres) on 30 November - 2 December 2021; 95% confidence intervals are in parentheses.

No. ≥stock size	PSD	RSD_{10}
106	70 (51-70)	38 (28-48)

EFDFLCTF.D21

Table 45. Mean back-calculated length (in) at each annulus for white crappie collected from Fishtrap Lake (1,143 acres) on 30 November - 2 December 2021, including 95% confidence intervals.

Year		Age									
class	No.	1	2	3	4	5	6	7	8	9	10
2020	9	4.6									
2019	5	5.2	7.8								
2018	25	5.1	8.0	9.5							
2017	3	4.7	8.2	9.9	11.1						
2016	2	5.0	7.7	9.8	10.9	11.6					
2015	2	4.8	7.2	8.5	9.4	10.3	11				
2014	1	4.3	6.5	7.4	8.3	8.9	9.8	10.6			
2011	1	3.1	5.7	7.1	7.8	8.4	9.0	9.9	10.7	11.4	12.0
Mean		4.9	7.8	9.3	10.0	10.2	10.2	10.3	10.7	11.4	12
Number		48	39	34	9	6	4	2	1	1	1
Smallest		3.4	5.7	7.1	7.8	8.4	9	9.9	10.7	11.4	12.0
Largest		6.6	8.7	10.8	12.1	11.9	12.2	10.6	10.7	11.4	12.0
STD error		0.1	0.1	0.2	0.5	0.6	0.7	0.4			
95% CI LO		4.8	7.6	9.0	9.0	9.0	8.8	9.6			
95% CI HI		5.1	8.0	9.6	11.0	11.4	11.5	11.0			

Intercept = 0
EFDFLCAF.D21

Table 46. Age frequency and CPUE (fish/net-night) of white crappie collected by trap netting for 25 net-nights at Fishtrap Lake (1,143 acres) on 30 November - 2 December 2021; numbers in parentheses are standard

	Inch class															
Age	2	3	4	5	6	7	8	9	10	11	12	13	Total	Age%	CPUE	
0	1	5	66	32	3								107	60	4.5	(1.2)
1					3	4	1						8	4	0.3	(0.1)
2								10					10	6	0.4	(0.2)
3							1	12	21	8	1		43	24	1.8	(0.6)
4										2	1		3	1	0.1	(0.0)
5											2		2	1	0.1	(0.0)
6									3			1	4	2	0.2	(0.1)
7										1			1	1	0.0	(0.0)
10											1		1	0	0.0	(0.0)
Total	1	5	66	32	6	4	2	22	24	11	5	1	179			
%	1	3	37	18	3	2	1	12	13	6	2	1				

CPUE of ≥8.0 in (quality size) = 2.7 fish/net-nigh
CPUE of ≥10.0 in (preferred size) = 1.7 fish/net-night
EFDFLCAF.D21
EFDFLCTF.D21

Table 47. Population assessment scores for white crappie collected from Fishtrap Lake (1,143 acres). Actual assessment values are in parentheses. Scoring based on statewide assessment.

	Year									
Parameter	2005	2007	2008	2010	2011	2013	2015	2017	2019	2021
CPUE age-1 and older	4 (38.9)	3 (6.7)	4 (31.9)	4 (27.2)	4 (74.9)	4 (117.0)	4 (20.4)	3 (8.0)	2 (4.0)	2 (3.0)
CPUE age 1	2 (2.1)	2 (3.2)	4 (10.8)	4 (10.6)	4 (15.1)	4 (27.8)	2 (1.1)	1 (0.8)	2 (1.9)	1 (0.3)
CPUE age 0	4 (22.5)	3 (2.7)	4 (18.8)	3 (3.1)	4 (14.0)	4 (12.1)	2 (1.1)	2 (1.1)	2 (1.4)	4 (4.5)
CPUE $\geq$ 8.0 in	4 (25.9)	2 (2.9)	4 (8.8)	4 (10.4)	4 (25.1)	4 (69.2)	4 (19.0)	4 (7.1)	2 (2.7)	2 (2.7)
Mean age 2 length @ capture	2 (8.2)	2 (8.8)	1 (7.8)	1 (7.5)	1 (7.3)	2 (8.8)	2 (8.5)	3 (9.6)	3 (10.2)	3 (9.5)
Total score	16	12	17	16	17	18	14	13	11	12
Assessment rating	Good	Fair	Excellent	Good	Excellent	Excellent	Good	Good	Fair	Fair
Instantaneous mortality (z)	0.56	0.80	0.78	1.19	0.75	0.87	0.21	0.25	0.21	0.33
Annual Mortality (A)	43.10	54.90	54.40	69.7	53.00	58.20	19.00	22.10	18.70	28.10

EFDFLCTF.D05-D21
EFDFLCAF.D05-D21

Table 48. Length frequency and electrofishing CPUE (fish/hr) of black bass collected in approximately 0.87 hours of 7.5-min. nocturnal electrofishing samples in Fishpond Lake (32 acres) on 13 April 2021; numbers in parentheses are standard errors.

	Inch class																				
Species	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total	CPUE
LMB	4	13	11	13	11	10	16	21	17	9	10	6	1	2	4	3	2	2	1	156	178.3 (26.5)

LMB = largemouth bass
EFDFPLSS.I

Table 49. Spring nocturnal electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Fishpond Lake (32 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	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.	CPUE	S.E.
2021	32.0	8.4	57.1	10.8	53.7	10.7	35.4	3.4	9.1	2.1	178.3	26.5
2019	30.7	10.8	101.3	19.1	40.0	2.9	30.7	9.1	8.0	4.1	202.7	28.7
2017	4.0	2.7	45.3	4.9	81.3	6.0	53.3	9.6	9.3	3.8	184.0	14.5
2015	14.9	4.4	38.9	8.5	58.3	7.1	30.9	7.7	11.4	3.0	142.9	15.2
2013	17.1	8.3	50.3	11.5	76.6	10.2	36.6	11.4	11.4	4.9	180.6	22.4
2012	no sample											
2011	17.1	5.9	35.4	6.7	28.6	6.0	28.6	4.6	4.6	2.4	109.7	13.5
2010	4.6	2.4	34.3	6.7	26.3	2.9	13.7	4.2	4.6	2.4	78.9	9.1
2009	11.4	2.4	43.4	6.7	64.0	10.6	21.7	4.2	10.3	2.9	140.6	15.5
2008	5.0	2.0	109.3	13.6	61.8	6.2	16.9	3.3	11.6	2.4	192.9	15.4
2007	no sample											
2006	31.9	5.5	168.1	9.9	14.7	3.8	30.4	2.4	7.9	2.9	245.0	12.5
2005	no sample											
2004	78.9	12.2	76.0	7.9	45.2	5.9	39.4	6.7	3.9	2.9	239.5	14.9
2003	no sample											
2002	no sample											
2001	28.0		118.0		32.0		8.7		4.0		186.7	
2000	5.9		246.4		11.1		7.4		0.7		270.7	
1999	193.6		107.2		19.2		24.8		0.8		344.8	
1998	11.7		29.6		49.4		21.5		0.0		112.2	
1997	4.0		33.3		32.7		6.0		0.7		76.0	
1996	2.3		99.6		25.5		10.4		1.2		137.8	
1995	no sample											
1994	57.0		28.0		0.0		5.0		0.0		90.0	
1993	9.0		83.0		42.0		0.0		0.0		134.0	
1992	no sample											
1991	216.3		192.3		62.8		10.7		0.7		80.0	
1990	19.2		43.6		14.1		2.6		0.0		79.5	

EFDFPLSS.D90-D21

Table 50. PSD and RSD_{15} values obtained for largemouth bass taken in spring nocturnal electrofishing samples in Fishpond Lake (32 acres) on 13 April 2021; 95% confidence intervals are in parentheses.

No. ≥8.0 in	PSD (+/- 95%)	RSD_{15} (+/- 95%)
128	61 (52-69)	24 (17-32)

EFDFPLSS.D21

Table 51. Length frequency and CPUE (fish/hr) of black bass and walleye collected in 1.25 hours of 15-min electrofishing runs in Martins Fork Lake (330 acres) on 13 May 2021; numbers in parentheses are standard errors.

	Inch class																		
Species	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	Total	CPUE	
LMB	1	11	14	3	7	24	5	11	15	10	4	2	1	1	1	1	111	88.8	(16.0)
SB		4	2	1	13	7		5									32	25.6	(3.9)
SMB		1	2														3	2.4	(1.6)
Coosa			1														1	0.8	(0.8)
Walleye																	0	0.0	(0.0)

LMB = largemouth bass

SB = spotted bass

SMB = smallmouth bass

EFDMLLSS.D21

Table 52. 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
2021	28.8	9.6	44.0	10.1	12.8	3.9	3.2	2.0	0.8	0.8	88.8	16.0
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-D21

Table 53. PSD and RSD values obtained for each black bass species taken in spring diurnal electrofishing samples in Martins Fork Lake (330 acres) on 13 May 2021; 95% confidence intervals are in parentheses.

Largemouth bass			Spotted bass			Smallmouth bass		
No.	PSD	RSD_{15}	No.	PSD	RSD_{14}	No.	PSD	RSD_{14}
75	27 (17-37)	5 (0-10)	25			0		

EFDMLLSS.D21

Table 54. Spring electrofishing population assessment for largemouth bass collected from Martins Fork Lake (330 acres). Actual values are in parentheses. Scoring based on statewide assessment.

	Year										
Parameter	2007	2008	2009	2010	2011	2012	2014	2015	2018	2019	2021
Mean length age-3 at capture	4 (14.3)	4 (14.3)	4 (11.8)	4 (11.8)	4 (11.8)	4 (11.8)	3 (10.9)	3 (10.9)	3 (10.9)	3 (10.9)	2 (10.4)
Spring CPUE age 1	2 (10.1)	2 (10.0)	1 (7.2)	1 (4.8)	2 (11.2)	2 (8.8)	3 (22.0)	3 (22.4)	2 (17.6)	4 (71.2)	3 (29.6)
Spring CPUE 12.0-14.9 in	2 (15.7)	2 (20.2)	1 (9.6)	1 (8.0)	2 (16.8)	1 (5.6)	1 (11.0)	3 (40.8)	2 (15.2)	1 (12.0)	1 (12.8)
Spring CPUE ≥15.0 in	3 (21.1)	3 (19.4)	2 (11.2)	3 (19.2)	3 (16.0)	2 (10.4)	2 (11.0)	3 (20.8)	2 (6.4)	3 (14.4)	1 (3.2)
Spring CPUE >20.0 in	3 (1.6)	2 (0.8)	3 (1.6)	2 (0.8)	2 (0.8)	2 (0.8)	2 (1.0)	3 (1.6)	1 (0.0)	1 (0.0)	2 (0.8)
Total score	14	13	11	11	13	11	11	15	10	12	9
Assessment rating	Good	Good	Fair	Fair	Good	Fair	Fair	Good	Fair	Fair	Fair
Instantaneous mortality (z)	0.80	0.48	0.54	0.37	0.33	0.54					
Annual mortality (A)	55.10	38.40	41.60	31.30	28.40	41.60					

EFDMLLSS.D07-D12, D14-D15, D18-D19, D21
EFDMLLAS.D03, D09, X20
EFDMLLAF.D14

Table 55. 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 30 September 2021; 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	2											3	2.4 (1.6)
Spotted bass	1	14	13		4	2	7	1						42	33.6 (15.5)
Largemouth bass	5	58	33	13	2	2	16	13	8	1	3	1	1	156	124.8 (25.8)
Coosa bass														0	0.0 (0.0)
Walleye					2	3								5	4.0 (2.5)

EFDMLLSF.D21

Table 56. 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 ≥5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2021	4.9	0.1	87.2	16.9	36.8	5.9		
2020	4.5	0.2	16.0	3.9	4.7	2.4	29.6	9.7
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-D21
EFDMLLSS.D03-D19, D21
EFDMLLAS.D03, D09
EFDMLLAF.D20

Table 57. Fish harvest statistics derived from a daytime creel survey from 1 April - 31 November, 2021 at Martins Fork Lake (330 acres).

Fishing trips		
No. of fishing trips	4,018	
No. of fishing trips per acre	12.03	
Fishing pressure		
Total angler hours (S.E.)	16,883	(524.27)
Man-hours/acre	50.55	
Catch/harvest		
No. of fish caught (S.E.)	19,574	(2376.64)
No. of fish harvested (S.E.)	3,953	(948.94)
Lb of fish harvested	1,359	
Harvest rates		
Fish/hour	0.22	
Fish/acre	11.83	
Lb/acre	4.07	
Catch rate		
Fish/hour	1.14	
Fish/acre	58.61	
Miscellaneous characteristics (%)		
Male	81.04	
Female	18.96	
Resident	94.94	
Non-resident	5.06	
Method (%)		
Still fishing	41.07	
Casting	58.29	
Trolling	0.63	
Mode (%)		
Boat	68.25	
Bank	28.44	
Kayak	2.69	

S.E. = standard error

Table 58. Fish harvest statistics derived from a daytime creel survey at Martins Fork Lake (330 acres) from 1 April - 31 October 2021.

	Channel catfish	Redear	Bluegill	Smallmouth Bass	Spotted Bass	Largemouth Bass	White Crappie	Walleye
No. caught	279	1,731	3,151	135	201	8,761	4,988	16
per acre	0.84	0.84	9.43	0.41	0.60	26.23	14.93	0.05
No. harvested	173	451	658			71	2,565	
per acre	0.52	1.35	1.97			0.21	7.68	
% of total no. harvested	4.38	11.41	16.64			1.80	64.90	
Lb harvested	291.7	95.0	76.5			105.1	776.8	
per acre	0.87	0.28	0.23			0.32	2.33	
% of total lb harvested	21.47	6.99	5.63			7.74	57.18	
Mean length (in)	15.24	6.90	5.68			14.25	8.54	
Mean w eight (lb)	1.22	0.23	0.12			1.48	0.28	

	Catfish group	Panfish group	Black bass group	Crappie group	Anything
No. of fishing trips for that species	125	215	1643	418	1610
% of all trips	3.12	5.36	40.95	10.42	40.15
Hours fished for that species	526.65	903.39	6,902.39	1,756.93	6,767.12
(per acre)	1.58	2.70	20.67	5.26	20.26
No. harvested fishing for that species	118	683	32	1,838	
Lb harvested fishing for that species	226.50	109.90	47.70	588.50	
No./hour harvested fishing for that species	0.15	0.69	0.00	1.20	
% success fishing for that species	21.05	41.67	1.27	41.94	6.84

Table 59. Species composition and length distribution of each species of fish harvested (H) and released (R) from a daytime creel survey on Martins Fork Lake (330 acres) from 1 April - 31 October 2021.

		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	28
Channel Catfish	H											25		41	16			25	41		8	17					
	R									38			8	8	23		8	15				6					
Warmouth	H						16																				
	R			31	21	73																					
Bluegill	H			43	242	303	61	8																			
	R		62	692	1127	452	147	18																			
Redear Sunfish	H				33	184	167	58				8															
	R		8	146	389	510	138	65	16	8																	
Smallmouth Bass	H																										
	R					10	42	21	21	21	10		10														
Spotted Bass	H																										
	R					10	29	77	29	29	10		10		7												
Largemouth Bass	H												20	20	20	11											
	R							1396	1217	2340	1008	966	630	430	357	147	42	94	10	21	10	10	12				
White Crappie	H					190	357	357	1104	379	89	89															
	R	68		10	194	320	1124	552	136	18																	
Walleye	H																										
	R				8			7																			

Table 60. Monthly black bass angling success at Martins Fork Lake (330 acres) from 1 April - 31 October 2021.

	Total no. caught	Total no. harvested	Hours fished by bass anglers	No. of black bass fishing trips	Bass harvested by bass anglers	Bass harvested/hour by bass anglers	Bass caught by bass anglers	Bass caught/hour by bass anglers
April	2,973	0	1,796	427	0	0.00	2,352	1.11
May	1,503	36	1,186	282	9	0.01	859	0.77
June	1,271	35	911	217	23	0.02	875	0.61
July	515	0	486	116	0	0.00	262	0.48
August	586	0	563	134	0	0.00	422	0.71
September	835	0	742	177	0	0.00	651	0.70
October	1416	0	1218	290	0	0.00	1089	0.72
Total	9,099	71	6,902	1,643	32		6,510	
Mean						0.00		0.73

Table 61. Monthly crappie angling success at Martins Fork Lake (330 acres) from 1 April - 31 October 2021.

	Total no. caught	Total no. harvested	Hours fished by crappie anglers	No. of crappie fishing trips	Crappie harvested by crappie anglers	Crappie harvested/hour by crappie anglers	Crappie caught by crappie anglers	Crappie caught/hour by crappie anglers
April	1,532	1021	613	146	657	1.76	912	2.44
May	2,806	1412	759	181	1,113	1.68	2,163	3.27
June	93	47	52	12	0	0.00	23	2.00
July	229	8	0	0	0	0.00	0	0.00
August	245	95	80	19	68	0.48	163	1.14
September	31	0	148	35	0	0.00	0	0.00
October	221	0	104	25	0	0.00	65	0.53
Total	5,157	2,583	1,756	418	1,838		3,326	
Mean						0.56		1.34

Table 62. Monthly panfish angling success at Martins Fork Lake (330 acres) from 1 April - 31 October 2021.

	Total no. caught	Total no. harvested	Hours fished by panfish anglers	No. of panfish fishing trips	Panfish harvested by panfish anglers	Panfish harvested/hour by panfish anglers	Panfish caught by panfish anglers	Panfish caught/hour by panfish anglers
April	219	18	44	10	0	0.00	0	0.00
May	435	45	0	0	0	0.00	0	0.00
June	758	198	104	25	140	1.00	210	1.50
July	1,252	401	267	64	262	1.01	573	2.22
August	422	41	80	19	20	0.32	116	1.84
September	728	299	148	35	261	1.35	429	2.22
October	1,211	123	259	62	0	0.00	426	1.32
Total	5,025	1,125	902	215	683		1,754	
Mean						0.53		1.30

Table 63. Monthly catfish (channel) angling success at Martins Fork Lake (330 acres) during the 2021 creel survey period.

	Total no. caught	Total no. harvested	Hours fished by catfish anglers	No. of catfish fishing trips	Catfish harvested by catfish anglers	Catfish harvested/hour by catfish anglers	Catfish caught by catfish anglers	Catfish caught/hour by catfish anglers
Apr	0	0	131	31	0	0.00	0	0.00
May	109	100	119	28	91	0.20	100	0.22
Jun	0	0	104	25	0	0.00	0	0.00
Jul	16	8	0	0	0	0.00	0	0.00
Aug	82	41	121	29	27	0.12	27	0.12
Sep	15	0	0	0	0	0.00	0	0.00
Oct	57	25	52	12	0	0.00	0	0.00
Total	279	174	527	125	118		127	
Mean						0.05		0.05

Table 64. Black bass catch and harvest statistics derived from a creel survey at Martins Fork Lake (330 acres) for each species of black bass caught and released by all anglers from 1 April to 31 October 2021.

	Largemouth bass				Spotted bass				Smallmouth bass			
		Catch & release				Catch & release				Catch & release		
	Harvest	<12.0	≥12.0	Total	Harvest	<12.0	≥12.0	Total	Harvest	<12.0	≥12.0	Total
Total number	71	6,032	2,729	8,761	0	184	17	201	0	125	10	135
% harvested by number	100.0											
Total weight (lb)	105.2											
% harvested by weight	100.0											
Mean length (in)	14.3											
Mean weight (lb)	1.48											
Rate (fish/hour)	0.004											

Table 65. Length frequency and electrofishing CPUE (fish/hr) of largemouth bass collected in approximately 1.0 hour of 7.5-min. electrofishing runs in Pikeville City Lake (20 acres) on 7 May 2021; 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	21	Total	CPUE
LMB	1				1	7	1	11	2	3	10	1	9	9	18	5	11	1	4	94	94.0 (9.7)

EFDHALSS.D21

Table 66. Spring electrofishing CPUE (fish/hr) for each length group of largemouth bass collected at Pikeville City Lake (20 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
2021	2.0	1.3	21.0	3.0	14.0	3.9	57.0	8.2	5.0	3.4	94.0	9.7
2017	10.7	5.3	18.7	4.0	8.0	2.1	32.0	7.5	5.3	4.0	69.3	11.6
2016						no sample						
2015	10.7	2.7	20.0	3.4	17.3	4.8	37.3	9.6	6.7	3.8	85.3	7.4
2014	11.4	3.4	22.9	2.1	13.7	3.4	57.1	9.1	11.4	3.0	105.1	8.8
2013						no sample						
2012	8.0	2.9	6.7	2.5	4.0	2.7	36.0	6.8	1.3	1.3	54.7	9.1
2011						no sample						
2010	22.9	3.2	21.7	5.4	21.7	7.6	52.6	4.9	8.0	1.8	118.9	10.1
2009	22.7	4.8	18.7	4.9	9.3	3.2	25.3	4.8	8.0	2.1	76.0	6.1
2008	10.7	3.4	48.0	7.5	10.7	2.7	50.7	7.4	10.7	4.9	120.0	16.7
2007	43.2	15.1	11.2	3.2	8.0	4.4	46.4	6.9	6.4	3.0	108.8	24.3
2006	5.1	2.5	34.8	4.1	4.0	2.7	49.0	6.2	1.3		92.9	9.1
2005	12.8	4.3	11.5	3.3	1.3	1.3	51.3	9.5	8.9		76.9	8.1
2004	5.1	2.6	12.8	12.8	15.4	7.7	30.8	8.9	2.6		64.1	2.6

EFDHALSS.D04-D17, D21

Table 67. PSD and RSD values obtained for largemouth bass species from spring electrofishing samples in Pikeville City Lake (20 acres) on 7 May 2021; 95% confidence intervals are in parentheses.

No.	PSD	RSD_{15}
92	77	62
	(69-86)	(52-72)

EFDHALSS.D21

Table 68. Length frequency and CPUE (fish/hr) of black bass collected in approximately 2.5 hours of 15-minute electrofishing samples in Paintsville Lake (1,150 acres) on 28 April 2021; numbers in parentheses are standard errors.

	Inch class																					
Species/Area	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	CPUE
Lower																						
Spotted bass						1	1	1													3	2.4 (1.6)
Largemouth bass	10	3	4	10	1	10	26	19	10	18	16	5	3	3	1	2		4	1	1	147	117.6 (21.7)
Upper																						
Spotted bass					1	1		1													3	2.4 (1.6)
Largemouth bass	3	1	4	6	8	6	16	8	8	10	10	6	1	2	1	1	1				92	73.6 (9.0)
Total																						
Spotted bass					1	2	1	2													6	2.4 (1.1)
Largemouth bass	13	4	8	16	9	16	42	27	18	28	26	11	4	5	2	3	1	4	1	1	239	95.6 (13.3)

EFDPLLSS.D21

Table 69. 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
2021	26.4	5.1	46.0	8.1	16.4	2.8	6.8	2.3	0.8	0.8	95.6	13.3
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-D21

Table 70. PSD and RSD values obtained for each black bass species taken in spring electrofishing samples in each area of Paintsville Lake (1,150 acres) on 28 April 2021; 95% confidence intervals are in parentheses.

	Largemouth bass			Spotted bass		
Area	No.	PSD	RSD_{15}	No.	PSD	RSD_{14}
Lower	109	33 (24-42)	11 (5-17)	3	0	0
Upper	64	34 (23-46)	8 (1-14)	2	0	0
Total	173	34 (26-41)	10 (5-14)	5	0	0

EFDPLLSS.D21

Table 71. Spring nocturnal electrofishing population assessment for largemouth bass collected in Paintsville Lake (1,150 acres). Actual values are in parentheses. Scoring based on statewide assessment.

	Year											
Parameter	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2021
Mean length age-3 at capture	2 (11.7)	2 (11.7)	1 (10.6)	2 (11.2)	2 (11.2)	2 (11.2)	2 (11.2)	2 (11.2)	2 (11.2)	2 (11.9)	2 (11.9)	2 (11.9)
Spring CPUE age-1	3 (35.6)	4 (58.1)	3 (35.6)	4 (68.8)	4 (64.9)	4 (63.7)	4 (90.7)	4 (71.2)	3 (39.2)	4 (56.6)	4 (42.9)	3 (24.0)
Spring CPUE 12.0-14.9 in	1 (6.2)	1 (13.3)	1 (9.4)	1 (9.9)	1 (4.6)	3 (24.8)	2 (17.8)	1 (9.2)	1 (6.4)	1 (13.1)	1 (12.0)	2 (16.4)
Spring CPUE ≥15.0 in	1 (2.3)	1 (5.6)	1 (3.7)	1 (2.1)	1 (4.0)	1 (4.3)	2 (10.7)	2 (10.4)	2 (6.4)	1 (4.0)	2 (11.4)	2 (6.8)
Spring CPUE ≥20.0 in	1 (0.0)	4 (1.9)	3 (1.1)	4 (1.3)	2 (0.3)	3 (0.8)	4 (2.7)	3 (1.2)	3 (0.8)	1 (0.0)	4 (1.7)	3 (0.8)
Total score	8	12	9	10	10	13	14	12	11	9	13	12
Assessment rating	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair
Instantaneous mortality (z)	1.12	1.18	0.57									
Annual mortality (A)	67.40	69.40	83.70									

EFDPLLSS.D08-D19, D21
EFDPLLAS.D06, D11
EFDPLLAF.D12, D18

Table 72. Length frequency and CPUE (fish/hr) of black bass collected in 2.25 hours of 15-minute nocturnal electrofishing samples in Paintsville Lake (1,150 acres) on 27 September 2021; 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	20	Total	CPUE
Lower																						
	Spotted bass		1				2	1	1												5	4.0 (2.2)
	Largemouth bass	6	47	55	39	13	20	24	15	16	17	3	1	1			1	1	1		260	208.0 47.9
Upper																						
	Spotted bass																				0	0.0 (0.0)
	Largemouth bass	1	4	11	7	3	4	11	5	8	7	3	2	2	1	2		2		1	74	74.0 (11.6)
Total																						
	Spotted bass	0	1	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	5	2.2 (1.4)
	Largemouth bass	7	51	66	46	16	24	35	20	24	24	6	3	3	1	2	1	3	1	1	334	148.4 (34.8)

EFDPLLSF.D21

Table 73. 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
2021	4.5	0.1	81.8	30.0	26.7	7.6		
2020	3.3	0.1	71.2	13.9	6.0	4.3	24.0	8.3
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-D21
EFDPLLSS.D02-D19, D21
EFDPLLAS.D03, D06, D11
EFDPLLAF.D12, D18

Table 74. Length frequency and CPUE (fish/hr) of black and white crappie collected at Paintsville Lake (1,150 acres) during 1.50 hours of daytime spring electrofishing on 22 April 2021; numbers in parentheses are standard errors.

	Inch class													
	3	4	5	6	7	8	9	10	11	12	13	Total	CPUE	SE
Black Crappie			5	4	4	2	3		1			19	12.7	(7.0)
White Crappie	3	16	60	246	66	17	4	1	5	2	2	422	281.3	(56.0)

EFDPLCSS.D21

Table 75. Spring electrofishing CPUE (fish/hr) for each length group of black and white crappie collected at Paintsville Lake (1,150 acres). SE=standard error.

	Length group															
	≥8.0 in				≥10.0 in				≥8.0 in		≥10.0 in		Total			
	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
2021	20.7	2.2	4.0	2.7	6.7	2.0	0.7	0.7	24.7	4.7	7.3	1.6	281.3	56.0	12.7	7.0
2014	25.3	5.5	2.0	1.4	9.3	3.4	0.7	0.7	27.3	6.1	10.0	4.0	132.7	25.1	5.3	3.2
2011	11.6	3.9			4.4	1.7			11.6	3.9	4.4	1.7	35.3	14.5		
2010	6.1	2.4			1.4	0.9			6.1	2.4	1.4	0.9	22.6	10.4		
2009	5.2	2.5			1.6	1.1			5.2	2.5	1.6	1.1	39.0	21.3		
2008	3.8	1.5			1.4	0.5			3.8	1.5	1.4	0.5	8.1	5.8		

EFDPLCSS.D08-D21

Table 76. PSD and RSD_{10} values for black and white crappie taken in spring electrofishing samples at Paintsville Lake (1,150 acres) on 22 April 2021; 95% confidence intervals are in parentheses.

Species	No. ≥stock size	PSD_5	RSD_{10}
White crappie	403	8 (5-10)	2 (1-4)
Black crappie	19	32 (10-53)	5 (-5-15)

EFDPLCSS.D21

Table 77. Species composition, relative abundance and CPUE (fish/hr) of black bass collected in approximately 3.0 hours of 15-minute nocturnal electrofishing samples at Yatesville Lake (2,280 acres) on 20 April 2021; 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	Spotted bass					1														1	0.7 (0.7)
	Largemouth bass	4	19	18	11	4	26	29	9	3	11	13	6	8	5	4	2		1	173	115.3 (19.9)
Upper	Spotted bass					1														1	0.7 (0.7)
	Largemouth bass	2	5	8	5	3	5	5	3	1	5	5	4	4	2	4	2	1		64	42.7 (4.3)
Total	Spotted bass					2														2	0.7 (0.5)
	Largemouth bass	6	24	26	16	7	31	34	12	4	16	18	10	12	7	8	4	1	1	237	79.0 (14.6)

EFDYLLSS.D21

Table 78. 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
2021	26.3	5.3	27.0	7.7	14.7	2.3	11.0	2.0	0.3	0.3	79.0	14.6
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-D21

Table 79. PSD and RSD values for black bass species taken in spring electrofishing samples in each area of Yatesville Lake (2,280 acres) on 20 April 2021; 95% confidence intervals are in parentheses.

	Largemouth bass			Spotted bass		
Area	No.	PSD	RSD_{15}	No.	PSD	RSD_{14}
Lower	117	43 (34-52)	17 (10-24)	1	0	0
Upper	41	66 (51-81)	32 (17-46)	1	0	0
Total	158	49 (41-57)	21 (15-27)	2	0	0

EFDYLLSS.D20

Table 80. 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	2021
Mean length age-3 at capture	4 (13.5)	4 (13.5)	2 (12.4)	2 (12.4)	1 (11.1)	1 (11.1)	1 (11.1)	1 (11.1)	1 (11.1)	1 (11.1)	3 (12.6)
Spring CPUE age-1	3 (28.2)	4 (42.6)	2 (19.4)	3 (37.0)	4 (54.3)	4 (56.7)	4 (73.3)	4 (51.3)	4 (46.0)	4 (70.0)	3 (23.2)
Spring CPUE 12.0-14.9 in	3 (30.6)	2 (19.3)	2 (21.6)	3 (23.3)	3 (23.0)	1 (16.0)	4 (37.3)	3 (23.0)	3 (28.3)	2 (20.0)	1 (14.7)
Spring CPUE ≥15.0 in	3 (16.6)	2 (11.0)	2 (8.4)	3 (16.7)	4 (23.3)	3 (16.7)	4 (21.0)	3 (14.0)	3 (15.7)	2 (13.0)	2 (11.0)
Spring CPUE ≥20.0 in	1 (0.0)	3 (0.7)	3 (0.8)	2 (0.3)	3 (0.7)	3 (0.7)	3 (0.7)	2 (0.3)	1 0.0	3 (0.5)	2 (0.3)
Total score	14	15	11	13	15	12	16	13	12	12	11
Assessment rating	Good	Good	Fair	Good	Good	Fair	Good	Good	Fair	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-D21
EFDYLLAS.D06, D12
EFDYLLAF.D21*
* Back calculated fall age file

Table 81. Mean back-calculated length (in) at each annulus for largemouth bass collected from Yatesville Lake (2,280 acres) on 28 September 2021, including 95% confidence intervals.

Year class	No.	Age 1	2	3	4	5	6
2020	31	5.7					
2019	27	6.6	9.5				
2018	9	6.7	9.9	12.3			
2017	9	6.1	10.2	12.3	13.8		
2016	5	6.3	9.5	12.0	14.1	16.1	
2015	2	6.7	10.3	11.7	13.6	15.3	16.6
Mean		6.2	9.7	12.2	13.9	15.8	16.6
Number		83	52	25	16	7	2
Smallest		4.6	8.2	10.6	12.3	14.1	15.4
Largest		8.2	11.1	14.2	15.6	17.4	17.8
STD error		0.1	0.1	0.2	0.3	0.5	1.2
95% CI LO		6.1	9.5	11.8	13.4	14.9	14.2
95% CI HI		6.4	9.9	12.6	14.4	16.7	19.0

Intercept = 0
EFDYLLAF.D21

Table 82. 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 28 September 2021; 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	Total	CPUE
Lower																				
	Spotted bass		3				1	1	1										6	4.0 (2.5)
	Largmouth bass		7	14	9	3	12	23	19	14	13	7	6	16	1	6	4	3	157	104.7 (9.3)
Upper																				
	Spotted bass																		0	0.0 (0.0)
	Largmouth bass	1	22	51	48	6	9	28	29	22	10	7	7	6		1	1		248	165.3 (19.4)
Total																				
	Spotted bass		3				1	1	1										6	2.0 (1.4)
	Largmouth bass	1	29	65	57	9	21	51	48	36	23	14	13	22	1	7	5	3	405	135.0 (13.7)

EFDYLLSF.D21

Table 83. 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 ≥5.0 in		Age-1	
Year class	Mean length	SE	CPUE	SE	CPUE	SE	CPUE	SE
2021	4.7	0.1	52.7	13.4	21.0	5.5		
2020	4.8	0.1	53.7	9.8	22.0	4.5	23.2	8.4
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-D21
EFDYLLSF.D03-D21
EFDYLLAS.D05, D06, D12
EFDYLLAF.D15

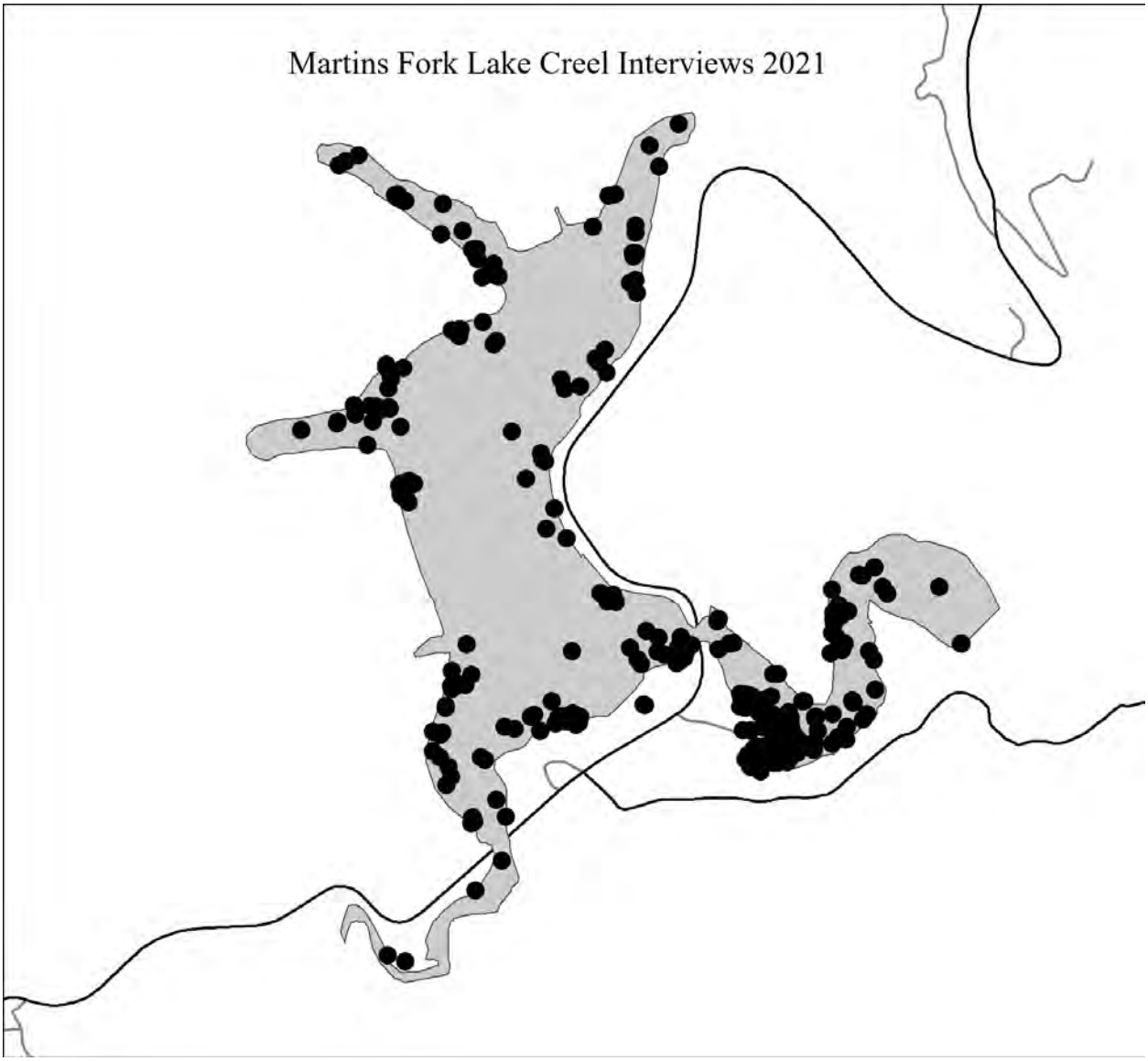

Figure 1. Martins Fork Lake creel survey interview locations 2021.

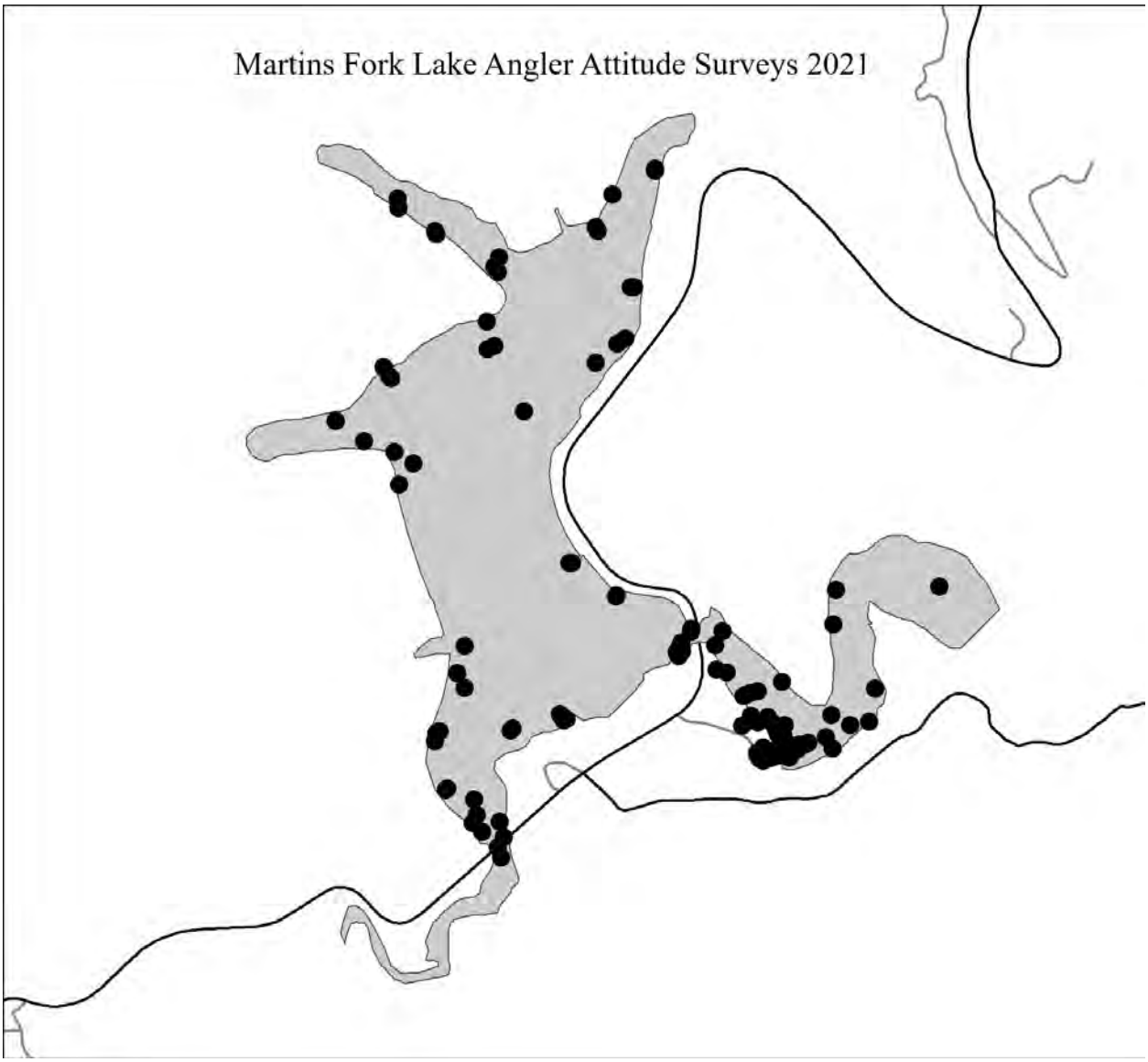

Figure 2. Martins Fork Lake angler attitude survey interview locations 2021.

Appendix A. Martins Fork Lake Angler Attitude Survey 2021

Frequency Table (N=133)

Q1. On average, how many times do you fish Martins Fork Lake in a year?

	Frequency	Percent
First Time	21	15.8%
1 to 4	9	6.8%
5 to 10	32	24.1%
More than 10	71	53.4%
Total	133	

Q2. Which species of fish do you fish for at Martins Fork Lake?

	Frequency	Percent
Bass	103	77.4%
Crappie	44	33.1%
Catfish	27	20.3%
Walleye	5	3.8%
Bluegill/Redear	57	42.9%
Other	0	0.0%
Total	133	

Q3. Which one species do you fish for most at Martins Fork Lake?

	Frequency	Percent
Bass	75	56.4%
Crappie	15	11.3%
Catfish	8	6.0%
Walleye	1	0.8%
Bluegill/Redear	34	25.6%
Total	133	

Q4. In general, what level of satisfaction do you have with bass fishing at Martins Fork Lake?

	Frequency	Percent
Very Satisfied	9	8.8%
Somewhat Satisfied	22	21.6%
Neutral	47	46.1%
Somewhat Dissatisfied	21	20.6%
Very Dissatisfied	3	2.9%
No Opinion	0	0.0%
Total	102	

Q4b. If you responded with somewhat or very Dissatisfied in Question (4) - What is the single most important reason for your Dissatisfaction?

	Frequency	Percent
Number of fish	8	33.3%
Size of fish	8	33.3%
Size limit	0	0.0%
Creel limit	0	0.0%
Too many anglers	7	29.2%
Lake level	1	4.2%
Total	24	

Appendix A (cont.)

Q5. In general, what level of satisfaction do you have with crappie fishing at Martins Fork Lake?

	Frequency	Percent
Very Satisfied	6	13.6%
Somewhat Satisfied	13	29.5%
Neutral	11	25.0%
Somewhat Dissatisfied	11	25.0%
Very Dissatisfied	3	6.8%
No Opinion	0	0.0%
Total	44	

Q5b. If you responded with somewhat or very Dissatisfied in Question (5) - What is the single most important reason for your Dissatisfaction?

	Frequency	Percent
Number of fish	3	21.4%
Size of fish	10	71.4%
Size limit	0	0.0%
Creel limit	0	0.0%
Too many anglers	1	7.1%
Total	14	

Q6. In general, what level of satisfaction do you have with catfish fishing at Martins Fork Lake?

	Frequency	Percent
Very Satisfied	2	7.4%
Somewhat Satisfied	6	22.2%
Neutral	14	51.9%
Somewhat Dissatisfied	4	14.8%
Very Dissatisfied	1	3.7%
No Opinion	0	0.0%
Total	27	

Q6b. If you responded with somewhat or very Dissatisfied in Question (6) - What is the single most important reason for your Dissatisfaction?

	Frequency	Percent
Number of fish	5	100.0%
Size of fish	0	0.0%
Size limit	0	0.0%
Creel limit	0	0.0%
Too many anglers	0	0.0%
Total	5	

Q7. In general, what level of satisfaction do you have with walleye fishing at Martins Fork Lake?

	Frequency	Percent
Very Satisfied	1	20.0%
Somewhat Satisfied	0	0.0%
Neutral	1	20.0%
Somewhat Dissatisfied	2	40.0%
Very Dissatisfied	1	20.0%
No Opinion	0	0.0%
Total	5	

Appendix A (cont.)

Q7. In general, what level of satisfaction do you have with walleye fishing at Martins Fork Lake?

	Frequency	Percent
Very Satisfied	1	20.0%
Somewhat Satisfied	0	0.0%
Neutral	1	20.0%
Somewhat Dissatisfied	2	40.0%
Very Dissatisfied	1	20.0%
No Opinion	0	0.0%
Total	5	

Q7b. If you responded with somewhat or very Dissatisfied in Question (7) - What is the single most important reason for your Dissatisfaction?

	Frequency	Percent
Number of fish	2	66.7%
Size of fish	0	0.0%
Size limit	1	33.3%
Creel limit	0	0.0%
Too many anglers	0	0.0%
Total	3	

Q8. In general, what level of satisfaction do you have with bluegill/redear fishing at Martins Fork Lake?

	Frequency	Percent
Very Satisfied	23	40.4%
Somewhat Satisfied	11	19.3%
Neutral	21	36.8%
Somewhat Dissatisfied	2	3.5%
Very Dissatisfied	0	0.0%
No Opinion	0	0.0%
Total	57	

Q8b. If you responded with somewhat or very Dissatisfied in Question (8) - What is the single most important reason for your Dissatisfaction?

	Frequency	Percent
Number of fish	2	100.0%
Size of fish	0	0.0%
Size limit	0	0.0%
Creel limit	0	0.0%
Too many anglers	0	0.0%
Total	2	

Q9. Are you satisfied with the current size and creel limits at Martins Fork Lake?

	Frequency	Percent
Yes	111	83.5%
No	21	15.8%
No opinion	1	0.8%
Total	133	

Appendix A (cont.)

Q9b. If you responded No to Question 9, which species are you dissatisfied with and what size and creel limits would you prefer?

	Frequency	Percent
Bass; 15"	6	18.2%
Bass; 16"	2	6.1%
Bass; reduced creel	7	21.2%
Crappie; 9" size limit	3	9.1%
Crappie; 10" size limit	5	15.2%
Crappie; reduced creel	8	24.2%
Neutral	6	18.2%
Total	37	

Q10. Do you fish the immediate tailwaters of Martins Fork Lake?

	Frequency	Percent
Yes	49	38.6%
No	78	61.4%
No answer	6	4.7%
Total	133	

Q10a. Which species do you fish for in the tailwaters of Martins Fork Lake?

	Frequency	Percent
Trout	13	15.3%
Walleye	26	30.6%
Catfish	13	15.3%
Bass	26	30.6%
Bluegill/Redear	19	22.4%
No answer	85	
Total	133	

WESTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

Table 1. Technical guidance given to pond owners in the Western Fishery District during the 2021 project year (April 1, 2021 - March 31, 2022). Approximately 98 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 2021. These were specific to public accessible fishing locations (Table 1).

Table 1. On-site technical guidance provided to pond owners in the Northwestern Fishery District in 2021

County	Pond/Lake Owner	Date	Findings	Recommendations
Hancock	Hancock Co Fiscal Court	(2)	General lake problems/inspections/EF survey	Continue current management, cutrine granular for crawfish
Meade	Fort Knox	(2)	Inspect pond construction site/plans/stocking info	General construction recs, fish habitat addition, stocking
Henderson	Audubon State Park	(5)	Inspect lake renovation project, renovate fishery	Add fish habitat/CCF spawning boxes, construction/stocking info
Union	Union Co Air Board	(2)	Inspect lake, map lake	Generate lake contour map for Asian carp rotenone treatment, EF 2022
Webster	Webster Co Fiscal Court	(2)	Inspect lake, map lake	Provide basic guidance and generate contour map, EF spring 2022
McLean	McLean Co Fiscal Court	(2)	Inspect lake, check on vegetation/improvements	Recommend herbicide for veg control, fish habitat and access improvments
Daviess	Owensboro City	(2)	Inspect vegetation issues at several lakes/fish kill	Recommend herbicide for veg control, fish habitat and access improvments
Daviess	Daviess Co Fiscal Court	8/27/22	Inspect lake for fish kill	Recommend algecide for future issues
Hardin	City of Elizabethtown	11/18/22	Check on progress of lake renovation	General construction recs, fish habitat addition, stocking

SOUTHWESTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

No onsite technical guidance was provided in 2021. Technical guidance responses were through emails, phone calls, texts, and a few office visits. Most issues dealt with fish stocking and aquatic vegetation control.

CENTRAL FISHERIES DISTRICT

Project 2: Stream Fishery Surveys – Warmwater Streams

FINDINGS

Stream sampling conditions for 2021 are summarized in Table 1.

Diurnal electrofishing was conducted during March 2021 at various locations on Elkhorn Creek. These studies were conducted to assess the black bass, especially smallmouth bass, and rock bass populations. Length distribution and CPUE data of sportfish, including black bass and rock bass from Elkhorn Creek are presented in Table 2. Smallmouth bass comprised 50% of the black bass sampled in the North Fork Elkhorn Creek, whereas smallmouth bass comprised 92% of the black bass sampled on the main stem Elkhorn Creek. Therefore, largemouth bass comprised 50% of the black bass sampled in the North Fork Elkhorn Creek and 8% of the black bass sampled in the main stem Elkhorn Creek. The current catch rate of smallmouth bass in the mainstem Elkhorn Creek (Jackson Hole, Peaks Mill, and Hatchery sites; 106.6 fish/hr) is higher than the historical average of 95.1 fish/hr (Table 3). The current catch rate of rock bass (12.2 fish/hr) was lower than the historical catch rate (30.2 fish/hr; Table 4). The smallmouth bass population assessment score for the North Fork Elkhorn Creek was 15 (Table 5), which results in an "Good" rating. The rock bass population assessment score for North Fork Elkhorn Creek was 7, or "Fair" (Table 6). The largemouth bass population assessment score for North Fork Elkhorn Creek was 16 (Table 7), which results in an "Excellent" rating. Fish populations on the North Fork Elkhorn Creek are affected by two dams in the vicinity of the Great Crossing areas. For the main stem Elkhorn Creek, the smallmouth bass population assessment score was 20 (Table 8), which results in an "Excellent" rating. The rock bass population assessment score was 7 (Table 9), which results in a "Fair" rating. Finally, the largemouth bass population assessment score was 9 (Table 10), which results in a "Fair" rating.

Age and growth of smallmouth bass on Elkhorn Creek was completed in 2021. Smallmouth bass ages in Elkhorn Creek ranged from 1-13 years. The age and growth study indicated smallmouth bass reached 12.0 inches at age-5+ and 15.0 inches at age-7+. Total annual mortality of age-2+ smallmouth bass was estimated at 34.8%. A comprehensive description of these findings is presented in the Stream Investigation Section (F-40-44) Annual Performance Report (Project IV: Warm Water Stream Sport Fish Surveys).

Diurnal electrofishing for black bass and rock bass was conducted during April 2021 at two locations on Floyds Fork. Length distribution and CPUE data of black bass and rock bass from Floyds Fork are presented in Table 11. Smallmouth bass (94%) comprised the majority of the black bass sampled in Floyds Fork. The catch rate of smallmouth bass on Floyds Fork in 2021 (24.0 fish/hr) was higher than the historical average (16.5 fish/hr; Table 12). However, the catch rate of rock bass (2.7 fish/hr) was lower than the historical average (9.8 fish/hr; Table 13). The smallmouth bass population assessment rating for Floyds Fork was "Good", the average rating observed since 2012 (Table 14). The rock bass and largemouth bass population assessment ratings were "Poor", which is the average rating for both species in the Floyds Fork (Tables 15 and 16).

Rainbow trout were stocked during March, April, and October 2021 in the North Beckley section of Floyds Fork. A total of 3,600 rainbow were stocked (1,200 fish/stocking) that averaged 9.0-10.0 in.

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 [c]
North Fork Elkhorn Creek (Great Crossings)	Black Bass/ Rock Bass	3/22	1030	shock	Mostly sunny	51	4.99 ft North Fork Elkhorn gauge	clear	high	water level & flow higher than normal
Elkhorn Creek (Peaks Mill)	Black Bass/ Rock Bass	3/23	1500	shock	Mostly cloudy	56	3.92 ft Peaks Mill gauge	clear	high	water level & flow higher than normal
Elkhorn Creek (Jackson Hole)	Black Bass/ Rock Bass	3/23	1300	shock	Mostly cloudy	55	3.92 ft Peaks Mill gauge	clear	high	water level & flow higher than normal
Elkhorn Creek (Hatchery)	Black Bass/ Rock Bass	3/23	1200	shock	Mostly cloudy	56	3.92 ft Peaks Mill gauge	clear	high	water level & flow higher than normal
Floyd's Fork (Fisherville Ramp)	Black Bass/ Rock Bass	4/6	1000	shock	mostly sunny	58	1.76 ft. at Fisherville Gauge	clear	good	
Floyd's Fork (Cane Run Access)	Black Bass/ Rock Bass	4/6	1300	shock	mostly sunny	59	1.76 ft. at Fisherville Gauge	clear	good	

Table 2. Length-frequency and CPUE (fish/hr) of selected fish species collected in 6.25 hours of 15-minute electrofishing runs at four sites on Elkhorn Creek in March 2021; 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	Total	CPUE
Below dam at Great Crossings																				
Rock bass		6	4		1		1												12	6.0 (2.4)
Smallmouth bass		2	7	3	9	2	3	4	12	10	2	4	3	1		1			63	31.5 (7.0)
Largemouth bass			4	6	1		3	3	12	6	5	7	4	3	5	3	1		63	31.5 (15.9)
Jackson Hole																				
Rock bass	1		2	4	10	12	9	2											40	20.0 (5.1)
Smallmouth bass	1	16	7	9	65	60	34	20	26	27	10	9	3	4	3				294	147.0 (18.7)
Largemouth bass		2	1	1	1	4		2	3	3	1	1	2						21	10.5 (4.7)
Peaks Mill																				
Rock bass				1	2		6												9	7.2 (3.2)
Smallmouth bass		1	2	1	2	5	14	8	10	17	17	11	4		2			1	95	76.0 (15.1)
Largemouth bass					1	2	5	4	2	1	1		1						17	13.6 (5.5)
Hatchery																				
Rock bass				3															3	3.0 (1.0)
Smallmouth bass			2	1	7	9	8	3	4	7	7	8	2	2		2	1	1	64	64.0 (10.2)
Largemouth bass																			0	0.0 (0.0)
Total																				
Rock bass	1	6	6	8	13	12	16	2											64	10.2 (2.3)
Smallmouth bass	1	19	18	14	83	76	59	35	52	61	36	32	12	7	5	3	1	2	516	82.6 (11.8)
Largemouth bass		2	5	7	3	6	8	9	17	10	7	8	7	3	5	3	1		101	16.2 (5.7)

Dataset = cfdpsehc.d21

Table 3. Electrofishing CPUE (fish/hr) for each length group of smallmouth bass collected from main stem Elkhorn Creek (Forks of Elkhorn to confluence with Kentucky River) from 2012-2021; numbers in parentheses are standard errors. Number of samples and locations varies between years.

	Length group					
Year	<4.0 in	4.0-8.9 in	≥9.0 in	≥12.0 in	≥14.0 in	Total
2021	4.2 (2.0)	53.2 (11.0)	49.2 (5.9)	20.5 (3.2)	5.9 (1.0)	106.6 (13.6)
2020	No Sample					
2019	No Sample					
2018	1.9 (0.8)	47.4 (6.9)	35.6 (3.9)	13.5 (2.5)	5.3 (1.3)	85.0 (9.8)
2017	No Sample					
2016	7.7 (2.7)	91.0 (13.0)	63.3 (5.3)	23.0 (2.8)	10.8 (2.0)	162.0 (15.6)
2015	No Sample					
2014	1.3 (0.7)	40.8 (7.5)	44.7 (5.2)	23.7 (3.5)	12.0 (2.7)	86.8 (8.7)
2013	1.6 (0.5)	18.9 (3.1)	37.5 (5.9)	20.9 (3.8)	10.2 (2.6)	58.0 (7.2)
2012	9.4 (1.9)	27.6 (4.6)	18.0 (2.7)	5.9 (1.0)	2.1 (0.8)	55.0 (7.8)

Dataset = cfdpsehc.d12 – .d21

Table 4. Electrofishing CPUE (fish/hr) for each length group of rock bass collected from main stem Elkhorn Creek (Forks of Elkhorn to confluence with Kentucky River) from 2012-2021; numbers in parentheses are standard errors. Number of samples and location varies between years.

	Length group				
Year	<4.0 in	4.0-5.9 in	≥6.0 in	≥8.0 in	Total
2021	0.2 (0.2)	2.4 (0.6)	9.7 (2.7)	4.0 (1.1)	12.2 (3.1)
2020	No Sample				
2019	No Sample				
2018	0.8 (0.6)	5.5 (1.6)	14.3 (3.6)	1.7 (0.7)	20.6 (5.2)
2017	No Sample				
2016	0.7 (0.4)	7.0 (1.4)	41.2 (4.6)	14.0 (2.1)	48.8 (5.5)
2015	No Sample				
2014	0.0 (0.0)	8.3 (2.6)	31.0 (4.3)	5.5 (1.1)	39.3 (6.5)
2013	0.2 (0.2)	4.7 (1.4)	17.6 (4.7)	4.6 (1.1)	22.6 (5.3)
2012	2.9 (0.7)	4.4 (0.9)	18.5 (4.1)	1.6 (0.6)	25.8 (5.0)

Dataset = cfdpsehc.d12 – .d21

Table 5. Population assessment for smallmouth bass collected by boat electrofishing in the North Fork Elkhorn Creek from 2012-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -8.9 in	CPUE ≥9.0 in	CPUE ≥12.0 in	CPUE ≥14.0 in	Total score	Assessment rating
2021	Value	1.0	12.0	18.5	5.5	2.5		
	Score	2	3	4	3	3	15	Good
2020	Value				No Sample			
	Score							
2019	Value				Nos Sample			
	Score							
2018	Value	3.2	46.4	33.6	17.6	5.6		
	Score	3	4	4	4	4	19	Excellent
2017	Value				No Sample			
	Score							
2016	Value	0.5	26.5	34.0	10.0	1.5		
	Score	1	4	4	4	2	15	Good
2015	Value				No Sample			
	Score							
2014	Value	0.0	4.0	11.0	4.0	1.5		
	Score	0	2	3	2	2	9	Fair
2013	Value	0.5	10.5	16.5	9.0	1.5		
	Score	1	3	4	4	2	14	Good
2012	Value	2.0	22.5	15.5	5.5	1.5		
	Score	3	4	4	3	2	16	Excellent

Table 6. Population assessment for rock bass collected by boat electrofishing in the North Fork Elkhorn Creek from 2008-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -5.9 in	CPUE ≥6.0 in	CPUE ≥8.0 in	Total score	Assessment rating
2021	Value	4.0	2.0	1.0	0.5		
	Score	4	1	1	1	7	Fair
2020	Value			No Sample			
	Score						
2019	Value			No Sample			
	Score						
2018	Value	3.2	12.8	34.4	6.4		
	Score	4	4	4	3	15	Excellent
2017	Value			No Sample			
	Score						
2016	Value	5.0	6.5	12.5	2.0		
	Score	4	3	3	2	12	Good
2015	Value			No Sample			
	Score						
2014	Value	0.5	4.0	2.5	0.5		
	Score	1	2	1	1	5	Fair
2013	Value	0.5	2.5	3.0	1.0		
	Score	1	2	1	1	5	Fair
2012	Value	2.0	1.0	1.0	0.0		
	Score	3	1	1	0	5	Fair

Table 7. Population assessment for largemouth bass collected by boat electrofishing in the North Fork Elkhorn Creek from 2008-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -8.9 in	CPUE ≥9.0 in	CPUE ≥12.0 in	CPUE ≥15.0 in	Total score	Assessment rating
2021	Value	0.0	7.0	24.5	14.0	6.0		
	Score	0	4	4	4	4	16	Excellent
2018	Value	0.0	9.6	40.8	17.6	4.8		
	Score	0	4	4	4	4	16	Excellent
2017	Value				No Sample			
	Score							
2016	Value	0.0	12.5	29.5	15.5	7.5		
	Score	0	4	4	4	4	16	Excellent
2015	Value				No Sample			
	Score							
2014	Value	0.0	7.0	16.0	13.0	5.0		
	Score	0	4	4	4	4	16	Excellent
2013	Value	1.5	12.5	21.5	11.0	2.5		
	Score	3	4	4	4	4	19	Excellent
2012	Value	0.0	14.5	19.0	10.5	5.0		
	Score	0	4	4	4	4	16	Excellent
2011	Value	0.0	4.5	26.5	13.5	4.5		
	Score	0	3	4	4	4	15	Good
2010	Value	0.0	15.0	39.5	18.5	4.5		
	Score	0	4	4	4	4	16	Excellent

Table 8. Population assessment for smallmouth bass collected by boat electrofishing gear in the main stem Elkhorn Creek from 2000-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -8.9 in	CPUE ≥9.0 in	CPUE ≥12.0 in	CPUE ≥14.0 in	Total score	Assessment rating
2021	Value	4.2	53.2	49.2	20.5	5.9		
	Score	4	4	4	4	4	20	Excellent
2018	Value	1.5	47.8	36.3	12.3	5.3		
	Score	2	4	4	4	4	18	Excellent
2017	Value				No Sample			
	Score							
2016	Value	7.7	91.0	63.3	23.0	10.8		
	Score	4	4	4	4	4	20	Excellent
2015	Value				No Sample			
	Score							
2014	Value	1.3	40.8	44.7	23.7	12.0		
	Score	2	4	4	4	4	18	Excellent
2013	Value	1.6	18.9	37.5	20.9	10.2		
	Score	2	4	4	4	4	18	Excellent
2012	Value	9.4	27.6	18.0	5.9	2.1		
	Score	4	4	4	3	3	18	Excellent
2011	Value	1.7	20.7	36.8	10.7	4.5		
	Score	3	4	4	4	4	19	Excellent
2010	Value	0.2	31.7	36.7	13.0	5.5		
	Score	1	4	4	4	4	17	Excellent

Table 9. Population assessment for rock bass collected by boat electrofishing in the main stem Elkhorn Creek from 2008-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -5.9 in	CPUE ≥6.0 in	CPUE ≥8.0 in	Total score	Assessment rating
2021	Value	0.2	2.4	9.7	4.0		
	Score	1	2	2	2	7	Fair
2018	Value	0.0	3.3	8.0	0.3		
	Score	0	2	2	1	5	Fair
2017	Value			No Sample			
	Score						
2016	Value	0.7	7.0	41.2	14.0		
	Score	1	3	4	4	12	Good
2015	Value			No Sample			
	Score						
2014	Value	0.0	8.3	31.0	5.5		
	Score	0	3	4	3	10	Good
2013	Value	0.2	4.7	17.6	4.6		
	Score	1	3	3	3	10	Good
2012	Value	2.9	4.4	18.5	1.6		
	Score	4	3	3	2	12	Good
2011	Value	0.2	7.8	19.5	3.0		
	Score	1	3	3	2	9	Good
2010	Value	0.8	10.2	23.7	4.5		
	Score	2	4	3	3	12	Good

Table 10. Population assessment for largemouth bass collected by boat electrofishing in the main stem Elkhorn Creek from 2008-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -8.9 in	CPUE ≥9.0 in	CPUE ≥12.0 in	CPUE ≥15.0 in	Total score	Assessment rating
2021	Value	0.5	3.5	4.9	1.4	0.0		
	Score	1	3	3	2	0	9	Fair
2018	Value	0.0	0.0	0.8	0.3	0.0		
	Score	0	0	1	1	0	2	Poor
2017	Value				No Sample			
	Score							
2016	Value	0.2	5.2	6.3	2.2	0.3		
	Score	1	3	3	3	1	11	Good
2015	Value				No Sample			
	Score							
2014	Value	0.0	2.3	5.8	2.5	1.2		
	Score	0	2	3	3	2	10	Fair
2013	Value	0.0	2.0	8.9	4.2	1.3		
	Score	0	3	4	4	2	13	Good
2012	Value	0.0	6.5	3.5	1.0	0.7		
	Score	0	4	2	1	1	8	Fair
2011	Value	0.0	2.5	4.7	1.3	0.7		
	Score	0	2	3	1	1	7	Fair
2010	Value	0.2	3.0	3.2	2.8	0.8		
	Score	1	3	2	3	2	11	Good

Table 11. Length distribution and CPUE (fish/hr) of black bass and rock bass collected in 1.375 hours of 15-minute and 7.5-minute electrofishing runs for black bass in April 2021 in the Floyd's Fork; numbers in parentheses are standard errors.

	Inch class															
Species	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	CPUE
Fisherville Canoe Access																
Rock bass			1		1										2	2.7 (1.3)
Smallmouth bass	1	1							1	2	3			2	10	16.0 (2.3)
Largemouth bass				1		1									2	5.3 (5.3)
Cane Run Canoe Access																
Rock bass						2									2	2.7 (1.3)
Smallmouth bass	1				2	2	1	7	4	2	2	2		1	24	32.0 (9.2)
Total																
Rock bass			1		1	2									4	2.7 (0.8)
Smallmouth bass	2	1			2	2	1	7	5	4	5	2		3	34	24.0 (5.6)
Largemouth bass				1		1									2	2.7 (2.7)

Dataset = cfdpsflf.d21

Table 12. Electrofishing CPUE (fish/hr) for each length group of smallmouth bass collected from Floyd's Fork from 2007-2021; numbers in parentheses are standard errors. Number of samples and locations varies between years.

	Length group					
Year	<4.0 in	4.0-8.9 in	≥9.0 in	≥12.0 in	≥14.0 in	Total
2021	2.0 (0.9)	3.3 (2.6)	18.7 (3.4)	6.7 (2.0)	2.0 (1.4)	24.0 (5.6)
2017	0.9 (0.9)	10.4 (3.8)	10.0 (4.3)	5.6 (2.6)	2.7 (1.5)	21.4 (7.1)
2016	4.0 (1.1)	10.0 (4.3)	11.7 (3.4)	4.7 (1.7)	3.7 (1.6)	25.7 (7.5)
2015	1.1 (0.8)	2.9 (1.0)	8.7 (2.5)	4.7 (1.9)	1.8 (0.8)	12.7 (3.3)
2014	0.0	2.3 (1.5)	5.5 (1.9)	2.3 (0.8)	1.7 (0.6)	7.8 (2.7)
2013	0.3 (0.4)	7.8 (3.8)	8.0 (2.3)	2.7 (1.1)	0.5 (0.3)	16.0 (4.6)
2012	1.0 (0.5)	7.0 (2.7)	7.5 (2.0)	2.8 (1.1)	1.8 (0.7)	15.5 (4.4)
2007	0.0 (0.0)	7.0 (4.7)	2.0 (1.2)	1.0 (1.0)	0.0 (0.0)	9.0 (5.3)

Dataset = cfdpsflf.d21–.d07

Table 13. Electrofishing CPUE (fish/hr) for each length group of rock bass collected from Floyd's Fork from 2007-2021; numbers in parentheses are standard errors. Number of samples and location varies between years.

	Length group				
Year	<4.0 in	4.0-5.9 in	≥6.0 in	≥8.0 in	Total
2021	0.7 (0.7)	2.0 (0.9)	0.0	0.0	2.7 (0.8)
2017	1.3 (0.9)	1.3 (0.6)	4.8 (2.0)	0.9 (0.6)	7.4 (3.2)
2016	0.3 (0.3)	2.0 (0.6)	7.0 (2.4)	4.0 (1.3)	9.3 (2.7)
2015	0.0	0.0	5.5 (1.1)	3.3 (0.7)	5.5 (1.1)
2014	0.0	1.7 (0.93)	10.1 (3.4)	3.0 (1.3)	11.8 (4.0)
2013	0.0	1.3 (0.75)	10.7 (3.5)	2.2 (1.5)	11.9 (3.7)
2012	0.6 (0.3)	1.2 (0.53)	11.0 (3.3)	1.7 (0.7)	12.8 (3.6)
2007	2.0 (1.2)	10.0 (10.0)	5.0 (3.8)	1.0 (1.0)	17.0 (14.4)

Dataset = cfdpsflf.d21–.d07

Table 14. Population assessment for smallmouth bass collected by boat electrofishing in Floyd's Fork from 2012-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -8.9 in	CPUE ≥9.0 in	CPUE ≥12.0 in	CPUE ≥14.0 in	Total score	Assessment rating
2021	Value	2.0	3.3	18.7	6.7	2.0		
	Score	3	2	4	3	2	14	Good
2017	Value	0.9	10.4	10.0	5.6	2.7		
	Score	2	3	3	3	3	14	Good
2016	Value	4.0	10.0	11.7	4.7	3.7		
	Score	3	3	3	3	3	15	Good
2015	Value	1.1	2.9	8.7	4.7	1.8		
	Score	2	2	3	3	2	12	Good
2014	Value	0.0	2.3	5.5	2.3	1.7		
	Score	0	1	2	2	2	7	Fair
2013	Value	0.3	7.8	8.0	2.7	0.5		
	Score	1	3	2	2	1	9	Fair
2012	Value	1.0	7.0	7.5	2.8	1.8		
	Score	2	3	2	2	2	11	Good

Table 15. Population assessment for rock bass collected by boat electrofishing in Floyd's Fork from 2012-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -5.9 in	CPUE ≥6.0 in	CPUE ≥8.0 in	Total score	Assessment rating
2021	Value	0.7	2.0	0.0	0.0		
	Score	1	3	0	0	4	Poor
2017	Value	1.3	1.3	4.8	0.9		
	Score	3	1	2	1	7	Fair
2016	Value	0.3	2.0	7.0	4.0		
	Score	1	1	2	2	6	Fair
2015	Value	0.0	0.0	5.5	3.3		
	Score	0	0	2	2	4	Poor
2014	Value	0.0	1.7	10.1	3.0		
	Score	0	1	2	2	5	Fair
2013	Value	0.0	1.3	10.7	2.2		
	Score	0	1	2	2	5	Fair
2012	Value	0.6	1.2	11.0	1.7		
	Score	1	1	2	2	6	Fair

Table 16. Population assessment for largemouth bass collected by boat electrofishing gear in Floyd's Fork 2012-2021 (scoring based on statewide assessment).

Year		CPUE ≤4.0 in	CPUE 4.0 -8.9 in	CPUE ≥9.0 in	CPUE ≥12.0 in	CPUE ≥15.0 in	Total score	Assessment rating
2021	Value	0.0	2.7	0.0	0.0	0.0		
	Score	0	2	0	0	0	2	Poor
2017	Value	0.4	2.4	2.1	0.4	0.0		
	Score	1	2	2	1	0	6	Fair
2016	Value	1.3	2.7	1.7	0.3	0.0		
	Score	3	2	1	1	0	7	Fair
2015	Value	0.4	2.9	3.3	1.1	0.0		
	Score	1	3	2	1	0	7	Fair
2014	Value	0.0	4.6	2.7	0.8	0.0		
	Score	0	3	2	1	0	6	Fair
2013	Value	0.3	4.5	1.5	0.0	0.0		
	Score	1	3	1	0	0	5	Poor
2012	Value	1.8	2.0	2.2	1.4	0.2		
	Score	3	2	2	2	1	10	Fair

CENTRAL FISHERIES DISTRICT

Project 3: Technical Guidance

FINDINGS

A total of 350 phone calls, 200 e-mails, and 1 walk-in office visits concerning farm pond problems were handled this year.

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 October. Parched Corn, Chimney Top, and Dog Fork represent the coldest streams in the district. All three streams are at the upper temperature threshold for trout over-summering habitat (Table 1). Multiple loggers were lost due to high flow events and washouts. Overall, trout streams experienced lower maximum temperatures in 2021 compared to the previous few years.

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 May and maintained throughout the year. Only one of the three cameras placed at East Fork Indian functioned properly throughout the year. Middle Fork Red River had the most angler use captured on camera for 2021 (Table 2).

Table 1. Monthly breakdown of minimum, average, and maximum temperatures on designated trout streams.

2021		Months																					
		March			April			May			June			July			August			September			October		
Stream Name	LOC	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
North Fork Triplett Creek	UPP	*																							
	LOW	*																							
Craney Creek	UPP	*																							
	LOW	*																							
Middle Fork Red River	UPP	38.1	47.5	57.0	42.0	53.9	65.8	52.8	62.3	74.4	63.1	69.4	79.6	66.2	72.4	79.3	66.6	72.6	78.4	58.6	67.7	74.6	52.6	61.9	70.6
	LOW	**																							
East Fork Indian Creek	UPP	36.1	46.0	56.2	40.1	51.2	62.3	49.2	57.7	70.1	56.8	63.9	73.7	59.4	66.4	72.4	63.4	67.5	72.4	57.2	64.3	69.4	52.0	59.9	66.4
	LOW1	36.7	46.9	58.3	40.5	52.9	63.9	51.6	60.5	72.2	58.5	66.6	75.2	60.6	68.8	75.2	64.9	70.1	75.7	58.4	66.6	71.5	52.8	61.7	69.1
	LOW2	41.8	46.4	53.8	43.9	52.0	58.9	52.4	56.3	61.5	57.4	62.1	67.7	62.1	66.9	70.3	65.2	67.9	70.9	59.9	65.2	69.9	54.4	60.8	65.4
Chimney Top Creek	UPP	**																							
	LOW	37.7	44.9	53.3	40.9	49.2	58.5	49.7	55.0	61.0	56.4	60.9	65.4	59.5	64.8	69.3	61.7	65.6	69.4	56.4	63.2	67.0	49.4	58.3	65.0
Swift Camp Creek	UPP	**																							
	LOW	35.2	45.7	56.1	40.4	52.0	62.4	51.3	60.1	71.1	61.3	67.6	76.4	64.2	70.4	76.1	65.8	70.5	75.2	56.3	65.1	70.4	49.9	59.0	66.9
Parched Corn Creek	UPP	34.6	43.9	52.6	38.0	48.2	56.7	46.8	54.6	62.8	54.8	61.5	67.3	59.2	65.0	68.5	61.5	66.1	69.3	54.6	62.4	67.1	47.4	57.6	64.3
	LOW	34.6	43.8	53.0	37.9	48.3	57.4	46.8	54.9	64.2	54.9	61.7	68.8	59.4	65.3	69.6	61.6	66.2	69.9	54.5	62.5	67.2	47.4	57.6	64.6
Dog Fork	UPP	36.0	44.0	51.7	39.1	48.3	55.7	47.1	54.5	62.7	54.6	60.4	66.0	59.0	63.8	66.9	60.2	64.9	68.1	53.5	61.4	66.0	46.7	56.9	63.5
	LOW	**																							
Big Caney Creek		37.6	45.3	52.7	41.0	50.2	57.7	49.6	55.8	66.6	55.0	61.4	71.1	59.9	64.8	70.6	61.9	66.4	73.4	56.4	62.4	66.4	50.4	58.0	63.9
Laurel Creek		**																							
East Fork Little Sandy River		39.2	49.2	59.7	43.2	55.1	66.0	54.7	63.0	76.9	63.7	71.0	83.5	68.0	74.0	80.4	69.7	75.0	82.0	59.2	68.5	75.6	51.4	62.1	71.7
Sturgeon Creek		**																							
Station Camp Creek		**																							

*not collected due to high water

**missing data

Table 2. Cumulative angler counts on trout streams based on trail camera data for 2021.

Stream Type	Stream	Location	Months										Year end
			Mar*	Apr*	May*	Jun	Jul	Aug	Sep	Oct*	Nov	Dec	
Put, Take													
	Middle Fork Red River	Upper			2 (13)	7 (6)	12 (6)	13 (19)	5 (23)	52 (3)	23 (13)	6 (25)	120
		Lower			14 (6)	16 (8)	9 (12)	2 (29)	8 (24)	2 (27)			51
Put, Grow, Take													
	East Fork Indian	Lower			13 (6)	3 (8)	2 (25)	0 (18)	3 (12)	0 (14)	2 (9)	0 (20)	23
	Chimney Top	Upper			0 (4)	2 (2)	2 (1)	0 (4)	0 (2)	0 (21)			4
		Lower			0 (5)	0 (1)	0 (4)						0
	Parched Corn				0 (6)	0 (1)	2 (1)	0 (4)	1 (3)	0 (2)	3 (2)	3 (11)	9

* Stocked month (P/T Streams)

() Lapse in data with days lost

NORTHEASTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

In 2021 on-site visits were permanently suspended. Consultations will continue to be handled via telephone and written correspondence. In 2021, roughly 100-125 phone calls and about 20 written correspondences were handled. 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 include 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

Stream Temperature Monitoring

HOBO MX TidbiT 400 (MX2203) temperature data loggers were deployed in Bark Camp Creek, Cane Creek, Laurel River Lake Tailwaters, Right Fork Buffalo Creek, and War Fork Creek, to evaluate current trout management strategies. Data loggers were deployed at one upstream and one downstream location within each stream except Right Fork Buffalo Creek. Water temperatures (°F) were recorded hourly from late-May to early-December in Bark Camp Creek, Cane Creek, and Laurel River tailwaters and from late June to early December in War Fork Creek and Right Fork Buffalo Creek. Temperature data loggers were visually inspected to verify condition and continued submersion mid-August 2021. Trout stream information for each of these streams can be found in Table 1.

Bark Camp Creek

The upstream location of Bark Camp Creek recorded zero days with daily average temperatures equal to or exceeding 72°F, a maximum average daily temperature of 71.4°F between June and September, a maximum average daily temperature of 69.8°F during June, and zero days with an average temperature equal to or exceeding 73°F during June. The downstream location recorded zero days with daily average temperatures exceeding 72°F, a maximum average daily temperature of 71.9°F between June and September, a maximum average daily temperature of 70.6°F during June, and zero days with an average temperature equal to or exceeding 73°F during June (Table 2).

Cane Creek

The upstream location of Cane Creek recorded a low number of days (9) with daily average temperatures equal to or exceeding 72°F, a maximum average daily temperature of 73.2°F between June and September, a maximum average daily temperature of 69.7°F during June, and zero days with an average temperature equal to or exceeding 73°F during June. The downstream location recorded a low number of days (5) with daily average temperatures exceeding 72°F, a maximum average daily temperature of 72.5°F between June and September, a maximum average daily temperature of 70.4°F during June, and zero days with an average temperature equal to or exceeding 73°F during June (Table 3).

Laurel River Lake Tailwaters

The upstream location of Laurel River Lake Tailwaters recorded zero days with daily average temperatures equal to or exceeding 72°F, a maximum average daily temperature of 57.3°F between June and September, a maximum average daily temperature of 48.8°F during June, and zero days with an average temperature equal to or exceeding 73°F during June. The downstream location recorded zero number of days with daily average temperatures exceeding 72°F, a maximum average daily temperature of 63.8°F between June and September, a maximum average daily temperature of 52.0°F during June, and zero days with an average temperature equal to or exceeding 73°F during June (Table 4).

Right Fork Buffalo Creek

The upstream (stocking) location of Right Fork Buffalo Creek recorded a low number of days (21) with daily average temperatures equal to or exceeding 72°F, a maximum average daily temperature of 74.3°F between June and September, a maximum average daily temperature of 71.5°F during June, and zero days with an average temperature equal to or exceeding 73°F during June (Table 5).

War Fork Creek

The upstream location of War Fork Creek recorded a low number of days (5) with daily average temperatures equal to or exceeding 72ºF, a maximum average daily temperature of 72.8ºF between June and September, a maximum average daily temperature of 71.2ºF during June, and zero days with an average temperature equal to or exceeding 73ºF during June. The downstream location recorded zero days with daily average temperatures exceeding 72ºF, a maximum average daily temperature of 70.4ºF between June and September, a maximum average daily temperature of 67.4ºF during June, and zero days with an average temperature equal to or exceeding 73ºF during June (Table 6). 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.

Trout Stream Classifications

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, Bark Camp Creek, Laurel River Lake Tailwaters, and War Fork Creek are classified as Class I trout streams, and Cane Creek and Right Fork Buffalo Creek are classified as Class II trout streams (Table 7). Changes to current management strategies for each of these streams are not recommended at this time.

Trout Stream Utilization Surveys

Browning Dark Ops HD Pro X trail cameras were placed at the Dam Access Area of Laurel River Lake Tailwaters and the Long Bar Fishing Access Area of the Cumberland Tailwaters on June 17, 2021 (one camera at each location) to monitor trout stream utilization. Stream utilization data from each camera was collected monthly from June 2021-February 2022. 255 anglers utilized the Long Bar Fishing Access Area and 82 anglers utilized the Laurel River Tailwaters Dam Access Area between June 2021 and February 2022 (Table 8).

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
Bark Camp Creek	Whitley	3.9	Mouth to U.S. Forest Service Road No. 193	Rainbow Trout put-and-take Brown Trout put-grow-take Seasonal catch and release	March-June, October
Cane Creek	Laurel	6.6	Mouth to 6.6 mi upstream	Rainbow Trout put-and-take Seasonal catch and release	March-June, October
Laurel River Lake Tailwaters	Laurel/ Whitley	1.2	Dam to 1.2 mi below	Rainbow Trout put-grow-take Brown Trout put-grow-take	March-June, October
Right Fork Buffalo Creek	Owsley	0.2	Mile 1.9-2.1	Rainbow Trout put-and-take	April, May
War Fork Creek	Jackson	1.1	Turkey Foot Recreation Area upstream to Steer Fork	Rainbow Trout put-and-take	March-June, October

Table 2. Water temperature data from Bark Camp Creek, Whitley County, Kentucky, in 2021.

	Upstream		Downstream	
Month	Average Temperature (Range) ^{o}F	Number of Days Average Temperature $\geq$ 72 ^{o}F (≥ 73 ^{o}F)	Average Temperature (Range) ^{o}F	Number of Days Average Temperature $\geq$ 72 ^{o}F (≥ 73 ^{o}F)
May	62.2 (57.2-65.1)	0 (0)	62.5 (57.1-65.8)	0 (0)
June	64.7 (59.2-69.8)	0 (0)	65.0 (59.0-70.6)	0 (0)
July	68.4 (65.3-69.7)	0 (0)	68.5 (65.0-70.2)	0 (0)
August	69.5 (66.5-71.4)	0 (0)	69.9 (66.8-71.9)	0 (0)
September	63.8 (56.7-69.2)	0 (0)	64.2 (57.6-69.6)	0 (0)
October	58.1 (49.8-64.2)	0 (0)	58.5 (50.6-64.0)	0 (0)
November	42.7 (37.5-52.5)	0 (0)	43.4 (37.9-52.9)	0 (0)
December	44.7 (42.3-47.8)	0 (0)	43.4 (39.4-44.0)	0 (0)

Table 3. Water temperature data from Cane Creek, Laurel County, Kentucky, in 2021.

	Upstream		Downstream	
Month	Average Temperature (Range) °F	Number of Days Average Temperature ≥ 72 °F (≥ 73 °F)	Average Temperature (Range) °F	Number of Days Average Temperature ≥ 72 °F (≥ 73 °F)
May	62.2 (57.0-65.6)	0 (0)	62.8 (56.9-66.2)	0 (0)
June	64.8 (59.2-69.7)	0 (0)	64.5 (58.9-70.4)	0 (0)
July	68.6 (65.1-71.7)	0 (0)	68.4 (65.6-71.1)	0 (0)
August	70.5 (66.7-73.2)	9 (1)	69.9 (66.0-72.5)	5 (0)
September	64.7 (57.8-69.1)	0 (0)	64.0 (56.9-68.2)	0 (0)
October	59.0 (49.8-65.5)	0 (0)	58.5 (49.3-64.9)	0 (0)
November	43.6 (38.4-53.1)	0 (0)	43.2 (38.2-52.9)	0 (0)
December	41.5 (40.4-42.6)	0 (0)	41.3 (40.1-42.4)	0 (0)

Table 4. Water temperature data from Laurel River Lake Tailwaters, Laurel and Whitley Counties, Kentucky, in 2021.

	Upstream		Downstream	
Month	Average Temperature (Range) °F	Number of Days Average Temperature ≥ 72 °F (≥ 73 °F)	Average Temperature (Range) °F	Number of Days Average Temperature ≥ 72 °F (≥ 73 °F)
May	46.6 (44.9-48.5)	0 (0)	48.9 (46.9-50.7)	0 (0)
June	46.6 (44.7-48.8)	0 (0)	50.0 (46.7-52.0)	0 (0)
July	49.5 (45.9-57.3)	0 (0)	56.0 (51.3-63.8)	0 (0)
August	49.3 (46.9-52.7)	0 (0)	59.7 (57.9-63.3)	0 (0)
September	49.3 (47.3-51.1)	0 (0)	59.9 (54.4-62.2)	0 (0)
October	50.8 (47.8-55.9)	0 (0)	56.9 (47.7-61.7)	0 (0)
November	49.5 (47.1-54.3)	0 (0)	44.4 (36.9-52.8)	0 (0)
December	48.4 (47.6-49.2)	0 (0)	44.4 (35.0-47.6)	0 (0)

Table 5. Water temperature data from Right Fork Buffalo Creek, Owsley County, Kentucky, in 2021.

Month	Upstream		Downstream	
	Average Temperature (Range) °F	Number of Days Average Temperature ≥ 72 °F (≥ 73 °F)	Average Temperature (Range) °F	Number of Days Average Temperature ≥ 72 °F (≥ 73 °F)
June	69.3 (67.5-71.5)	0 (0)	N/A	N/A
July	71.3 (67.6-74.3)	9 (2)	N/A	N/A
August	71.3 (68.6-73.69)	12 (10)	N/A	N/A
September	65.9 (59.4-70.0)	0 (0)	N/A	N/A
October	60.8 (52.1-67.4)	0 (0)	N/A	N/A
November	45.4 (39.9-54.9)	0 (0)	N/A	N/A
December	42.5 (41.4-43.6)	0 (0)	N/A	N/A

Table 6. Water temperature data from War Fork Creek, Jackson County, Kentucky, in 2021.

Month	Upstream		Downstream	
	Average Temperature (Range) °F	Number of Days Average Temperature ≥ 72 °F (≥ 73 °F)	Average Temperature (Range) °F	Number of Days Average Temperature ≥ 72 °F (≥ 73 °F)
June	68.8 (66.2-71.2)	0 (0)	65.9 (64.5-67.4)	0 (0)
July	69.5 (65.5-71.9)	0 (0)	67.5 (65.1-70.4)	0 (0)
August	69.9 (66.6-72.8)	5 (0)	68.5 (66.3-70.1)	0 (0)
September	64.6 (58.0-69.1)	0 (0)	64.7 (59.9-68.2)	0 (0)
October	59.3 (50.1-66.3)	0 (0)	60.1 (54.6-65.0)	0 (0)
November	43.8 (38.3-52.9)	0 (0)	47.1 (41.6-55.0)	0 (0)
December	41.0 (40.0-42.0)	0 (0)	42.6 (42.2-42.9)	0 (0)

Table 7. Southeastern Fisheries District stream assessments for trout management in 2021.

Stream	Year	Number of Days Average Temperature ≥ 72 °F in the Year	Maximum Average Daily Temperature from June-September (°F)	Number of Days Average Temperature ≥ 73 °F in June	Maximum Average Daily Temperature in June (°F)	Stream Classification Rating
Bark Camp Creek	2021	0	71.7	0	70.2	I
	2018	2	72.2	0	70.8	II
	2011	23	73.8	0	71.6	II
Cane Creek	2021	7	72.8	0	69.9	II
	2018	5	73.6	0	71.1	II
	2010	6	72.9	0	70.2	II
Laurel River Lake Tailwaters	2021	0	57.0	0	50.4	I
Right Fork Buffalo Creek	2021	21	74.3	0	71.5	II
	2020	58	77.7	0	71.5	III
	2011	39	76.7	1	73.4	III
War Fork Creek	2021	5	71.3	0	69.3	I
	2020	14	73.8	0	67.1	II
	2010	2	70.0	0	65.9	I

Table 8. Trout stream utilization data for Cumberland River Tailwaters-Long Bar Fishing Access (Clinton County) and Laurel River Tailwaters (Laurel County), Kentucky, in 2021-2022

	Number of Anglers									
	June	July	August	September	October	November	December	January	February	Total
Long Bar Fishing Access	31	65	17	22	87	15	8	5	5	255
Laurel River Tailwaters	7	20	7	1	14	10	17	1	5	82

SOUTHEASTERN FISHERY DISTRICT

Project 3: Technical Guidance

FINDINGS

Onsite technical guidance was not provided during 2021. 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 3: Technical Guidance

FINDINGS

On-site technical guidance was not provided in 2021. Additional technical guidance requests were handled over the telephone, walk-in visits, or by written correspondence (Table 1). 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 2021.

Date	County	Owner	Problem	Recommendations
1/4	Law rence	Johnny Moore	New Pond	LMB/BG Supplier List
1/11	Johnson	Michael Smith	Stocking info	Phone and e,mail discusion
2/10	Johnson	Michael Smith	Management strategy	Phone and e,mail discusion
2/10	Johnson	Hembrec	Stocking Info	Supplier list Pond management link
3/25	Johnson	Gary Endicott	Fat Head minnow production	w eb site links
5/19	Whitley	James Mullins	Pond Vegetation	Cutrine Plus
5/20	Pike	David Harris	Cat fish dying	Diagnosed and recomed treatment
6/2	Law rence	Judy Curtard	pond color	run areators
6/2	Floyd	Jasmine	Fish stocking	Fish supplier list
6/14	Whitley	James Mullins	Water color	stop fertilizing
7/20	Floyd	Ryan Martin	Fish Dying	Test Oxygen Treat Algae
7/22	Breathitt	Marie Elam	Catfish Dying	Bacterial infection / testing
8/5	Magoffin	Randall Mann	Pond Weeds / Stocking	pic of w eeds/ fish supplier list
8/	Whitley	James Mullins	Pond Vegetation / brow n w ater	Treat in Fall /Cutrine
8/25	Johnson	Regina Kitchen	Algae/ Plant ID	sent picks=blue green let it run its course
10/7	Magoffin	Randall Mann	stocking,w eeds ,muddy w ater	stocking recomedations plant types
12/9	Johnson	Daniel Darby	Habitat for pond	brushpile ,Pallets structures ,Gravel beds

Project 4: Fish Habitat Improvement - Public Lakes Fertilization

Lake		County	Size (acres)
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		318
Beaver Lake		Anderson	146
Benjy Kinman Lake		Henry	88
Corinth Lake		Grant	84

Project 4: Fish Habitat Improvement - Fish Attractors

District / Lake	Fish Attractor Sites
Western Fishery District	
Barkley Lake	Refurbished 207 hardwood shallow water stake beds and made 1 new site (new site=~100 stakes, refurbished site=~25 stakes); 1212 hardwood units* were used to create new shallow water bass spawning-bench sites; 310 gravel-filled, bowl-shaped concrete structures were created as bass spawning habitat; 1376 cypress trees were planted (~5 ft tall); 63 Christmas tree units** were used to refurbish 5 shallow water habitat sites; 243 Christmas tree units** were used to refurbish 3 existing deepwater fish attractor sites; 3 plastic units*** were used to refurbish 1 existing deepwater fish attractor site; 93 hardwood units* were used to refurbish 27 existing deepwater fish attractor sites
Kentucky Lake	56 plastic units**** were used to make 3 new shallow water fish attractor sites
	*Hardwood: 1 tree = 1 unit **Christmas tree: 1 tree = 1 unit ***Plastic: 1 plastic artificial tree attractor = 1 unit ****Plastic: 1 plastic porcupine-like attractor = 1 unit
Northwestern Fishery District	
Nolin River Lake	26 New Sites, 1 Refresh * 10 Spider humps • 2 mature trees • 291 Christmas trees
Rough River Lake	10 New Sites * 16 reef balls * 87 cedar trees • 134 Christmas trees • 320' HDPE gas pipe added to reef balls
Mauzy Lake	7 Sites * 27 HDPE spider squares * 11 large shrubs
Carpenter Lake	3 Sites * 11 HDPE suspended gas pipe trees • 4 reef balls
Washburn Lake	17 Sites * 2 reef balls •108 Christmas trees
Sandy Watkins Park, Lake Brittany	10 Sites * 2 HDPE suspended gas pipe trees * 46 Christmas trees

Project 4: Fish Habitat Improvement - Fish Attractors cont.

District / Lake	Fish Attractor Sites
Northwestern Fishery District (cont.)	
Rob's Lake (PWMA)	7 Sites * 27 HDPE spider squares
Ken Lake (PWMA)	10 Sites * 4 HDPE suspended gas pipe trees * 1 HDPE/PVC tree * 139 Christmas trees
Beaver Lake (PWMA)	7 Sites * 99 Christmas trees
Community Lake (PWMA)	6 Sites * 1 HDPE gas pipe Christmas tree * 3 HDPE suspended gas pipe trees * 11 HDPE gas pipe trees
Southwestern Fishery District	
Barren River Lake	Large-scale habitat project (see Fish Habitat Branch annual report); 2 referbished Christmas tree brush piles
Green River Lake	3 referbished and 3 new brush pile sites using cedars and hardwoods; 2 new plastic pallet tree sites using 15 plastic pallet trees
Shanty Hollow Lake	4 hardwood brush piles; 7 tree laydowns/drag-ins
Three Springs/Basil Griffen Lake	2 referbished Christmas tree brushpile sites
Central Fishery District	
Beaver Lake	10 rock piles (96 tons of shot rock)
Benjy Kinman Lake	4 new water willow beds; 18 buttonbushes ~8-10” tall were planted
Elmer Davis Lake	23 brush piles (2,077 trees) – 3 new sites – 20 sites refurbished; 6 refurbished stake beds; 18 buttonbushes ~8-10” tall were planted
Guist Creek Lake	1 brush pile (140 trees) – 1 new site
Kincaid Lake	11 pallet structures (3 sites)
McNeely Lake	4 brush pile (38 trees) – 2 new sites – 2 sites refurbished
Taylorsville Lake	2 brush piles (20 large cedar trees) – 1 new site – 1 site refurbished; 18 buttonbushes ~8-10” tall were planted

Project 4: Fish Habitat Improvement - Fish Attractors cont.

District / Lake	Fish Attractor Sites
Northeastern Fishery District	
Cave Run Lake	• Sites on the Zilpo Flats and in Scott's Creek were refreshed with 50 gas pipe/cedar tree structures
Grayson Lake	• Refurbished 4 brush sites (Christmas tree sites – 150+ trees)
Lake Reba	• Refurbished all existing brush sites (Christmas tree sites- 200 trees, cedar trees- 40 trees) • The Habitat Branch created 3 plastic sites (25 gas pipe structures total)
Lake Wilgreen	• Refurbished all existing brush sites (Christmas tree sites- 200 trees)
Lake Carnico	• Refurbished all existing brush sites (Christmas tree sites- 150 trees)
Southeastern Fishery District	
Laurel River Lake	3 new brush sites (316 Christmas trees total)
Cedar Creek Lake	1 new brush sites (159 Christmas trees)
Eastern Fishery District	
Buckhorn Lake	2 Refurbished shallow brush piles with 28 Christmas trees and drift wood
Carr Creek Lake	37 Hinged cut hardwood and pine trees
Dewey Lake	6 refurbished shallow water brushpiles (93 Christmas trees and hardwood drift) 1 refurbished deep water brushpile (18 Christmas and hardwood trees), 8 hinge-cut tree,(hardwood and pine)
Fishtrap Lake	2 new shallow water brush piles (63 christmas trees and drift); 2 refurbished shallow water brush piles with 48 Christmas trees and drift wood, 35 hinged cut hardwood and pine trees
Yatesville Lake	1 Refurbished shallow reefs (10 cedar, 49 Christmas trees and drift wood)
Martins Fork Lake	1 new deep water (10 christmas trees)

Minor Clark Fish Hatchery 2021 Sport Fish Production

	Planned			Actual				
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**	
Muskellunge	0	0	West Virginia	112,500				Eggs
	0	0	Licking River	626,062				Fry
Total Fry/Eggs				738,562				
	398	9	Kentucky River Pool 11*	398	8.3	39.4	10.1	
	380	9	Kentucky River Pool 12**	380	8.3	37.6	10.1	
	182	9	Kentucky River Pool 13***	182	8.3	18.0	10.1	
	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			960	8.3	95.0	10.1	
			*Left Pectoral Fin Clip					
			**Right Pectoral Fin Clip					
			***Left Pelvic Fin Clip					
Muskellunge	2,700	13	Cave Run Lake	1,367	10.2	237.6	5.8	
	2,700	13	Green River Lake	1,340	10.1	226.2	5.9	
	400	13	Buckhorn Lake	400	9.7	63.5	6.3	
	375	13	Dewey Lake	375	9.7	59.5	6.3	
Total	6,175			3,482	8.3	586.8	5.9	
Grand Total	11,230			743,004		681.1		

	Planned			Actual				
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**	
Hybrid Striped	200,000	1.5	Barren River Lake	200,354	1.3	129.6	1,546	
Bass	15,000	1.5	Grayson Lake	15,108	1.6	20.2	747	
	102,000	1.5	Rough River Lake	102,179	1.4	78.7	1,298	
	61,000	1.5	Taylorsville Lake	61,254	1.3	41.0	1,494	
	48,000	1.5	Herrington Lake	48,227	1.3	29.0	1,663	
	23,000	1.5	Fishtrap Lake	23,012	1.7	40.8	564	
	7,200	1.5	Lake Linville	7,259	1.5	7.4	981	
	9,500	1.5	Guist Creek Lake	9,566	1.7	12.6	791	
	3,333	1.5	KY River Pool 4	4,100	1.6	5.9	690	
	3,333	1.5	KY River Pool 5	3,627	2.3	18.3	199	
	3,333	1.5	KY River Pool 6	4,700	1.6	6.8	690	
	3,333	1.5	KY River Pool 7	0				
	3,334	1.5	KY River Pool 8	3,505	2.4	19.8	177	
	3,334	1.5	KY River Pool 9	4,100	1.6	5.9	690	
	0		Barkley Lake TW	21,648	1.1	9.1	2,379	
			Ohio River					
	54,500	1.5	Markland Pool	54,565	1.1	28.6	1,908	
	41,500	1.5	McAlpine Pool	43,372	1.0	17.9	2,423	
	50,000	1.5	Cannelton Pool	50,239	1.1	20.7	2,427	
	36,000	1.5	Newburg Pool	36,036	1.1	16.5	2,184	
	43,700	1.5	Uniontown Pool	43,929	1.1	18.1	2,427	
	60,500	1.5	Smithland Pool	60,632	1.2	38.4	1,579	
Grand Total	771,900			797,412	1.5	565.3	1,411	
Reciprocals								

Walleye (Erie)	0	0	Licking River	84,904				Fry
	0	0	Lake Cumberland	1,074,231				Fry
	0	0	West Virginia	1,064,990				Fry
Total				2,224,125				
	350,000	1.5	Lake Cumberland	350,950	1.3	194.0	1,809	
	40,000	1.5	Dale Hollow Lake (KY)	40,029	1.4	22.9	1,748	
	260,000	1.5	Laurel River Lake	218,287	1.3	129.1	1,692	
	200,000	1.5	Nolin River Lake	100,130	1.3	55.6	1,801	
	200,000	1.5	Green River Lake	100,118	1.3	60.6	1,652	
	10,000	1.5	Russell Fork	10,314	1.7	10.8	955	
	35,000	1.5	Carr Creek Lake	35,132	1.4	21.1	1,665	
	13,000	1.5	Licking River	208	1.8			
	57,000	1.5	Paintsville	57,430	1.5	41.5	1,384	
Total	1,165,000			912,598	1.4	535.6	1,704	
Grand Total				3,136,723				

	Planned			Actual				
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**	
Walleye (Native)	0	0	Tennessee	31,738				Fry
	0	0	North Fork Ky River	5,035	2.4	15.6	323	
	0	0	Middle Fork Ky River	2,519	2.4	7.8	323	
	0	0	Wood Creek Lake	29,479	1.4	17.4	1,694	
	20,000	2.5	Upper KY River	12,519	2.4	35.4	354	
	27,200	2.5	Upper Cumberland River	27,283	2.4	87.2	313	
	3,280	4.5	Rockcastle River	3,475	5.1	112.5	31	
	8,180	4.5	Lower Barren	8,089	2.2	18.9	354	
	8,540	4.5	Martins Fork Lake	8,652	5.1	280.0	31	
Total	47,200	2.5		84,924	2.3	182.3		
Total	20,000	4.5		12,127	5.1	392.5		
Grand Total	67,200			128,789		574.8		
Saugeye								
	200,000	Eggs	Pfeiffer Hatchery	1,146,000				Eggs
	0	0	Taylorsville Lake	151,226				Fry
Grand Total	200,000			1,297,226				
Striped Bass	500,000	1.5	Lake Cumberland	524,972	1.6	664.3	790	
	50,000	1.5	Kentucky Lake tailwater	31,553	1.3	24.8	1,272	
	50,000	1.5	Barkley Lake tailwater	31,946	1.3	26.3	1,215	
			Ohio River					
	49,000	1.5	Markland Pool	0				
	38,000	1.5	McAlpine Pool	0				
	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				
Grand Total	861,000	1.5		588,471	1.6	715.4	823	
Black Crappie								
	60,250	2.0	Herrington Lake	59,892	2	176.3	339.7	
	17,750	2.0	Carr Creek Lake	17,790	2.5	85.8	207.3	
	20,500	2.0	Lake Malone	2,838	2.7	106.9	187.8	
	20,000	2.0	Peabody WMA	20,076	2.7	15.2	187.8	
Grand Total				100,596		384.2	261.8	

	Planned			Actual			
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**
Smallmouth Bass	1,500	2.0	GasperRiver/Clear Fork	1,542	1.9	3	514
	0.0	0.0	Barren River	4,780	1.9	9.3	514
	0.0	0.0	Cave Run Lake	10,023	1.9	19.5	514
Grand Total				16,345	1.9	31.8	514
Largemouth Bass	Ohio River						
			Cannelton Pool				
	270	2.0	Yellowbank Creek	304	1.7	0.6	506
	660	2.0	Town Creek	708	1.7	1.4	506
	17,000	2.0	Tar Fork/Clover Creek	21,723	1.7	38.4	566
			McAlpine Pool				
	7,000	2.0	Harrod's Creek	7,016	1.7	13.8	508
			Markland Pool				
	38,200	2.0	Craig's Creek	38,217	1.8	77.1	496
	2,400	2.0	Big Sugar Creek	2,407	2.7	8.3	290
	2,500	2.0	Little Sugar Creek	2,503	2.7	13.2	190
	16,000	2.0	Big Bone Creek	16,024	1.8	31.9	502
	10,200	2.0	Gunpowder Creek	10,206	1.9	22.7	301
	5,800	2.0	Woolper Creek	5,836	2.1	19.4	301
			Meldahl Pool				
	3,800	2.0	Big Snag Creek	3,846	1.7	7.6	506
	8,400	2.0	Big Locust Creek	8,449	1.9	23.0	367
	2,700	2.0	Big Turtle Creek	2,732	1.7	5.4	506
	7,900	2.0	Bracken Creek	7,937	1.4	8.8	902
	2,200	2.0	Lawrence Creek	2,226	1.7	4.4	506
			Greenup Pool				
	15,100	2.0	Little Sandy (Greenup Rp)	15,148	1.7	29.3	517
	15,100	2.0	Little Sandy (Raccoon Rp)	15,505	1.7	26.6	583
Total	153,524			160,787	1.8	331.9	484
	75,000	5.0	Priority 1 lakes at 15/acre				
			Greenbo Lake	2,506	4.5	89.8	27.9
			Carnico Lake	1,702	4.4	59.1	28.8
			Clarks River NWR	651	4.2	21.0	31
			Taylorsville Lake	25,002	4.0	608.3	41.1
			Barren River Lake	26,870	4.1	628.0	42.7
			Guist Creek Lake	4,515	4.1	130.1	34.7
			Fishtrap Lake	11,502	3.9	264.6	43.5
Total	115,000			72,748	4.1	1,800.9	40.4
Grand Total	245,230			233,535		2,132.8	

	Planned			Actual			
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**
Grass Carp	0		Clear Creek Lake	50	12.0	50.0	1.0
Grand Total				50	12	50.0	1.0
Sauger	105,000	1.5	Kentucky River	17,337	25.2	688	1.8
Grand Total				17,337	25.2	688	1.8

Nonsport Forage Species

Forage Species

Fathead Minnows	**Pounds**	**Location/use**
	452	Muskellunge Ponds
	157	Hatchery Oxbow
	1,743	Overwinter/Display Pool
Total Pounds FHM	2,352	

Goldfish		
	1,705	Muskellunge Ponds
	2,600	Walleye Broodstock
	4,257	Overwinter Display Pool
	1,843	Largemouth Bass
	100	Display Pool
Total Pounds GOF	10,505	

Peter W. Pfeiffer Fish Hatchery 2021 Sport Fish Production

	Planned			Actual				
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**	**Notes**
Channel Catfish								
	0		KY River Pool 1	33,120	Fry	15	2,222.8	
	0		KY River Pool 3	88,623	Fry	40	2,226.7	
	0		KY River Pool 4	69,484	Fry	31	2,227.1	
	0		WV DNR	60,000	Fry	23	2,567.4	
				251,227		109		
	36,500	15	FINS program	70,209		65,258	1.1	
	62,375	8-10	Public Fishing Lakes(Stockers)	62,375	8-10	8,422	7.4	
	98,875			132,584		73,680		
Blue Catfish								
	0		Alabama DCNR	147,243	Fry	108	1,363.4	
				147,243		108		
	11,000	5-7	Dewey Lake	11,000	5-7	786	14.0	
	11,500	5-7	Fishtrap Lake	11,500	5-7	822	14.0	
	7,100	5-7	Carr Creek Lake	7,100	5-7	507	14.0	
	0	5-7	Yatesville Lake	19,475	5-7	1,900	10.3	
	24,000	5-7	Taylorsville Lake	24,000	5-7	1,714	14.0	
	12,250	5-7	KY River Pool 1	12,250	5-7	875	14.0	
	5,500	5-7	Ky River Pool 2	5,500	5-7	537	10.2	
	12,250	5-7	KY River Pool 3	5,800	5-7	414	14.0	
	6,500	5-7	KY River Pool 4	12,800	5-7	914	14.0	
	5,800	5-7	KY River Pool 5	5,800	5-7	566	10.2	
	95,900			115,225		9,035		

	Planned			Actual				
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**	**Notes**
Hybrid Catfish								
	84,300	15	FINS Program	84,099	10-24	77,005	1.1	
				84,099		77,005		
Hybrid Sunfish								
	12,000	6-8	FINS Program	6,900		2,300	3.0	
	12,000			6,900		2,300		
Sauger								
		fry	KY River pools 3 and 4	235,974				
	5,000	1.5	Kentucky River Pool 2	4,820	1.25	2.3	2,095.7	
	10,000	1.5	Kentucky River Pool 3	10,068	1.25	4.7	2,142.1	
	10,000	1.5	Kentucky River Pool 4	9,747	1.25	4.6	2,118.9	
	10,000	1.5	Kentucky River Pool 5	10,068	1.25	4.7	2,142.1	
	10,000	1.5	Kentucky River Pool 6	10,000	1.25	5.3	1,886.8	
	15,000	1.5	Kentucky River Pool 8	15,036	1.25	9.4	1,599.6	
	10,000	1.5	Kentucky River Pool 9	10,118	1.25	6.4	1,580.9	
	10,000	1.5	Kentucky River Pool 10	10,638	1.25	6.8	1,564.4	
	10,000	1.5	Kentucky River Pool 11	7,890	1.25	4.6	1,734.1	
	10,000	1.5	Kentucky River Pool 12	0				
	5,000	1.5	Kentucky River Pool 13	0				
	105,000			88,385		48.8		

	Planned			Actual				
Species	**Number**	**Size (in)**	**Location/Use**	**Number**	**Size (in)**	**Pounds**	**No./lb.**	**Notes**
Saugeye								
		fry	Taylorsville Lake	345,800				
	31,700	1.5	Guist Creek Lake	31,726	1.4	36.9	859.8	
	13,400	1.5	Bullock Pen Lake	13,543	1.4	17.0	799.0	
	16,900	1.5	Wilgreen Lake	16,004	1.4	21.8	734.1	
	6,400	1.5	Carpenter Lake	6,356	1.4	7.0	908.0	
	11,200	1.5	Lake Carnico	11,392	1.4	13.6	837.6	
	17,500	1.5	A.J. Jolly Lake	17,479	1.4	19.3	908.0	
	61,000	1.5	Taylorsville Lake	74,145	1.4	42.4	1,748.7	
	158,100			170,645		157.9		
Redear Sunfish								
	0	1.5	Elmer Davis Lake	11,088	1.6	12.0	924	
	14,200	1.5	Carr Creek Lake	0				
	24,600	1.5	Buckhorn Lake	0				
	20,000	1.5	Peabody WMA Lakes	0				
	6,700	1.5	Martin's Fork Lake	8,224	1.6	8.9	924	
	31,600	1.5	Beaver Lake	31,971	1.6	34.6	924	
	0	1.5	Robert Barth Lake	11,088	1.6	12.0	924	
	38,300			62,371		67.5		
Rock Bass								
	2,500		Gasper River/Clear Fork	2,668	1.5	12	221.4	
	2,500			2,668		12		
Lake Sturgeon								
	6,000	8	Upper Cumberland River	9,805	7	258		
	6,000			9,805		258		
Alligator Gar								
	8,000	10	Western Kentucky	0				Did not Receive Fry
Grand Total				1,652,926		162,781		

Trout Stocking Numbers

Species	Waterbody	Actual Number	Length (in)
Brook Trout	Lake Cumberland Tailwater	7,523	9-15
Brook Trout	Parched Corn Creek	650	4-5

Species	Waterbody	Actual Number	Length (in)
Brown Trout	Bark Camp Creek	500	8-12
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	Herrington Lake Tailwater	325	8-12
Brown Trout	Indian Creek - East Fork	400	8-12
Brown Trout	Jennings Creek	500	8-12
Brown Trout	Lake Cumberland Tailwater	26,025	8-12
Brown Trout	Laurel Creek	250	8-12
Brown Trout	Laurel River Lake Tailwater	250	8-12
Brown Trout	Looney Creek	700	8-12
Brown Trout	Nolin River Lake Tailwater	250	8-12
Brown Trout	Otter Creek	2,000	8-12
Brown Trout	Paintsville Lake	10,000	8-12
Brown Trout	Roundstone Creek	200	8-12
Brown Trout	Sulphur Springs Creek	200	8-12
Brown Trout	Trammel Creek	600	8-12

Species	Waterbody	Actual Number	Length (in)
Cutthroat Trout	Lake Cumberland Tailwater	6,225	9-10

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	3,750	8-16
Rainbow Trout	Beaver Creek	1,500	8-16
Rainbow Trout	Beaver Creek - Right Fork	1,935	8-16
Rainbow Trout	Bert T. Combs Lake	4,000	8-16
Rainbow Trout	Beulah Lake	4,000	8-16
Rainbow Trout	Big Bone Lick State Park	1,200	8-16
Rainbow Trout	Big Caney Creek	2,500	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

Species	Waterbody	Actual Number	Length (in)
Rainbow Trout	Buckhorn Lake Tailwater	5,000	8-16
Rainbow Trout	Buffalo Creek	430	8-16
Rainbow Trout	Camp Ernst Lake	4,500	8-16
Rainbow Trout	Cane Creek	3,750	8-16
Rainbow Trout	Cannon Creek Lake	6,000	8-16
Rainbow Trout	Carr Creek Lake Tailwater	4,000	8-16
Rainbow Trout	Casey Creek	9,000	8-16
Rainbow Trout	Cave Run Lake Tailwater	5,635	8-16
Rainbow Trout	Cherokee Park Lake	2,250	8-16
Rainbow Trout	Chimney Top Creek	475	8-16
Rainbow Trout	Clear Creek	1,200	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	5,000	8-16
Rainbow Trout	Dewey Lake Tailwater	4,000	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	1,600	8-16
Rainbow Trout	Fagan Branch Lake	1,500	8-16
Rainbow Trout	Fisherman's Park Lakes	3,000	8-16
Rainbow Trout	Fishpond Lake	4,000	8-16
Rainbow Trout	Fishtrap Lake Tailwater	10,000	8-16
Rainbow Trout	Flemingsburg City Reservoir (Old)	3,000	8-16
Rainbow Trout	Floyds Fork Creek	3,600	8-16
Rainbow Trout	Fort Campbell	2,160	8-16
Rainbow Trout	Goose Creek	500	8-16
Rainbow Trout	Grants Branch Lake	4,000	8-16
Rainbow Trout	Grayson Lake Tailwater	5,000	8-16
Rainbow Trout	Greasy Creek	950	8-16
Rainbow Trout	Greenbo Lake	11,000	8-16
Rainbow Trout	Gunpowder Creek Nature Park	1,200	8-16
Rainbow Trout	Hatchery Creek	26,247	8-16
Rainbow Trout	Herrington Lake Tailwater	4,500	8-16
Rainbow Trout	Higginson & Henry WMA	500	8-16
Rainbow Trout	Highsplint Lake	2,750	8-16
Rainbow Trout	Indian Creek - East Fork	2,750	8-16
Rainbow Trout	Jacobson Park Lake	9,000	8-16
Rainbow Trout	James Beville Park Lake	2,000	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	211,347	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

Species	Waterbody	Actual Number	Length (in)
Rainbow Trout	Laurel Creek	2,775	8-16
Rainbow Trout	Laurel River Lake Tailwater	550	8-16
Rainbow Trout	Leary Lake	4,525	8-16
Rainbow Trout	Little Sandy River - East Fork	425	8-16
Rainbow Trout	Logan Hubble Park	4,500	8-16
Rainbow Trout	Looney Creek	1,500	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	2,500	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	3,750	8-16
Rainbow Trout	Mason County Recreational Lake	3,000	8-16
Rainbow Trout	Metcalfe County Park Lake	500	8-16
Rainbow Trout	Middlesboro Canal	400	8-16
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	3,750	8-16
Rainbow Trout	Mill Creek Lake (Wolfe & Powell Co.)	6,000	8-16
Rainbow Trout	Millenium Park Pond	1,500	8-16
Rainbow Trout	Nolin River Lake Tailwater	8,000	8-16
Rainbow Trout	Otter Creek	13,274	8-16
Rainbow Trout	Paintsville Lake	10,000	8-16
Rainbow Trout	Paintsville Lake Tailwater	14,025	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	1,385	8-16
Rainbow Trout	Prisoners Lake	2,250	8-16
Rainbow Trout	Red River - Middle Fork	3,050	8-16
Rainbow Trout	Robert Barth Park Lake	750	8-16
Rainbow Trout	Rock Creek	16,075	8-16
Rainbow Trout	Roundstone Creek	2,825	8-16
Rainbow Trout	Royal Springs	1,200	8-16
Rainbow Trout	Russell Fork Creek	3,000	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	1,200	8-16
Rainbow Trout	Southgate Lake	1,500	8-16
Rainbow Trout	Southland Church Lake	1,500	8-16
Rainbow Trout	Station Camp Creek	750	8-16
Rainbow Trout	Sturgeon Creek	400	8-16
Rainbow Trout	Sulphur Springs Creek	3,025	8-16
Rainbow Trout	Swift Camp Creek	1,000	8-16
Rainbow Trout	Taylorsville Lake Tailwater	3,000	8-16
Rainbow Trout	Three Springs Lake	4,500	8-16

Species	Waterbody	Actual Number	Length (in)
Rainbow Trout	Tom Wallace Park Lake	4,500	8-16
Rainbow Trout	Trammel Creek	7,000	8-16
Rainbow Trout	Triplett Creek	1,200	8-16
Rainbow Trout	Triplett Creek - North Fork	1,400	8-16
Rainbow Trout	Upper Sportsman's Lake	4,500	8-16
Rainbow Trout	War Fork Creek	2,500	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	Wolfe Creek	2,000	8-16
Rainbow Trout	Wood Creek Lake	8,000	8-16
Rainbow Trout	Yatesville Lake Tailwater	3,250	8-16
Rainbow Trout	Yellow Creek Park Lake	2,500	8-16