



## 2021 Bark Camp Lake Fisheries Management Report



Bark Camp Lake is a 61-acre lake located in Scott County. It is the oldest Department-owned lake in Southwest Virginia. When construction of the lake was completed in the mid 1950's, a beautiful lake completely surrounded by forested land was born. Some of the trees surrounding the lake have found their way into the lake and are providing good habitat for fish and good fishing spots for anglers. Clear water and fairly dense stands of aquatic vegetation offer anglers a unique scenario. A variety of fish species are available for anglers, including Largemouth Bass, Black Crappie, several sunfish species, Channel Catfish, and trout. Most of these fish populations are self-sustaining, meaning that they reproduce in the lake and maintain fishable populations without the need for stocking.

A Virginia freshwater fishing license is required to fish the lake, and a trout-fishing license is required from October 1<sup>st</sup> through June 15<sup>th</sup>. The lake is within the Clinch Ranger District of the Jefferson National Forest, therefore a National Forest Stamp is required. The U. S. Forest Service also charges a parking (access) fee of \$3.00. A boat ramp, restrooms, universally accessible fishing piers and camping are available for use by anglers and others. Campers should contact the Clinch Ranger District at (276) 679-8370.

Regulations

The fish populations in Bark Camp Lake are currently managed under the following regulations:

<b>Species</b>	<b>Length Limit</b>	<b>Creel Limit</b>
Largemouth Bass	11 - 14 inch protected slot	5 per day
Sunfish (all species combined)	none	50 per day
Trout	7-inch minimum	6 per day
Channel Catfish	none	20 per day
Crappie	none	25 per day

Stocking

Bark Camp Lake is designated as a stocked trout water and catchable-size Rainbow Trout and Brown Trout are stocked eight times between October 1<sup>st</sup> and May 31<sup>st</sup> each year. Grass Carp are also stocked as needed to control aquatic vegetation.

Population Sampling

The fish populations in Bark Camp Lake are sampled each year in May using boat-mounted electrofishing gear. Fish collected during these population surveys are measured, weighed, and released back into the lake. The data collected during the annual samples provide biologists with important information about the relative abundance (number of fish collected per hour of sampling) and size structure of the various fish populations. These ongoing monitoring efforts also allow biologists to assess trends in the fish populations over time.

*Largemouth Bass* - Largemouth Bass was the most abundant fish species collected in the 2020 electrofishing sample. The overall relative abundance of Largemouth Bass in 2020 (90 fish/h) was comparable to that observed in 2019 (88 fish/h). While the abundance of adult (≥8 in) Largemouth Bass decreased to 49 fish/h in 2020 (compared to 70 fish/h in 2019), the abundance of juvenile fish increased to 41 fish/h (compared to 18 fish/h in 2019; Figure 1).

Largemouth Bass observed during the 2020 sample ranged in length from 3 to 21 inches with an average length of about 9 inches (Figure 2). The 11-14 inch slot limit regulation is

currently protecting 61% of adult Largemouth Bass. One metric that biologists use to describe and compare the size structure of fish populations is to look at the percentage of adult or stock-sized fish that are equal to or longer than a particular length of interest. This measure is known as proportional size distribution or PSD. The PSD of Largemouth Bass  $\geq 12$  inches was 44 and PSD-P ( $\geq 15$  in) was 2. Although the proportion of quality-size fish present in the population was somewhat higher in 2020 than in 2019, the overall size structure of the Largemouth Bass population in Bark Camp Lake tends to be relatively poor (average PSD 2005 – 2020 = 27%). The generally accepted PSD value for Largemouth Bass in a balanced fish population ranges from 40-70 and the PSD value range for a quality bass population is 50-80.

Relative weight is an index used by fisheries biologists to evaluate the overall condition or plumpness of a fish. This index compares a fish's weight to a size-specific standard weight developed for a particular species. In other words, the index compares what a fish actually weighs to what it should weigh based on its length. A relative weight of 100 means that a fish weighs exactly what it should weigh. Relative weight values well below 100 may indicate food or feeding limitations. Relative weights for Largemouth Bass in Bark Camp Lake in 2020 ranged between 53 and 125 with an average of 84 (Figure 3). About 80% of the Largemouth Bass in the 2020 sample had relative weights below 90 and 34% were below 80.

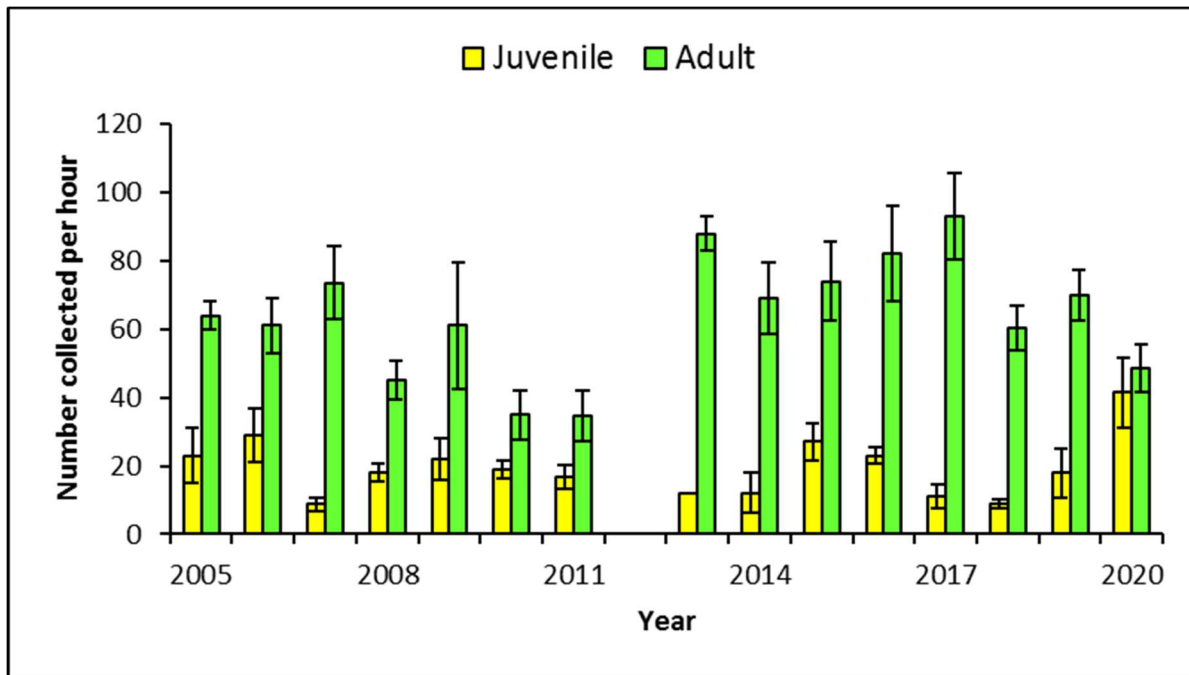


Figure 1. Number of juvenile and adult Largemouth Bass collected per hour of sampling on Bark Camp Lake 2005-2020. The lake was not sampled in 2012. Error bars indicate standard error.

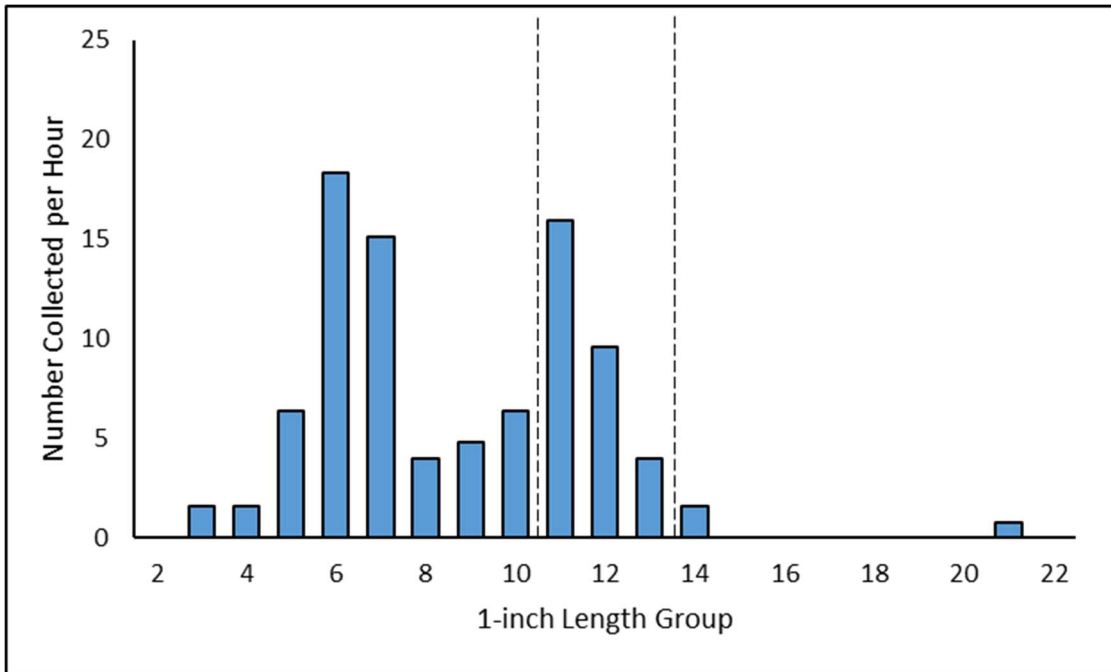


Figure 2. Length frequency distribution of Largemouth Bass collected during Bark Camp Lake electrofishing samples in spring 2020. Dashed, vertical lines represent the 11-14 inch protected slot in place for this species.

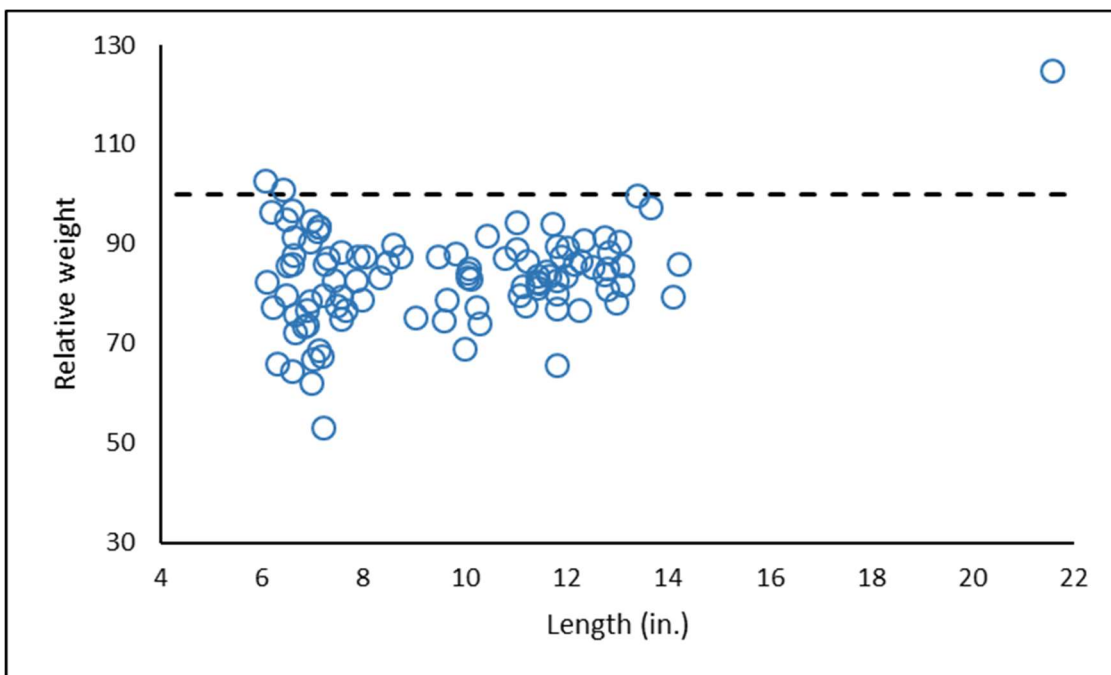


Figure 3. Relative weight versus length for Largemouth Bass collected during Bark Camp Lake electrofishing samples in spring 2020.

*Sunfish* - Anglers fishing for sunfish will find a great variety of options. Bluegill is the dominant sunfish species, but Redear Sunfish, Redbreast Sunfish, and Warmouth are also available in fishable numbers (Figure 4). Pumpkinseed are also present, but in significantly lower numbers than the other four species. Bluegill was the second-most abundant species collected overall during the 2020 sample. The electrofishing catch rate of Bluegill in 2020 (68 fish/h) was significantly lower than that observed 2019 (104 fish/h; Figure 5). Nearly all of this decrease in overall Bluegill abundance can be attributed to a decrease in the number of adults. The abundance of juvenile Bluegill ( $\leq 3$  in), however, was significantly higher in 2020 (14 fish/h) than in the preceding 15 years of sampling (range = 0 to 6 fish/h).

Bluegill observed during the 2020 sample ranged in length from 2 to 7 inches with an average of about 5 inches. PSD can also be calculated for Bluegill, although the minimum length for an adult Bluegill is considered to be 3 inches. In 2020, 30% of the adult Bluegill in Bark Camp Lake were 6 inches or longer and 1% were  $\geq 8$  inches.

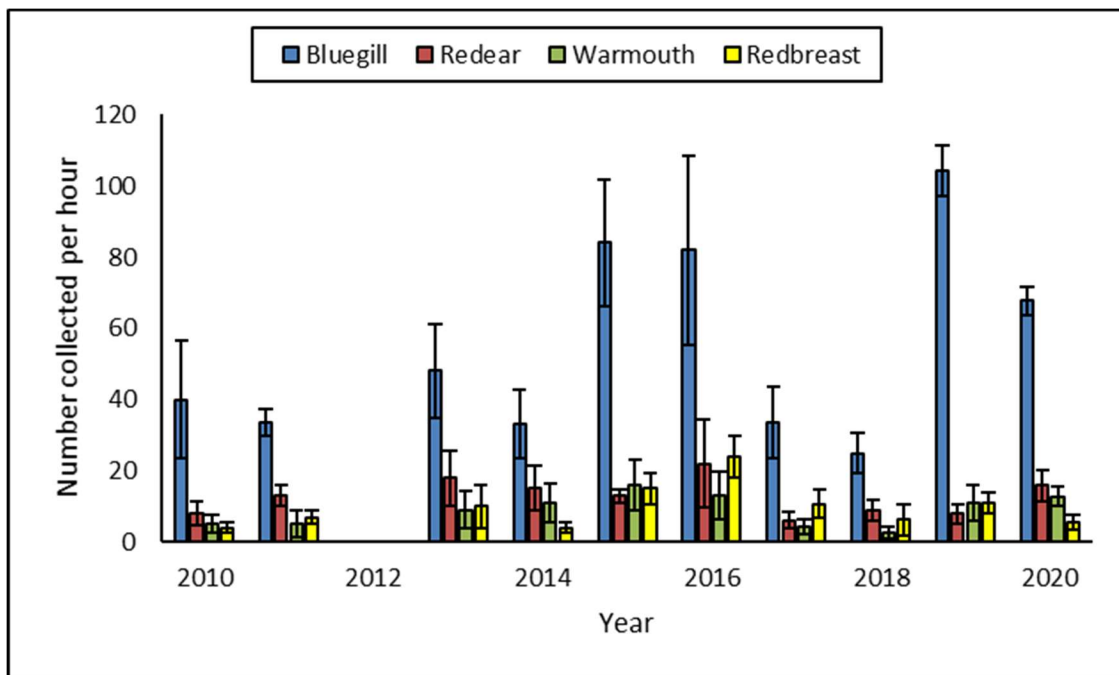


Figure 4. Number of various sunfish species collected per hour of sampling in Bark Camp Lake 2005-2020. The lake was not sampled in 2012. Error bars indicate standard error.

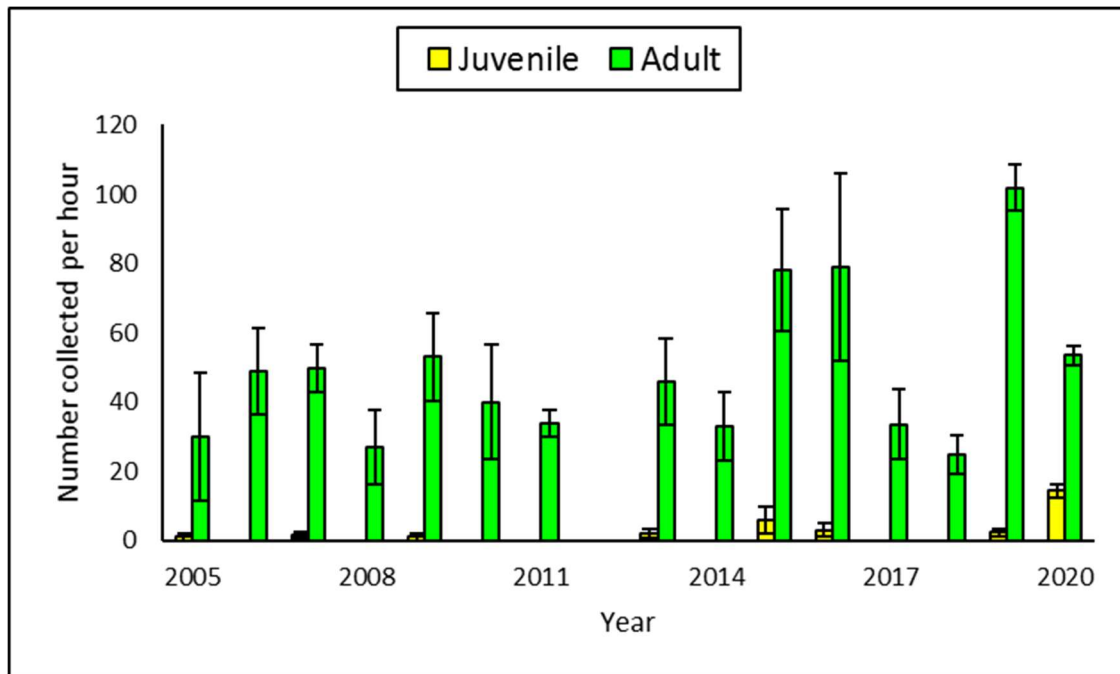


Figure 5. Number of juvenile and adult Bluegill collected per hour of sampling on Bark Camp Lake 2005-2020. The lake was not sampled in 2012. Error bars indicate standard error.

Figure 6 is a graphical representation of PSD values for both Largemouth Bass and Bluegill from samples conducted 2013 - 2020 in relation to accepted PSD ranges under three different scenarios. A balanced population is one characterized by a proper ratio of predator (Largemouth Bass) and prey (Bluegill). Both the predator and prey species in a balanced population would have satisfactory rates of recruitment, growth, and survival and intermediate length distributions. The sampling data, however, indicate that the Bluegill and Largemouth Bass populations in Bark Camp Lake are typically not in balance. The lake is characterized by a dense bass population with few large fish present. This is likely the result of increased competition for food among the abundant bass. The low relative weights observed for Largemouth Bass in this system lend additional support for this. As the bass have fed heavily on Bluegill, the remaining Bluegill have experienced better growth due to decreased competition.

**Black Crappie-** The abundance of Black Crappie in Bark Camp Lake varies year to year, but is generally low ( $\leq 10$  fish/h; Figure 7). However, the catch rate for this species in 2020 was approximately 28 fish/h, which was significantly higher than that observed in the preceding 15 years of sampling. Seventeen percent of the Black Crappie sampled exceeded 8 inches in length and 6% exceeded 10 inches. The higher abundance of sub-adult ( $\leq 5$  in) Black Crappie in the 2020 sample suggests a very strong year class spawned in 2019. This strong year class should provide better crappie fishing on Bark Camp Lake for the next couple of years.

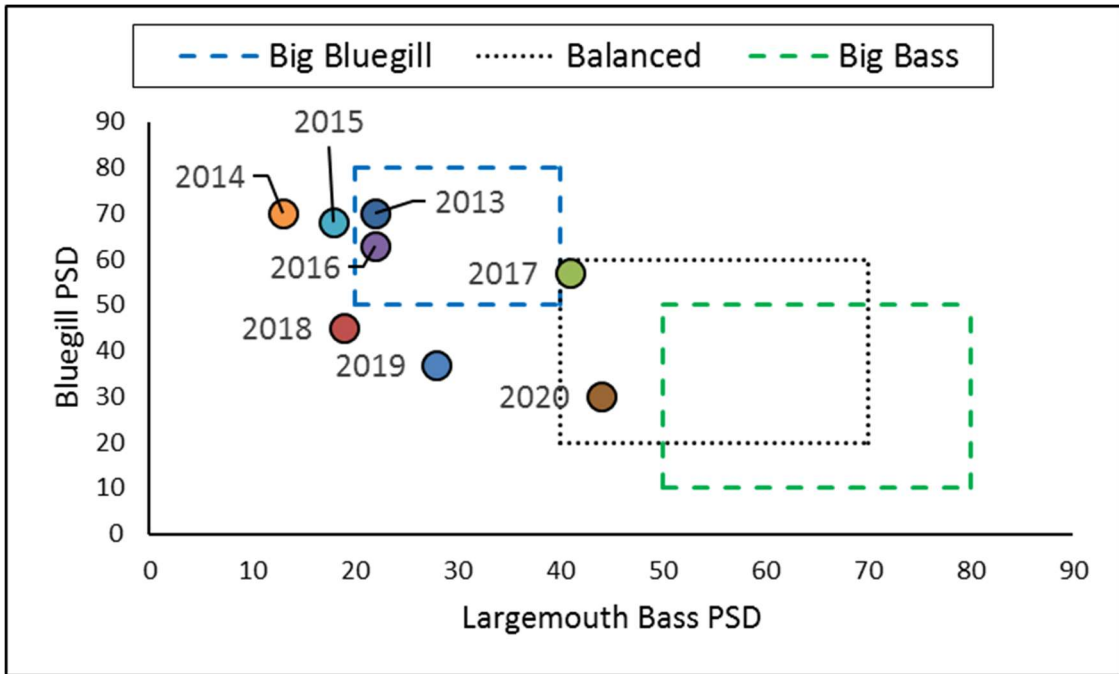


Figure 6. Plot of proportional size distribution (PSD) of Largemouth Bass and Bluegill collected during Bark Camp Lake electrofishing samples in spring 2013 - 2020 (colored points). The rectangles formed by the dashed lines represents where the PSDs should fall under various management scenarios.

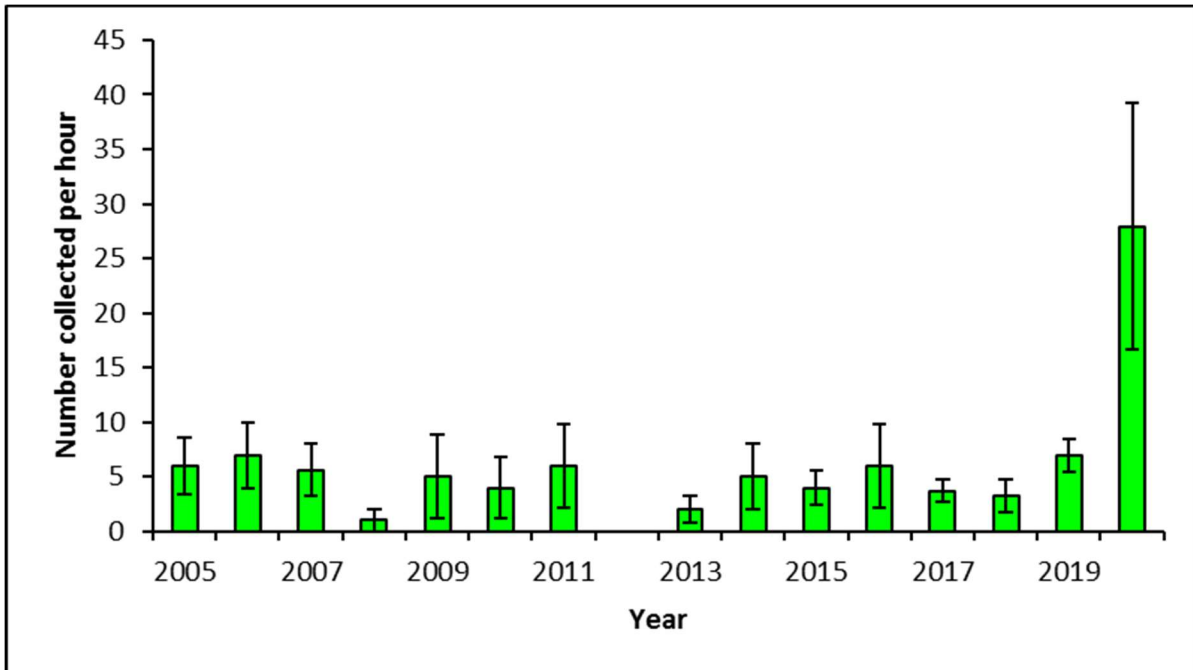


Figure 7. Number of adult Black Crappie collected per hour of sampling in Bark Camp Lake 2005-2020. The lake was not sampled in 2012. Error bars indicate standard error.

*Catfish* - Channel Catfish and bullheads offer something for those anglers who target catfish. The lake is not known for exceptional catfishing, but some very large Channel Catfish have been collected in the past. Some of these fish were over 30 inches long, so the lake definitely has the potential to produce some trophies.

**For more information on the fishery, contact Jeff Williams by telephone (276) 783-4860 or by e-mail [jeff.williams@dwr.virginia.gov](mailto:jeff.williams@dwr.virginia.gov)**