



## Laurel Lake - Breaks Interstate Park 2021 Fisheries Management Report

Laurel Lake is a 12-acre impoundment located within the Breaks Interstate Park in Dickenson County. Like the rest of the park, the lake offers plenty of solitude and scenery. The shoreline is mostly forested, with walking trails providing good access to several bank fishing areas. Laurel Lake is managed primarily through regulations and stocking.

The lake's fishery is surprisingly good for a small waterbody. Largemouth Bass are abundant. Many of the Largemouth Bass are 10 to 12 inches long, but some bigger bass are available for those with the skills, patience, or luck to catch them. Bluegill are also abundant and there are some really nice-sized Bluegills available. Black Crappie are present, but not abundant. Some nice Flathead Catfish and Channel Catfish have also been collected in the past.

### Regulations

As of spring 2020 the fish populations in Laurel Lake were managed under the following regulations:

<u>Species</u>	<u>Length Limit</u>	<u>Creel Limit</u>
Largemouth Bass	none	5 per day
Bluegill	none	50 per day
Catfish (Channel and Flathead combined)	15 inches	5 per day
Crappie	none	25 per day

### Stocking

Approximately 280 catchable-size Channel Catfish (average length = 11 inches) were stocked into Laurel Lake in fall 2020.

### Population Sampling

Biologists sampled the lake in spring 2020 to evaluate the fish populations present. Figure 1 shows the species catch composition from the sample. Largemouth Bass was the most abundant species making up 51% of the entire sample. Bluegill were the second-most abundant at 47% followed by catfish (Channel Catfish and Flathead Catfish combined) at 1% and Black Crappie at 1%.

*Largemouth Bass* - The relative abundance of Largemouth Bass (as measured as the number of fish collected per hour of electrofishing) was 95 fish/h in 2020. This represents a slight decrease from the catch rate in 2019 (110 fish/h).

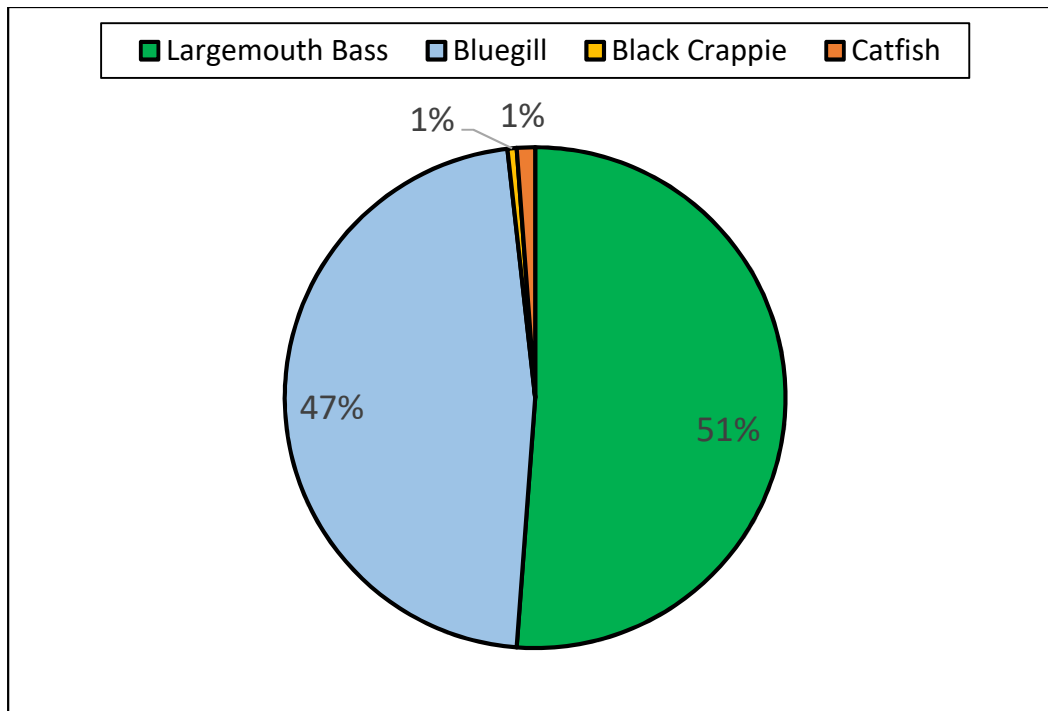


Figure 1. Species composition observed during electrofishing sample conducted on Laurel Lake in spring 2020.

Largemouth Bass collected in 2020 ranged in length from 2 to 20 inches with an average length of about 9 inches (Figure 2). 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. In the case of the Laurel Lake Largemouth Bass population in 2020, about 22% of adult Largemouth Bass ( $\geq 8$  in) sampled also measured 12 inches or longer and 6% exceeded 15 inches. Approximately 2% of the adult Largemouth Bass were  $\geq 20$  inches. The PSD of 22% in the current sample is within the range observed in previous years (17 – 44%). Although there are some large bass in Laurel Lake, the current percentages are somewhat low compared to those considered acceptable for a balanced fish population ( $\geq 12$  inches range = 40%-70%;  $\geq 15$  inches range = 10%-40%;  $\geq 20$  inches range = 0%-10%).

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 Laurel Lake in 2020 ranged between 62 and 105 with an average of 84 (Figure 3). This was similar to the average relative weights observed in 2018 ( $Wr = 79$ ) and 2019 ( $Wr = 78$ ). About 77% of the Largemouth Bass in the 2020 sample had relative weights below 90 and 36% were below 80.

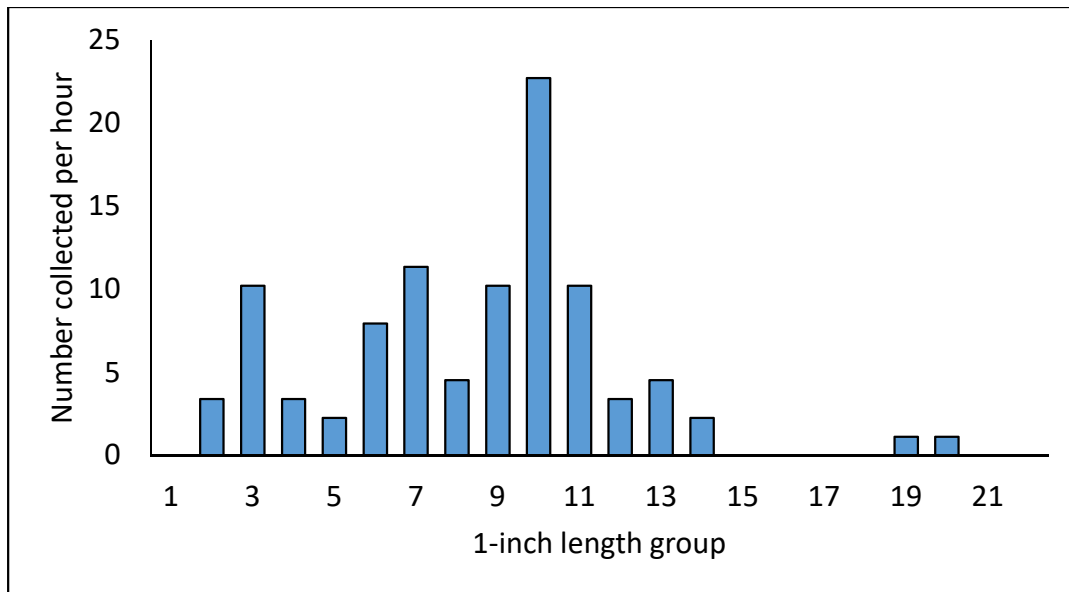


Figure 2. Length frequency distribution of Largemouth Bass collected during Laurel Lake population sampling in spring 2020.

*Bluegill* – The abundance of Bluegill in 2020 (91 fish/h) was higher than that observed in 2019 (55 fish/h) or in 2018 (60 fish/h). The average length of Bluegill in Laurel Lake in 2020 was 6 inches with lengths ranging from 2 to 9 inches (Figure 4). Sixty-four percent of adult Bluegill ( $\geq 3$  in) were also longer than 6 inches and 22% were longer than 8 inches. These values indicate a good size distribution for Bluegill as values for a balanced size structure should fall in the 20%-60% range for fish  $\geq 6$  inches and in the 5%-20% range for fish  $\geq 8$  inches. In fact, the PSD value for Bluegill in Laurel Lake is within the range (50%-80%) recommended for a management strategy focused on large sunfish.

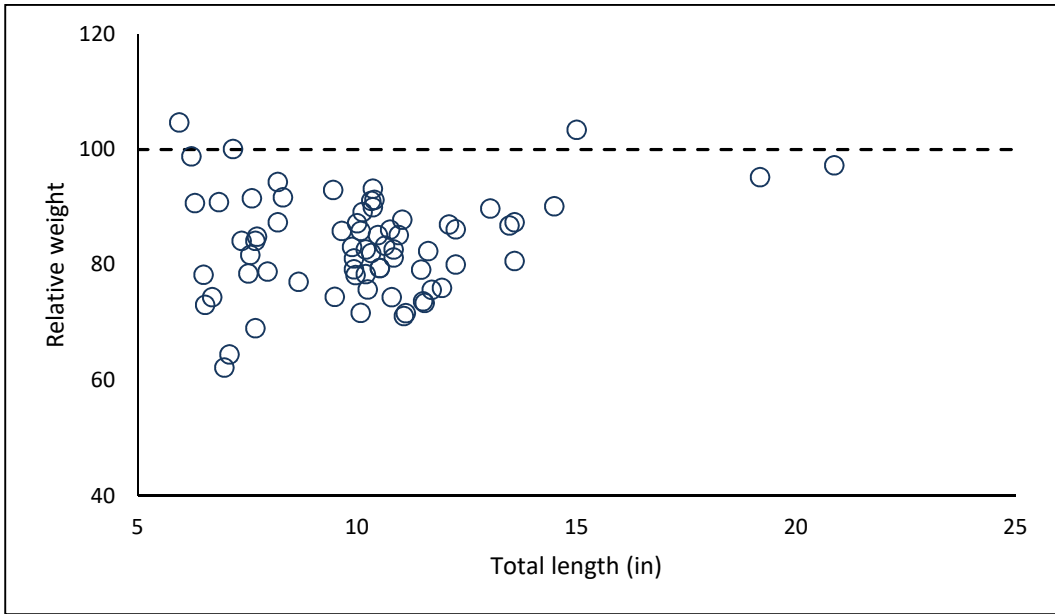


Figure 3. Relative weight versus length for Largemouth Bass collected during Laurel Lake electrofishing samples in spring 2020.

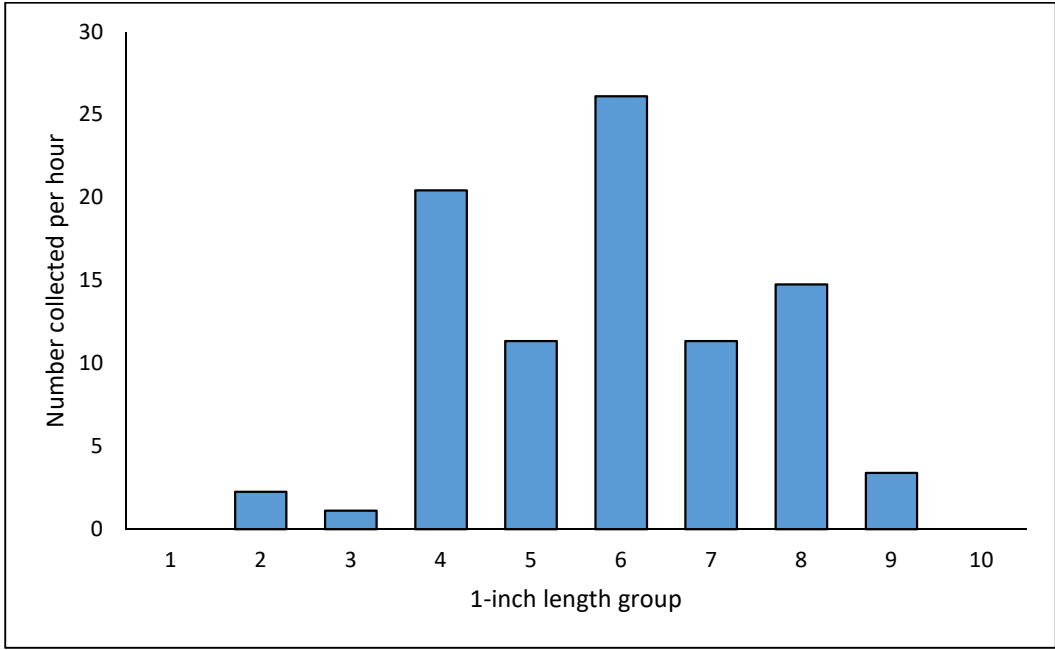


Figure 4. Length frequency distribution of Bluegill collected during Laurel Lake population sampling in spring 2020.

Figure 5 is a graphical representation of PSD values for both Largemouth Bass and Bluegill from samples collected between 2011 and 2020 in relation to accepted PSD ranges under three different management scenarios (Big Bluegill, Big Largemouth Bass, and a balanced population). 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 Laurel Lake are not in balance. The lake is characterized by a very dense bass population with few large fish present. This is likely the result of increased competition for food among the abundant bass. As the bass have fed heavily on Bluegill, the remaining Bluegill have experienced better growth due to decreased competition resulting in a better population size structure.

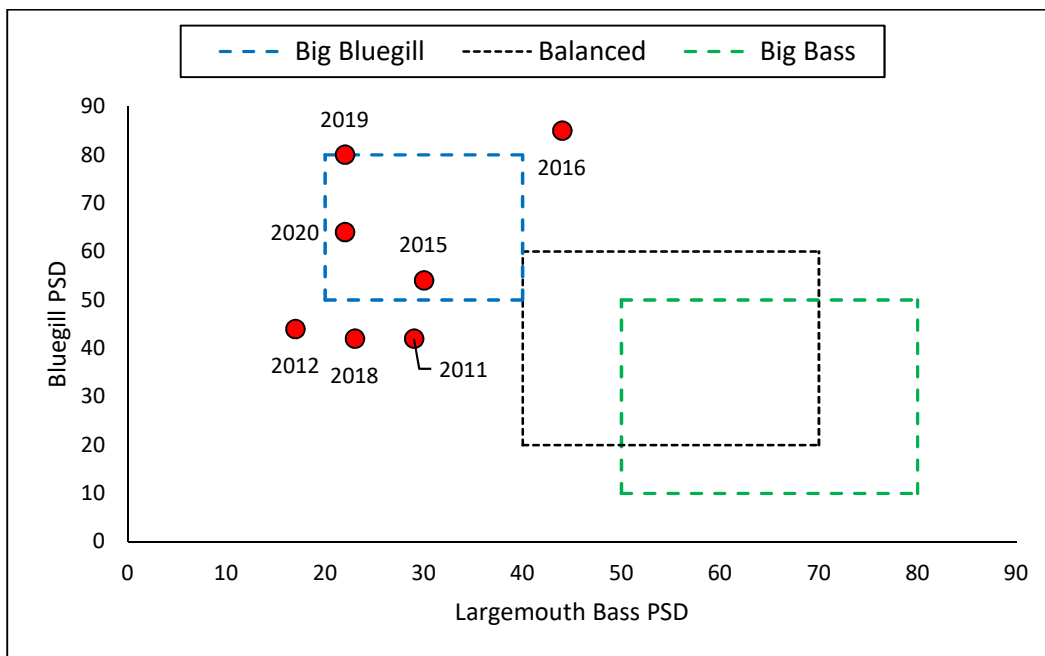


Figure 5. Plot of proportional size distribution (PSD) of Largemouth Bass and Bluegill collected during the Laurel Lake electrofishing samples (spring 2011-2020). The rectangles formed by the dashed lines represent where the PSDs should fall under various management scenarios. The lake was not sampled in 2013, 2014, or 2017.

*Other species* - Channel Catfish or Flathead Catfish are generally not sampled well during the spring electrofishing samples so their relatively low abundance in the 2020 sample (1 fish/h) does not accurately reflect their abundance in the lake.

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