Grayson Lake Largemouth Bass Assessment 2022

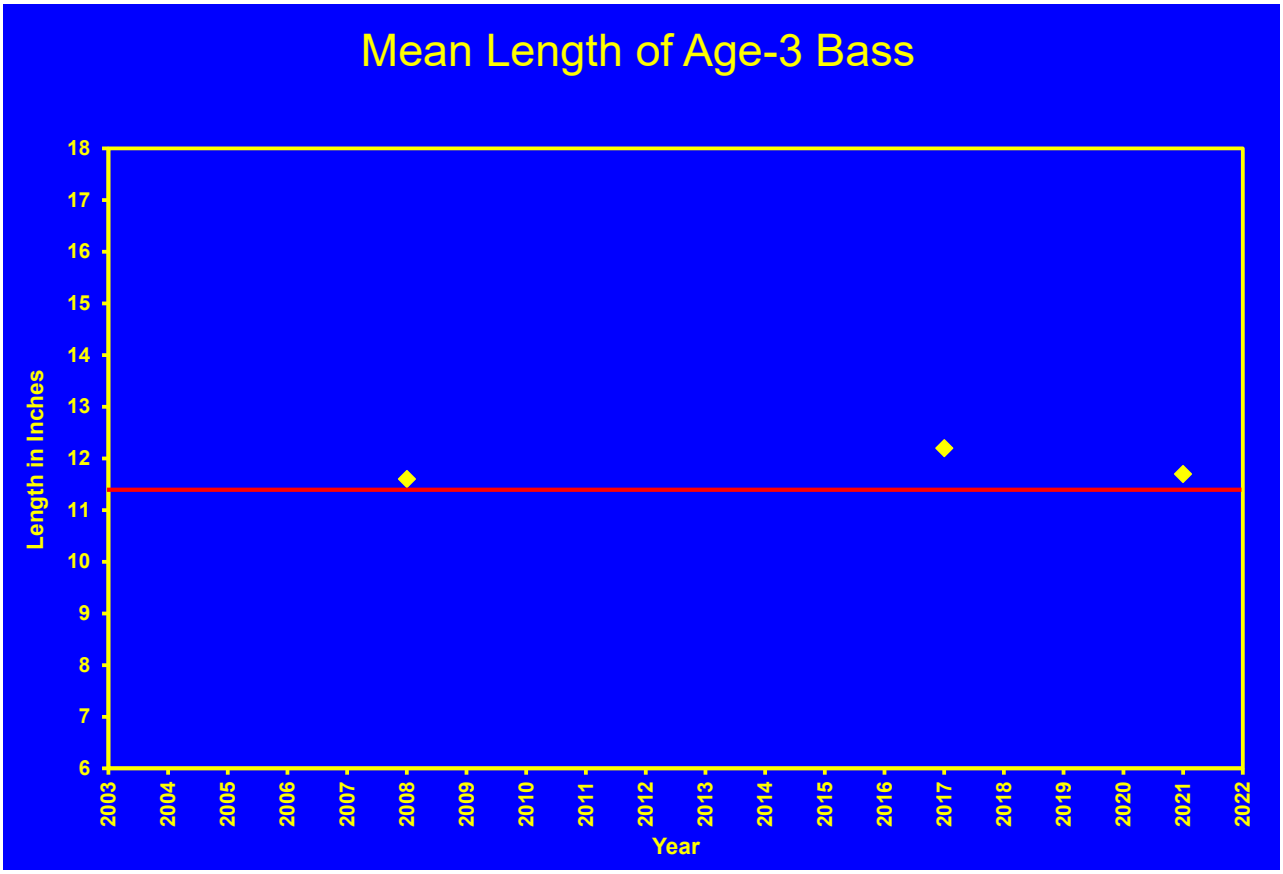
Grayson Lake is a 1,512-acre multipurpose reservoir on the Little Sandy River. This lake, located primarily in Carter County, is a clear, infertile reservoir that has developed into a popular fishing destination of largemouth bass, crappie, hybrid striped bass, and catfish. The following graphs show trends and ranking for each of the five population parameters used in the largemouth bass assessment.

Please see the Sportfish Assessments page for an explanation of how the assessment works and for a list of other lakes with largemouth bass assessments.

Please note that the minimum size limit for largemouth bass on this lake is 15.0 inches

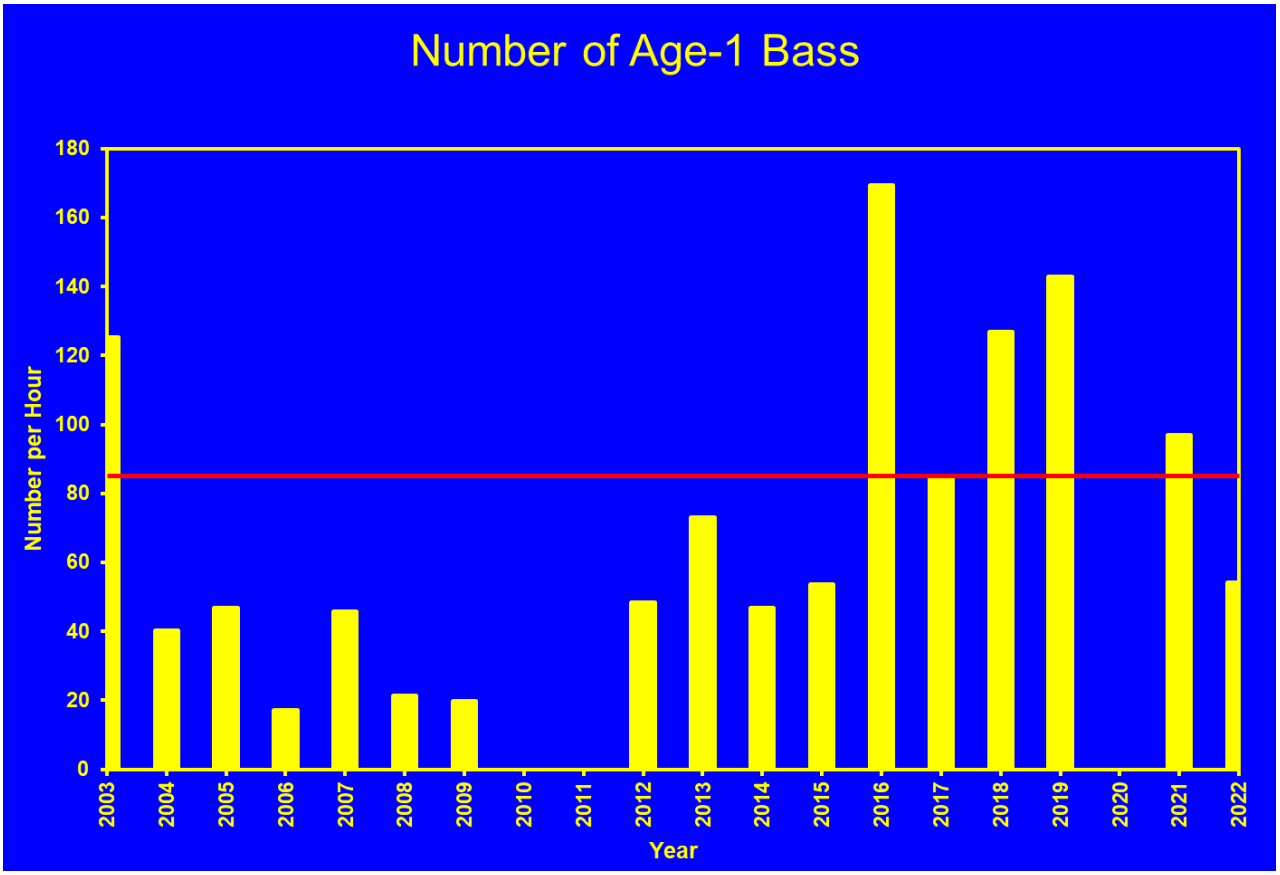
Parameter 1 – Mean Length at Age-3 (growth rate)

At Grayson Lake, since 2000, the average length of 3-year-old largemouth bass is 11.4 inches (represented by the red line). This parameter is an average of the lengths of all three-year-old bass collected, and is important for management purposes because it indicates how well fish are growing. When compared to other lakes of similar size, this growth rate for largemouth bass is considered “fair”. Growth rates can change annually and are tied to factors such as population density, watershed fertility, food availability, and weather.



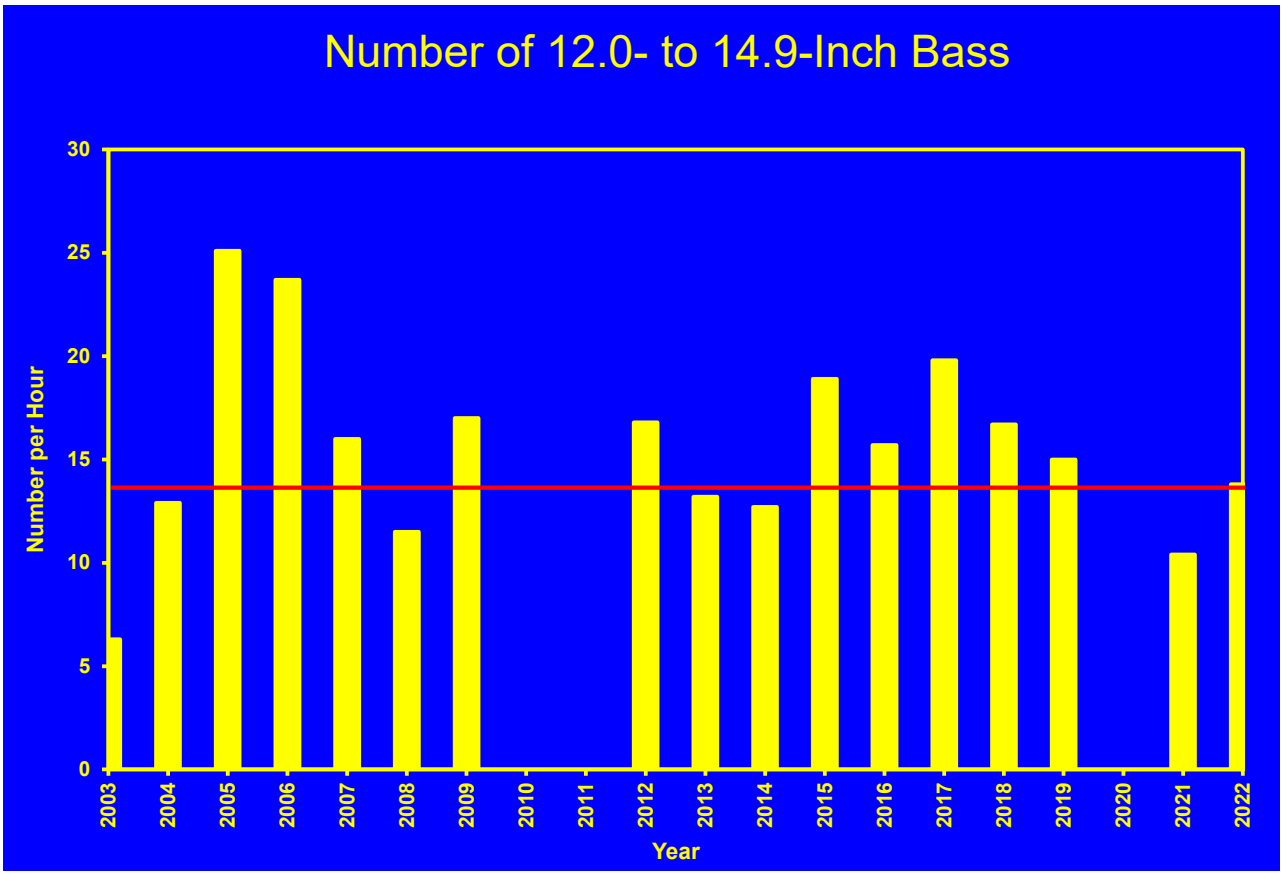
Parameter 2 – Number of Age-1 Bass (spawning success)

The electrofishing catch rate of 1-year-old largemouth bass is calculated to determine the spawning success of the previous year. This is an important parameter because the number of age-1 bass can be used as a predictor for how good fishing will be in the future. At Grayson Lake, age-1 largemouth bass catch rates have averaged 84.5 fish/hour since 2000. This is an "excellent" rating when compared to lakes of a similar size.



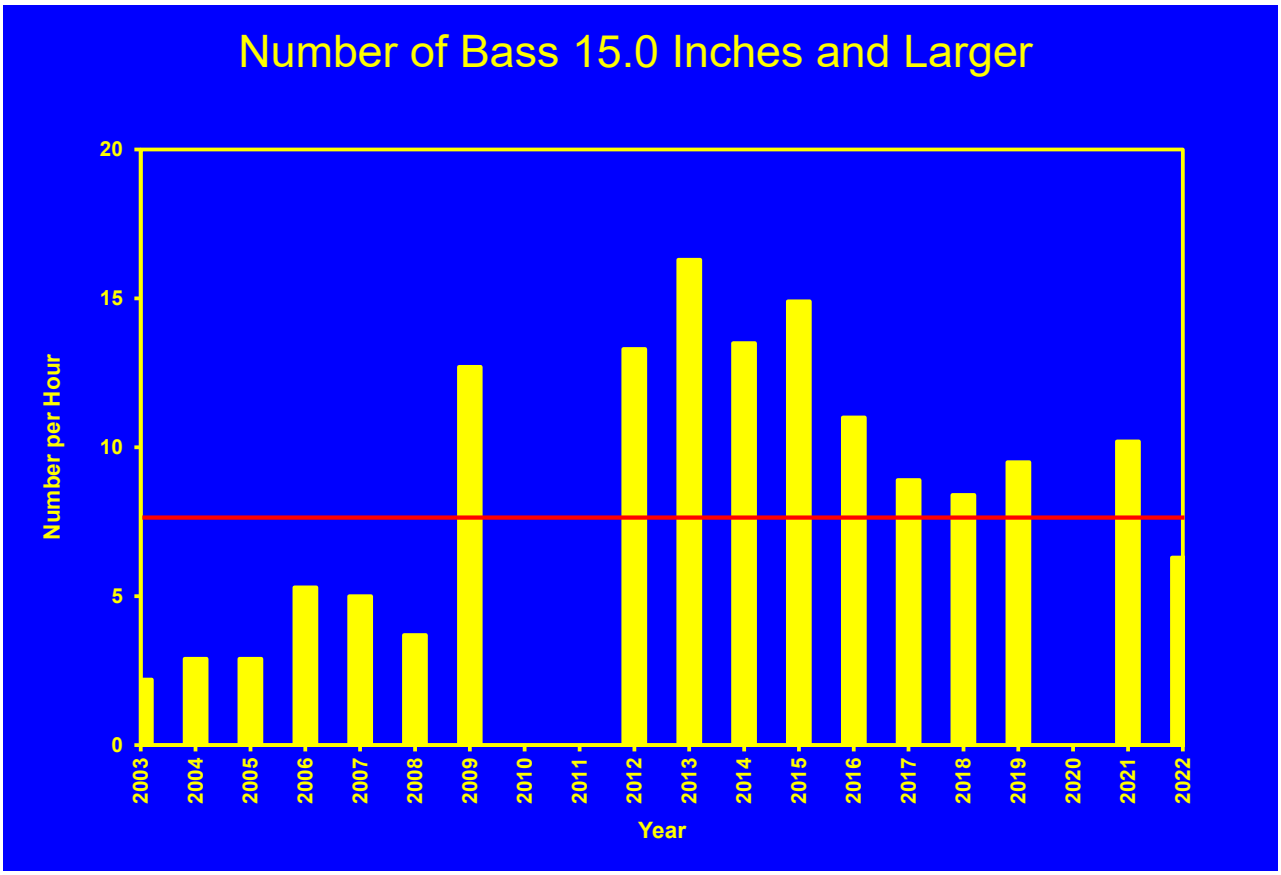
Parameter 3 – Number of 12.0- to 14.9-Inch Bass

The electrofishing catches for 12.0- to 14.9-inch largemouth bass averaged 14.5 fish/hour since 2000. This puts Grayson Lake in the “poor” rating when compared to other similarly sized lakes. Catch rates for this category can be deceiving in lower fertility lakes with slower growth (like Grayson Lake). Excess recruits below this size range compete for limited food resources slowing growth and reducing survival.



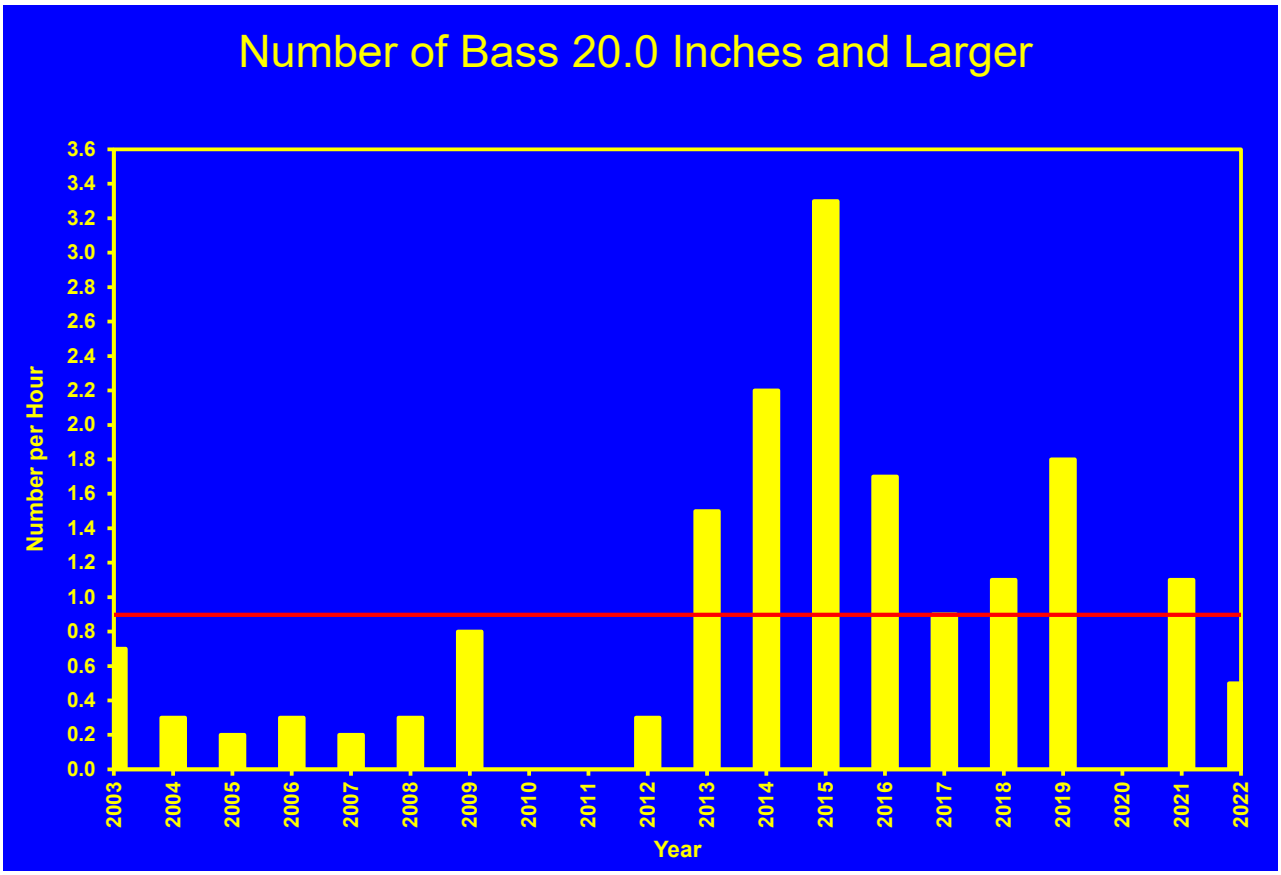
Parameter 4 – Number of Bass 15.0 Inches and Larger

The catch rate of 15.0-inch and larger largemouth bass at Grayson Lake has averaged 7.9 fish/hour of electrofishing since 2000. When compared to lakes of similar size, this catch rate is “fair”. Lower numbers of fish in the 12.0- to 14.9-inch range equates to lower fish making it into this category.



Parameter 5 – Number of 20.0-inch and larger bass

The electrofishing catch of 20.0-inch and larger largemouth bass has averaged 0.9 fish/hour for Grayson Lake since 2000. When compared to similarly sized lakes this catch rate is considered “good”. Fish of this size in a reservoir environment are difficult to sample consistently, which usually accounts for the variability in catch rates rather than any significant change in the population. After a couple of excellent years of sampling, the values for this parameter have settled back into the average range for the lake.



Overall – Total Assessment Score (all five parameters added together)

Overall, the largemouth bass fishery at Grayson Lake has averaged a “fair” rating (11.4) over the last 20 years, as indicated by the red line. In recent years the total score has been in the good range with a couple sampling efforts showing better numbers of larger sized fish. It is important to remember that sampling data can be highly variable due to a multitude of factors; therefore, it is important to look at data over time as opposed to information collected in a single year when making management decisions.

Population trends of high recruitment and slow growth indicate that this lake could benefit from implementation of a slot limit. The potential is there that removal of excess recruits could help speed up growth and lead to better catch rates of larger fish.

Note: spring sampling has not been conducted consistently in recent years due to extremely high-water levels during the sampling time frame. Samples will be collected as frequently as conditions allow.