

LOUISIANA LARGEMOUTH BASS PROJECT
False River

Every fish population is the product of a unique set of influences, both natural and man-induced. A thorough understanding of those influences and the corresponding population response is essential to good fisheries management. As part of a statewide effort, the Louisiana Department of Wildlife and Fisheries (LDWF) recently completed a study to describe the False River largemouth bass (LMB) population. The project included data collection over a three year period from 2010 – 2012. Population dynamics including relative abundance, spawning success, growth, body condition, mortality, and longevity were measured. False River anglers were also surveyed to determine their collective influence on the LMB population.

Electrofishing gear was used by fisheries biologists to collect LMB from False River each spring. Length and weight measurements were recorded for each fish and ear bones (called otoliths) were removed from approximately 30% of the sampled fish for age and growth analyses. Annual growth rings on the otoliths provide an accurate measurement of fish age. Size and age for all of the sample fish were combined to generate estimates of average rate and longevity. Angler surveys were conducted during the sample period to document fishing effort, angler catch rate and harvest rates.

Figure 1 illustrates that False River supports a moderately healthy bass population with some LMB reaching 20 inches. Good representation of fish in the 10 to 14 inch range was observed for each year. It is important to note that spring sampling typically does not include fingerling size bass. However, the recurring presence of small (age-1) bass indicates successful reproduction (Figure 2).

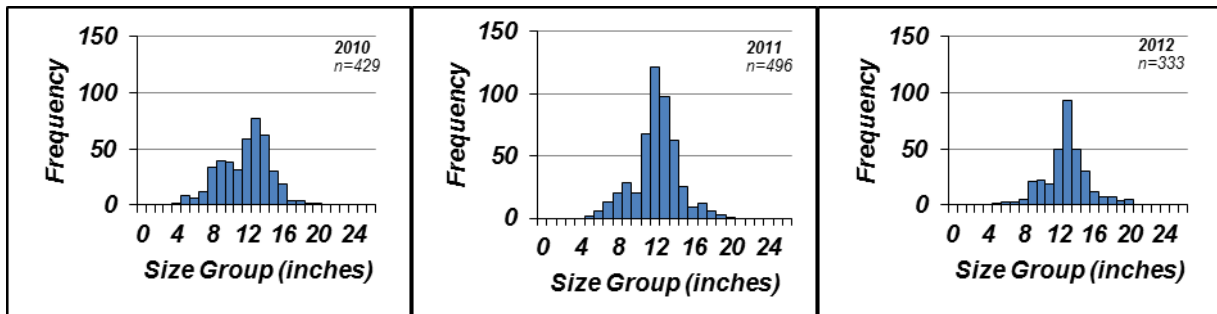


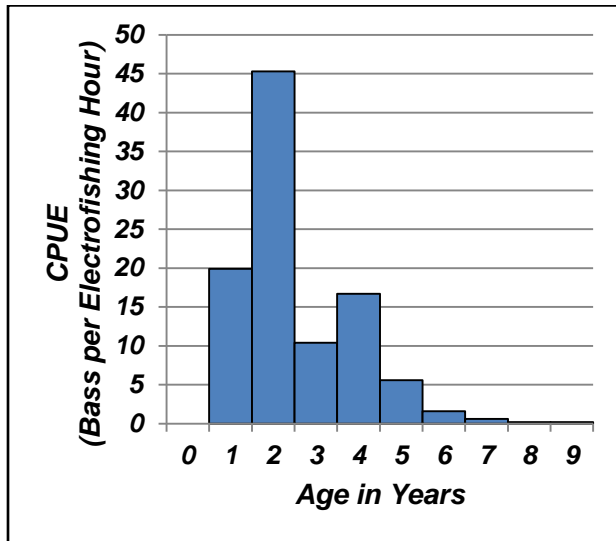
Figure 1. Annual length distributions of largemouth bass collected from False River during spring electrofishing surveys in 2010-2012. Sample sizes (n) are presented in each graphic.

Age structure of the complete electrofishing sample (2010-2012) is shown in Figure 2. The majority of the age 5+ fish were females. While bass up to 9 years old were found, only a small percentage of False River LMB that were 5 years and older were sampled. Average length at age for False River bass is provided in Table 1. Growth is rapid through age 4, but then slows to only 1.1 inches or less per year.

Body condition for smaller bass (less than 12 inches) in False River can be described as robust, whereas, larger bass are thinner and have poorer physical condition. A fish population with good body condition

generally is the product of an adequate food supply that is readily available, whereas, poor body condition may indicate a problem with prey availability or feeding conditions.

Recruitment of age-1 LMB in False River is moderately variable. Factors that are favorable for stable recruitment include seasonal water fluctuation, quality spawning substrate, and adequate cover for fingerlings. False River LMB recruitment is variable as a suspected consequence of watershed influences including turbidity and sedimentation.



Age	Length in Inches
1.0	8.2
2.0	11.8
3.0	14.3
4.0	16.0
5.0	17.1
6.0	17.9
7.0	18.4
8.0	18.7
9.0	19.0

Figure 2. The age structure of False River LMB.

Table 1. Length at age of False River LMB.

The rate at which fish die each year is referred to as mortality. Mortality consists of two parts: natural mortality (predation, disease) and fishing mortality (angler harvest and discard mortality). Results of the study indicate that the total mortality rate for False River LMB is 58% per year. At that rate, if you start with 100 age-1 False River LMB, only 3 will remain by age 5.

The results of this study suggest that the False River LMB population has a total mortality that is more influenced by natural mortality than by fishing mortality (31 and 26%, respectively). The fishing mortality rate for False River LMB is 26% per year. This rate comes from two sources; 1) harvest and 2) post release mortality. Creel survey results suggest that False River anglers voluntarily release a much larger percentage of LMB than they harvest (87% of legal size fish are released).

SUMMARY

It is important to note that LMB populations and their fisheries are not only influenced by fishing effort, but also by anthropogenic and environmental factors. The type and degree of human activity within watersheds, riparian zones, and specific waterbodies can affect LMB populations by altering critical habitats. Additional factors influencing LMB populations include aquatic vegetation coverage, water level management, supplemental LMB stocking programs, and habitat improvements. The frequency of

floods, drought, and hurricanes can also influence LMB populations. While consideration of these factors are important in effective fisheries management, evaluating how these factors affect the False River LMB population/fishery is beyond the scope of this report.

The False River LMB population has a moderate maximum age, fast growth rate, high mortality rate, with moderate recruitment variability. The False River LMB fishery is currently managed with a 14 inch minimum length limit and a five fish per day harvest limit. When compared to other LMB populations included in this project, the False River population has a smaller proportion of larger fish. This may result from a combination of factors including natural mortality, fishing mortality, and recruitment variability. The current regulation was implemented as a precautionary measure to ensure spawning and recruitment of young bass into the False River population. However, the results of this project indicate that the existing 14 inch minimum length limit has minor influence. Furthermore, if anglers remain hesitant to harvest LMB from False River, the effectiveness of any size regulation as a management tool would be severely limited.