Largemouth Bass Assessment at B. Everett Jordan Reservoir, 2008

B. Everett Jordan Reservoir is a 13,022-acre flood control impoundment of the Haw and New Hope rivers that is owned and operated by the U.S. Army Corps of Engineers. Impounded in 1982, the primary purpose of the reservoir is to provide flood control for the Cape Fear River. The reservoir is also used for municipal water supplies and recreational activities such as fishing, hunting and boating.

Largemouth bass support major recreational fishing opportunities in Jordan Reservoir. To manage this reservoir's largemouth bass fishery, Commission biologists have conducted regular surveys since 1983 to determine abundance, length and age distributions, growth rates and body condition. These data are used to determine if size and creel regulations adequately protect bass stocks.

In 2008, largemouth bass were sampled in early May using shoreline electrofishing at six permanently established sites throughout the reservoir. Length and weight were measured on all largemouth bass collected. Otoliths (ear bones) were collected from a sub-sample of fish for age determination and the remaining fish were returned to the reservoir.

Sampling Results

A total of 617 largemouth bass were collected. The sample contained good numbers of fish of all sizes with a large number of fish between 10–16 inches (Figure 1). Approximately 24% of the largemouth bass collected were greater than harvestable size (16 inches). This value was slightly lower than values reported in 2001 (30%), 2002 (26%), 2004 (30%), and 2006 (28%).

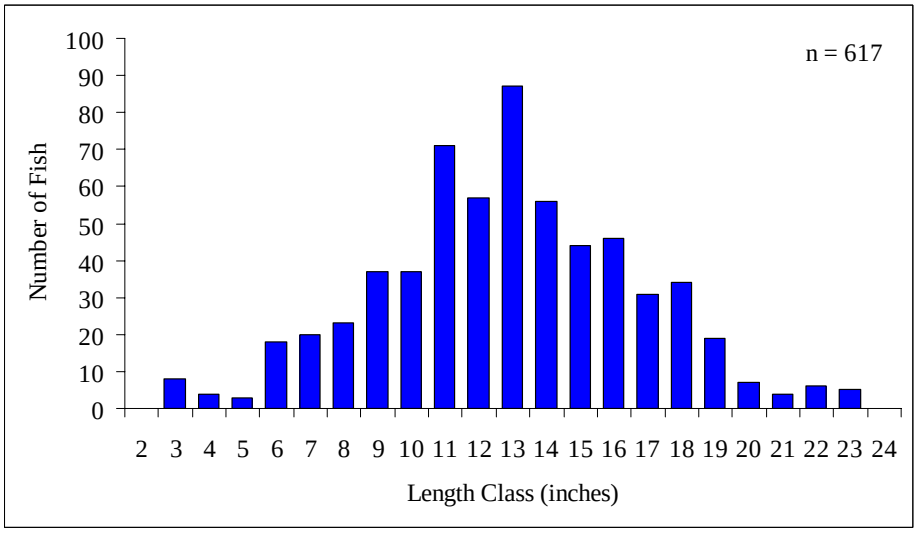

Figure 1.—Largemouth bass length distribution from B. Everett Jordan Reservoir in 2008.

Approximately 45% of the population consisted of 1 and 2-year old fish. This value suggests good reproduction and survival of young largemouth bass in the reservoir. Additionally, adult mortality and harvest does not appear excessive with approximately 24% of fish captured being 5 years old or greater.

Growth rates for largemouth bass have remained stable since 2004. Growth for younger largemouth bass is similar to the average growth of largemouth bass from other Piedmont reservoirs (approaching 14 inches around 3 years of age), but after age 4, growth slows substantially. On average, largemouth bass in Jordan Reservoir do not reach harvestable size (16 inches) until 5 years of age (Figure 2); however, it can take as long as 9 years for some fish.

Figure 2.—Growth curve for largemouth bass in B. Everett Jordan Reservoir in 2008. Horizontal line indicates the 16-inch minimum length limit.

Largemouth bass body condition as measured by relative weight is considered good and suggests that forage overall is adequate. Relative weight values were greater than 93 (a value of 100 is considered optimum) for all largemouth bass with a slight increase for larger fish indicating that the large fish have access to a wider range of forage. Because Jordan Reservoir has ample nutrients and an excellent forage base, relative weight values could be greater than 100 for all size classes.

Conclusions

Jordan Reservoir continues to support a quality largemouth bass fishery. However, the population continues to be dominated by fish just under the current 16-inch minimum size limit. Population modeling indicates that lowering the minimum size limit to 14 inches would allow anglers to take more largemouth bass without harming the population. Reducing the number of smaller largemouth bass in the reservoir would decrease competition for forage, increase the abundance of larger fish, and could improve growth and body condition. The lower length limit would allow for the needed harvest of fish in smaller size classes and provide more opportunities to harvest-oriented anglers as well as to tournament anglers.