

NCWRC F1 Largemouth Bass Stocking and Evaluation Program, 2021-2030

INLAND FISHERIES DIVISION JOB STATEMENT

Date of Last Revision: 08/23/2022

Title: NCWRC F1 Largemouth Bass Stocking and Evaluation Program, Spring 2021—Spring 2030 (F108, 1141-5301-0000).

Need: Anglers have advocated for the stocking of F1 Largemouth Bass (*Micropterus salmoides floridanus* X *Micropterus salmoides salmoides*) to augment Largemouth Bass populations and potentially increase the quantity of trophy black bass in reservoirs. F1 Largemouth Bass are a 50-50 hybrid cross between Florida Largemouth Bass (*Micropterus salmoides floridanus*) and Northern Largemouth Bass (*Micropterus salmoides salmoides*). This cross is desired by anglers because having 50% of each strain of Largemouth Bass give the fish “hybrid vigor”. This vigor often allows the fish to grow rapidly and attain a larger overall size than other forms of Largemouth Bass. F1 Largemouth Bass should be considered by anglers as a stocking of a hybrid species like the stocking of hybrid Striped Bass in many North Carolina reservoirs. The difference is that F1 Largemouth Bass can reproduce unlike many other hybrid species. The offspring of F1 Largemouth Bass are no longer F1 hybrids but become another genetic version of Largemouth Bass with varying levels of both Florida and Northern genes. Therefore, the only way to maintain a population of F1 Largemouth Bass in a reservoir will be continuous stocking. The Commission’s goal in stocking F1 Largemouth Bass will be to evaluate if they persist, have greater growth potential, and increase the overall quality of the existing Largemouth Bass fishery in each reservoir. Many anglers have made this request because of the introduction of the invasive Alabama Bass (*Micropterus henshalli*) to many reservoirs in North Carolina. This introduction has had deleterious effects on native black bass species throughout the state including Largemouth Bass. Based on initial observations of Alabama Bass introductions and their life history characteristics, F1 Largemouth Bass stockings will likely have little to no effect on the rapid advance of Alabama Bass in many North Carolina reservoirs.

Objectives: The primary objective of this study is to determine the persistence, growth rates, and overall quality of stocked F1 Largemouth Bass in three Piedmont reservoirs: B. Everett Jordan Reservoir, Lake Gaston, and Lake Norman. Reservoirs when compared have varying nutrient richness and populations of Largemouth Bass. An additional objective to this study will be to determine if F1 Largemouth Bass thrive under different environmental and biological conditions that each reservoir represent.

Expected Results and Benefits: F1 Largemouth Bass stocking success will be determined through field data collection and genetic analyses of fish from both electrofishing surveys and angler tournament results. Genetic analysis will determine if fish collected are true F1 Largemouth Bass or some genetic variation that occurs naturally within the Largemouth Bass population of each reservoir. Data collected will be archived through a Commission owned online database (BIODE). Staff will present data to angler groups as well as the scientific community through reports and in-person presentations. The results of this

project will inform Commission staff on the efficacy of stocking F1 Largemouth Bass in reservoirs in North Carolina.

Approach: F1 Largemouth Bass fingerlings will be stocked in each reservoir at a rate of 10 fish/ha. Fish will be stocked in various locations throughout each reservoir based on habitat availability and ease of access by hatchery personnel. Stockings will begin in each reservoir during different years due to stocking and funding availability. Fingerlings stocked will have an average size of 50 mm total length. Electrofishing sites will be selected and fish sampled by staff beginning one-year post stocking and continuing until project completion. Largemouth Bass collected will be measured and weighed and a fin clip will be collected for genetic analysis. Additionally, a subsample of fish (5 per 10 mm) will be sacrificed, and otoliths extracted for age and growth analysis during alternate study years. Data will be collected from tournaments on an opportunistic basis. Tournaments of 25 boats or greater will be targeted to efficiently collect data.

Location:

B. Everett Jordan Reservoir

B. Everett Jordan Reservoir is a 5,270-ha (13022-acre) U.S. Army Corps of Engineers flood control impoundment of the Haw River located in Chatham and Durham counties (Figure 1). Initially 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 other aquatic sporting activities. Additional outdoor activities are provided by the North Carolina State Parks and Commission gamelands that surround the reservoir. Park and gamelands provide natural buffers for shoreline habitat that consists of tree laps, aquatic vegetation, rock outcrops and sandy shoals. These habitats provide spawning and foraging areas for Largemouth Bass. Currently, Largemouth Bass is the only known black bass species within the reservoir. The reservoir also consists of abundant forage in threadfin (*Dorosoma petenense*) and gizzard shad (*Dorosoma cepedianum*), along with other predatory species such as Black Crappie (*Pomoxis nigromaculatus*), White Bass (*Morone chrysops*), and catfishes. The reservoir is classified as eutrophic, meaning that the reservoir is consistently high in nutrients and therefore supports good fish growth for most fisheries (NC Division of Water Resources (DWR), 2018). Commission staff has monitored Largemouth Bass populations throughout the reservoir since 1983.

Lake Gaston

Lake Gaston is an 8,215-ha (20,300-acre) reservoir of the Roanoke River located in Halifax, Warren, and Northampton counties (Figure 2). Initially impounded in 1963 by Dominion Energy, its primary purposes were for hydroelectric power generation, flood control, water supply, and recreation. The reservoir shoreline habitat consists of tree laps, significant aquatic vegetation, rock outcrops, sandy flats, and residential development containing riprap and seawalls. These habitats provide spawning and foraging areas for Largemouth Bass as well as other black bass species. Currently, Largemouth Bass and invasive Alabama Bass are the only black bass species within the reservoir. Alabama Bass were first observed

during electrofishing surveys in 2016 and now make up over 55% of black bass found in Commission surveys. The reservoir also consists of abundant forage in river herring, threadfin shad and gizzard shad, along with other predatory species such as Black Crappie, Blue Catfish (*Ictalurus furcatus*), Striped Bass (*Morone saxatilis*), White Perch (*Morone americana*), and Walleye (*Sander vitreus*). The reservoir is classified as mesotrophic, meaning that the reservoir has moderate amounts of nutrients and therefore supports moderate fish growth for most fisheries (DWR, 2019). Commission staff has monitored Largemouth Bass populations throughout the reservoir since 1981.

Lake Norman

Lake Norman is a 13,516-ha (33,399-acre) reservoir of the Catawba River in Catawba, Iredell, Lincoln, and Mecklenburg counties (Figure 3). Initially impounded in 1964 by Duke Energy, its primary purposes were for hydroelectric generation. Lake Norman now serves as a water supply source for the region, power generation (hydroelectric, coal, and nuclear), and recreation. The reservoir shoreline habitat that is heavily developed with residential communities. Therefore, piers, riprap, and seawalls are the predominant shoreline structure. Natural cover such as woody debris and vegetation are rare throughout the reservoir limiting spawning and foraging areas for Largemouth Bass. Currently, Largemouth Bass and invasive Alabama Bass are the only black bass species within the reservoir. Alabama Bass were first observed during electrofishing surveys in 2001 and are now the dominant black bass species in the reservoir. The reservoir also consists of forage in river herring, Threadfin Shad and Gizzard Shad, along with other predatory species such as Black Crappie, catfishes, Hybrid Striped Bass (*Morone chrysops X Morone saxatilis*), and White Perch. The reservoir is classified as oligotrophic, meaning that the reservoir has limited amounts of nutrients and therefore fish growth is often slower or limited (DWR, 2017). Commission and Duke Energy staff have monitored black bass populations throughout the reservoir since 1993.

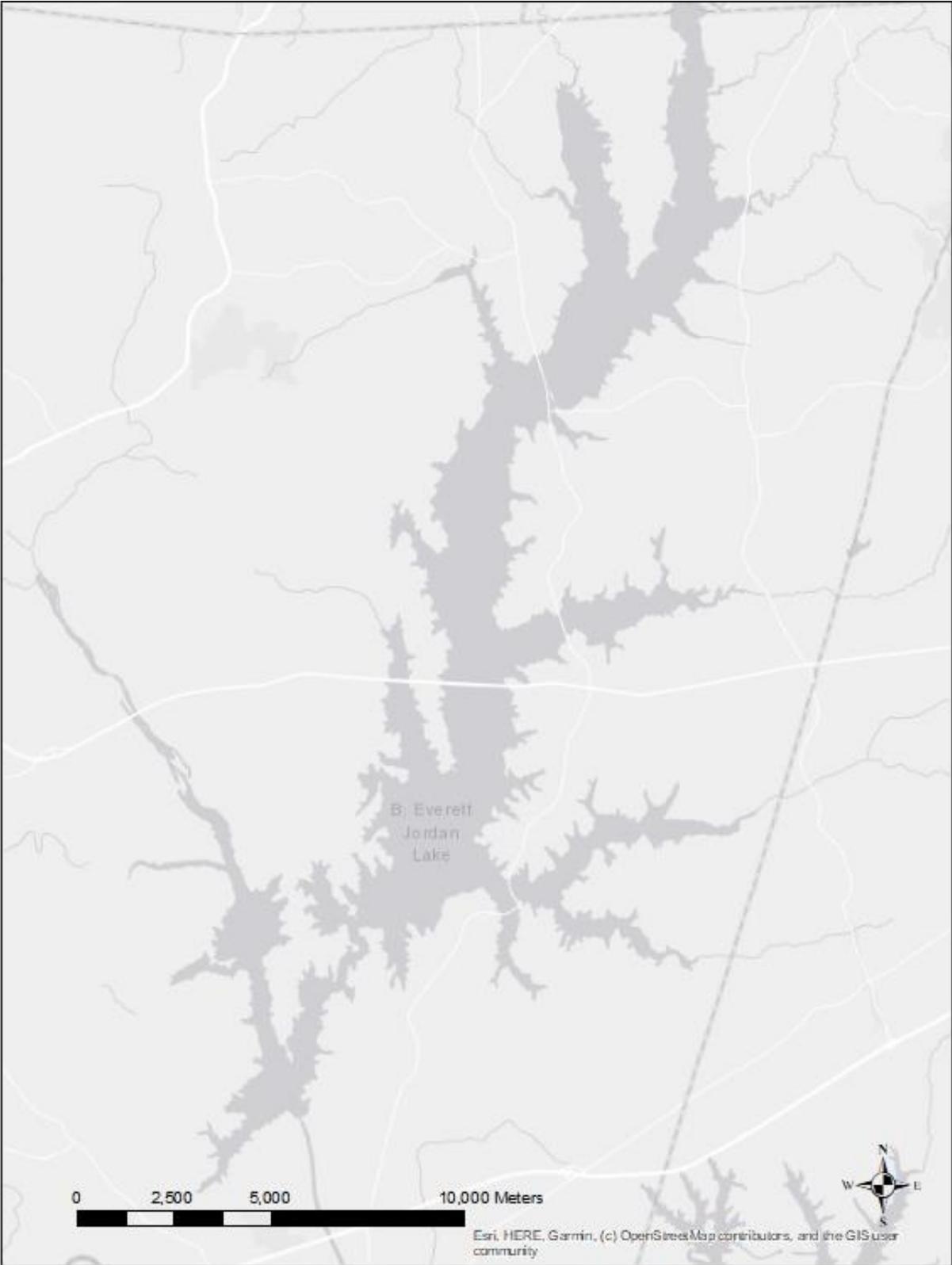


Figure 1. Map of B. Everett Jordan Reservoir, North Carolina.

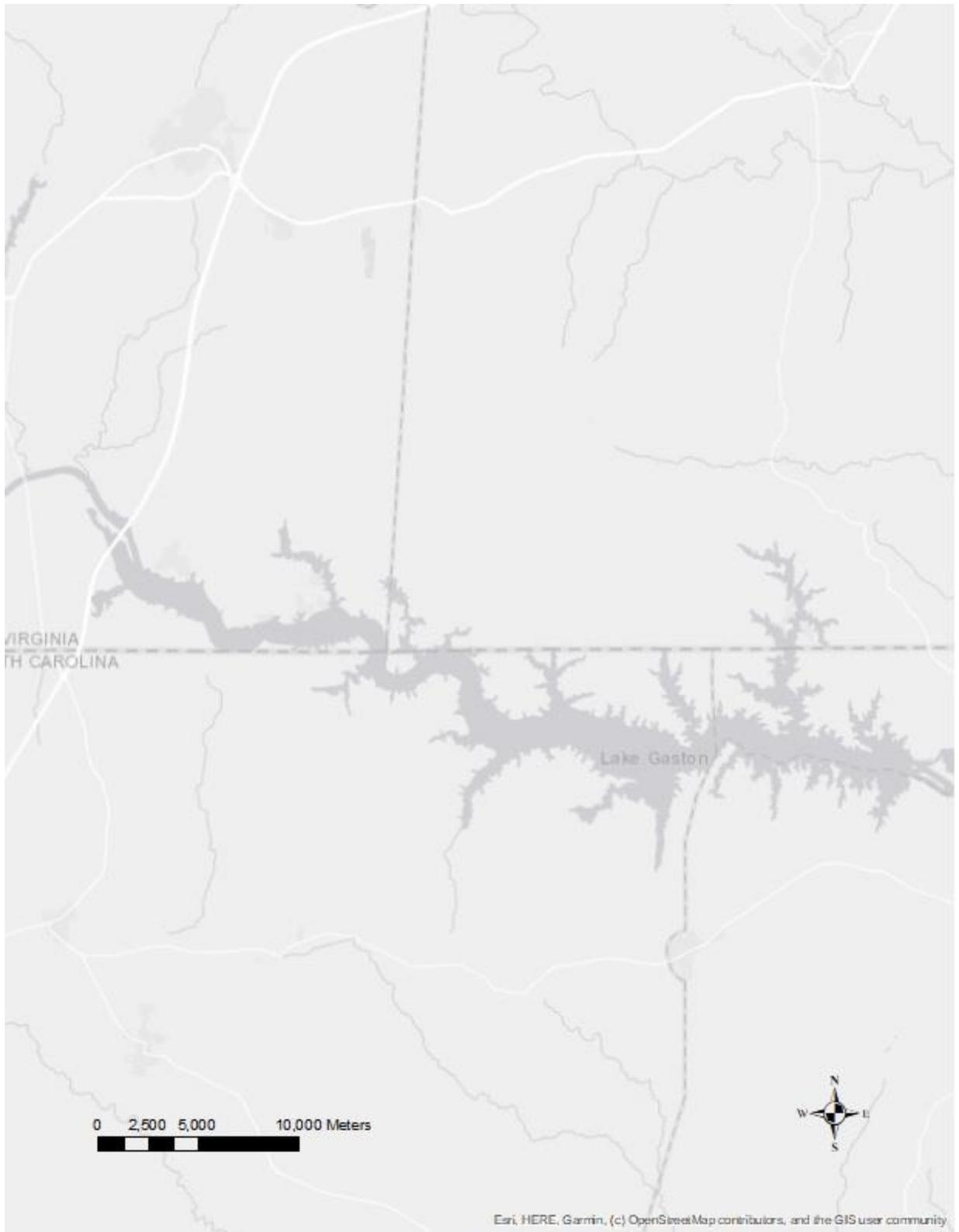


Figure 2. Map of Lake Gaston, North Carolina



Figure 3. Map of Lake Norman, North Carolina

Budget:

Year	Lake	Quantity	Total
2021 (completed)	Lake Norman	40,000	\$21,500
2022 (completed)	Lake Norman	130,000	\$66,500
2023	BEJ Reservoir	52,700	\$27,850
	Lake Gaston	82,150	\$42,575
	Lake Norman	130,000	\$66,500
2024	BEJ Reservoir	52,700	\$27,850
	Lake Gaston	82,150	\$42,575
	Lake Norman	130,000	\$66,500
2025	BEJ Reservoir	52,700	\$27,850
	Lake Gaston	82,150	\$42,575
	Lake Norman	130,000	\$66,500
2026	BEJ Reservoir	52,700	\$27,850
	Lake Gaston	82,150	\$42,575
	Lake Norman	130,000	\$66,500
2027	BEJ Reservoir	52,700	\$27,850
	Lake Gaston	82,150	\$42,575
ALL YEARS	Genetics Contract		\$45,000
		TOTAL	\$751,125

Timeline:

Date	Task
June 2021 – June 2027	Stock F1 LMB Fingerlings
April 2022 – April 2030	Survey all 20 WRC Bass Sites
December 2025	Complete Lake Norman Interim Report
December 2026	Complete B. Everett Jordan Reservoir Interim Report
December 2027	Complete Lake Gaston Interim Report
March 2031	Complete Final Report

*Stocking rate, locations, and sampling may change based on results. Data may also be collected from bass fishing tournaments- subject to biologist discretion.