Fisheries Research Fact Sheet

Synopsis of Black Bass Stocking in North Carolina Rivers and Reservoirs

April 2019

While Striped Bass and other sport fish species are stocked in reservoirs throughout NC, currently, the N.C. Wildlife Resources Commission (Commission) does not stock any Largemouth Bass, *Micropterus salmoides*, in any of the State's reservoirs. In this article, we explore the questions Commission biologists receive about why we do not stock black bass into inland waters.

Around the turn of the century, as the human population in the U.S. grew, more rivers were dammed for flood control and drinking water purposes and recreational bass fishing became a more easily accessible sport. This resulted in the initial need to stock newly formed reservoirs with sport fish for recreation value and to stimulate fish population growth. After years went by, bass populations that were originally stocked were not restocked because natural reproduction was taking place. By the 1960s Largemouth Bass populations were doing well and many states, including NC then performed experimental stockings of species such as Smallmouth Bass *Micropterus dolomieu* and Spotted Bass, *Micropterus punctulatus*. Spotted bass were being stocked into places such as the creeks of the lower Cape Fear River and Smallmouth Bass were later stocked into the Broad River on the SC border south of Charlotte.

Spotted Bass and Alabama Bass, *Micropterus henshalli*, have been illegally stocked by anglers in the Catawba and Yadkin River drainages as well. Both species are well known for outcompeting all other bass in a lake and quickly becoming overpopulated. In many systems, these large populations of bass are great for anglers who love catching high numbers of fish during fishing trips but makes it very difficult for managers to maintain a healthy balance of both large and small fish within the population. As the population of Spotted or Alabama Bass grows, Largemouth Bass and Smallmouth Bass abundance, size structure and growth can be altered. Other fish species in a lake may be impacted as well although these interactions are less understood.

McKinney Lake State Fish Hatchery in Hoffman, NC

Stocking is also used to introduce different strains and varieties of black bass species. Florida Largemouth Bass have been widely stocked throughout the southeast. Their overall growth potential is high, which makes them very popular with anglers in warm climates. Numerous scientific studies show that sudden weather changes and harsh winters in northern latitudes are unfavorable for Florida Largemouth Bass. North Carolina has a mix of both Northern and Florida Largemouth Bass genetics. A 1992 survey of selected lakes in North Carolina showed that 17 out of 18 lakes studied contained fish with some Florida Bass alleles. Over the next 3–5 years, the Commission is conducting a research project to document the genetic strains of Largemouth Bass as well as other black bass species throughout the state. With this added information, biologists will be able to get a better idea of the genetic composition of Largemouth Bass in the state and determine rates of hybridization.

The Commission has stocked bass in the past but, regularly stocking Largemouth Bass to boost populations is not necessary or effective. This is because black bass populations typically sustain themselves through natural reproduction by producing millions of fry each year. Some anglers may know that for fisheries such as Rainbow Trout, reservoir Striped Bass, and hybrid Striped "Bodie" Bass, stocking is essential because these fish cannot naturally reproduce in most reservoirs. Many trout and striper fisheries are 'put-grow-and-take' systems where populations are dependent on stocked fish every year. Largemouth and other bass species do not typically have issues successfully reproducing in lakes, so there is no need to supplement the natural stocks with hatchery introductions.

Hatcheries stock thousands of fish like Striped Bass because only a small percentage of stocked fingerlings will survive and grow to a harvestable size. Many fish that are stocked are eaten by larger fish or die due to stress in their new environments shortly after stocking. For this reason, even if hundreds of thousands of Largemouth Bass are stocked, the bass that survive to spawning age have a limited impact on the overall population. For example, if there are 500,000 sexually mature bass in a lake, and hatcheries stock an additional 150,000 bass fry, there may be 10% that survive to adulthood. That leaves 15,000 stocked bass that survive to spawning

ages. This results in a three percent addition of adult bass to the spawning stock (Figure 1). This basic math explanation is crude, and many environmental factors can affect how many stocked fingerlings recruit to the spawning population. Other factors such as the productivity of a lake can also determine the amount of bass in the system. Carrying capacity shows that a system can only support a certain amount of fish no matter which species they are. If a lake is already at or near its carrying capacity at the time that more bass are stocked into the system, then the new fish will be competing for limited prey. This increase in competition could reduce condition and growth of Largemouth Bass in a lake. If the productivity of the lake will not allow for any more fish in the lake, then you can do more harm than good by stocking additional fish.

As another example, in 2004, the Commission researched the effectiveness of stocking Largemouth Bass to replenish populations after Hurricane Isabel caused widespread fis h kills. A total of 66,000 Largemouth Bass between 1.5 and 6 inches long were tagged and stocked into the Chowan and Roanoke rivers. Commission biologists then attempted to recapture those same fish from the rivers for three consecutive years (Figure 2). By 2006, less than 1% of the Largemouth Bass captured during surveys were tagged. The tagged fingerlings were also never observed in any tournament weigh-ins during the three years after the initial stocking events. Ultimately, the financial costs of the Commission's hatcheries growing, housing, and feeding thousands of bass far outweigh what little is gained through stocking bass. Stocking more bass always seems like the silver bullet for increasing the size and numbers of Largemouth Bass that anglers catch, but this typically is not the case. It may be more beneficial to bass fisheries and fishing when monies used for growing fish can be used alternatively to improve reservoir habitats and conduct population surveys. The Commission is currently improving habitat and surveying numerous lakes throughout the state.

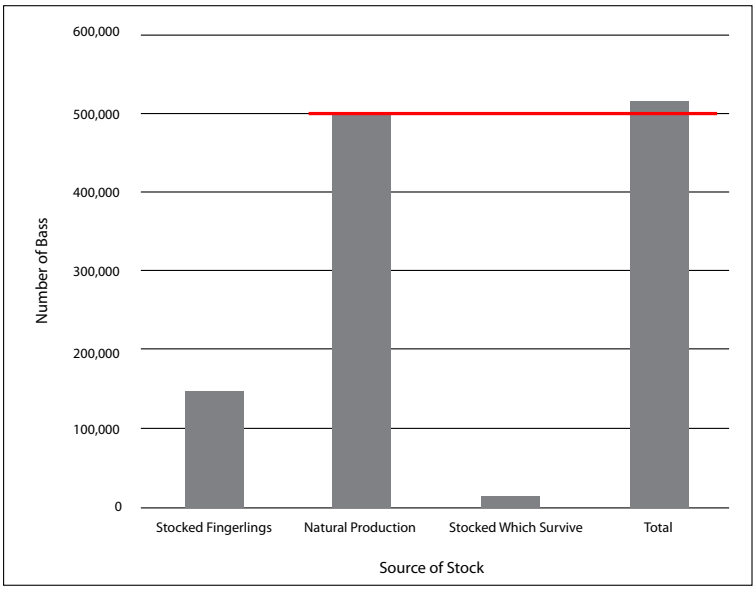
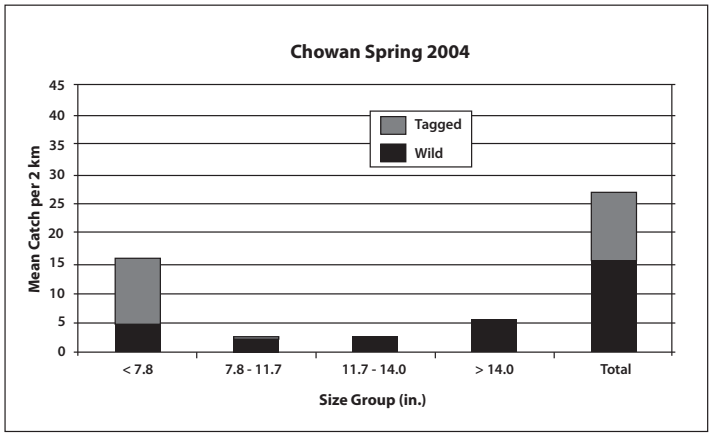


Figure 1: Contribution of 150,000 hypothetical hatchery-stocked Largemouth Bass fingerlings to the overall size of a lake's population.



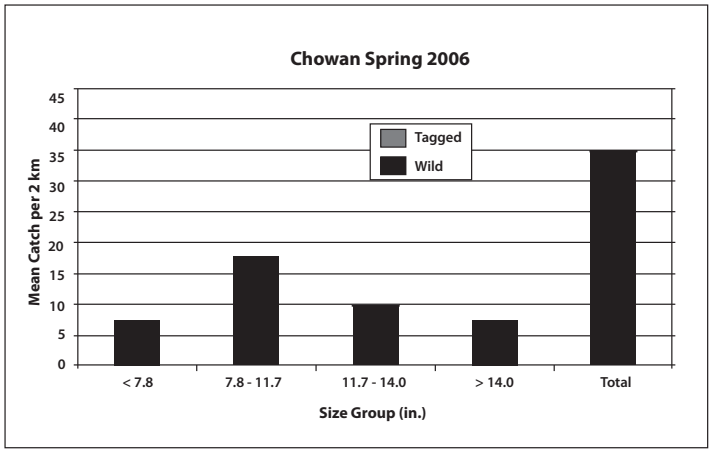


Figure 2: Collections of wild and tagged (hatchery) bass in the Chowan River hurricane recovery surveys in spring of 2004 and 2006.

For more information:

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