



Lake Frederick 2009

Lake Frederick is a 117-acre impoundment owned by the Virginia Department of Game and Inland Fisheries. The department acquired the lake and a fifty foot buffer around the entire shoreline in 1981. Lake Frederick remains clear throughout the year and stratifies forming a thermocline during the summer months. The lake has a maximum depth of 50 feet and an average depth of 20 feet. Much of the shoreline and the upper ends of the two embayments contain standing submerged timber. Typically, the standing timber is located along the shoreline out to around twenty-five feet from the water's edge.

There is adequate bank fishing access along the breast of the dam and around the lower end of the lake. Boat anglers are welcome, but gasoline motors are prohibited. Only electric trolling motors are allowed.

Some of the fish species that anglers might encounter while fishing Lake Frederick include: largemouth bass, bluegill, redear sunfish, black crappie, channel catfish, walleye, and northern pike. VDGIF annually stocks channel catfish and northern pike. The rest of the fish species in Lake Frederick reproduce naturally.

Largemouth Bass Fishery

The largemouth bass population is excellent with many fish in the 2-4 pound range available to anglers. Lake Frederick has consistently produced the best quality largemouth bass fishery in the Shenandoah Valley. Anglers have wrestled largemouths up to 10 pounds from the lake in recent years. The lake was stocked with both Northern strain and Florida Strain largemouth bass in the late 1980's in hopes of taking advantage of the trophy growth potential of the Florida Strain fish. While Lake Frederick is not producing as many citation largemouth bass as in previous years (Figure 1), anglers are still catching trophy sized fish. One reason for the decline in citations reported could be the natural aging of the reservoir. After the "trophic upsurge" that new reservoirs experience in the first 10 years or so after impoundment, fish populations and growth rates often "flat line" or decline slightly as the nutrient energy stored in the impoundment decreases. Electrofishing sampling in spring 2008 produced excellent densities of bass. Reproduction appears to be very stable, and good numbers of bass 12-18" representing the bulk of the fishery (Figure 2). Density of largemouth bass has remained steady over the years (Figure 3), and the proportion of large fish in the population has only fluctuated slightly (Figure 4). These temporal changes in the number of larger fish could be explained by spawning success fluctuations or differences in electrofishing efficiency from year to year. However, a bass Proportional Stock Density (PSD) of 40-70 indicates a balanced fish population. A recent creel survey of Lake Frederick in 2006 revealed that 75% of all the angling effort is toward largemouth bass. While the bass population is in excellent condition, angler catch rates

for bass in 2006 were extremely low at 0.21 fish per hour. Biologists like to see catch rates above 1.0 fish per hour. The low catch rate in 2006 could be explained by dense submerged aquatic vegetation that made fishing difficult. Many anglers complained about the vegetation during the creel survey in 2006. It is believed that extremely dry springs in 2006-2008 contributed to the vegetation growth. Other area impoundments have experienced the same explosion of aquatic vegetation in recent years. DGIF stocked grass carp in 2006-2008 in attempts to reduce the amount of vegetation. Hopefully these grass carp will reduce the vegetation and help improve bass catch rates. Anglers have reported improving catch rates in 2007-08. Compared to bass from more southern latitudes, largemouth in Lake Frederick exhibit slow growth rates. It takes around 6 growing seasons for a bass to reach 14" in Lake Frederick. The primary forage for largemouth bass is the numerous small bluegill and black crappie that inhabit the lake. The fact that Frederick produces bass up to 10 lbs is proof that a pelagic forage fish like shad need not be present to grow large fish. The clear water of Lake Frederick often makes it difficult to catch bass. Bass often become suspended in the submerged standing timber that surrounds much of the shoreline. Anglers need to fish different depths until they locate fish. Night fishing during the summer months can also be productive. Some of the largest bass are caught during the pre-spawn in the months of March and April.

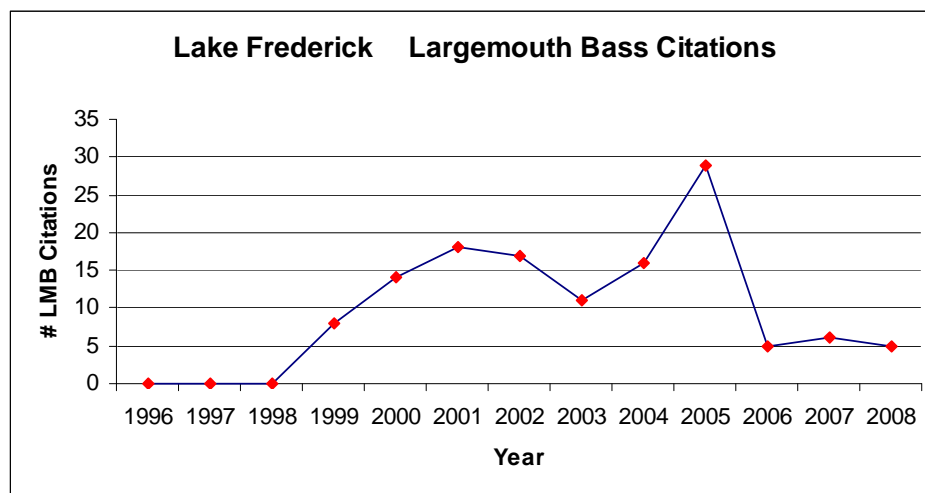


Figure 1. Citation sized LMB (>22" or 8lbs) reported by anglers in Lake Frederick.



9 lb Largemouth collected May 2008



Bass from May 2006 electrofishing

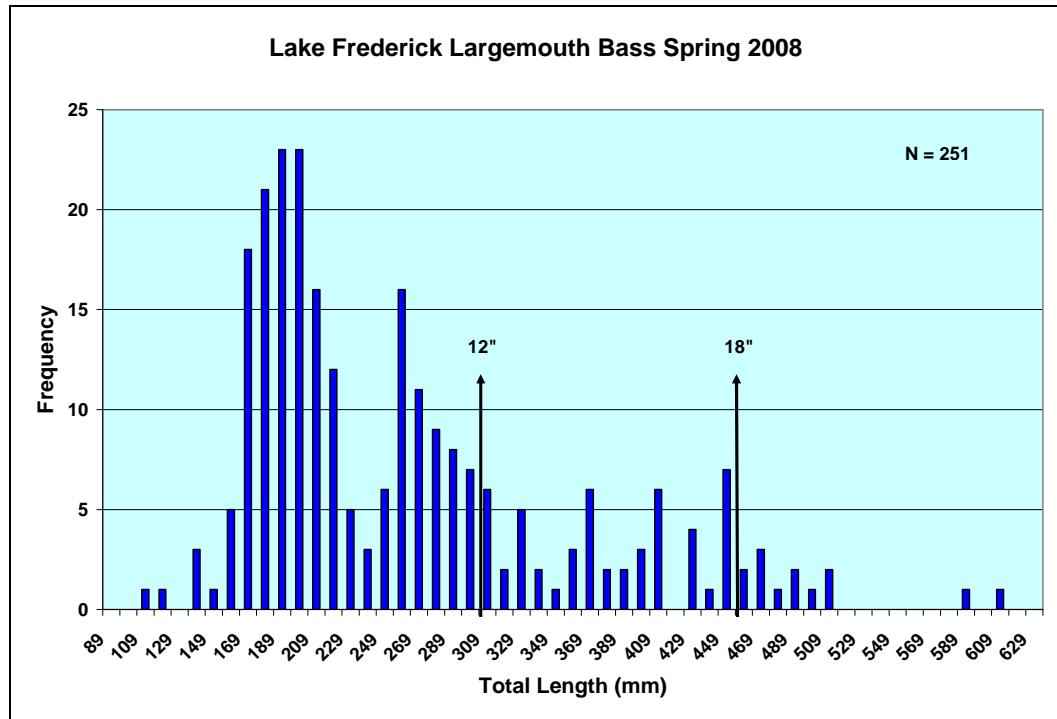


Figure 2. Length frequency of largemouth bass collected in a night-time electrofishing survey May 2008.

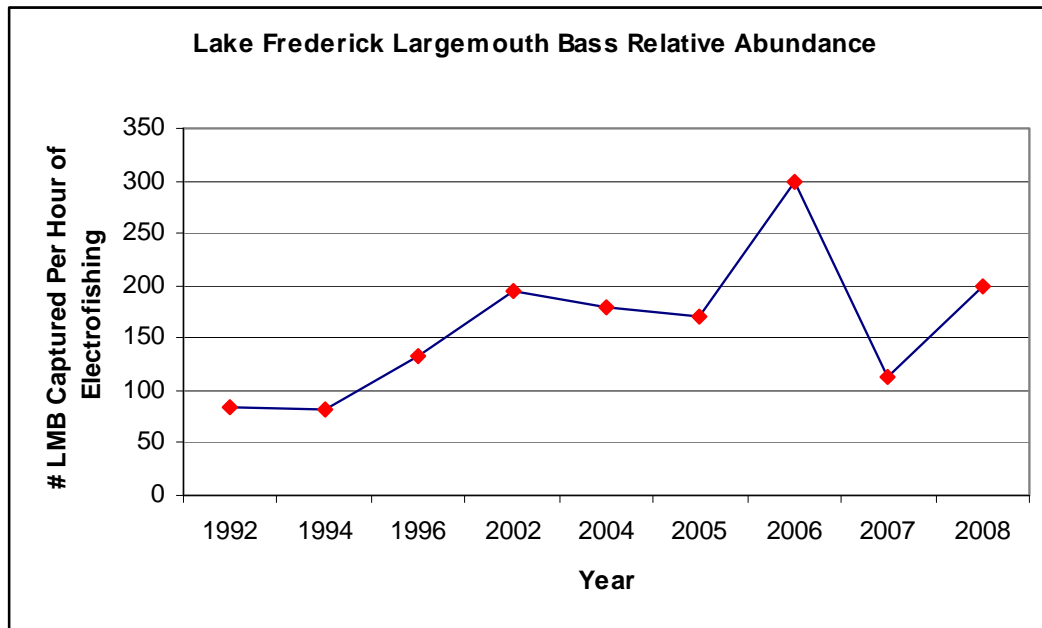


Figure 3. The number of largemouth bass collected per hour of electrofishing.

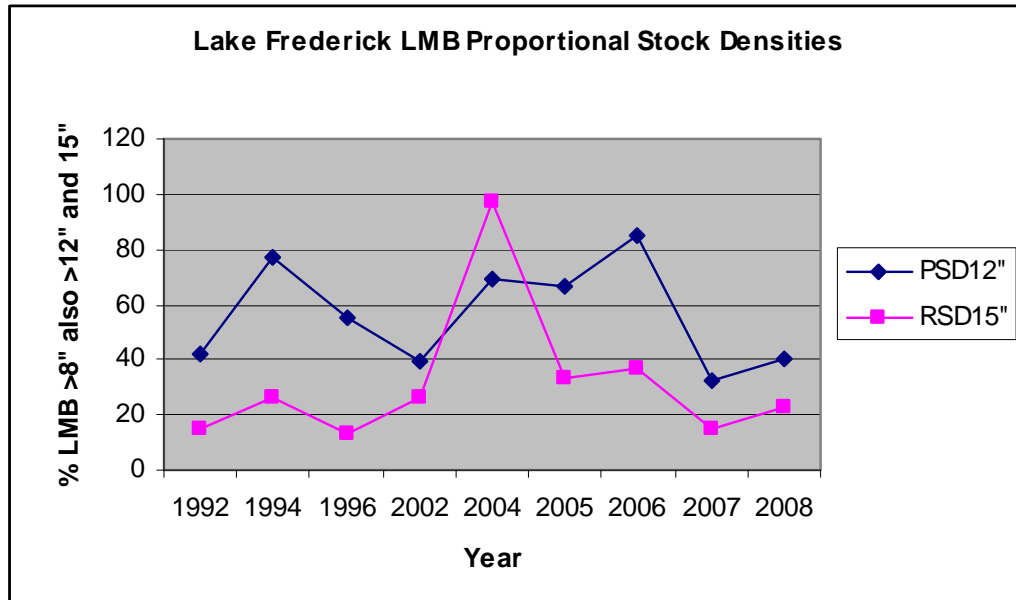


Figure 4. Proportion of largemouth bass > 12" and 15" in the population.

Bluegill/Redear Sunfish Fishery

The quality largemouth bass population is beneficial to the sunfish population. By preying upon small sunfish and keeping their numbers low, bass help to produce "hand-sized" bluegill and redear sunfish in Lake Frederick. Spring 2008 sampling revealed an excellent population of these two sunfish species. While good numbers of bluegill >6" are available to anglers, the bulk of the fish being <6" could be attributed to the dense aquatic vegetation over the past three years (Figure 5). The vegetation can inhibit predation on sunfish by predators thus shifting their population toward smaller individuals. Redear sunfish are not as plentiful as bluegill, but still provide some quality angling (Figure 6). If you are looking to catch a "citation" sized sunfish then head to Lake Frederick. It is the only lake in the region that produces good numbers of large sunfish. Anglers have been successful using live bait such as crickets and red worms to catch these "whopper" panfish. An angler creel survey conducted in 2006 revealed that anglers averaged a catch rate of 1.0 sunfish per hour of angling. Biologists feel that this number is low, and as mentioned earlier can probably be attributed to the dense aquatic vegetation that inundated the reservoir in 2006. The thick vegetation created excellent hiding places for sunfish and also made getting to them difficult by anglers.

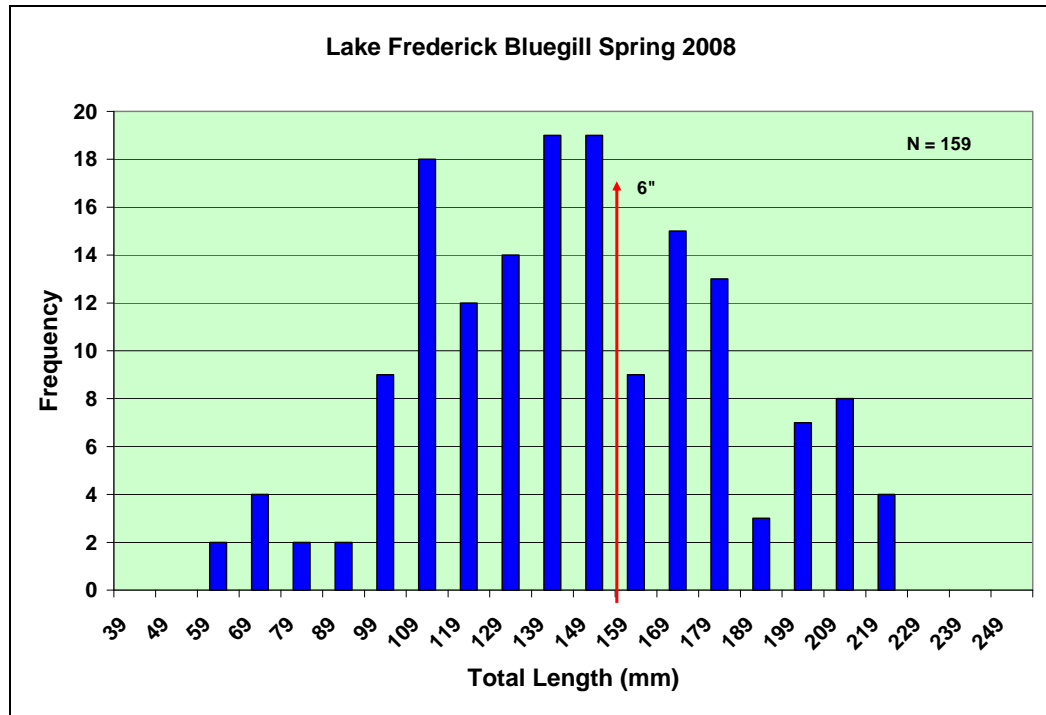


Figure 5. Length frequency of bluegill collected in May 2008.

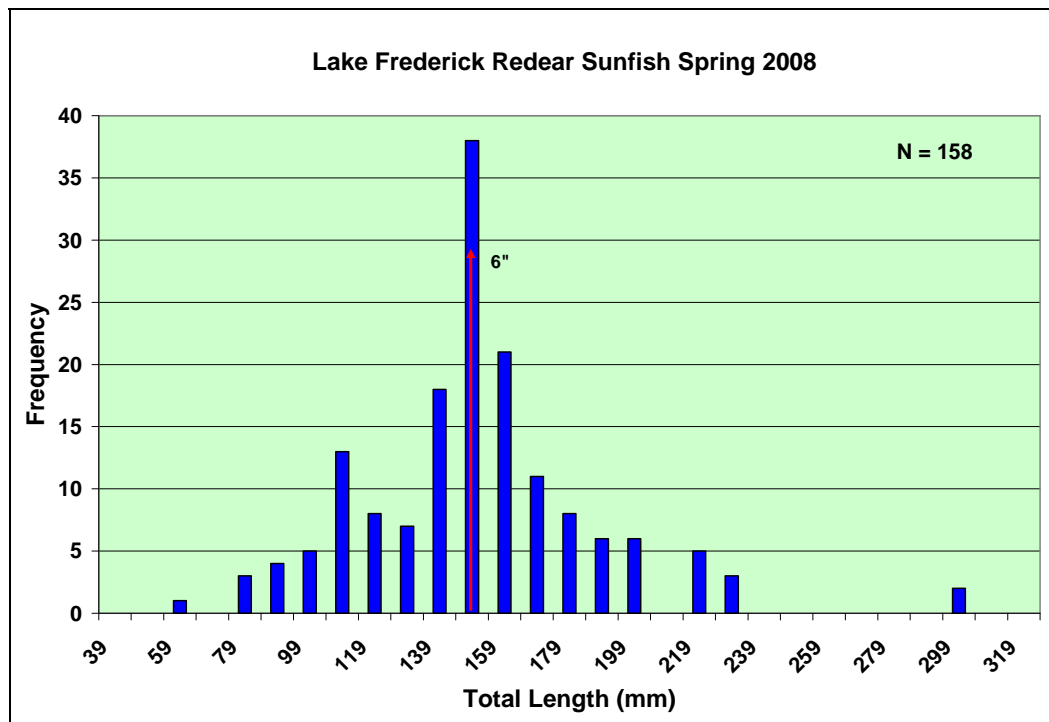


Figure 6. Length Frequency of redear sunfish collected in May 2008.

Crappie Fishery

DGIF has not done any specific sampling targeting crappie in recent years, but the population appears to be healthy. Black Crappie numbers are stable and fish of harvestable size (8-10") are available to anglers. An angler creel survey in 2006 measured a crappie angler catch rate of 0.6 fish per hour. This is considered a tad low by biologists, and may also reflect issue with aquatic vegetation that hampered anglers in 2006. Anglers should focus on the breast of the dam and around the fishing pier in the spring when water temperatures reach the mid 50's. Live minnows and small jigs should be the best baits. DGIF plans to begin monitoring the crappie population more closely in 2009 and beyond.

Catfish Fishery

Channel catfish are stocked annually by the Department. DGIF started stocking 8-10" catfish a few years ago to help reduce predation on the newly stocked fish. This change has improved the catfish fishery as both biologists and anglers are encountering more catfish than in previous years. Catfish anglers should use cut bait, nightcrawlers, or commercial catfish baits to entice these "whisker fish". Night fishing can be productive in the warmer months.

Walleye

Department biologists conducted a walleye research project at Lake Frederick in the late 1990's. The goal of the project was to determine the size of the walleye population and to learn the habitat preferences of walleye in Lake Frederick. We discovered that the walleye population was not as large as we originally thought. Walleye do not naturally reproduce in Lake Frederick so the department had to stock each year. To try and increase the walleye population, in 2001 DGIF increased the number of walleye being stocked each May. Biologists monitored the population for several years to measure the effects of the stocking change. The increased stocking rate failed to increase the walleye population. An angler creel survey conducted by DGIF in 2006 found that no walleye were caught during the survey period (March-October), and that only one of the 407 anglers that were interviewed indicated that they were fishing for walleye. Since attempts to increase the walleye population were not successful and that angler interest in walleye was extremely low, DGIF discontinued stocking walleye in Lake Frederick in 2007. However, since these fish live a long time, anglers can expect to catch a stray walleye from Lake Frederick for several more years.

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