Beaverdam Creek Reservoir Management Report

Popular Report

Federal Aid Project – F111R

February 2023

Robbie Willis, Assistant Fisheries Biologist

Virginia Department of Wildlife Resources

1320 Belman Road

Fredericksburg, VA 22401

Beaverdam Creek Reservoir is a 350-acre water supply impoundment located in eastern Loudoun County initially owned and operated by the City of Fairfax. It was sold to the Loudoun Water Authority in 2015 and was drawn down for several years for DCR-mandated dam repairs. There is currently a draw down for construction of a Northern Virginia Regional Park Authority access area (they are in partnership with Loudoun Water for public access), and it is hoped the new facility will open in 2023. Access is currently limited, but there may be primitive access from Mount Hope Road.

The reservoir was impounded in 1972 and stocked shortly thereafter by the Virginia Department of Wildlife Resources (VDWR) with Bluegill and Redear Sunfish. Largemouth bass and Channel Catfish were stocked in 1973. Historical stockings included tiger musky, hybrid Striped Bass, Striped Bass, and Blue Catfish - all of which were discontinued as a result of poor survival, low catch rates, and/or a change in management philosophy. The current fishery is maintained mostly by natural reproduction and includes Bluegill, Black Crappie, Common Carp, Largemouth Bass, Redear Sunfish, White Perch, Channel Catfish and Gizzard Shad. Due to the extended drawdown, some species have been remedially stocked to bring back populations to a desirable level.

Abundance is usually described as a catch rate in number of fish per hour (CPUE, or Catch per Unit Effort). Biologists employ numerical descriptors of length-frequency data such as Proportional Size Distribution (PSD) and Proportional Size Distribution –Preferred (PSD-P) when evaluating fish populations. PSD is calculated by dividing the (number of fish $\geq$ minimum quality length by the number of fish $\geq$ minimum stock length) x 100. Quality length is defined as the minimum size of fish most anglers like to catch (12” for Largemouth Bass). Stock length is the minimum length at which a fish provides recreational value and/or is recruited to the fishery

(8” for Largemouth Bass). PSD-P is the percentage of preferred length group found within a population. It is calculated by dividing the (number of fish ≥ preferred length by the number of fish ≥ minimum stock length) x 100. Preferred bass are those 15” or larger, while memorable bass are those 20” or larger.

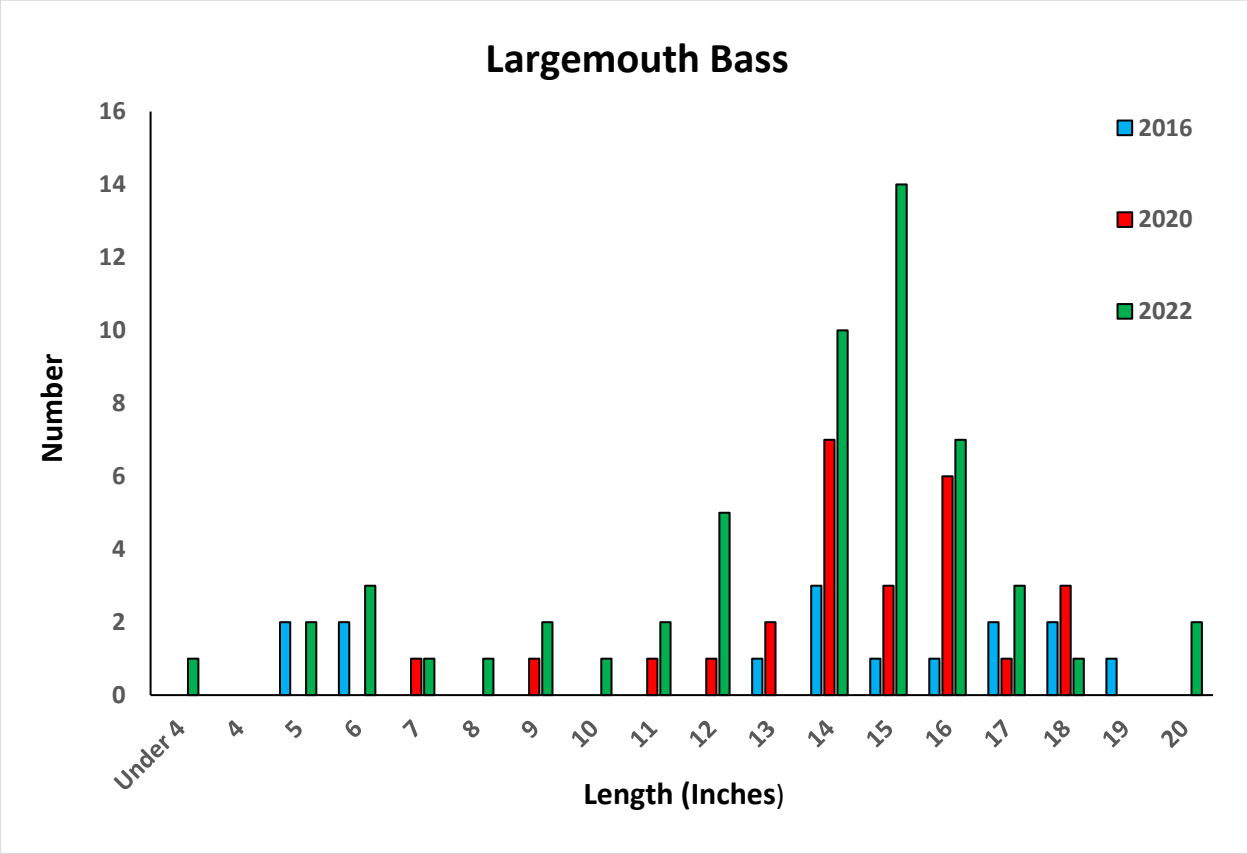
State standard regulations apply to the harvest of most game and nongame fish. Anglers are also encouraged to keep Black Crappie (25 per day). Channel Catfish regulations allow anglers to keep 8 per day with a 15 inch minimum.

Largemouth Bass

The 2022 electrofishing sample produced 55 Largemouth Bass (LMB). The population size structure of LMB in 2022 was similar to the previous 2 samples in 2016 and 2020, as PSD slightly decreased from 92 to 88. The 2016 sample was conducted about a year into the reservoir’s drawdown. A PSD of 40-70 is indicative of a balanced fish population. Proportional Size Distribution of preferred fish (PSD-P; ratio of adults greater than 15”) in 2022 (60), was slightly higher than the 56 in 2020, however a decrease from the 75 in 2016. A record high of “preferred” bass was seen in 2020 (50% of all “adult” bass were at least 15”), while the 2022 survey produced 49% indicating that the population size structure was composed mostly of larger fish and that stunting and/or stockpiling of small bass was not an issue. The paucity of smaller fish was most likely reflective of failed recruitment during extensive water level fluctuations. Condition of bass was excellent – likely a result of abundant forage (Gizzard Shad, White Perch and Bluegill). Total catch per unit effort (CPUE) of LMB increased to 55 in 2022, from 31fish/hr in 2020 and 13/hr in 2016. CPUE of preferred size bass (>15”) increased to 30/hr from 17/hr in 2020. The 2022 sample also produced 2 “memorable” bass at 20 inches. The bass were holding close to shoreline cover, along outside edges of flooded timber and around the

remaining terrestrial vegetation that grew as a result of the long drawdown. Length distribution ranged from 3 to 20”, with a large proportion from 12 to 16” suggesting desirable size structure (larger fish). Beaverdam Creek currently ranks 11th out of 18 impoundments in the district for catch rate of preferred bass. The reservoir is showing positive signs of bass size structure recovering after the drawdown.

Anglers may harvest five bass per day but are encouraged to practice catch and release on larger bass, as their value to the fishery can provide enjoyment for many others and contribute to the spawning stock.



Panfish

The Bluegill population continues to exhibit very poor size structure, as all fish collected were less than 8 inches. Catch rate was a moderate 65/hour, however an improvement from past samples. It is likely that the Bluegill population was limited by habitat, predation, and competition from other species during the drawdown. The cooler, clear water of Beaverdam Creek Reservoir does not favor Bluegill, and the presence of White Perch and Gizzard Shad usually result in poor Bluegill size structure due to competition. With water levels back up and new habitat available, the species numbers have rebounded and should continue to increase. Factors which limit a Bluegill population may also limit a Black Crappie (BLC) population. However; with no fish collected in 2022, it was impossible to evaluate the fishery. The 2020 sample produced 12 BLC all 5 inches, but EF is not an efficient gear for describing this species' population status. It is likely there are limited amounts of BLC still available post drawdown. Crappie are piscivorous and can compete with bass, exacerbating poor growth and suboptimal size structure for both species especially in smaller, less productive lakes. Anglers are encouraged to harvest any crappie caught up to the 25 /day limit. White Perch (WHP) were first documented in Beaverdam Creek Reservoir in 1987 with the collection of one individual. Recent samples indicate that WHP have become one of the most abundant species present and are currently found up to 7 inches. White Perch are notorious for over-populating and stunting in small waters which is why anglers are encouraged to harvest this often underutilized but abundant resource. Two Redear Sunfish were collected in 2022, future stockings of the species should rebuild or add to the existing population in the reservoir.

For more information about Beaverdam Creek Reservoir:
Virginia Department of Wildlife Resources
1320 Belman Road

Fredericksburg, VA 22401

540-899-4169

Loudoun Water

44865 Loudoun Water Way

Ashburn, VA 20147

571-291-7880

https://www.loudounwater.org

NOVA Parks

https://www.novaparks.com/parks/beaverdam-reservoir

703-352-5900