



# **Occoquan Reservoir Fisheries Management Report**

**Federal Aid Project – F111R**

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Occoquan Reservoir is a 2,100 acre water supply impoundment that forms the boundary between Fairfax and Prince William counties and is home to the best bass fishery in the Northern Virginia district. The Fairfax Water Authority operates the reservoir which serves the residents of Fairfax and the City of Alexandria. Three developed marinas on the reservoir provide rental boats, bait, tackle, snacks, and boat launching facilities. DWR began fish management of the reservoir in 1961 and the fishery currently supports populations of Largemouth Bass, Bluegill, Redear Sunfish, Black & White Crappie, Warmouth, Yellow Perch, and Flathead & Channel Catfish.

Occoquan Reservoir is sampled every 4-5 years by electrofishing (EF) to get an accurate picture of the fish community. Electrofishing is an active sampling method used to determine abundance, density, and species composition of fish populations.

Abundance is usually described as the number of fish caught per hour of electrofishing. (CPUE). 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  $\geq$  preferred length by the number of fish  $\geq$  minimum stock length) x 100. Preferred bass are those 15” or larger, while memorable bass are those 20” or larger.

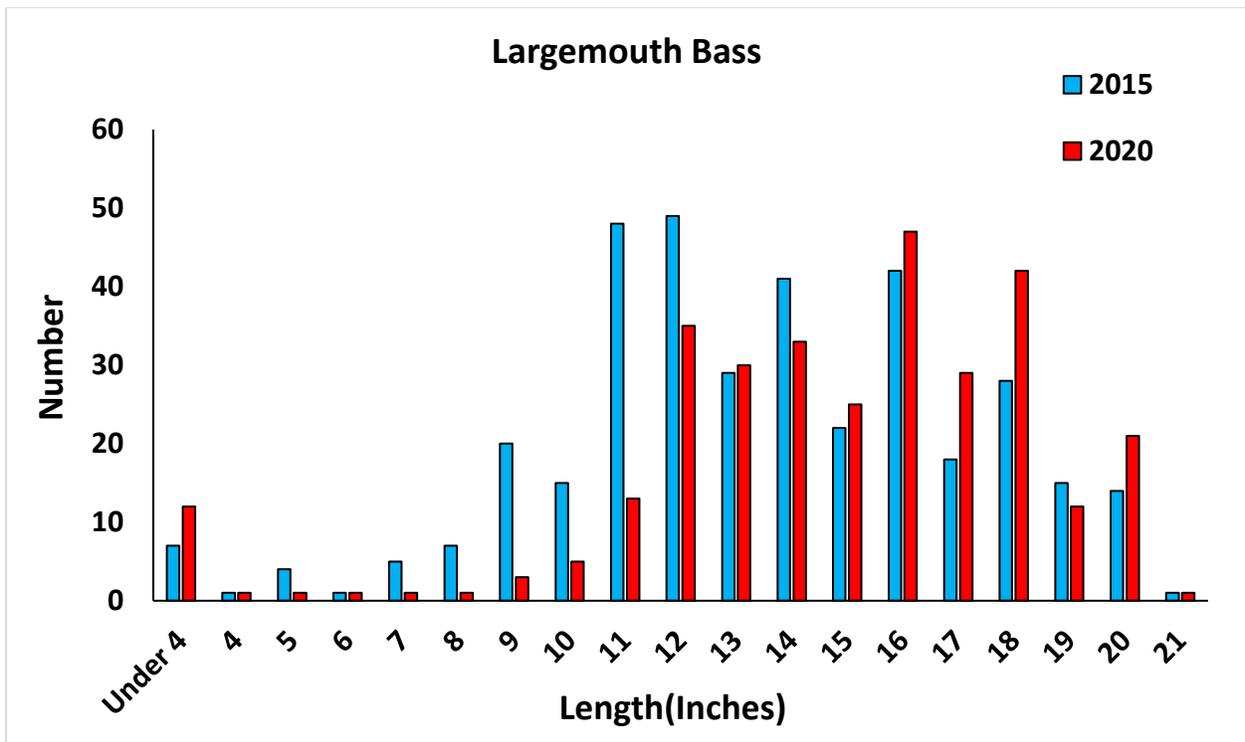
State standard regulations apply to the harvest of most game and nongame fish. Anglers are also encouraged to keep Black Crappie (25 per day). Anglers are allowed to harvest eight Channel Catfish (>15 inches) per day.

### ***Largemouth Bass***

Largemouth Bass (LMB) are the number one species pursued by anglers visiting Occoquan Reservoir. Electrofishing in May 2020 yielded 157 bass/hr an increase from the 147 fish/hr collected in 2015. Catch rates and structural indices were excellent and the highest ever documented. CPUE for preferred bass was 94 and was the by far the highest seen in 30 years at any impoundment in the district. The population size structure of LMB in 2020 was better than the previous sample in 2015, where PSD increased from 78 to 95. 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”) was 63 in 2020 as compared to 43 in 2015, suggesting a size structure skewed heavily towards larger fish. CPUE of memorable size bass (fish of 20” or greater), was 11 which was an increase from the 6 collected in 2015. Occoquan exhibits the highest abundance of memorable-size bass of any reservoir in the region. The reservoir is also the best in the district for catch of “preferred” and “memorable” size bass. Currently, the population is diverse, with bass found in all size classes up to about 21 inches. The majority of bass most fish were in the 12”-20” range. Good numbers of fish are available in the 4-6 pound range with an occasional larger fish mixed into the bag. The reservoir appears to be supporting a phenomenal Largemouth Bass fishery with an excellent forage base (primarily Bluegill, Alewife, White Perch and Gizzard Shad).

Heavy fishing pressure with ample habitat and abundant forage may make it more difficult to consistently catch bass. Patience is the key; anglers willing to try different techniques

and lures to match the prevailing conditions should find success. Largemouth bass typically are found in transition areas between different habitats, particularly around heavy cover. Anglers should concentrate their efforts in these areas, fishing with a variety of lures such as plastic worms, jigs, spinner baits, or crank baits. Anglers may harvest five bass per day but, are encouraged to practice catch and release of larger bass. Releasing bass can provide enjoyment for additional anglers, as these fish are re-caught several times.



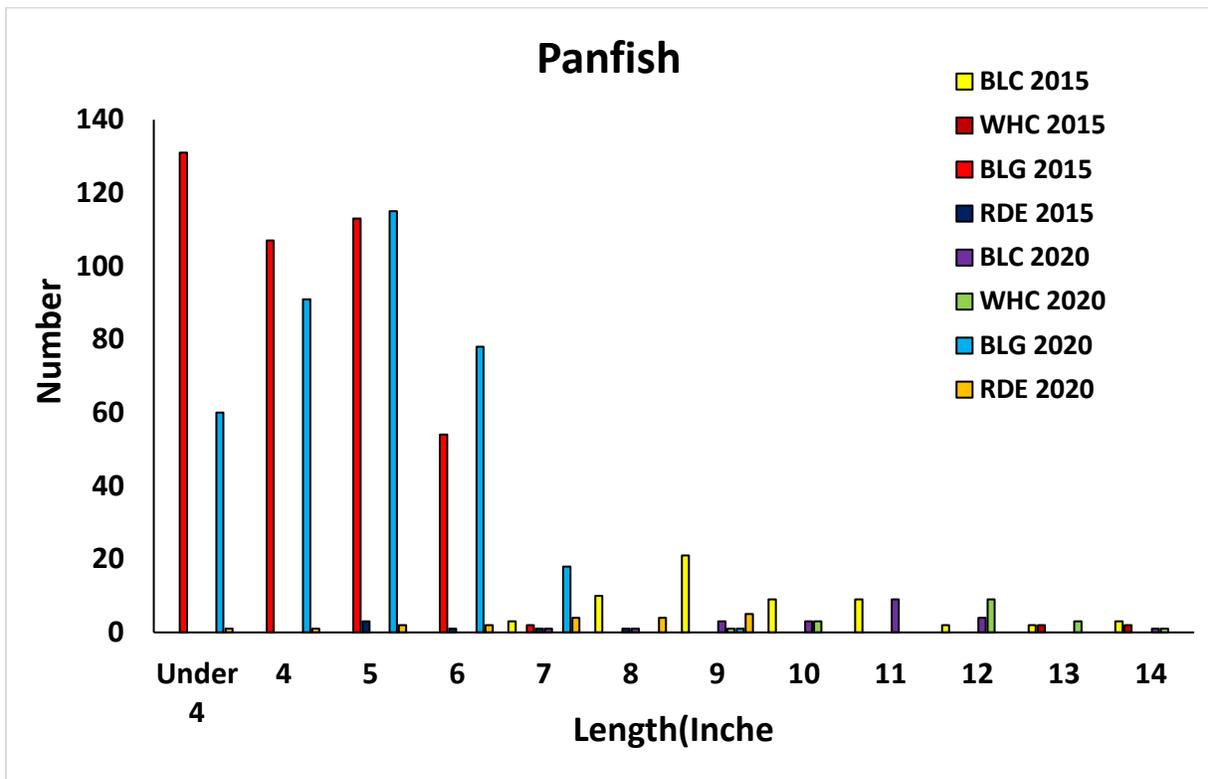
### *Panfish*

Occoquan provides an adequate **Black Crappie** fishery, but EF is not the ideal gear for describing this species' population status. Black Crappie (BLC) electrofishing CPUE was lower in 2020 (11 fish/hr) compared to 2015 (24 fish/hr). Size structure remains skewed towards larger fish, offering anglers opportunity to catch crappie as large as 14 inches; CPUE-P was 10 and CPUE-M was 3. Most impoundments in Virginia contain BLC, however; Occoquan Reservoir is

unique in that **White Crappie** (WHC) are also present. This is the only impoundment open to public fishing in the district where WHC are found. The 2020 EF survey produced 17 WHC (9 fish/hr) as compared to 4 (2 fish/hr) in 2015 with excellent size structure as most fish were 12-14 inches. WHC typically run larger than BLC and the two species can be easily distinguished by counting dorsal spines. BLC generally have 7-8 dorsal spines, whereas; WHC have 5-6 dorsal spines. Crappie populations are known to fluctuate due to high annual variation in spawning success, and while not a positive sign for crappie anglers; reduced abundance of this species in this predator heavy community can be viewed beneficially. Crappie are predominately piscivorous (fish eaters) and can compete with bass exacerbating poor growth and suboptimal size structure for both species. This is often the case in smaller, less productive lakes. Anglers are encouraged to harvest any crappie caught up to the 25-fish/day limit. They can be caught year-round, but fall and spring are the best times. Generally, fishing for crappie is best in the shallows near banks during spring and fall or in deep water during summer and winter. It's possible to catch crappie throughout the day, but they mostly feed at dawn and dusk. Anglers consistently catch fish around boat docks, fish attractors, or brush piles. Crappie can be successfully caught by a variety of methods ranging from small jigs, spinners, or flies fished with ultra-light spinning gear. Fishing small minnows with a cane pole and bobber can also be productive. Remember that crappies are a schooling fish, and once a fish is caught it is likely that several more will be caught with in close proximity.

**Bluegill** (BLG) electrofishing CPUE increased slightly to 182 in 2020 from 163 in 2015. Most of the fish fell in the 4-7 inch range which is not surprising with the robust bass population. PSD increased from 21 to 39 suggesting a currently balanced population with larger fish. Panfish fisheries are typically considered balanced when PSD falls in the range of 20 – 60. **Redear**

**Sunfish** (RDE) PSD values increased greatly from 33 in 2015 to 68 in 2020, CPUE also increased from 2015 (2 fish/hr) to 2020 (10 fish/hr). Electrofishing data indicated most fish were 7 to 9 inches indicating a stable population. Anglers may use live bait such as worms or crickets with hopes of enticing a strike. Some anglers prefer to use ultra-light spinning gear or fly fishing gear to present small lures or flies. Pound for pound, there's not a fish that fights any harder than a scrappy Bluegill or Redear. They are easy to catch which makes them ideal for introducing young children to the sport of fishing. There is no size limit on sunfish and anglers may harvest 50 sunfish (combined) per day. Anglers are encouraged to harvest to thin the populations and allow for increased growth rates resulting in larger fish.



### *Additional Fish Species*

**Channel Catfish** (CCF) have done well in this impoundment. DWR discontinued Channel Catfish stocking in 1991 when it became apparent that natural reproduction was occurring at a

level to maintain a sport fishery. CCF are not overly vulnerable to EF gear and as a result only 5 were collected in the 2020 survey. However, the 2020 sample did produce a massive CCF of 32 inches. Anglers can expect to catch fish in the 14-24 inch range, with most fish averaging about 2 pounds. A good bait for Channel Catfish is a nightcrawler, but anglers can also try shrimp, fresh cut bait, chicken livers, and live minnows. CCF are true omnivores and will eat just about anything. The current fish community also includes populations of Yellow Perch, Warmouth Sunfish, Green Sunfish Common Carp, Golden Shiner, Gizzard Shad and American Eel.

**Flathead Catfish** (FCF) were stocked initially in 1965 and produced the previous state record of 66 pounds 4 ounces in 1994. FCF remain in the lake but not in high numbers. Anglers may want to concentrate their efforts in areas around rocky bluffs in close proximity to deep water. Live bream are the bait of choice and are often fished on the bottom with a slip sinker rig.

**Northern Snakehead** (NSH) were illegally introduced into the reservoir around 2014. They are present in numerous water bodies throughout the district and biologists continue to monitor the fish community very closely to see if impacts are occurring as a result of the introduction and learn more about their ecology, biology, food habits, growth, and behavior. There were 19 NSH collected in the 2020 sample which were removed from the reservoir. Anglers targeting NSH should fish very shallow near heavy vegetation and/or structure using weedless lures. During the spawning season, you may spot fry balls which adults guard aggressively. Northern Snakehead is a very good eating fish, and there are numerous ways to prepare it. Anglers are encouraged to harvest these fish. However, it is illegal to possess a live snakehead so the fish must be dead before leaving the lake. Effective methods to kill the fish are removal of the head, gills arches or internal organs. Remember, “STOP THE SPREAD” of non-

native and possible invasive fish. Not only is it illegal to release/stock any fish into waterways, this action could cause harm to resident fish populations.

Several parks offer boat rentals and bait. Fountainhead Park (Fairfax County) is off of Route 123 near Woodbridge. Bull Run Marina Regional Park can be accessed off of Rt. 612 near the upper end of the reservoir. More information about Bull Run Marina Regional Park and Fountainhead Park is available from the Northern Virginia Regional Park Authority (703-352-5900). Lake Ridge Park is in Prince William County and is operated by the Prince William County Park Authority. Take Route 123 to Davis Ford Road/Old Bridge Road; turn left and go 5.5 miles to Hedges Run Road; turn right and go to the first hard surface road, and turn left into the park.

### ***More Information***

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