



Lake Orange Management Report

Popular Report

Federal Aid Project – F111R

January 2021

Robbie Willis, Assistant Fisheries Biologist

Virginia Department of Wildlife Resources

1320 Belman Road

Fredericksburg, VA 22401

Lake Orange is a 124-acre Department-owned public fishing lake in Orange County that was impounded in 1964 and opened to fishing in 1967. Once famous for the world record White Bass weighing 6 pounds 13 ounces in 1989, the lake is located just a few miles east of Orange, VA and offers a scenic setting surrounded by gently rolling farmland and hardwood forests. Lake Orange can be reached by taking Route 629 off of either Route 20 or Route 522, depending on where you are traveling from. Turn onto Route 739 and follow it to the end. Lake access is on the western side where the boat ramp, concession, fishing pier, parking lot, picnic facilities and plenty of great shoreline access can be found.

Lake Orange offers a concession that provides boat rental, bait, tackle and food. Picnic facilities of a shelter, tables and grills make for an enjoyable family outing. The lake is open year round and 24 hours a day for shore fishing and private boats. The concession is open from mid-March through mid-October (Thursday to Monday), however; the other facilities are open all year. The fishing pier is a popular spot for shore-bound anglers and provides handicapped access. Several fish attractor reefs have been installed around the lake to help concentrate fish in areas accessible to anglers. Fish reefs are marked by buoys and a few have been suspended under the fishing pier.

The lake is fertilized annually to stimulate the aquatic food chain. The added nutrients increase the lake's productivity and overall fish production but are used within the system without adding to nutrient loads downstream. In 2017, JMU was contracted to conduct a study on impoundments to evaluate nutrient budgets and assess the effectiveness of DWR's fertilization program and to ensure impacts downstream were negligible. This initiative was due in large part to the 2010 United States Environmental Protection Agency (EPA) Total Maximum

Daily Load (TMDL) nutrient reduction strategy. Results confirmed that the DWR impoundments fertilized acted as nutrient sinks with no export of nitrogen or phosphorous.

Lake Orange is sampled every 4-5 years by electrofishing (EF) to get an accurate picture of the fisheries status. Electrofishing is an active sampling method used to determine abundance, density, and species composition of fish populations. Typically, community sampling is done in daylight.

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 \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 (e.g., catfish), but Largemouth Bass harvest has been regulated by a 16-22" protected slot limit. Anglers are required to immediately release any bass between 16 and 22" (inclusive), and can creel only one bass per day over 22" and up to four bass per day under 16". Harvest of bass below the slot is beneficial to minimize stockpiling of small fish, increase growth and maintain a desirable size structure. In order to sustain Lake Orange as a trophy bass fishery, anglers are

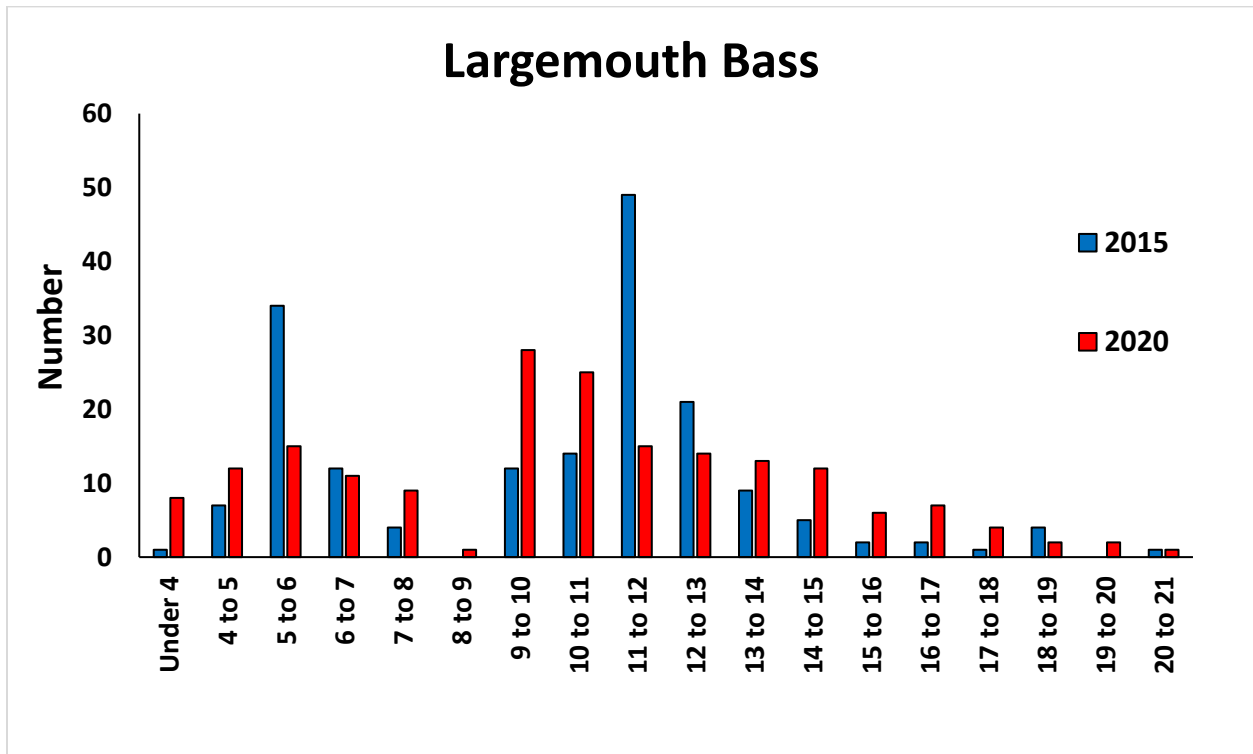
encouraged to keep bass under 16 inches, (especially those from 10-12”), and release bass over 22”. Anglers are also encouraged to keep Black Crappie (25 per day, 9” minimum). New Channel Catfish regulations allow anglers to keep up to 8 per day with a 15” minimum. Walleye harvest is controlled by a 5/day 18” minimum regulation.

Largemouth Bass

The 2020 electrofishing survey produced a very high catch rate of 185 Largemouth Bass/hour of sampling which was relatively unchanged from 2015 (178/hr). The population size structure of Largemouth Bass (LMB) in 2020 was slightly better than the previous sample in 2015. PSD increased to 51 from 48. 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 improved in 2020 (20) as compared to 9 in 2015, and indicative of a desirable size structure with a population trending towards larger individuals. CPUE of preferred size bass increased from 11/hr (2015) to 26/hr in 2020. The collected bass were holding close to shoreline cover with some bass along the outside edges of flooded timber. Length distribution of collected bass ranged from 3 to 21”, with a large proportion of bass in the 9 to 15” range which suggests overall bass size structure has remained stable. Lake Orange is ranked 10th in the NOVA district for CPUE of preferred bass.

The 2020 Lake Orange creel survey revealed Largemouth Bass were heavily sought after, although the fishery was primarily catch and release (94%). Anglers caught and released a total of 2341 largemouth bass, however anglers harvested 160 bass with the average weight being 1.3 pounds indicating that smaller bass are being creeled as a result of the 16-22” protected slot limit.

The abundance of Gizzard Shad in the lake has made bass fishing a little more difficult. Anglers should try using crankbaits and other artificial lures that resemble a shad pattern and shape. Jigging spoons through schools of bass feeding on shad is another good pattern.



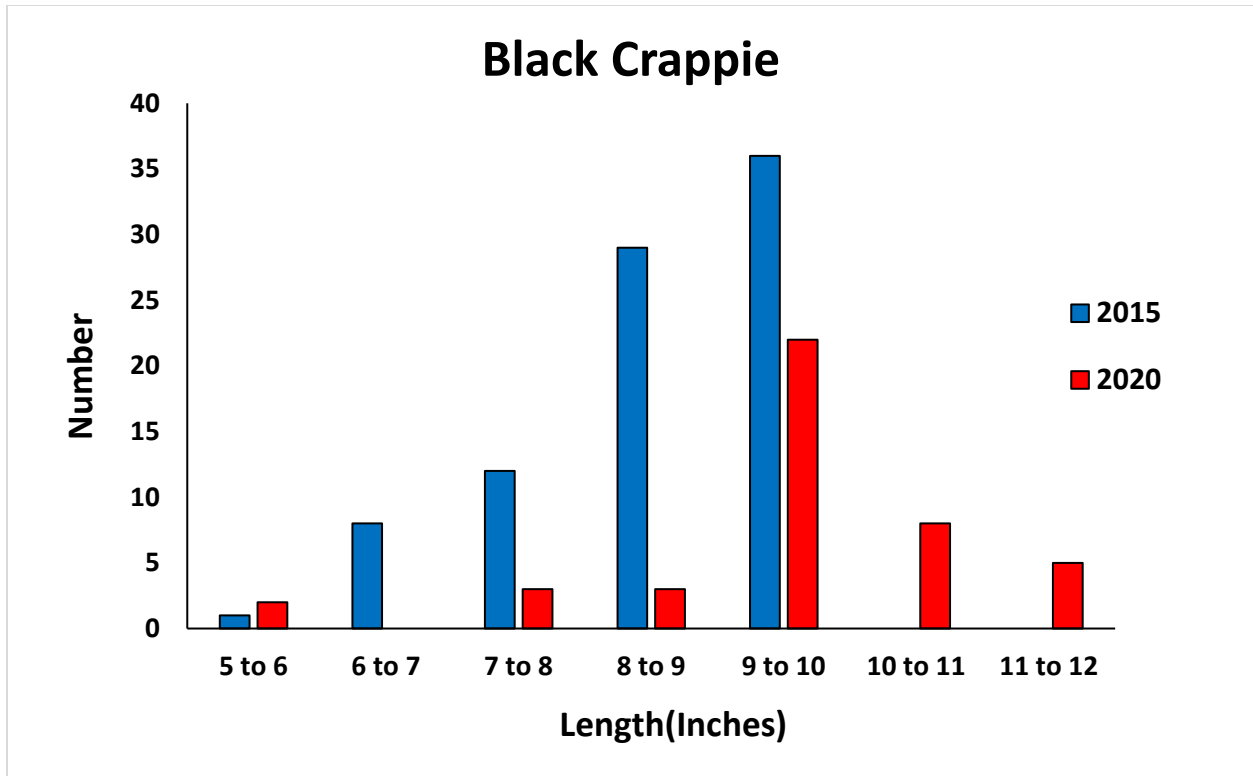
Black Crappie

Lake Orange provides an adequate Black Crappie fishery. Black Crappie (BLC) electrofishing CPUE was lower in 2020 (43 fish/hr) compared to 2015 (86 fish/hr). Proportional Size Distribution (PSD) increased from 83 to 91 in 2020 (30-60 is balanced) suggesting a population made up of larger fish. Proportional Size Distribution of preferred fish (PSD-P; ratio of adults greater than 10”) was much better in 2020 (63) as compared to 6 in 2015, and indicative of a desirable size structure with a population with larger individuals. The length distribution ranged from 5 to 12” with the majority being 9 to 12”. 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 and can compete with bass resulting in 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-fish/day (9" minimum) creel limit. Crappie are readily available lake-wide during spring to early summer.

Black Crappie were the dominant species harvested during the 2020 creel survey with a total of 2510 fish weighing 1254 pounds (avg. weight of 0.5 pounds and an avg. length of 10"). Crappie size distribution continued to improve as the 9-inch minimum size limit increased size structure.

Anglers do well catching crappie off of the fishing pier, fish attractors, or near the many beaver lodges. Anglers are encouraged to try various crappie style jigs until they find a pattern that works best. A good technique for Lake Orange crappie is using light jig heads tipped with small minnows.

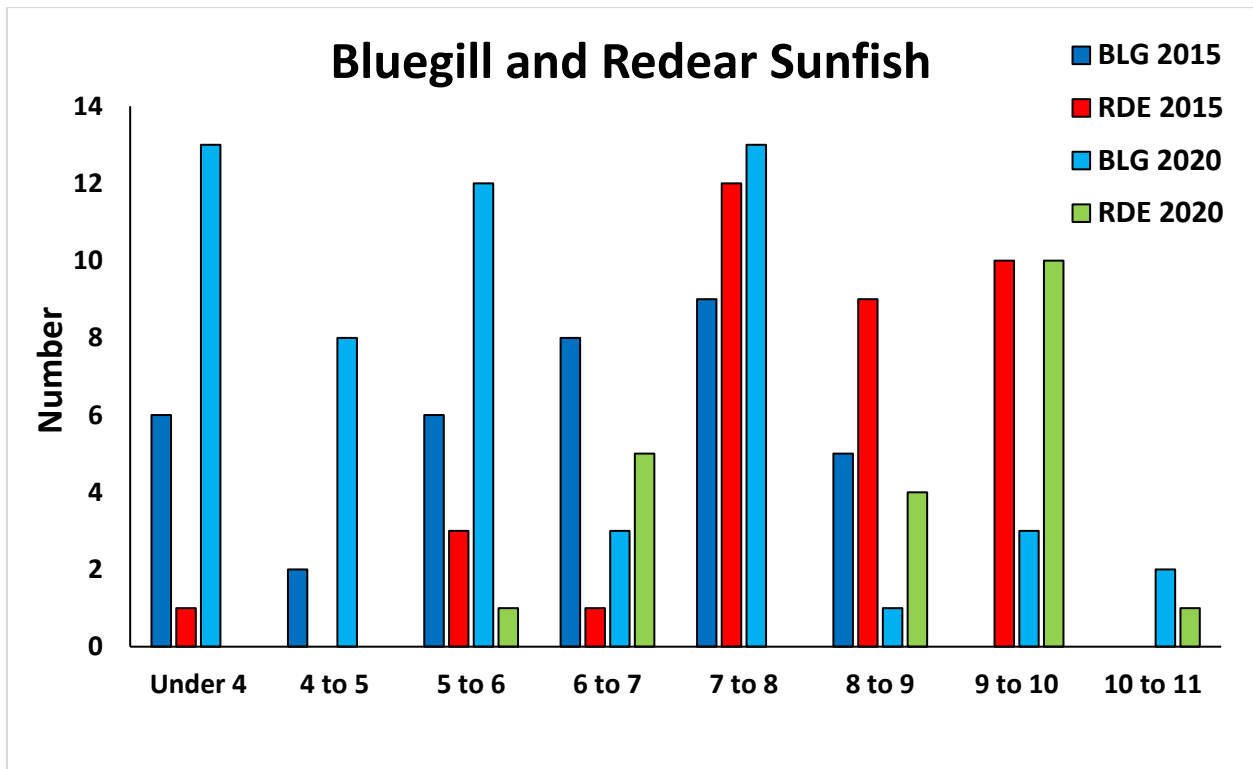


Panfish

The 2020 electrofishing survey collected 55 Bluegill (BLG) per hour, an increase from 2015 (36 fish/hr). BLG size distribution ranged from 3 to 11”, with most fish in the 3 to 8” range. Bluegill PSD decreased from 72 (2015) to 51 in 2020, putting the population back in balance (20-60 is balanced). Bluegill were the second most species harvested in the 2020 creel survey with a total of 766 and an average weight of 0.28 lbs. Anglers are encouraged to continue harvesting BLG to avoid an overcrowded, stunted population.

The Redear Sunfish (RDE) population also appears to be in good shape. A total of 21 RDE per hour were collected in 2020 which was a decrease from the 2015 survey (36 fish/hr). The majority of the fish caught were in the 5 to 10” range. PSD decreased from 86 to 71, suggesting a shift towards a more balanced population. Proportional Size Distribution of preferred fish (PSD-P; ratio of adults greater than 9”) was much better in 2020 (52) as compared to 29 in 2015, and indicative of a desirable size structure with a population trending towards

larger individuals. Redear Sunfish were the fourth most harvested fish (546) and averaged 0.4 lbs.



Additional Fish Species

Channel Catfish (CCF) have done well at Lake Orange and are the second most harvested species at the lake. CCF have been stocked since the lake was first impounded in 1964. The lake has been stocked annually since 1986 and the current stocking rate of 20/acre produces numerous catfish in the 2-pound plus range. In 2020, anglers harvested 1009 catfish for a total of 223 pounds. The average weight of harvested catfish was almost 2.5 pounds. A new regulation of 8/day and 15" minimum is now in effect.

Lake Orange offers a nice Walleye (WAE) fishery. The lake is currently stocked at a rate of 100 WAE/acre. Lake Orange is part of the DWR Walleye study which is designed to learn more about angler catch rates and harvest of WAE with variable stocking rates. Approximately 100

WAE were tagged annually at Lake Orange during the study (2014-2020) with Floy tags attached below the dorsal fin. Anglers who catch a tagged Walleye can return the tag (with requested information) for a \$20 reward. Anglers who actively target Walleye have some success with catches of fish in the 3 to 5 pound range. During March 2020, the Walleye and Saugeye (SAE) populations were sampled with boat electrofishing gear along shoreline sites for a combined 9.7 hours. Saugeye are a cross between female Walleye and male Sauger. All fish collected were tagged with reward information and released to examine angler catch and exploitation. A total of 146 were collected (55% SAE) for an above average catch rate of 17 fish/hour. Historically, catch rates at Lake Orange have been lower than at other small impoundments (small impoundments goal is ≥ 10 fish/hour). Collected fish ranged in size from 7 – 25 inches with 29% of fish collected larger than the legal size of 18 inches. A total of 139 fish were tagged in 2020, and 22 tags were returned by anglers. The current fish community also includes populations of Yellow Perch, White Perch, Chain Pickerel, Warmouth, Green Sunfish, and Brown Bullhead. Other species that didn't appear in the recent surveys but are also likely still present include Golden Shiners, sucker species and Flathead Catfish introduced illegally years ago.

Lake Orange offers a variety of habitat to attract fish. Shoreline habitat consists of Water Willow, downed timber and some spots of Hydrilla. There are several beaver lodges and brush piles around the lake that hold large numbers of crappie and other sunfish. Over the years fish habitat has been added in the form of trees and custom structures marked by buoys.

For more information on Lake Orange, please contact:

Virginia Department of Wildlife Resources

1320 Belman Road

Fredericksburg, VA 22401

(540) 899-4169

or

Angler's Landing at Lake Orange

(540) 672-3997