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Chickahominy Lake 2020 Fisheries Management Report

Virginia Department of Game and Inland Fisheries

Chickahominy Lake is a 1230-acre water supply reservoir located along the New Kent-Charles City county line. The low-head dam of this reservoir is known locally as Walkers Dam. This dam was completed in 1943 and it incorporated a twin Denil fish ladders to allow for the passage of anadromous fish such as blueback herring and striped bass. Recent dam repairs have constructed a new fish ladder near the north shore of the lake. This cypress tree-laden lake provides a spectacular backdrop for photographers and great place for bird watchers. The lake's forage base is comprised of populations of gizzard shad, golden shiner, and blueback herring. Chickahominy Lake has a plentiful supply of fish habitat in the form of cypress trees, water lilies, and submerged aquatic vegetation. Hydrilla and other submerged aquatic vegetation have been able to grow rather dense in the numerous, shallow areas of the lake. The abundance of vegetation serves as a nursery area for many juvenile fish. Anglers must be willing to adjust to the heavy vegetation during the summer to mid-fall time period.

The Virginia Department of Game and Inland Fisheries conducted an electrofishing survey of Chickahominy Lake on April 11th and 17th, 2019. The electrofishing survey consisted of covering five historical shoreline sites. Issues with the generator did not allow for the usual coverage of nine survey sites. The combination of the runs provides a picture of the present fish assemblage. Electrofishing efforts consisted of shocking along the shoreline habitat as close as possible, with the majority of the effort concentrated in the 2 to 4 foot depth range. The 2019 survey targeted the predator species such as bass, black crappie, chain pickerel, bowfin and yellow perch. Assessment of the full community fish structure, primarily the sunfish population, will be addressed in 2020 during the electrofishing and trap net surveys.

Largemouth Bass

The largemouth bass population within Chickahominy Lake appears to be in good shape. A total of 134 largemouth bass were collected for a CPUE (Catch Per Unit of Effort) of 90 fish/hr. The catch rate showed a slight increase when compared to the 2018 survey (CPUE = 86 fish/hr). The mean CPUE from recent spring survey years (2006 – 2018) was 79.5 bass/hr. The CPUE of Preferred-size bass (≥ 15 inches) was 30 fish/hr, which showed a minor increase from the 2018 survey (CPUE-P = 28 fish/hr). The catch rate of preferred-sized bass can vary from year to year based on whether or not a large proportion of the female bass are encountered during the survey. The female bass will usually be your larger fish that are staging in and around the spawning grounds. Early spring surveys will typically reflect higher catch rates of larger fish if female brood stock are still in the process of spawning.

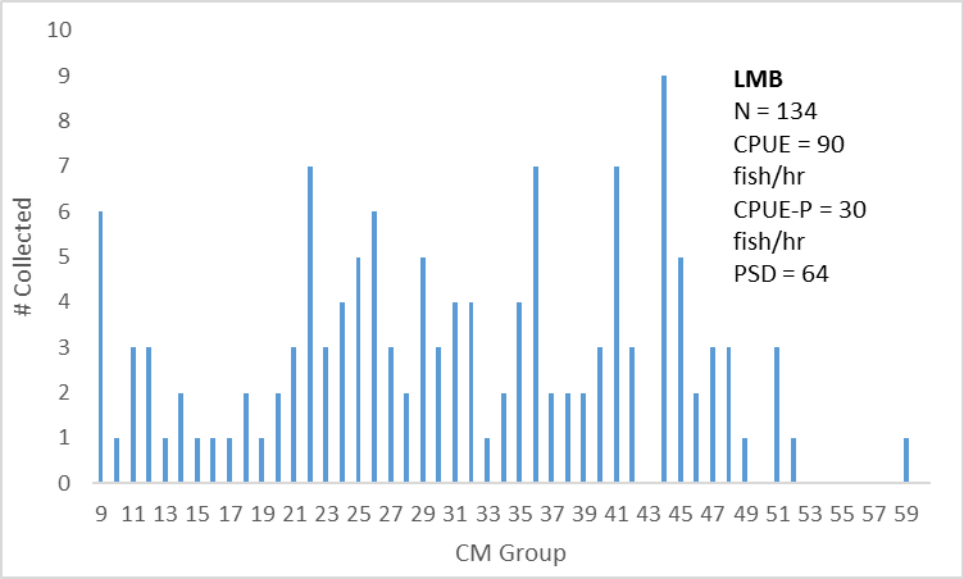

Figure 1. Length frequency distribution of largemouth bass collected from Chickahominy Lake during April 2019 electrofishing surveys.

The 2019 length distribution showed a high proportion of collected bass to be greater than 30 centimeters (12 inches in length). Recruitment of juvenile bass has not been as strong over the last few years, but the presence of various year classes can be observed by the distribution peaks. The largest bass measured 23.26 inches and weighed 7.83 pounds. Although not collected in the survey, Chickahominy Lake has the potential to produce respectable catch rates of bass greater than 8 pounds each year.

Fisheries biologists of the past established certain size classifications to describe the fish they collected. It is through these size classifications that population dynamics are analyzed. The size designations are stock, quality, preferred, memorable, and trophy. The PSD (Proportional Stock Density) is the proportion of stock-sized bass (8 inches or larger) that are also equal to or greater than 12 inches (quality size). A balanced bass/bluegill fishery has a bass PSD value within the 40 – 60 range.

With largemouth bass being the most popular game fish in this country, it has been considered that a “preferred” bass is one that is over 15 inches in length. The RSD-P (Relative Stock Density of Preferred bass) is the proportion of stock-sized bass that are also equal to or greater than 15 inches in length. The PSD and RSD-P values represent the distribution of collected fish, but one must take into account the total number of bass collected along with the total of stock-sized bass in the sample. The sample showed a PSD value of 64, which is a direct reflection of the 72 quality-sized bass. The sample yielded 112 bass that were stock size or larger. The RSD-P value of 40 is a direct reflection of the 45 preferred-sized bass collected. The 2019 PSD and RSD-P values showed a decline from the 2018 values (PSD = 80, RSD-P = 43). The collection of five memorable-sized bass yielded a RSD-M value of 4, which was slightly less than 2018 (RSD-M = 5).

Weights were taken on largemouth bass to calculate relative weight values. Relative weight values are an indication of body condition. A value from 95 to 100 represents a fish that is in the healthy range and finding a decent amount of food. The

higher the value, the better the condition of the fish in terms of overall body mass. Weights were taken on all collected bass. The relative weight values for stock, quality, preferred and memorable bass (≥8", ≥12", ≥15", ≥20") were 97, 97, 95, and 93. The 2019 relative weight values were within the desired range except for the memorable-sized bass, with a slight increase from 2018 values (stock = 95, quality = 95, preferred = 94, memorable = 97).

Black Crappie and Yellow Perch

The electrofishing survey collected a total of 36 black crappie (CPUE = 24 fish/hr). The catch rate showed a minor increase from the 2018 survey (CPUE = 16 fish/hr). The mean CPUE from spring electrofishing surveys was 18.7 fish/hr. The largest crappie measured 13.5 inches and weighed 1.56 pounds. The length frequency distribution was similar to past surveys with the majority of crappie measured in the 25 to 30 centimeter range (10 to 12 inch range). A limited abundance of juvenile black crappie were collected, with only four fish less than 23 centimeters in length. Relative weight data of collected crappie (stock = 86, quality = 86, preferred = 86, memorable = 87) showed a similarity to the 2018 survey (stock = 87, quality = 85, preferred = 85, memorable = 80). The competition for small forage fish is high due to the abundance of predator fish in the system. The black crappie are competing with a variety of other fish species for the limited abundance of juvenile sunfish and shiners.

The yellow perch population has historically been hard to target. The 2019 survey revealed the presence of six yellow perch for a CPUE of 4 fish/hr. The 2018 survey provided more excitement with the collection of 33 yellow perch (CPUE = 16.5 fish/hr). The 2019 limited sample set of yellow perch were within the 4.5 to 7.5 inch range. Some talented anglers have been able to catch larger yellow perch after figuring out their patterns and where they typically stage during the various seasons.

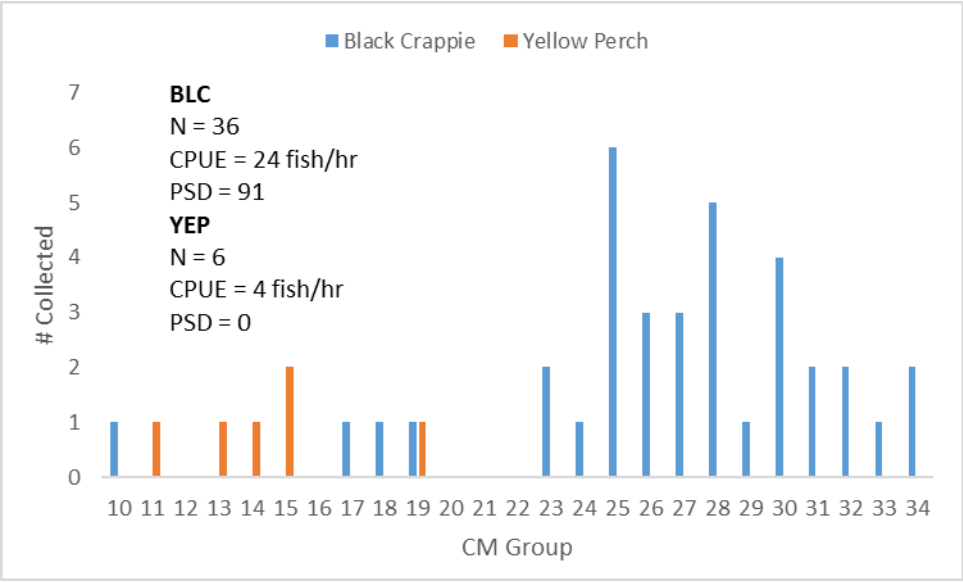

Figure 3. Length frequency distribution of black crappie and yellow perch collected during the electrofishing surveys of Chickahominy Lake in April 2019

Bowfin and Chain Pickerel

The electrofishing survey revealed an abundance of bowfin present along the sites sampled. A total of 80 bowfin were collected (CPUE = 53 fish/hr). The catch rate showed a major increase when compared to the poor results of the 2018 survey (CPUE = 4 fish/hr). A large proportion of the sample consisted of bowfin in the 44 to 53 centimeter range (17 to 21 inch range). Certain areas of the lake hold greater concentrations of bowfin than others. Bowfin will congregate in areas where they can target prey species such as creek chubsuckers and golden shiners. The bowfin fishery should still provide plenty of excitement for the average angler that fishes Chickahominy Lake. DGIF fisheries staff tagged numerous bowfin several years ago. Anglers should keep their eyes open for any tags near the dorsal fin on the fish's left hand side. The tags are in a variety of colors which typically start to grow a green algal film on them over the years. Each tag can be lightly scratched with a thumb nail to reveal the specific tag number that corresponds to the specific fish. Recapture data of length and approximate weight will provide data to assess growth and survival rate along with broad range movements. There are no rewards for these tagged fish, but any information that can be passed along will be greatly appreciated.

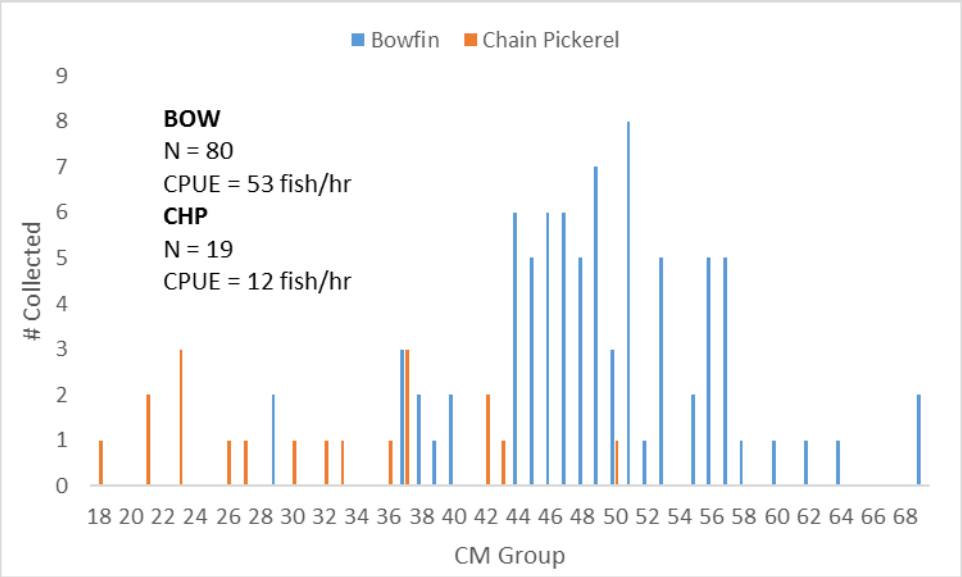

Figure 3. Length frequency distribution of bowfin and chain pickerel collected during the electrofishing of Chickahominy Lake in April 2019

The chain pickerel population of Chickahominy Lake has historically provided a lot of action for anglers over the years. Catch rates encountered during the electrofishing surveys are most likely underestimating the strength of the chain pickerel population. The massive amount of habitat that is present in the lake provides plenty of hiding spots for the chain pickerel. The survey collected 19 chain pickerel for a CPUE of 12 fish/hr. This catch rate showed an improvement from 2018 (CPUE = 2 fish/hr). The size distribution ranged from 18 to 50 centimeters (7 to 19 inches). The largest chain pickerel measured 19.76 inches and weighed only 1.52 pounds.

Anglers have still been able to catch a few larger chain pickerel in the 2 to 4 pound range. Numbers of reported chain pickerel citations has dropped severely. Early season electrofishing surveys during February and March were not conducted on Chickahominy Lake. The majority of the chain pickerel spawning season usually takes place toward the end of February in a lot of the backwater coves and marsh areas. This would be the best opportunity to catch some of the larger chain pickerel in a pre-spawn pattern as they are one of the first species to spawn. There are some large chain pickerel out there. It is just a matter of finding where they are hiding.

Remaining Species

The 2019 survey was primarily a predator species survey with emphasis placed on the above listed species. The remaining species collected in low abundance were alewife, American eel, flier sunfish, blueback herring, and warmouth sunfish. Chickahominy Lake is a popular destination for anglers looking to fly fish for quality-sized bluegill and redear sunfish, especially during the spring spawn, which has the fish tucked close to the shorelines.

Summary of the Fishery

Chickahominy Lake provides a variety of fish species for anglers to target. The majority of the action will come from the abundant largemouth bass and black crappie populations. The lake produces a high abundance of 2 to 4 pound bass with the potential to grow trophies in the 7 to 10 pound range. Recent fishing reports from Ed Allen's Boat and Baits relay that numerous bass greater than 9 pounds have been caught by anglers. The last couple of years have yielded a very impressive total of bass caught over 5 pounds in weight. The lake offers plenty of opportunities to catch a mixed bag of sunfish species in the form of bluegill, redear sunfish, flier, and warmouth. A few larger bluegill can be a surprise for light tackle anglers. Certain areas of the lake will hold some larger redear sunfish during the spring season as the fish prepare for the spawn. The bowfin population is still strong with an abundance of fish in the 18 to 22 inch range. The chain pickerel population is not as strong as it used to be, but anglers that fish the lake on a consistent basis can possibly find a few larger pickerel when the conditions are perfect. Blue catfish anglers have been catching a decent number of 20 to 40 pound fish toward the lower end of the lake.

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