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Little Creek Reservoir 2020 Fisheries Management Report **Virginia Department of Wildlife Resources**

Little Creek Reservoir is owned by the City of Newport News and is located within James City County. This 947-acre reservoir has a relatively small watershed that can be supplemented by water pumped in from Chickahominy Lake or from Diascund Reservoir. Water from Little Creek Reservoir is pumped to the terminal reservoirs in the Newport News water supply system. James City County operates a public park at the lake. A boat ramp, courtesy pier, fishing pier, and concession stand are present at the park. The reservoir has numerous creek arms and coves that provide plenty of areas for anglers to try their luck. The majority of the reservoir has steep shoreline drop-offs with crystal clear water. The use of outboard engines is prohibited on Little Creek Reservoir. The use of trolling motors is permitted. The park rents jon boats with trolling motors and can be reached by calling (757) 566-1702. Newport News Waterworks drew down the reservoir in 2020 to accommodate the initial plans of repair work on the dam. The water level was down 4.5 feet during the 2020 survey and was down as much as 11 feet in late summer. The park pulled their rental jon boats away from the rental docks, but still had some kayaks available for rental use.

The Virginia Department of Wildlife Resources conducted an electrofishing survey of Little Creek Reservoir on May 19th, 2020. The previous full community survey was conducted on May 3rd, 2018. The survey was conducted in six regions of the reservoir to get a broad spectrum of the fish assemblage present. Each sample run was 20 minutes long to combine for two hours of electrofishing effort. The sample consisted of shocking along the shoreline habitat as close as possible, with the majority of the effort concentrated in the 2 to 5 foot depth range. The majority of the shoreline habitat in the form of downed trees and branches had been left high and dry by the reservoir drawdown. The survey revealed high diversity with 13 species of fish collected. This report will concentrate primarily upon the five major fish species: largemouth bass, chain pickerel, black crappie, redear sunfish, and bluegill.

Largemouth Bass

The largemouth bass population within Little Creek Reservoir appears to be in fair shape. The clear waters and steep shoreline habitat have historically produced limited success when it comes to sampling bass. Bass within Little Creek Reservoir have the tendency to hold in deeper water and to be easily spooked by the electrofishing boat. The survey revealed the presence of 46 largemouth bass for a CPUE (Catch Per Unit of Effort) of 23 fish/hr. This catch rate showed a decline from the 2018 survey (CPUE = 38 bass/hr). The size distribution of the collected bass can be seen on the enclosed length frequency graph. The decrease in water level along with the later than normal sample date most likely missed the vast majority of the larger brood stock of bass. The larger

female bass vacated the shallows by the time of the survey and the distribution shows the lack of any respectable-sized bass. Finding pre-spawn and spawning fish in the shallows during an electrofishing survey is never a given as bass at Little Creek Reservoir can construct their spawning beds in 6 to 8 feet of water due to the clarity of the water.

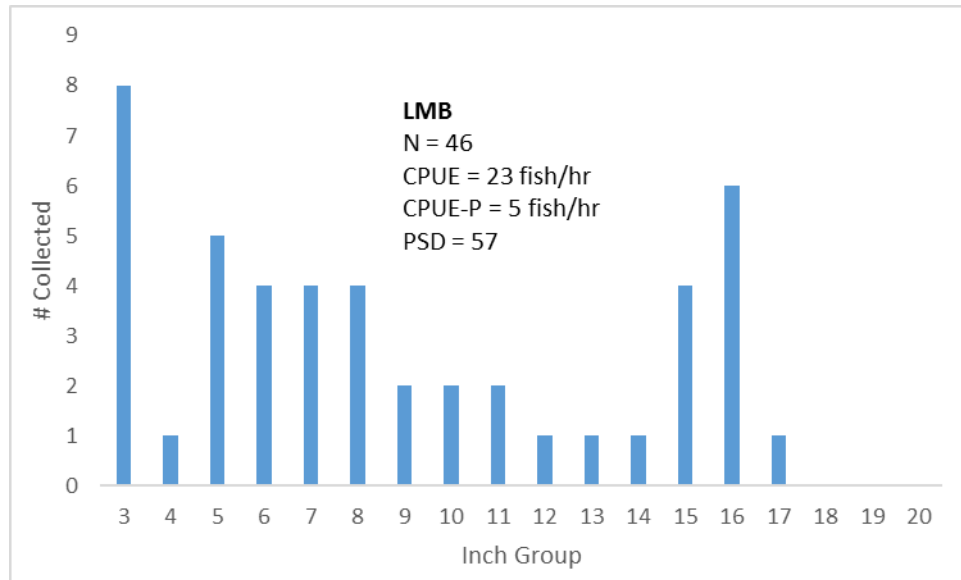


Figure 1. Length frequency distribution of largemouth bass collected during the electrofishing survey of Little Creek Reservoir on May 19th, 2020

The size distribution of collected bass ranged from 2.8 to 17.36 inches and showed a high proportion of bass less than 12 inches in total length. These bass represent the blending of a couple year classes of recruitment. The collection revealed 30% of the bass to be greater than 30 cm (12”). Our sampling efforts are just a representative picture of the fish community collected along the shoreline on May 19th, 2020. Larger bass may have been able to escape from the electrofishing boat or may just be living in other areas of the reservoir that were not sampled. The largest collected bass only weighed 2.87 pounds. Anglers that fish Little Creek Reservoir on a consistent basis and are willing to fish deeper patterns have been able to catch a few bass in the 3 to 5 pound 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. It is through this size classification that population dynamics are analyzed. 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). The sample showed a PSD value of 57, which is a direct reflection of the 13 quality-sized bass. The sample had a total of 23 bass that were stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40 – 60 range. The 2020 PSD value showed a large decline from the 2018 value (PSD = 76). 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 2020 RSD-P value of 48 is a direct reflection of the 11 preferred fish being collected. This RSD-P value showed an increase from 2018 survey (RSD-P = 34).

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. The relative weight values for stock, quality, and preferred bass (>8", >12", >15") were 97, 94, and 94 respectively. These relative weight values were within or close to the desired range and showed a favorable increase from the 2018 survey (Wr stock = 93, Wr quality = 92, and Wr preferred = 91).

Chain Pickerel

The chain pickerel population within Little Creek Reservoir continues to be abundant. The survey yielded 66 chain pickerel for a CPUE of 33/hr. This catch rate showed a minor increase from the 2018 survey (CPUE = 29.5 fish/hr). The 2020 size distribution ranged from 1.85 to 19.37 inches. The majority of the chain pickerel were less than 30 cm (12"). Some strong recruitment of juvenile chain pickerel has been observed over the last few years. The pickerel are taking advantage of the abundant sunfish population. The chain pickerel forage upon the juvenile bluegill that are present primarily along the littoral zone and adjacent to any hydrilla beds. Chain pickerel may also be foraging upon juvenile yellow perch, which helps to prevent the yellow perch population from being stunted with an excessive number of fish in the 3 to 5 inch range.

The average-sized chain pickerel collected during the electrofishing survey measured 7.9 inches due to the abundance of juvenile fish collected. The largest chain pickerel measured 19.37 inches and weighed 2.05 pounds. The electrofishing catch rate of chain pickerel was higher in Little Creek Reservoir than in every other public lake or reservoir sampled in Region 1, District 1 during the 2020 survey year. Little Creek Reservoir has the potential to become one of the better chain pickerel fisheries in the state if given a few years to mature while growth and survival rates remain consistent. Some walleye anglers have caught their fair share of chain pickerel in the 3 to 4 pound range over the last few years. Most of these larger pickerel will be found in deeper water were they might be foraging on any blueback herring that they can encounter.

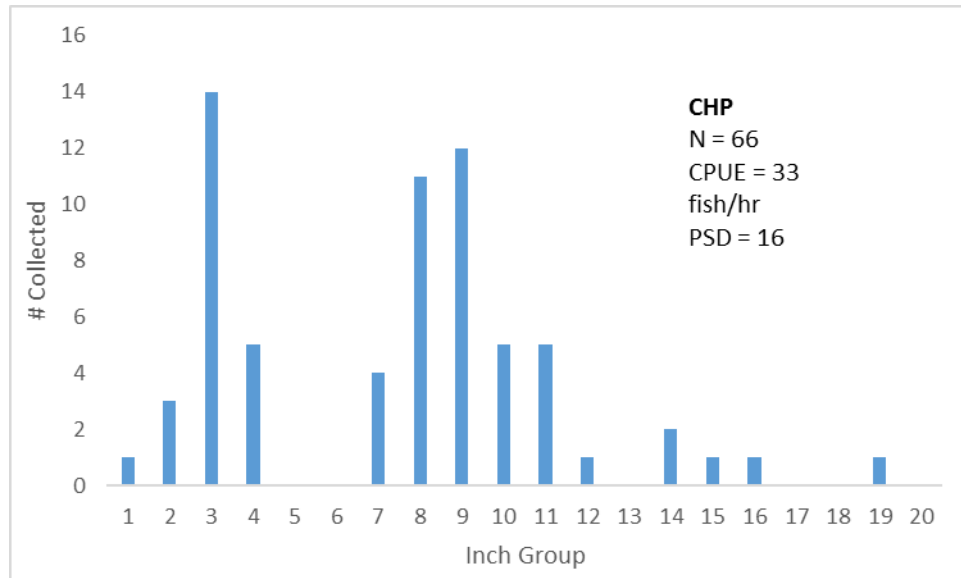


Figure 2. Length frequency distribution of chain pickerel collected during the electrofishing survey of Little Creek Reservoir on May 19th, 2020

Black Crappie

The black crappie population appears to be in fair shape with majority of sample consisting of crappies in the 6.5 to 7.5-inch range. The electrofishing survey was able to collect a limited abundance of fish with only 16 black crappies boated (CPUE = 8 fish/hr). Black crappies tend to school in waters deeper than bass and bluegills. The random nature of encountering a school of crappies can make assessing their overall abundance rather difficult. The last survey run encountered 15 out of the total 16 crappies all hanging within close proximity of a downed tree. Considering this, the typical shoreline sample can be very random as to whether or not a school is encountered during a sample run.

The limited sample set from 2020 revealed all crappies to be less than 8 inches in total length. The largest black crappie measured 7.9 inches and the average size crappie measured 6.57 inches. The size distribution left something to be desired due to the fact that no larger crappies were collected. Past angler reports have shed additional light on the fishery. Dedicated anglers with years of crappie fishing experience and some of the best boat electronics are able to find schools of larger crappies. These larger fish are not always that easy to find, but can provide an extremely exciting day on the water. It appears that some successful crappie recruitment is making its way through the fishery. DWR staff conducted a pelagic stocking of roughly 18,000 black crappie fingerlings in 2019. Some of these stocked fish could combine with natural recruitment to provide a banner year class. Spawning success of black crappies can be highly variable. Crappies can have several bad year classes in a row and then have a very large and healthy year class survive to keep the population supported for years to come. Angler that fish Little Creek Reservoir multiple times throughout the year have a better chance at figuring out the movements of these schooling fish and have a better chance of finding some of the larger specimens.

Bluegill and Redear Sunfish

The survey continued to reveal the bluegill fishery to be dominated by fish less than 5 inches in length. The collection of 305 bluegills over the course of three sample runs (1 hr of effort) yielded a CPUE of 305 fish/hr. This catch rate showed a decline when compared to the 2018 survey (CPUE = 562 fish/hr). The reservoir drawdown most likely had a large influence on the decline in bluegill abundance. Collected bluegills ranged in size from 1.65 to 7.68 inches. The average sized bluegill measured a less than impressive 2.97 inches in total length. The largest bluegill measured 7.68 inches, which was similar to past surveys. The PSD for bluegill is the proportion of bluegill over 3.15 inches (stock size) that are also at least 5.9 inches (quality size). The bluegill PSD value of 5 is a direct reflection of 4 quality-sized bluegills collected. A total of 86 stock-sized bluegills were collected. The PSD value is well below the desired 20 - 40 range that would represent a balanced bluegill population. The PSD value revealed a minor decline when compared to the 2018 survey (PSD = 7). There are a few decent bluegills within Little Creek Reservoir, but the majority of the sunfish action will come from the larger redear sunfish that are present.

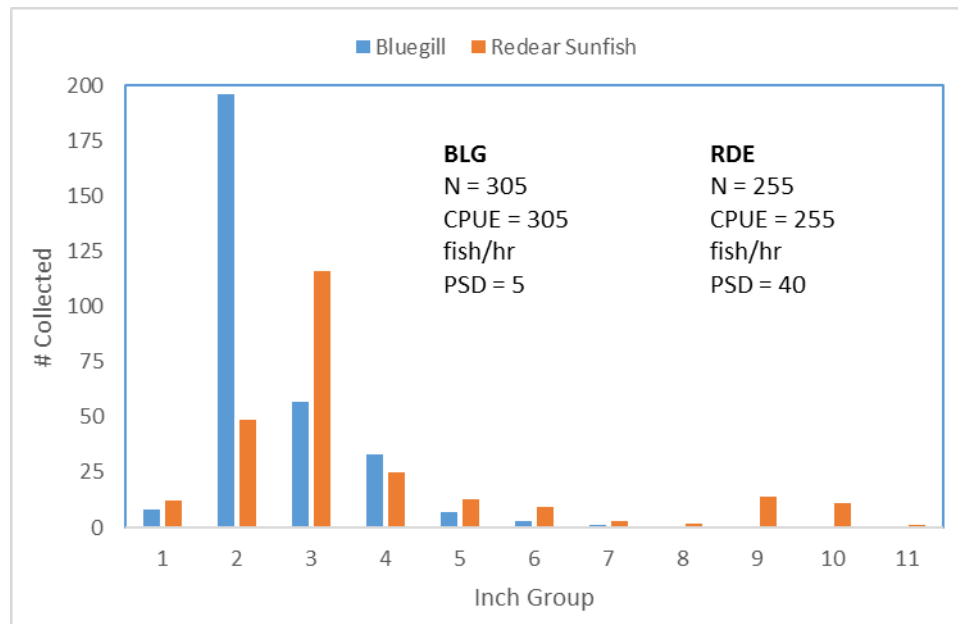


Figure 3. Length frequency distribution of bluegill and redear sunfish collected during the electrofishing survey of Little Creek Reservoir on May 19th, 2020

The redear sunfish population appears to be in decent shape. The survey collected 255 redear sunfish for a CPUE of 255 fish/hr; a sizeable increase from the 2018 survey (CPUE = 157 fish/hr). The 2020 size distribution consisted of fish ranging in size from 1.57 to 11.02 inches, with the majority of fish less than 6 inches in total length. Little Creek Reservoir is one of the few reservoirs that consistently produces a strong recruitment of juvenile redear sunfish. The abundance of juvenile fish had the average sized redear sunfish at 4.2 inches in total length. The largest redear sunfish was a respectable citation that measured 11.02 inches and weighed 1.06 pound. The fishery has historically yielded a decent number of citation-sized redear sunfish to anglers each

spring. The catch rate of citation sized redear sunfish has dropped over the last few years, as this might be just a matter on anglers failing to report their catches. One of the predator only survey runs, in which redear sunfish were not collected, an abundance of large redear sunfish in the 10 to 11 inch range were observed on the edge of flat as they appeared to be stacked up on spawning beds.

Yellow Perch and Warmouth Sunfish

Little Creek Reservoir has historically been one of the better regional waters for anglers to catch a citation-sized yellow perch. DWR sampling has not been able to find the schools of larger perch that are present. Most of the larger perch hold in deeper water that the electrofishing boat cannot effectively sample. The survey yielded only three yellow perch that ranged in size from 6.96 to 9.72 inches. Anglers consistently catch numerous citation-sized yellow perch in the 12 to 13 inch range each year with the majority of these larger fish caught while actively fishing for walleye and saugeye.

The population of warmouth sunfish appears to have seen a substantial increase since 2018. The 2020 survey collected 59 warmouths (CPUE = 59 fish/hr) which showed a major increase from 2018 (CPUE = 3 fish/hr). Collected warmouths ranged in size from 2.05 to 7.2 inches with the average size of 4 inches. The size distribution revealed at least four distinct year classes of warmouths present. The presence of warmouths within the fishery might provide some additional action for anglers that are targeting the bluegill and redear sunfish populations. Warmouths, in general, rarely grow larger than 8 inches in most of the public impoundments within Region 1.

Remaining Species

The remaining six species of fish collected during the electrofishing survey were American eel (N = 22), blueback herring (N = 4), yellow bullhead (N = 2), golden shiner (N = 2), tadpole madtom (N = 3), and bluespotted sunfish (N =14). These fish were collected in limited abundance and provide some diversity to the fishery. The American eels ranged in size from 12.4 inches to a massive 31.14 inches. The average size eel was roughly 20 inches in length. The blueback herring ranged in size from 4.5 to 5.5 inches. The blueback herring provide the largest portion of the forage base even if the survey did not verify their abundance. The yellow bullheads were juveniles that measured 4.5 inches in length. The two golden shiners measured 4 and 4.5 inches. The tadpole madtoms came as a nice surprise as they are not often collected. These three fish measured in the 3.5 to 4 inch range. The Bluespotted sunfish ranged in size from 1.5 to 2.5 inches. The best chance anglers have of catching any of these additional species will come from the American eels as they often surprise anglers that troll around the reservoir with night crawlers in hopes of finding walleye or saugeye.

Summary

Little Creek Reservoir provides a wide variety of fish species for anglers. The electrofishing survey collected a total of 13 fish species. The electrofishing survey has its limitations when it comes to certain fish species. A prime example would be the lack of walleye, saugeye, channel catfish, striped bass, and gizzard shad. The fishery has all of these species, but none were found during the day survey in 2020. The reservoir is stocked with striped bass fingerlings each year. The last couple of years have seen an

interruption in the typical stocking rate of 100 walleye fingerlings/acre. There is a chance that Little Creek Reservoir will receive a large stocking effort of walleye fry during the spring of 2021 if all goes well at the DWR hatcheries. The electrofishing survey revealed a decreased catch rate of largemouth bass (CPUE = 23 fish/hr). The electrofishing size distribution showed a high proportion of bass less than 12 inches in length. Anglers that fish the reservoir on a regular basis are able to catch a fair number of bass in the 3 to 5 pound range. Collected bass were in decent shape with favorable relative weight values. The bluegill fishery is primarily based on an abundance of small fish less than 5 inches in length. The redear sunfish population revealed an increase in catch rate compared to the 2018 survey, with some decent fish in the 8 to 11 inch range collected. The 2020 survey provided little insight into the full strength of the black crappie population. Some younger crappies were collected as anglers can still find some larger crappie if they try hard enough to locate their schools. The chain pickerel population continues to be rather abundant with a high proportion of fish less than 12 inches. The last few years have seen the chain pickerel population expand with several strong year classes observed. The increased abundance of hydrilla and other submerged aquatic vegetation has surely helped to support the chain pickerel population.

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