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Swift Creek Lake 2019 Fisheries Management Report

Virginia Department of Game and Inland Fisheries

This 156-acre impoundment of Swift Creek located in the heart of Pocahontas State Park in Chesterfield County provides a valuable angling resource for central Virginia. The lake can be defined as a riverine style impoundment with a narrow channel that snakes its way through the surrounding hillside. The fishery receives a fair amount of fishing pressure during the peak park visitation seasons of late-spring and summer. The lake is open to fishing from dawn to dusk based on the park's operating hours for the day. The boat ramp allows for private boats to be launched. Boaters can use trolling motors only as gasoline engines use is prohibited. Swift Creek Lake has recently become a very popular location for kayakers as well as kayak fishermen. The state park rents canoes, kayaks, rowboats and peddleboats from Memorial Day through Labor Day. The fishing regulations are based on state-wide regulations except for the largemouth bass that fall under a 15-inch minimum size limit with a creel limit of 2/day.

The Virginia Department of Game and Inland Fisheries conducted an electrofishing survey of Swift Creek Lake on June 7th, 2018. The previous electrofishing survey was conducted on May 28th, 2015. The survey was conducted along four shoreline locations to assess the present fish assemblage. The water temperature during the survey ranged from 24.7°C to 28.9°C, which showed some similarity to the 2015 survey (27.4°C to 28.3°C). 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 electrofishing effort of one hour yielded 14 fish species. This report will concentrate primarily upon the largemouth bass, bluegill, black crappie, redear sunfish, and yellow perch populations.

Table 1. Summary of the electrofishing surveys June 7th, 2018 for the primary fish species of Swift Creek Lake

Species	# Collected	Maximum Length (")	Average Length (")
Largemouth Bass	70	15.94	9.01
Bluegill	363	7.52	4.78
Black Crappie	23	11.69	7.64

Redear Sunfish	110	11.14	6.1
Yellow Perch	24	7.01	5.49

Largemouth Bass

The largemouth bass population within Swift Creek Lake appears to be in fair shape. A survey conducted earlier in the spring could have provided some larger bass that might have painted the fishery in a brighter light. A total of 70 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 70 fish/hr. This catch rate showed a slight decline when compared to the 2015 survey (CPUE = 72 fish/hr). The average sized bass measured 9.01 inches, which showed a decrease when compared to 2015 (10" mean total length). The warm water temperatures encountered during the survey most likely underestimated the strength of the largemouth bass population. It is quite possible that a number of larger bass were positioned in deeper water away from the sampled shorelines. The size distribution ranged from 1 to 15 inches, with a large proportion of the sample consisting of young fish in the 5 to 10 inch range.

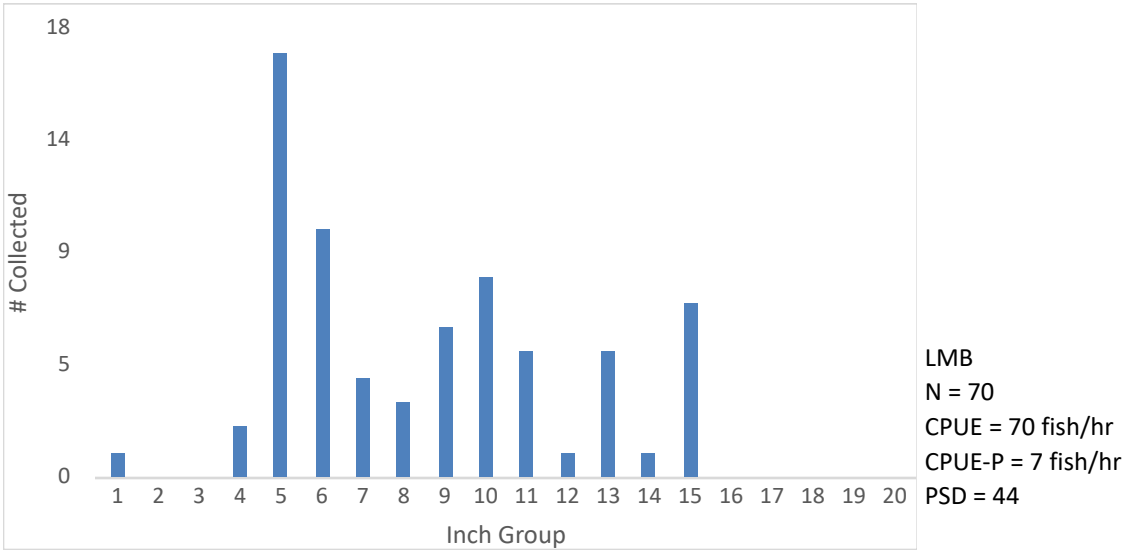


Figure 1. Length frequency of largemouth bass collected from electrofishing survey of Swift Creek Lake on June 7th, 2018

Besides the assortment of bass in the 9 to 11 inch range, a large proportion of the collection was comprised of juvenile bass in the 5 to 7 inch range. These fish most likely represent the 2017 year class. The survey missed the bass spawn as larger-sized fish may have

retreated to deeper water after completing their spawning attempt. The largest bass measured only 15.94 inches and weighed 2.4 pounds. This fish leaves something to be desired when compared to the 2015 survey that yielded a bass of 20.94 inches with a weight of 5 pounds. Our sampling efforts are just a representative picture of the fish community collected along the shoreline. The lake has produced a limited number of trophy largemouth bass over the years. The abundance of gizzard shad may make fishing for the larger bass a bit more challenging.

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 bass in the population over 8 inches (stock size) that are also at least 12 inches (quality-sized). The sample provided a PSD value of 44, which is a direct reflection of the 16 quality-sized bass. The sample had a total of 36 bass that were stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40–60 range. The RSD-P (Relative Stock Density of Preferred bass) is the proportion of bass in the population over 8 inches that are also at least 15 inches. The RSD-P value of 19 is a direct reflection of the 7 preferred fish being collected. The 2018 PSD value showed a decline when compared to the 2015 survey (PSD = 53). The 2018 RSD-P value (19) showed an increased proportion of preferred-sized bass when compared to the 2015 survey (RSD-P = 17). The catch rate of 7 preferred-sized bass/hr ranked Swift Creek Lake toward the lower end of public impoundments sampled in Region 1, District 1. The date of any specific survey will play a factor to some degree in what the catch rate of preferred-size bass will be. An earlier spring survey would most likely have produced a higher catch rate of preferred-sized bass.

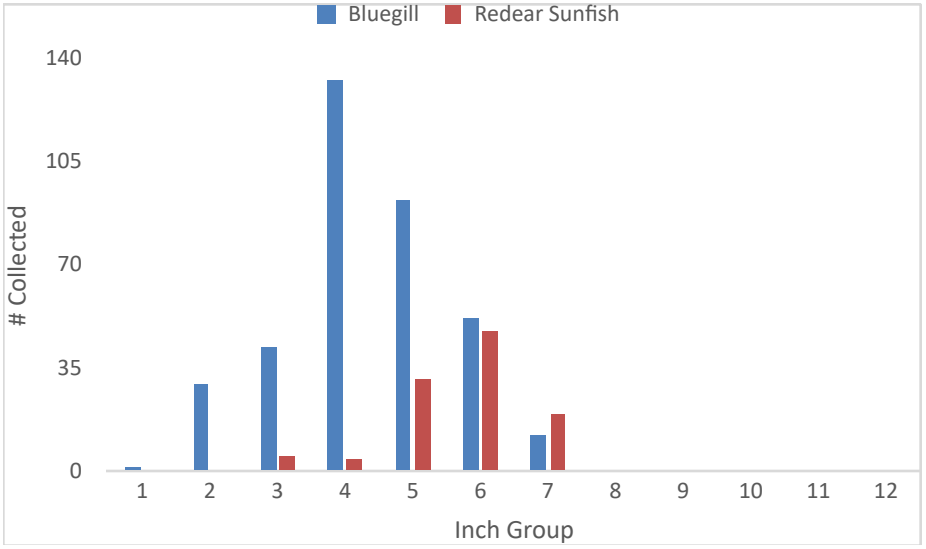
Weights were taken on largemouth bass to calculate relative weight values. Relative weight values are an indication of body condition. A value from 95 to 100 represents a fish that is in the healthy range and finding a decent amount of food. The higher the value, the better the condition of the fish in terms of overall body mass. The relative weight values for stock, quality, and preferred bass (≥8", ≥12", and ≥15") were 95, 95, and 98 respectfully. These relative weight values showed a favorable increase when compared to the 2015 values (stock = 92, quality = 92, and preferred = 95). The increase in relative weight values is a positive sign that the bass are finding adequate food sources, but these values were based on a limited sample set of only 36 stock-sized bass.

Bluegill and Redear Sunfish

The bluegill fishery within Swift Creek Lake continues to be driven by the presence of medium-sized fish. The electrofishing survey yielded a total of 363 bluegill (CPUE = 363 fish/hr), which showed an increase from 2015 (CPUE = 297 fish/hr). The bluegill distribution ranged

from 1 to 7 inches, with the majority of fish in the 4 to 6 inch range. The average sized bluegill measured 4.78 inches, which was a minor improvement from the mean length of 4.59 inches found during the 2015 survey. The largest bluegill measured in at 7.52 inches, which was roughly similar to 2015 (max length 7.56 inches). 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 20 showed a slight increase from the 2015 survey (PSD = 18) and reached the desired range of 20-40 that represents more of a balanced population. The collection consisted of 64 quality-sized bluegill from the total of 327 stock-sized fish. The survey showed a limited abundance of 2 to 3-inch bluegill which might reflect excessive predation by largemouth bass and black crappie on young of year bluegill. The limited abundance of bluegill greater than 6 inches might reflect the complications any fishery has when the bulk of the fish biomass is tied up in the production of gizzard shad.

The redear sunfish population appears to be in fair shape. A total of 110 redear sunfish were collected for a CPUE of 110 fish/hr. This catch rate showed a slight increase from the 2015 survey (CPUE = 105 fish/hr). The size distribution ranged from 2 to 11 inches. The largest redear sunfish measured an impressive 11.14 inches, while the average length measured in at 6.1 inches. Certain areas of the lake will draw reproductively mature fish into the shallows for the spawning season. The redear sunfish spawn is usually in line with the full moon that occurs during the month of May. Any shallow water sand bars will typically be the best locations to find these larger-sized redear sunfish. Anglers will be able to spot the large crater-like nests that redear sunfish build. The excessive amount of silt that has flushed into the lake from development in the watershed over the last few years may have made sunfish spawning areas less than ideal. The limited presence of juvenile redear sunfish may have been influenced by poor year class production or reflect high levels of predation by the stunted black crappie population.



BLG
N = 363
CPUE = 363 fish/hr
PSD = 20
RDE
N = 110
CPUE = 110 fish/hr
PSD = 15

Figure 2. Length frequency distribution of bluegill and redear sunfish collected from the electrofishing survey of Swift Creek Lake on June 7th, 2018

Yellow Perch and Black Crappie

The survey collect a total of 24 yellow perch (CPUE = 24 fish/hr), which showed a decline from the 2015 survey (CPUE = 52 fish/hr). The collected perch ranged in size from 1 to 7 inches with the average size at 5.49 inches. The relative weight data from the 13 stock-sized yellow perch revealed a value of 84, which showed a large decline from 2015 (Wr stock = 93). The largest yellow perch measured only 7.01 inches, which was less than the max length of 8.3 inches found in 2015. Anglers should not expect to catch too many large yellow perch from Swift Creek Lake. Young anglers may find excitement from the occasional perch while fishing for sunfish species. The yellow perch population's growth potential is limited to the amount of available forage within the lake. The yellow perch will have to compete for forage with the bass, crappie and sunfish.

The electrofishing sample collected a limited number of black crappie (N = 23; CPUE = 23 fish/hr). This catch rate showed a large decline when compared to the 2015 survey (CPUE = 113 fish/hr). The crappie length distribution was 3 to 11 inches with the average size of 7.64 inches, similar to the 2015 survey (mean TL of 7.56 inches). The largest crappie measured 11.69 inches and weighed 0.73 pound. The majority of fish were in the 7 to 9 inch range. Black crappie tend to school in waters deeper than bass and bluegill. Taking this into account, the typical shoreline sample can be very random as to whether or not a school is encountered during a sample run. The lake has potential to produce some larger black crappie in the 1.5 to 2 pound range. An occasional white crappie has been collected from the lake as well. Anglers have managed to catch a few decent crappie over the last few years. Relative weight data of collected crappie revealed less than ideal values and a decline when compared to the 2015 survey. The majority of the larger-sized crappie may be found schooled up and chasing any juvenile gizzard shad they can find. Although not cherished by the average angler, the crappie in the 6 to 9 inch range are the fish that anglers should be harvesting to thin out the population which has historically shown a stock-pile of these smaller fish.

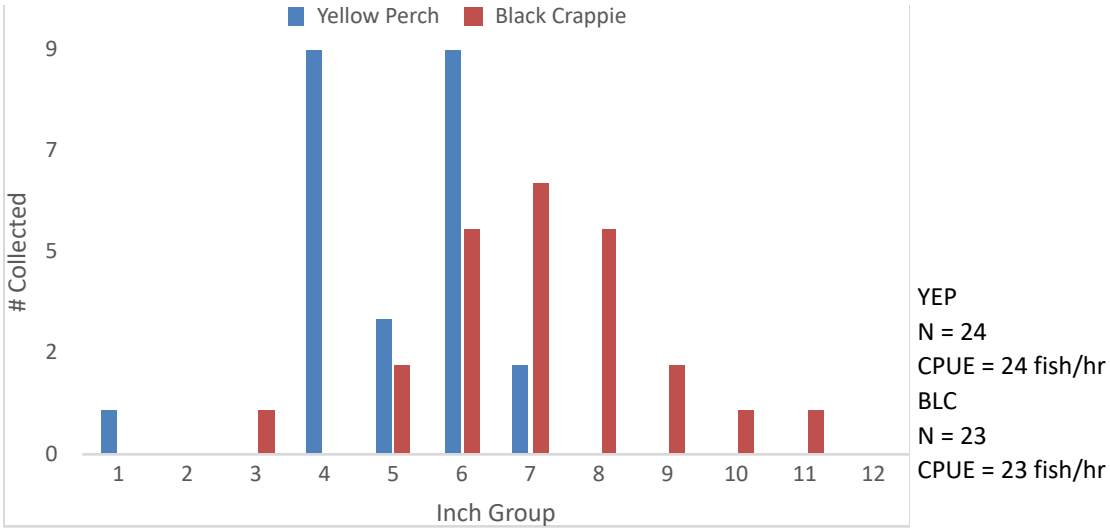


Figure 3. Length frequency distribution of yellow perch and black crappie collected from the electrofishing survey of Swift Creek Lake on June 7th, 2018

Additional Species

The electrofishing survey provided some additional species diversity in the form of brown bullhead, yellow bullhead, common carp, white catfish, creek chubsucker, American eel, gizzard shad, golden shiner, and warmouth sunfish. These fish, except for the gizzard shad, were found in limited abundance and may surprise an angler from time to time. The survey collected 619 gizzard shad (CPUE = 619 fish/hr), which showed a large increase from 2015 (CPUE = 371 fish/hr). Collected gizzard shad ranged in size from 5 to 14 inches. The majority of the shad were in the 8 to 11 inch range. These larger shad will provide forage only for bass greater than 3 pounds in weight. An abundant gizzard shad population will impact the overall growth potential of the bluegill population due to the competition for limited food resources. The survey collected four brown bullhead that ranged in size from 9.37 to 13.86 inches. Two yellow bullhead of 5.12 and 10.3 inches were collected. The 14 common carp collected during the survey measured in the 21 to 26 inch range. The two white catfish measured 12.91 and 12.3 inches in length. Two creek chubsuckers measured 10.04 and 11.93 inches. Six American eels ranged in length from 11 to 21 inches. Twelve golden shiners in the 4.5 to 7.6 inch range were collected. One warmouth sunfish of 4.53 inches made it in the boat.

Electrofishing Summary

Swift Creek Lake provides some quality fishing opportunities for anglers that visit Pocahontas State Park. The lake has a fair to decent largemouth bass population that is most likely underestimated by the late spring surveys that have not been tied into the bass spawning period of mid to late April. The fishery has an abundance of gizzard shad that might be of interest

to any of the larger bass in the system. Bass would most likely leave the protective shoreline cover and head to pelagic regions in search of a substantial meal in the form of gizzard shad in the 9 to 11 inch range. The bluegill and redear sunfish populations appear to be abundant with the redear sunfish having a slight advantage in growth rate and overall size potential. One of the highlights of the survey was the 11.14 inch redear sunfish that was collected. The survey did not yield an abundance of black crappie, but past surveys have shown a population that appears to be stunted and over-populated with 6 to 9 inch fish. Dedicated crappie anglers may be able to locate some larger crappie that escaped the bottleneck growth conditions. The survey revealed a decline in yellow perch abundance as the size structure continues to leave something to be desired. Swift Creek Lake and its high flow through dynamics places limitations on the fishery's productivity. The fishery has some potential to interested anglers that are willing to put in enough time on the water to figure out the most productive fishing patterns.

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