



## Swift Creek Lake 2016 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. 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 May 28<sup>th</sup>, 2015. The previous electrofishing survey was conducted on May 28<sup>th</sup>, 2013. The survey was conducted along four shoreline locations to assess the present fish assemblage. The water temperature during the survey ranged from 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 15 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 May 28th, 2015 for the primary fish species of Swift Creek Lake

Species	# Collected	Largest Length	Average Length
Largemouth Bass	72	20.94"	10.02"
Bluegill	297	7.56"	4.59"
Black Crappie	113	10.16"	7.56"
Redear Sunfish	105	10.16"	6.31"
Yellow Perch	52	8.3"	5.01"

## Largemouth Bass

The largemouth bass population within Swift Creek Lake appears to be in decent shape. A total of 72 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 72 fish/hr. This catch rate showed a slight decline when compared to the 2013 survey (CPUE = 79 fish/hr). The average sized bass measured 10 inches in length. The warm water temperatures encountered during the survey may help to underestimate the strength of the largemouth bass population. It is quite possible that a number of larger bass were holding in deeper water away from the sampled shorelines. The size distribution ranged from 1 to 20 inches, with a large proportion of the sample within the 9 to 13 inch range.

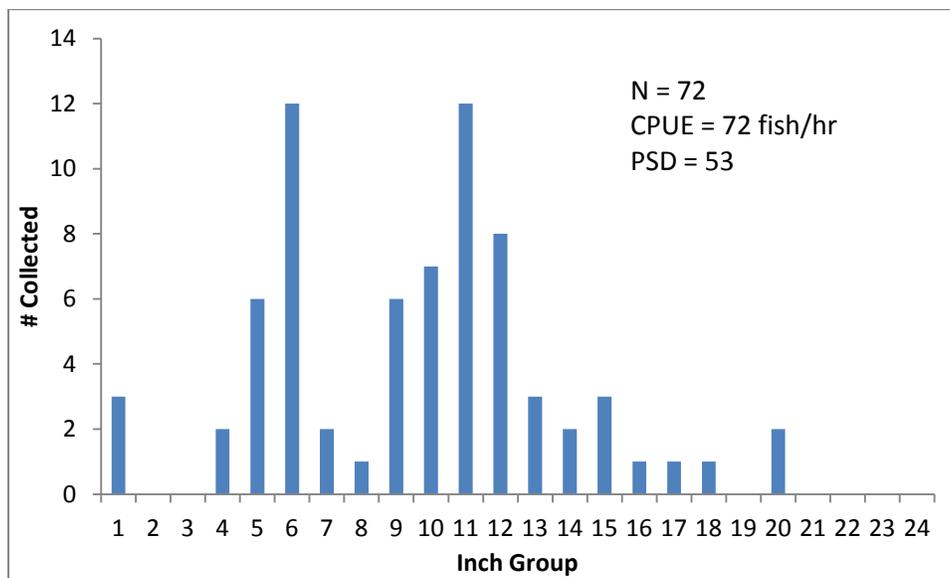


Figure 1. Length frequency of largemouth bass collected from electrofishing survey of Swift Creek Lake on May 28<sup>th</sup>, 2015.

Besides the assortment of bass in the 9 to 13 inch range, there appeared to be a high number of juvenile bass in the 4 to 7 inch range. The survey missed the bulk of the spawn as larger-sized fish may have retreated to deeper water after completing their spawning attempt. The largest bass by length measured 20.94 inches and weighed 5 pounds. Our sampling efforts are just a representative picture of the fish community collected along the shoreline and various habitat structures on the survey day. The lake has produced a limited number of trophy largemouth bass over the years. Larger bass may have been able to escape from the electrofishing boat or may just be living in other areas of the lake that were not sampled.

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 53, which is a direct reflection of the 25 quality-sized bass. The sample had a total of 47 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 17 is a direct reflection of the 8 preferred fish being collected. The 2015 PSD value showed a favorable increase from the 2013 value (PSD: 39). The 2015 RSD-P value (17) also showed an increased proportion of preferred-sized bass when compared to the 2013 survey (RSD-P: 12). The catch rate of 8 preferred-sized bass/hr ranked Swift Creek Lake in 15<sup>th</sup> place for the 17 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 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, preferred and memorable bass ( $\geq 8''$ ,  $\geq 12''$ ,  $\geq 15''$  and  $\geq 20''$ ) were 92, 92, 95 and 96 respectively. These relative weight values showed a decline when compared to the 2013 values (stock = 95, quality = 100, and preferred = 95). The decline in relative weight values may reflect increased competition with the black crappie population for juvenile sunfish and other small baitfish species.

## **Bluegill**

The bluegill fishery within Swift Creek Lake appears to consist primarily of medium-sized fish in the 4 to 6 inch range. The electrofishing survey yielded a total of 297 bluegill (CPUE = 297 fish/hr), which showed a rather large decline from 2013 (CPUE = 437 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 4.59 inches while the largest bluegill measured 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 18 showed an increase from the 2013 survey (PSD: 14) and fell below slightly outside the desired range of 20-40 that represents more of a balanced population. The collection consisted of 44 quality-sized bluegill from the total of 244 stock-sized fish. The survey showed a greater presence of 2 to 3-inch bluegill than what has been detected in past survey years. 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.

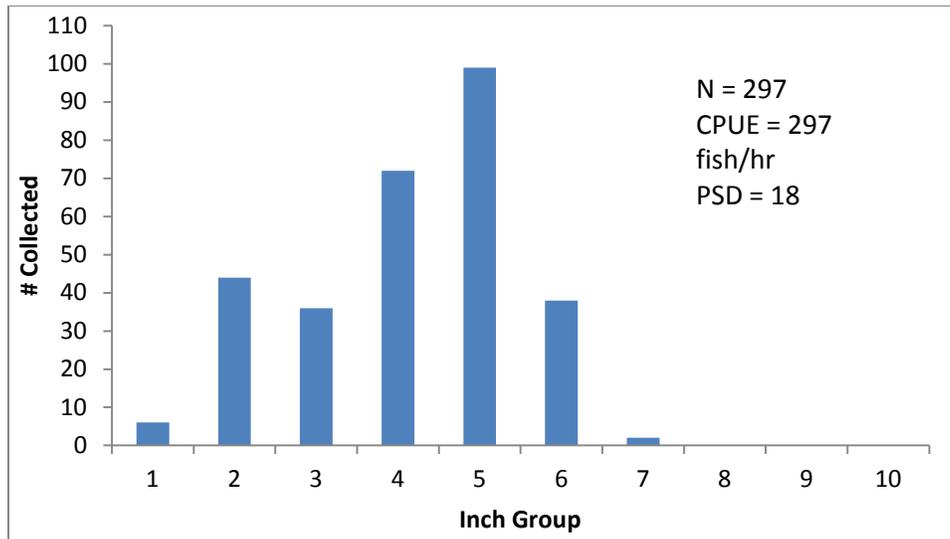
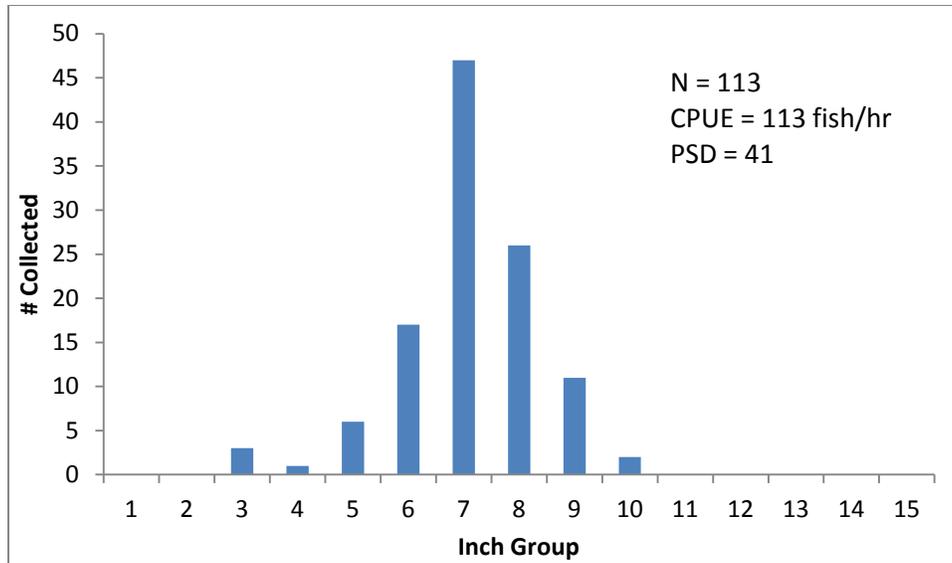


Figure 2. Length frequency distribution of bluegill collected from the electrofishing survey of Swift Creek Lake on May 28<sup>th</sup>, 2015.

### **Black Crappie**

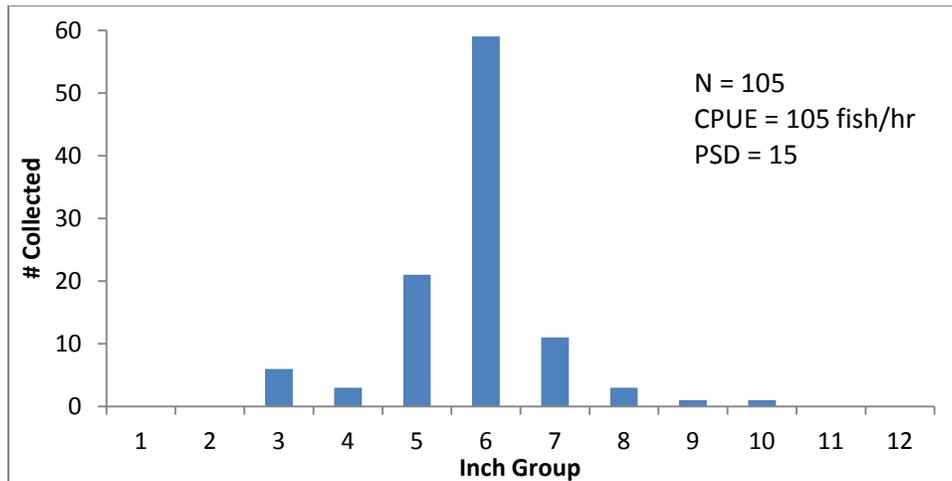
The electrofishing sample collected an abundance of black crappie (N = 113; CPUE = 113 fish/hr). This catch rate showed a slight increase when compared to the 2013 survey (CPUE = 100 fish/hr). The crappie length distribution was 3 to 10 inches with the average size at 7.56 inches. The largest crappie measured 10.16 inches and weighed 0.52 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. 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, but did show an improvement when compared to the 2013 survey. The majority of the larger-sized crappie may be found schooled up and chasing any juvenile gizzard shad they can find.



**Figure 3.** Length frequency distribution of black crappie collected from the electrofishing survey of Swift Creek Lake on May 28, 2015.

### Redear Sunfish

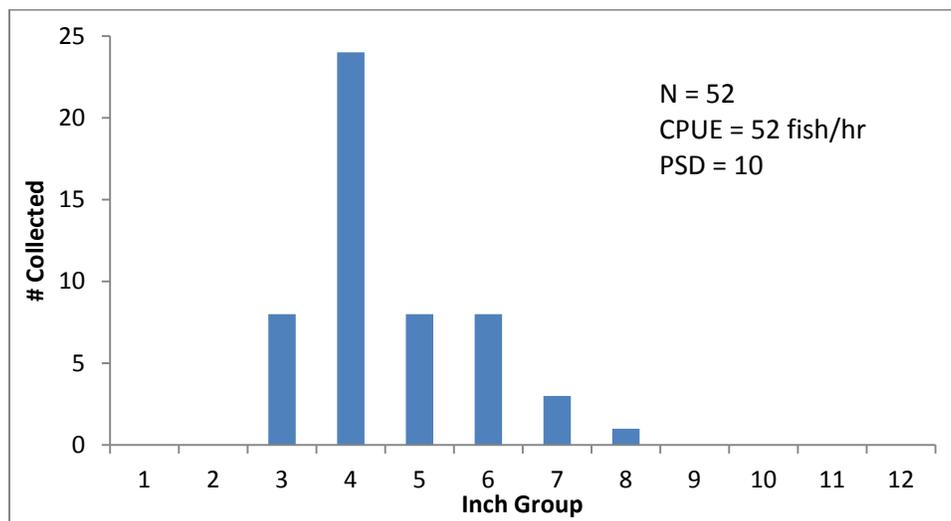
The redear sunfish population appears to be in decent shape. A total of 105 redear sunfish were collected for a CPUE of 105 fish/hr. This catch rate showed an increase from the 2013 survey (CPUE = 84 fish/hr). The size distribution ranged from 3 to 10 inches. The largest redear sunfish measured 10.16 inches, while the average length measured in at 6.31 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.



**Figure 4.** Length frequency distribution of redear sunfish collected from the electrofishing survey of Swift Creek Lake on May 28, 2015

## Yellow Perch

The survey collect a total of 52 yellow perch (CPUE = 52 fish/hr), which showed an increase from the 2013 survey (CPUE = 12 fish/hr). The collected perch ranged in size from 3 to 8 inches with the average size at 5.1 inches. The relative weight data from the 20 stock-sized yellow perch revealed a value of 93. The largest yellow perch measured only 8.3 inches in length. The two quality-sized yellow perch had a poor relative weight value of 72. 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.



**Figure 5.** Length frequency distribution of yellow perch collected from the electrofishing survey of Swift Creek Lake on May 28, 2015.

## Additional Species

The electrofishing survey provided some additional species diversity in the form of brown bullhead, common carp, channel catfish, creek chubsucker, white crappie, American eel, gizzard shad, golden shiner, white sucker 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 371 gizzard shad that ranged in size from 6 to 14 inches. The majority of the shad were in the 9 to 11 inch range. These larger shad will provide forage only for the larger 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 one brown bullhead that measured 11.5 inches. The 11 common carp collected during the survey measured in the 22 to 25 inch range. One channel catfish of 20 inches was collected. Two creek chubsuckers of 7 inches and two white crappie of 7 and 9 inches were collected. Eight American eels in the 9 to 15 inch range were collected. Six golden shiners

of 3 to 8 inches were collected. Two white suckers of 16 and 19 inches were collected. One 7 inch warmouth sunfish made it in the boat.

### **Electrofishing Summary**

Swift Creek Lake provides quality fishing opportunities for anglers that visit Pocahontas State Park. The lake has a decent largemouth bass population that is most likely underestimated by the late spring surveys of 2013 and 2015. The fishery has an abundance of gizzard shad that might be of interest to many 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 an advantage in growth rate and overall size potential. The black crappie population continues to appear 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 yellow perch population appears to have increased in overall abundance even though the size structure leaves 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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