Waller Mill Reservoir 2016 Fisheries Management Report
Virginia Department of Game and Inland Fisheries

This 360-acre water supply reservoir is owned by the City of Williamsburg and is located within the boundaries of Waller Mill Park, York County. The reservoir was originally constructed in 1942 with the intention of providing water to Camp Peary, but was sold three years later to the City of Williamsburg in 1945. The reservoir is divided into two sections by the crossing of Airport Road. A navigable tunnel connects the upper and lower portions of the reservoir. The upper basin accounts for roughly a third of the reservoir's acreage. The lower basin provides greater fishing access to deeper water and larger creek arms. The heavily wooded shoreline and the many branches and coves of the reservoir provide a very pleasing environment in which to hike, bike, fish and pleasure boat. Waller Mill Reservoir has been known to produce some large striped bass (some in the 20 to 25 pound range). The reservoir provides a rather diverse fishery that should interest anglers.

The Virginia Department of Game and Inland Fisheries conducted an electrofishing survey of Waller Mill Reservoir on April 28th, 2015. The last electrofishing survey was on April 23rd, 2012. The 2015 sample was conducted in 6 standardized locations of the reservoir to get a broad spectrum of the present fish assemblage. The water temperature during the survey ranged from 17.7°C to 19.2°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 2 hours yielded 11 fish species. This report will concentrate primarily upon the largemouth bass, bluegill, black crappie, redear sunfish and yellow perch populations. Collected data will shed some light on a few of the lower profile fish species that are also present in the fishery.

Table 1. Summary of the electrofishing surveys April 28th, 2015 for the primary fish species of Waller Mill Reservoir.

Species	# Collected	Largest Length	Average Length
Largemouth Bass	197	20.55"	10.26"
Bluegill	295	8.58"	4.33"
Black Crappie	27	12.28"	8.9"
Redear Sunfish	23	8.94"	6.31"
Yellow Perch	20	11.06"	5.88"

Largemouth Bass

The largemouth bass population within Waller Mill Reservoir continues to appear in decent shape and reasonably balanced. A total of 197 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 99 fish/hr. This catch rate showed a slight increase when compared to the 2012 survey (CPUE = 93 fish/hr). The 2015 CPUE was well above the historic mean (sample years 1997 – 2012) value of 57 fish/hr. The average sized bass continued to show a decline in total length (2011 = 13.4", 2012 = 11.23", 2015 = 10.26"). The size distribution ranged from 2 to 20 inches, with a large proportion of the sample within the 11 to 15 inch range.

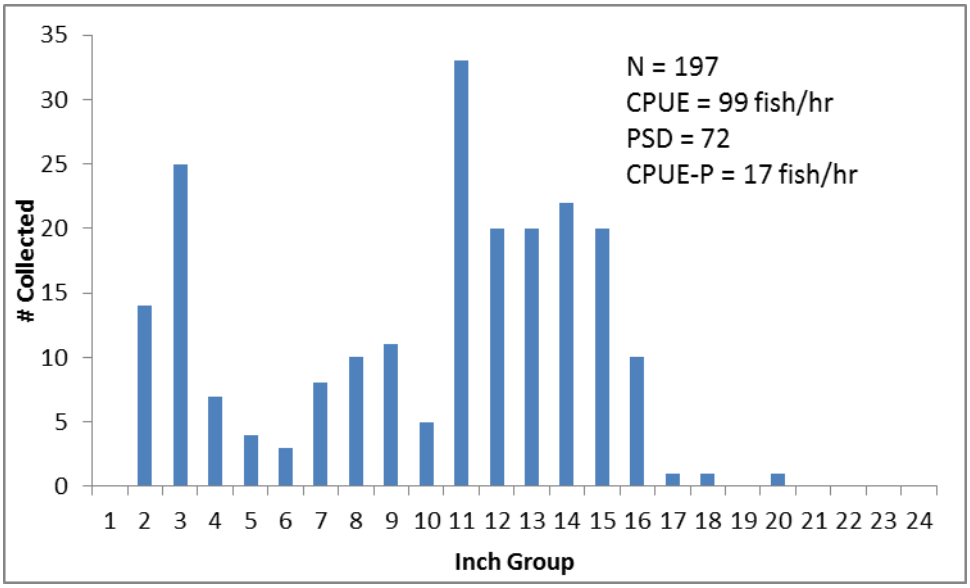

Figure 1. Length frequency of largemouth bass collected from electrofishing survey of Waller Mill Reservoir on April 28th, 2015.

The 2012 survey revealed a high proportion of bass in the 9 to 13 inch size range with a decent abundance of bass in the 16 to 20 inch range. The 2015 survey did not reveal the same abundance of bass in the desired 16 to 20 inch range. The survey might have missed the bulk of the spawn as larger-sized fish might have retreated to deeper water after completing their spawning attempt. The distribution showed decent recruitment, but a slow growth rate for juvenile bass. Bass that ranged in size from 2 to 4 inches represent the 2014 year class of bass. The largest bass by length measured 20.55 inches and weighed 4.7 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 reservoir 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 reservoir 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 72, which is a direct reflection of the 100 quality-sized bass. The sample had a total of 138 bass that were stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40–60 range. The mean PSD value for sample years 1997 – 2012 produced a value of 68. 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 24 is a direct reflection of the 33 preferred fish being collected. The 2015 PSD value was greater than the 2012 value (PSD: 61). The 2015 RSD-P value (24) reflected the decreased proportion of preferred-sized bass when compared to the 2012 survey (RSD-P: 33). The catch rate of 17 preferred-sized bass/hr ranked Waller Mill Reservoir in 12th place for the 17 public impoundments sampled in Region 1, District 1. This was a drop from the third place of 2012 (CPUE = 24 fish/hr) and the first place sample found during the 2011 survey year (CPUE = 39 fish/hr). The date of any specific survey will play a factor to some degree in what the catch rate of preferred-size bass will be.

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 (≥8”, ≥12”, ≥15” and ≥20”) were 90, 90, 91 and 94 respectfully. These relative weight values showed a decline when compared to the 2012 values (stock = 94, quality = 96, preferred = 98 and memorable: 104). The decline in relative weight values may reflect increased competition with the white perch and striped bass populations.

Bluegill

The bluegill fishery of Waller Mill Reservoir appears to consist primarily of medium-sized fish. The electrofishing survey yielded a total of 295 bluegill (CPUE = 148 fish/hr), which showed a minor increase from 2012 (CPUE = 140 fish/hr). The bluegill distribution ranged from 1 to 8 inches, with the majority of fish in the 3 to 5 inch range. The average sized bluegill was 4.33 inches in length, down from the 2012 mean length of 5.05 inches. The largest bluegill measured 8.58 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 a large decline from the 2012 survey (PSD: 38) and fell below the desired range of 20-40 that represents more of a balanced population. The collection consisted of 42 quality-sized bluegill from the total of 230 stock-sized fish. The survey showed a greater presence of 3-inch bluegill than what has been detected in past survey years. The recent increase in submerged aquatic vegetation has allowed an increased number of juvenile bluegill to avoid predation.

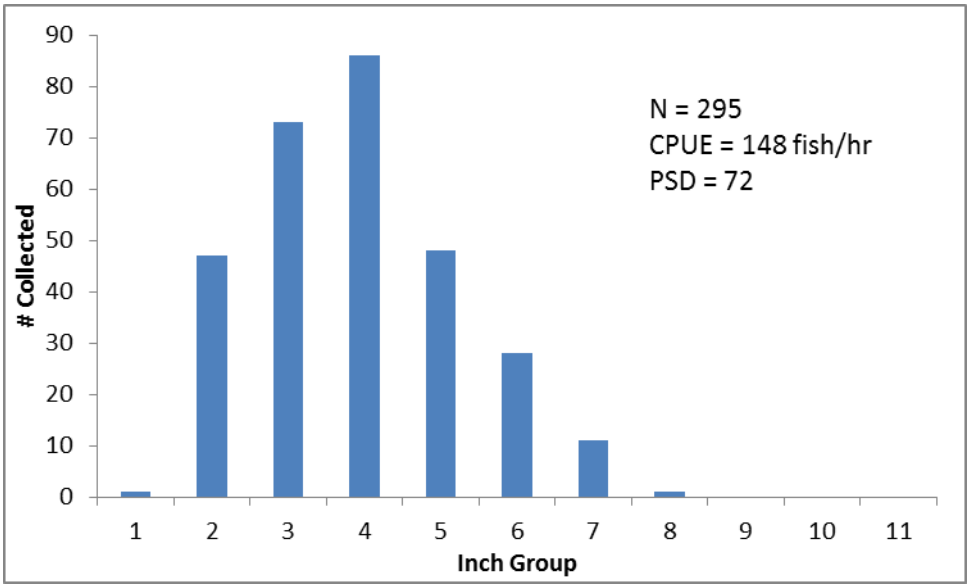

Figure 2. Length frequency distribution of bluegill collected from the electrofishing survey of Waller Mill Reservoir on April 28th, 2015.

Black Crappie

The electrofishing sample collected a limited abundance of black crappie (N = 27; CPUE = 14 fish/hr). This catch rate showed a slight increase when compared to the 2012 survey (CPUE = 12 fish/hr). The crappie length distribution was 3 to 12 inches with the average size at 8.9 inches. The average length of the collected crappie in 2012 was 9.61 inches. The largest crappie measured 12.28 inches and weighed 0.97 pound. The majority of fish were in the 9 to 11 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 reservoir 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. One crappie citation was reported during 2015. Relative weight data of collected crappie revealed less than ideal values, but did show an improvement when compared to the 2012 survey. The majority of the larger-sized crappie may be found schooled up and chasing any juvenile gizzard shad they can find.

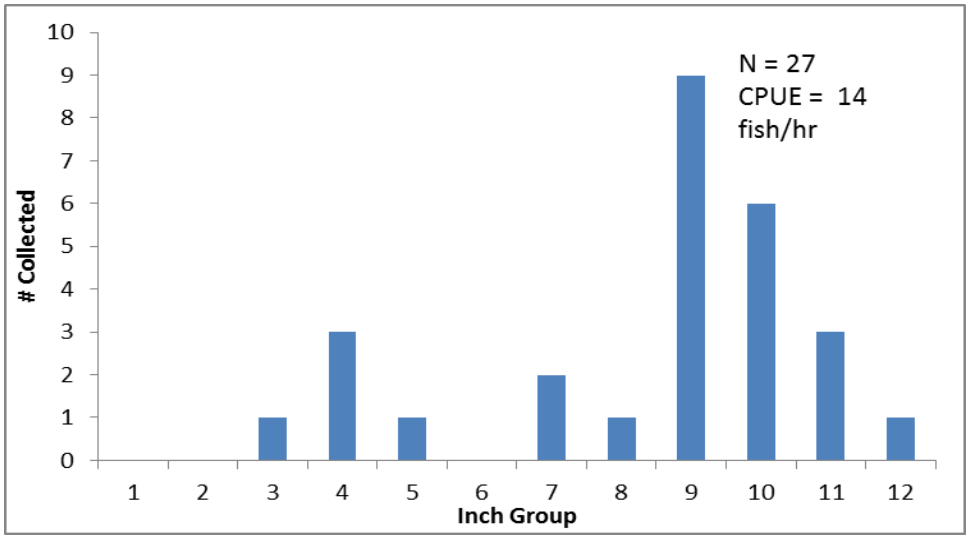

Figure 3. Length frequency distribution of black crappie collected from the electrofishing survey of Waller Mill Reservoir on April 28, 2015.

Redear Sunfish

The redear sunfish population appears to be in decent shape even though the abundance is limited. A total of 23 redear sunfish were collected for a CPUE of 12 fish/hr. This catch rate showed a decline from the 2012 survey (CPUE = 26 fish/hr). The size distribution ranged from 2 to 8 inches. The largest redear sunfish measured 8.93 inches, while the average length measured in at 6.31 inches. The catch rate of redear sunfish would have been greater if the survey was conducted during early to mid May. Certain areas of the reservoir will draw spawning size fish into the shallows for the spawning season. The electrofishing survey was conducted prior to the redear sunfish spawn. Anglers will be able to spot the large crater-like nests that redear sunfish build along the sand bars of various shallow water coves.

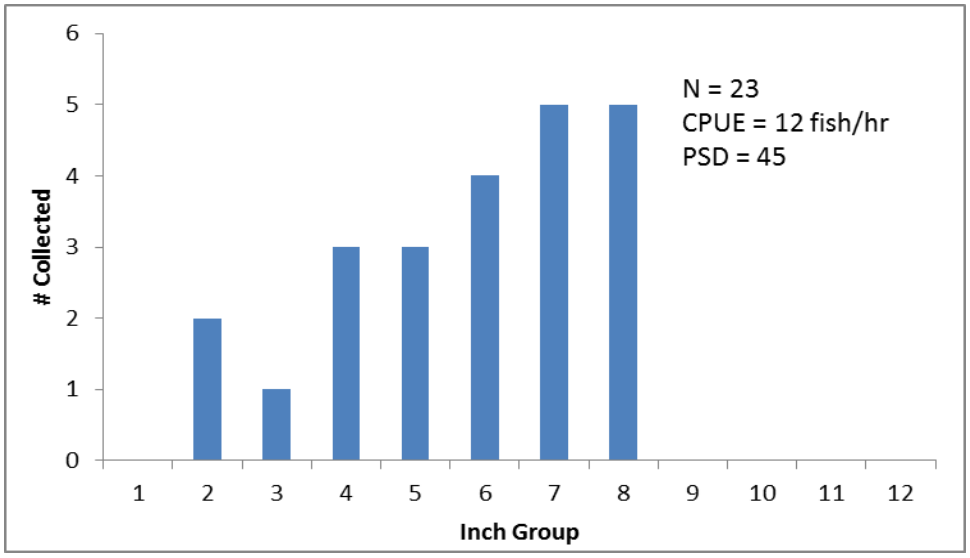

Figure 4. Length frequency distribution of redear sunfish collected from the electrofishing survey of Waller Mill Reservoir on April 28, 2015

Yellow Perch

The survey was able to collect a total of 20 yellow perch (CPUE = 10 fish/hr), which showed a decline from the 2012 survey (CPUE = 17 fish/hr). The collected perch ranged in size from 4 to 11 inches with the average size at 5.9 inches. This average was less than the 2012 survey (Mean TL = 6.7 inches). The relative weight data from the stock-sized yellow perch revealed a favorable value of 103. The largest yellow perch measured 11.06 inches, but weighed only 0.56 pound. This fish had a poor relative weight value of 76 and might have been a post spawn female. Anglers should not expect to catch too many large yellow perch from Waller Mill Reservoir. 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 reservoir. The yellow perch will have to compete for forage with the bass, crappie and white perch.

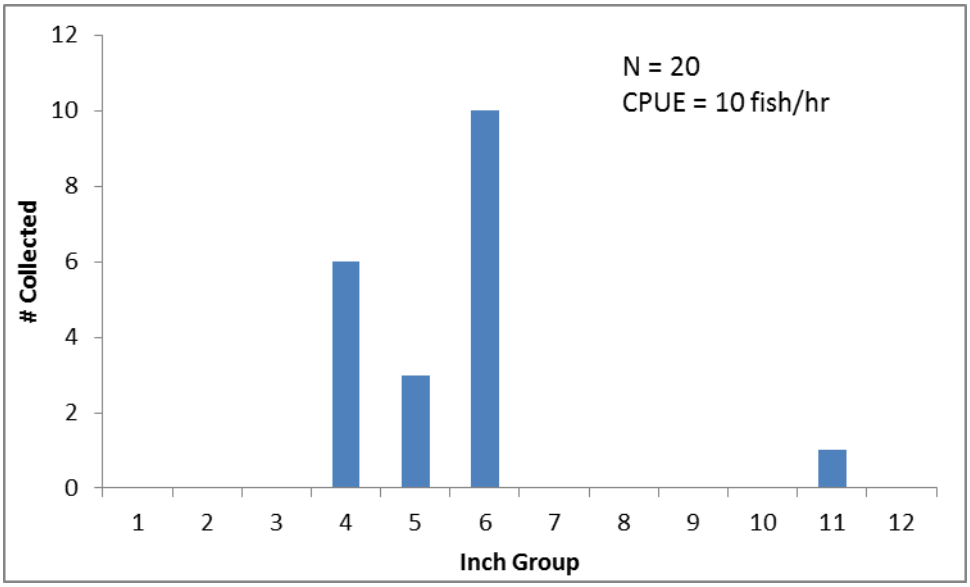

Figure 5. Length frequency distribution of yellow perch collected from the electrofishing survey of Waller Mill Reservoir on April 28, 2015.

White Perch

Waller Mill Reservoir has historically been one of the better waters to fish for white perch. Recent survey years have seen a decreasing trend in catch rate during spring electrofishing surveys. That was not the case during the 2015 survey. The total of 89 white perch (CPUE = 45 fish/hr) revealed a large increase from the 2012 survey (CPUE = 8 fish/hr). Comparing catch rates of schooling fish can be difficult. The random nature of encountering a large school of white perch has a great influence on your catch rate and how the population is perceived. Waller Mill Park staff have seen a fair number of anglers that target the white perch population and the fun action they can provide. There have been reports of anglers harvesting large stringers of white perch over the last couple of years. The white perch distribution ranged from 6 to 10 inches with the majority of fish in the 8 to 9 inch range. The average white perch measured 8.97 inches and the

largest white perch was 10.94 inches. The average length in 2012 was 8.25 inches, while the largest white perch measured 9.88 inches.

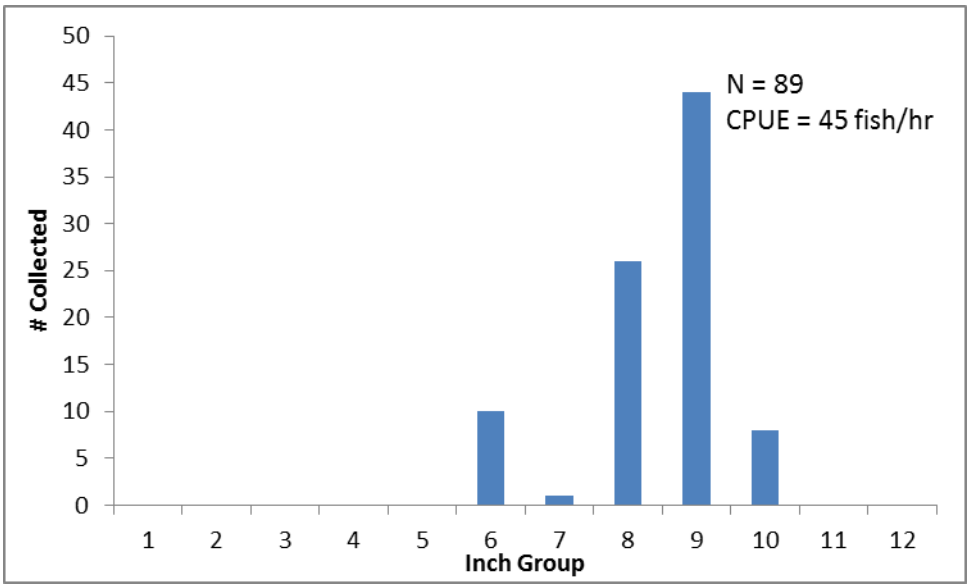

Figure 6. Length frequency distribution of white perch collected from the electrofishing survey of Waller Mill Reservoir on April 28, 2015.

Common Carp

Waller Mill Reservoir has one of the better carp populations within Region 1, District 1. The majority of the carp action is found within the upper basin of the reservoir. Most carp were found along the edge of shoreline brush along straight stretches of shoreline within the major creek arms. Some carp were drawn out from the cover of fallen trees. Past surveys have shown decent numbers of 6 to 8 pound carp. The 2012 survey collected 64 carp (CPUE = 32 fish/hr). This catch rate showed a decline from the 2012 survey (CPUE = 52 fish/hr). The upper basin provided 52 carp while the lower basin only yielded 12 carp. The average size carp measured 22.11 inches, which almost matched the 2012 average length of 22.2 inches. The largest carp measured 28.3 inches. The carp population within Waller Mill Reservoir will provide some surprising action for anglers willing to give them a try.

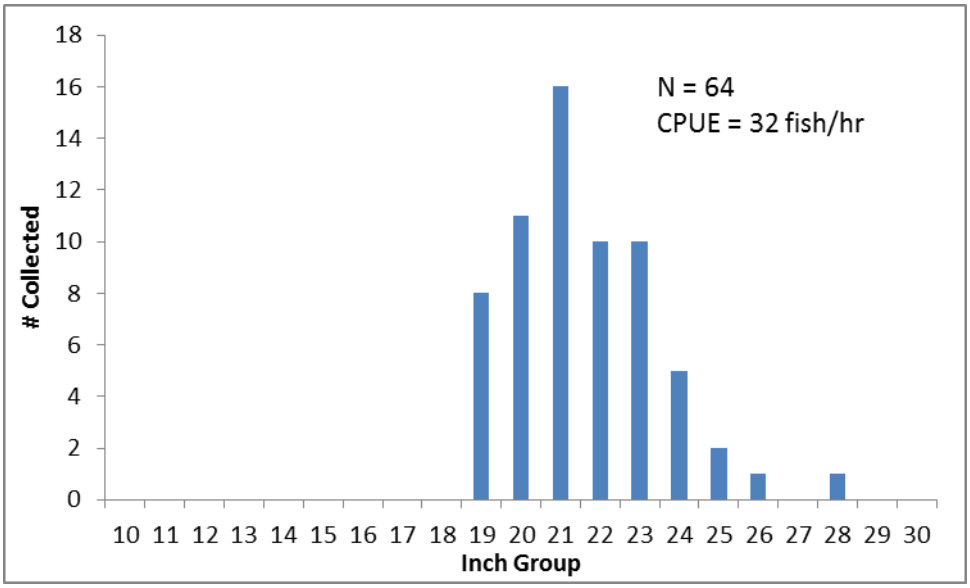

Figure 7. Length frequency distribution of common carp collected from the electrofishing survey of Waller Mill Reservoir on April 28, 2015.

Additional Species

The electrofishing survey provided some additional species diversity in the form of American eel, pumpkinseed sunfish, gizzard shad and redbreast sunfish. These fish were found in limited abundance, but may surprise an angler from time to time. The survey collected one American eel that measured 21.5 inches. One pumpkinseed sunfish of 6.73 inches was collected. Four redbreast sunfish in the 5 to 6.5 inch range were collected. A total of 22 gizzard shad were collected. The shad length distribution was 12 to 16 inches, with most fish in the 13 to 14 inch range. These large shad will provide forage for the 15 to 25 pound striped bass that are present. Although the survey collected a limited abundance of gizzard shad, the fishery has a decent shad population that concentrates in the pelagic zones of the reservoir. The shad population provides the bulk of the forage for the striped bass and largemouth bass. The fishery has a decent abundance of white catfish that live primarily within the upper basin of the reservoir. The electrofishing survey did not collect any white catfish, but recent gill net surveys have detected their presence.

Electrofishing Summary

Waller Mill Reservoir continues to provide decent fishing opportunities for anglers in the greater Williamsburg area. The reservoir has a good largemouth bass population even though the survey showed a decline in the catch rate of preferred-sized bass (≥15 inches). The majority of the bass tend to hold tight to the shoreline cover if they are not out chasing schools of juvenile gizzard shad. The sunfish populations have shown some signs of improvement, but abundance is limited when compared to other public waters nearby. The redear sunfish population has some potential to produce respectable fish. The black crappie population has shown some level of improvement over the last few years. Dedicated crappie fishermen can typically find some really nice crappie. The white perch population will provide anglers with some decent action. The

size structure of the white perch population has shown some improvement from past surveys. The gill net survey of 2014 showed an abundance of white perch in the 10 to 11 inch range. Waller Mill Reservoir continues to provide an abundance of common carp. Anglers willing to try their luck on the common carp may be surprised by the number of 6 to 8 pound carp that are present. The 2015 fishing season was a slow year for citations at Waller Mill Reservoir with 2 citation striped bass and one citation black crappie reported. The City of Williamsburg has done some major renovations to the facilities that are present at Waller Mill Park. Anglers and boaters will be surprised to see the new fishing pier and boat ramp the next time they visit the park. The new boat ramp should make launching boats a lot easier.

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