



DEPARTMENT OF
**GAME & INLAND
FISHERIES**
CONSERVE. CONNECT. PROTECT.



Waller Mill Reservoir 2018 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 21st, 2017. The last electrofishing survey was on April 28th, 2015. The 2017 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 were extremely warm with a range of 71.5°F to 75.1°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 13 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 April 21st, 2017 for the primary fish species of Waller Mill Reservoir.

Species	# Collected	Largest Length	Average Length
Largemouth Bass	155	21.73"	11.84"
Bluegill	100	7.68"	5.11"

Black Crappie	35	10.51"	7.47"
Redear Sunfish	68	8.98"	6.76"
Yellow Perch	20	9.33"	7.05"

Largemouth Bass

The largemouth bass population within Waller Mill Reservoir continues to appear in decent shape even though the survey showed some limitations in abundance of larger specimens. A total of 155 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 77.5 fish/hr. This catch rate showed a large decline when compared to the 2015 survey (CPUE = 98.5 fish/hr). The 2017 CPUE was well above the historic mean (sample years 1997 – 2015) value of 60 fish/hr. The average sized bass in 2017 was 11.84 inches in total length, which compares well to the last two surveys (2012 = 11.23", 2015 = 10.26"). The size distribution ranged from 7 to 55 centimeters (3 to 21 inches), with a large proportion of the sample within the 11 to 15 inch range.

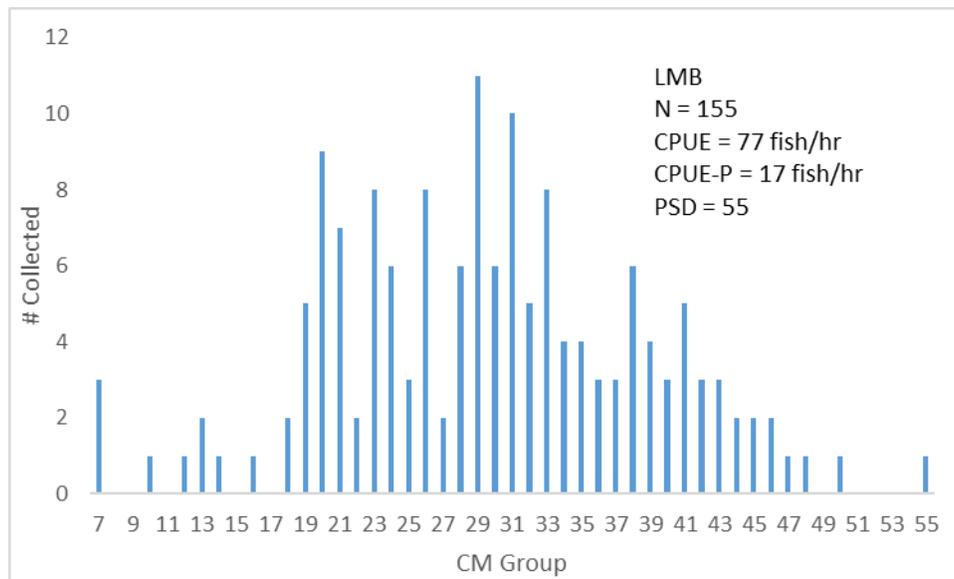


Figure 1. Length frequency of largemouth bass collected from electrofishing survey of Waller Mill Reservoir on April 21st, 2017

The survey revealed a high proportion of bass in the 28 to 38 centimeter range. These bass will provide the majority of the action for anglers fishing Waller Mill Reservoir. The survey most likely missed the bulk of the spawn as larger-sized fish might have retreated to deeper water after completing their spawning attempt. The weather for April 2017 was extremely warm as water temperatures warmed up rather quickly on lakes and reservoirs within Eastern Virginia. The distribution showed poor recruitment of juvenile bass with limited density of fish less than 18 cm in total length. The largest bass

by length measured 21.73 inches and weighed 6.09 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 55, down from 2015 (PSD = 72). The PSD value is direct reflection of the 139 stock-sized fish in which 77 were of quality-size. A balanced bass/bluegill fishery has a bass PSD value within the 40–60 range. The mean PSD value for sample years 1997 – 2015 produced a value of 68. The 2017 PSD value was less than 2015, but actually showed an improved balance in the overall bass population. 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 matched the value from the 2015 survey and is a direct reflection of the 34 preferred fish being collected. The catch rate of 17 preferred-sized bass per hour was the same as the 2015 survey.

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 91, 93, 94 and 102 respectively. These relative weight values showed a favorable increase when compared to the 2015 values (stock = 90, quality = 90, preferred = 91 and memorable: 94). The increase in relative weight values may be a reflection of increased gizzard shad density.

Bluegill and Redear Sunfish

The bluegill fishery of Waller Mill Reservoir appears to consist primarily of medium-sized fish. The electrofishing survey yielded a limited total of 100 bluegill (CPUE = 50 fish/hr), which showed an unfavorable decline from 2015 (CPUE = 148 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 was 5.11 inches in total length, which showed an increase from 2015 (mean TL = 4.33 inches). The largest bluegill measured 7.68

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 34 showed a large increase when compared to the 2015 survey (PSD: 18) and fell within the desired range of 20-40 that represents a balanced population. The collection consisted of 31 quality-sized bluegill from the total of 92 stock-sized fish. The survey showed a limited presence of juvenile bluegill less than 3-inches in length. The abundance of white perch and the increasing black crappie population may have had some impact on the declining number of juvenile bluegill. Copper sulfate applications by the City of Williamsburg to the reservoir during the spring have not had been beneficial by any means to juvenile fish survival.

The redear sunfish population appears to be in decent shape even though the abundance is limited. A total of 68 redear sunfish were collected for a CPUE of 34 fish/hr. This catch rate showed a decline from the 2015 survey (CPUE = 12 fish/hr). The size distribution ranged from 4 to almost 9 inches. The largest redear sunfish measured 8.98 inches, while the average length measured in at 6.76 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. The redear sunfish will surprise anglers that are targeting the bluegill population.

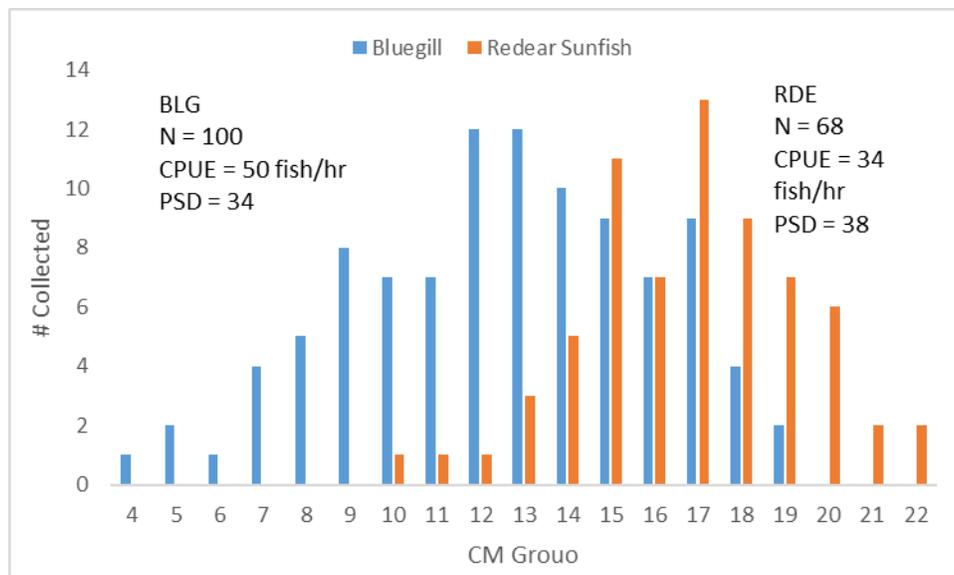


Figure 2. Length frequency distribution of bluegill and redear sunfish collected from the electrofishing survey of Waller Mill Reservoir on April 21st, 2017

Black Crappie

The electrofishing sample collected a limited abundance of black crappie (N = 35; CPUE = 17.5 fish/hr). This catch rate showed a slight increase when compared to the 2015 survey (CPUE = 14 fish/hr). The crappie length distribution was 4 to 10 inches with the average size at 7.47 inches. The average length of the collected crappie in 2015 was more impressive at 8.9 inches. The largest crappie measured 10.51 inches. The majority of collected crappie were young fish in the 7 to 8 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. Dedicated anglers that have put in enough time on Waller Mill Reservoir have been able to locate the schools of crappie and have an enjoyable day catching their share of these great tasting fish. Relative weight data of collected crappie revealed less than ideal values, but did show a slight improvement 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.

Yellow Perch

The survey was able to collect a total of 20 yellow perch (CPUE = 10 fish/hr), matching the 2015 survey (CPUE = 10 fish/hr). The collected perch ranged in size from 4 to 9 inches with the average size at 7.05 inches. This average showed a minor improvement from the 2015 survey (Mean TL = 5.9 inches). The relative weight data from the stock-sized yellow perch revealed a less than favorable value of 89. This low relative weight value reflects the limited forage base of juvenile bluegill that the perch would typically target. The largest yellow perch measured only 9.33 inches. 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.

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 and 2017 surveys. The total of 111 white perch (CPUE = 55.5 fish/hr) revealed an increase from the 2015 survey (CPUE = 45 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 9 to 10 inch range. All of the 111 white perch were collected during the first electrofishing run on the lower basin of the reservoir. Two schools of white perch were encountered along the same stretch of shoreline. The largest white perch measured 10.7 inches.

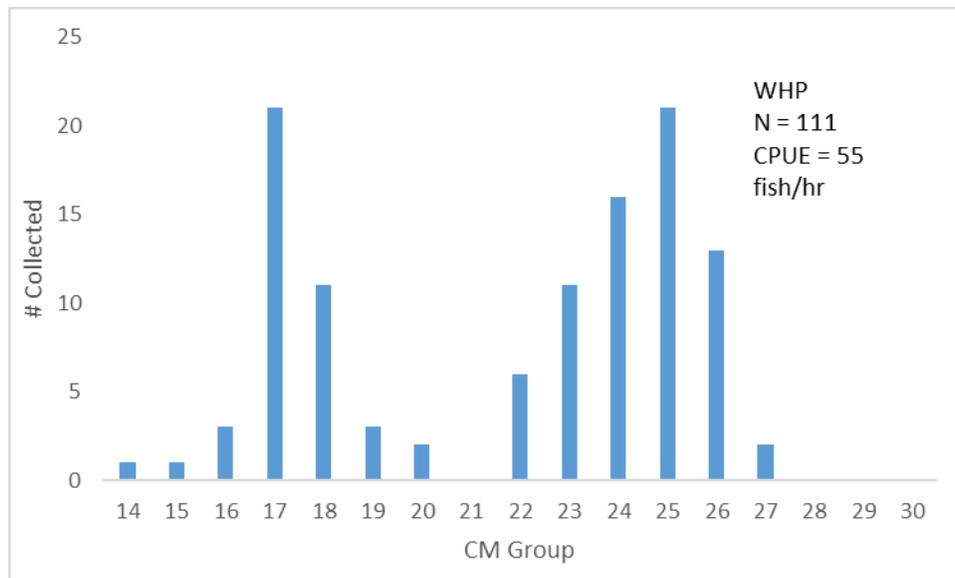


Figure 3. Length frequency distribution of white perch collected from the electrofishing survey of Waller Mill Reservoir on April 21st, 2017

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.

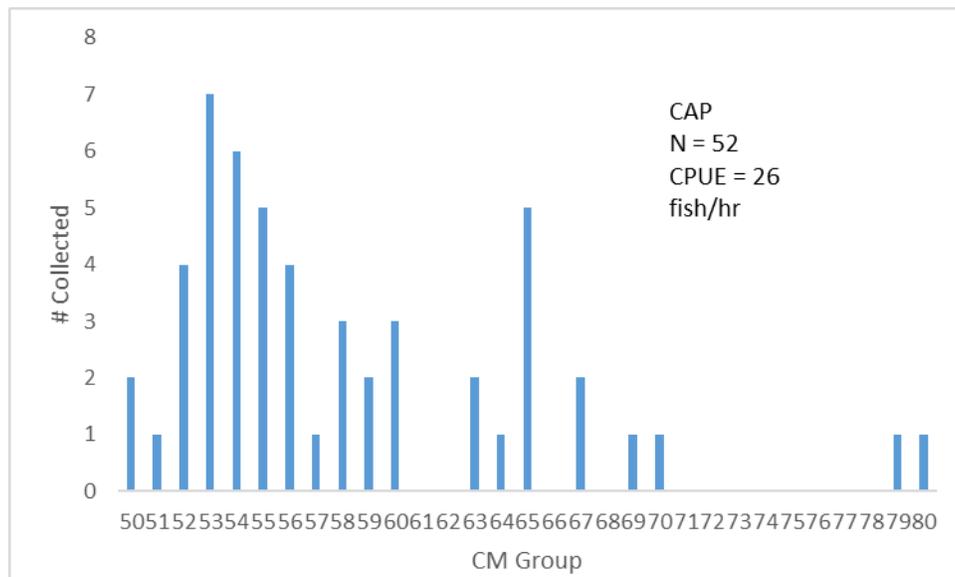


Figure 4. Length frequency distribution of common carp collected from the electrofishing survey of Waller Mill Reservoir on April 21st, 2017

Additional Species

The electrofishing survey provided some additional species diversity in the form of striped bass, brown bullhead, white catfish, American eel, 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 striped bass that measured 8 inches in length. Most likely a stocked bass from the 2016 year class. The survey yielded only 2 brown bullheads, 1 white catfish, and 4 American eels. A total of 26 gizzard shad were collected. These shad will provide forage for the 15 to 25 pound striped bass that are present in the fishery. The shad population provides the bulk of the forage for the striped bass and largemouth bass. The survey collected a limited abundance of redbreast sunfish with 8 collected. Waller Mill reservoir is the only local reservoir where redbreast sunfish are found. This species is typically found in your various river systems across Virginia.

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 limited abundance of bass greater than 18 inches in length. 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 some limitations in overall abundance, but their size structure has been decent. 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 been consistent with a large proportion of fish in the 9 to 10 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.

Gill Net Survey Summary

A gill net survey was conducted on Waller Mill Reservoir from November 27th – 29th, 2017. This survey was conducted to get the sample schedule back in line with the spring electrofishing surveys as well as to collect additional data on the striped bass population. The survey collected a total of 11 fish species. The species with the most abundance were: gizzard shad (N = 207), white perch (N = 149), and largemouth bass (N = 46). The striped bass collection yielded only 11 fish for a CPUE of 0.87 fish/100 m². This provided a limited improvement from the 2016 survey in which only 9 striped bass were collected. The largest striped bass measured 31.14” and weighed 13 pounds. Anglers have been able to catch a decent number of 15 to 25 pound striped bass from the reservoir. These larger fish will be found within close proximity to schools of gizzard shad. The relative weight data on the collected striped bass and largemouth bass was extremely favorable as these fish were having no problems finding adequate forage, most likely in the form of gizzard shad. Other fish species collected in limited abundance were: brown bullhead, common carp, white catfish, black crappie, saugeye, and redear sunfish.

This report was written by Scott Herrmann, Fisheries Biologist, Virginia Department of Game and Inland Fisheries, Region 1, District 1 (804) 829-6580 ext. 126