



Waller Mill Reservoir 2010

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 25 to 30 pound range). The reservoir provides a rather diverse fishery that should interest anglers.

The Virginia Department of Game and Inland Fisheries conducted electrofishing surveys of Waller Mill Reservoir on April 15th and May 7th, 2009. The last electrofishing survey was on April 30, 2008. The 2009 sample was concentrated in 5 different regions of the reservoir to get a broad spectrum of the fish assemblage present. The water temperature during the April 15th survey was a bit on the cool side at 14.6°C. The May 7th surveys saw warmer water temperatures in the 21.6 to 22.8°C range. 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. A total electrofishing effort of 1.66 hours yielded 11 fish species. This report will concentrate primarily upon the seven fish species of largemouth bass, bluegill, white perch, redear sunfish, black crappie, redbreast sunfish and common carp. Data collected from that survey will be included to expand the information for certain species.

Species	# Collected	Largest Length	Average Length
Largemouth Bass	74	20.1"	13.6"
Bluegill	93	8.5"	5.9"
White Perch	27	10.1"	8.9"
Redear Sunfish	27	8.7"	7.2"
Black Crappie	6	14.6"	10.3"
Redbreast Sunfish	41	6.5"	4.6"
Common Carp	14	26.9"	22"

Table 1. Summary of the electrofishing surveys April 15th and May 7th, 2009 for the primary fish species of Waller Mill Reservoir.

Largemouth Bass

The largemouth bass population within Waller Mill Reservoir appears to be in decent shape and reasonably balanced. A total of 74 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 44.4 bass/hr. This catch rate showed a decline from the 2008 survey (CPUE: 49.2 bass/hr). The average sized bass showed an increase from 12.7 inches in 2008 to 13.6 inches in 2009. Refer to Table 2 for comparison of sample runs. Sample runs 2, 3 and 4 were conducted on the lower basin of the reservoir. Runs 1 and 5 were conducted on the upper basin. The size distribution of the collected bass can be seen on the enclosed length frequency graph.

Run #	1	2	3	4	5
# of bass	22	12	18	12	10
Average size	15.4"	13.8"	11.2"	14.2"	12.7"
Max size	19.8"	20.1"	17.8"	18.5"	17.0"
CPUE	66	36	54	36	30

Table 2. Largemouth bass abundance values for each sampling run along with the average size, maximum lengths and CPUE (fish/hr).

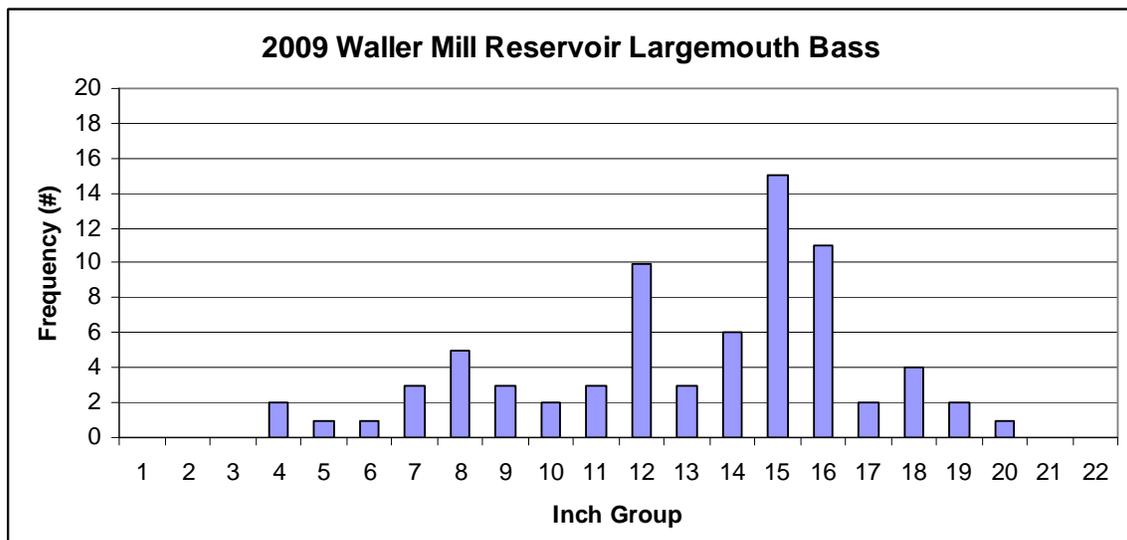


Figure 1. Length frequency of largemouth bass collected from electrofishing survey of Waller Mill Reservoir on April 15th and May 7th, 2009 (N = 74, CPUE = 44.4 f/hr)

The 2009 distribution showed a high proportion of bass in the 12 to 16 inch size range. These bass will provide a great deal of the fishing excitement. The distribution showed limited recruitment and poor growth rate of juvenile bass. Only 12 bass less than 9 inches were collected. The largest bass by length measured 20.1 inches and weighed 3.9 pounds. The largest bass by weight was 4.5 pounds and 19.5 inches. Our sampling efforts are just a representative picture of the fish community collected along the shoreline and various habitat structures on the days. 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 showed an extremely high PSD value of 79, which is a direct reflection of the 54 quality-sized bass. The sample had a total of 68 bass that were stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40 – 70 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 51 is a direct reflection of the 35 preferred fish being collected. The 2009 PSD value was slightly higher than the 2008 value (PSD = 75). The 2009 RSD-P value showed a greater proportion of preferred-sized bass when compared to the 2008 survey (RSD-P = 39).

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 95, 97, 97 and 85 respectfully. These relative weight values showed a slight decrease from the 2008 values (stock: 96, quality: 98, preferred: 98 and memorable: 96). The one memorable-sized bass that measured 20.1 inches and only weighed 3.9 inches may have been a female bass that had just felt the stress of the spawning season.

Bluegill

The bluegill fishery of Waller Mill Reservoir appears to consist primarily of fish in the 5 to 6 inch range. The electrofishing survey was able to collect only 93 bluegills (CPUE: 55.8 bluegills/hr). This catch rate showed a decline when compared to the 2008 survey (CPUE: 61.8 bluegills/hr). The size distribution can be seen on the attached length frequency graph. The average sized bluegill was 5.9 inches and showed an increase from the average length of 5.37 inches in 2008. 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 59 showed a major increase from the 2008 survey (PSD=37). The collection consisted of 54 quality-sized bluegills. The PSD value is well above the desired 20 - 40 range that would represent a balanced bluegill population. The survey was similar to past years with a limited abundance of juvenile bluegills less than 4 inches in length.

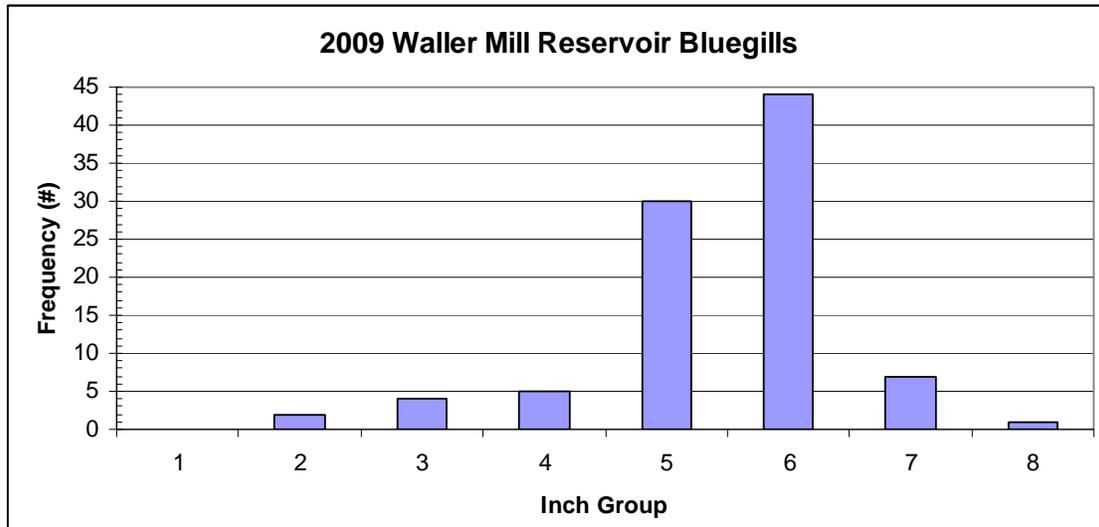


Figure 2. Length frequency distribution of bluegills collected from the electrofishing survey of Waller Mill Reservoir on April 15th and May 7th, 2009. (N = 93, CPUE = 55.8/hr)

Redear Sunfish

The redear sunfish population appears to be in fair shape even though the abundance is limited. A total of 27 redear sunfish were collected for a CPUE of 16.2/hr. This catch rate is less than the 2008 survey (CPUE = 21/hr). The 2009 size distribution ranged from 6 to 8 inches with the largest redear measured at 8.7 inches in length. The catch rate of redear sunfish would have been greater if the survey was conducted a week or two later into the month of 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 coves.

Black Crappie

The electrofishing sample collected only 6 black crappies (CPUE = 4/hr). This catch rate matches the 2008 sample (CPUE = 4/hr). The collected crappies ranged in size from 7.7 inches up to an impressive 14.6 inches. Black crappies tend to school in waters deeper than bass and bluegills. 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 crappies in the 1.5 to 2 pound range. Anglers have managed to catch a few decent crappies over the last few years. Recent gill net surveys have been more successful at finding schools of crappies from the upper basin of the reservoir.

White Perch

Waller Mill Reservoir has historically been one of the better waters to fish for white perch. Recent survey years have seen decreasing trends in catch rates during spring electrofishing surveys. The electrofishing survey was able to collect a total of only 27

white perch (CPUE: 16.2/hr). This catch rate showed a decline when compared to the 2008 survey (CPUE = 54/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 has seen some anglers harvesting large stringers of white perch over the last couple of years. The 2009 electrofishing survey showed the majority of white perch to be in the 8 to 9 inch range. The average white perch measured 8.9 inches and the largest white perch was 10.1 inches in length. On a brighter note, one angler was able to catch and record the first ever citation-size white perch from Waller Mill Reservoir.

Redbreast Sunfish

The electrofishing survey revealed an increased presence of redbreast sunfish within Waller Mill Reservoir. This was a nice surprise as redbreast sunfish are typically found in your larger Virginia river systems and not in many impoundments. The survey collected 41 redbreast sunfish for a CPUE of 24.6/hr. This catch rate showed an increase from the 2008 survey (CPUE: 12/hr). The size distribution ranged from 2.5 to 6.5 inches with the majority of fish in the 4 to 5 inch range. The redbreast sunfish population will provide some species diversity and the chance to surprise anglers from time to time.

Striped Bass

The electrofishing survey was able to collect 2 striped bass during one of the survey runs. These fish measured in at 26.9" (6.5 lbs.) and 30.6" (8.3 lbs). The collection of striped bass during a daytime electrofishing survey is usually rather difficult. Striped bass tend to spend the majority of their time out in open water as they forage upon pelagic schools of baitfish (gizzard shad). Fall gill net surveys of 2006 and 2008 showed that Waller Mill Reservoir has a stable striped bass population. Another fall gill net survey will be conducted in 2010 to gather additional data on the striped bass fishery. Gill net surveys were conducted during 2009 to collect fish for the Virginia Department of Environmental Quality and Camp Peary. These surveys provided good catch rates of striped bass with a trophy 24 pound fish caught from the lower reaches of the reservoir.

Common Carp

Waller Mill Reservoir has one of better carp populations within Region 1, District 1. Although the electrofishing survey did not produce a high catch rate of carp, carp anglers could still have a decent day fishing the reservoir. 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. Past surveys have shown decent numbers of 6 to 8 pound carp. The 2009 survey collected only 14 carp (CPUE: 8.4/hr). This catch rate is well below the 30/hr rate encountered during the 2008 survey. The survey revealed an average size of 22 inches with the largest carp measured at 26.9 inches. The 2008 survey was a bit more exciting with the largest carp measured at 31.4 inches and weighed 17.86 pounds.

Additional Species

The electrofishing also revealed the presence of yellow perch, American eel and gizzard shad. These fish were found in limited abundance, but may surprise an angler from time to time. The survey showed an increase abundance of yellow perch when compared to previous surveys. The catch rate of 18/hr showed some improvement from 2008 (CPUE: 12.6/hr). The collected yellow perch ranged in size from 4 to 9.5 inches

with the majority of the fish in the 6 to 7 inch range. The survey collected a total of 15 American eels which ranged in size from 9 to 19.5 inches. Only one gizzard shad of 16 inches in size was collected during the survey. Although the survey was unsuccessful at collecting many shad, the reservoir has a decent gizzard shad population that concentrates in the pelagic zones of the reservoir. One bluegill/redear sunfish hybrid was also collected.

Summary

Waller Mill Reservoir provides a decent fishing opportunity for people in the greater Williamsburg area. The reservoir has a decent largemouth bass population with a fair number of bass greater than 15 inches in length. The majority of the bass tend to hold tight to the shoreline cover if they are not out chasing schools of small gizzard shad. The sunfish population is not all that abundant, but the bluegills and redear sunfish that are present are usually of decent size in the 5 to 8 inch range. The redbreast sunfish population had the highest catch rate of all public lakes and reservoirs sampled in Region 1, District 1. The striped bass population appears to be in good shape. The 2008 gill net survey as well as the other gill net surveys conducted during 2009 revealed an abundance of keeper-sized striped bass. The collection of a 24 pound citation from the lower basin made for a good day. The yellow perch population appears to be expanding with increased catch rate compared to past survey years. Anglers reported 6 citations from Waller Mill Reservoir during 2009. These citations were from two black crappies, 1 striped bass, 1 white perch, 1 yellow perch and 1 carp.