



## Harwood's Mill Reservoir 2017 Fisheries Management Report Virginia Department of Game and Inland Fisheries

This 265-acre impoundment is the terminal reservoir for the City of Newport News water supply system. Oriana Road (Route 620) divides the reservoir into two sections that differ in terms of habitat and fish population characteristics. The northern section has an abundance of cypress trees and is the better producer of bass while the southern section is more open water and has historically produced decent action for yellow perch and various sunfish species.

An electrofishing survey was conducted on April 29th, 2016. The previous electrofishing survey was conducted on November 5<sup>th</sup>, 2014. Five electrofishing runs of 1,200 seconds each were conducted. The total effort of 6,000 seconds (1.66 hours) allowed for a representative sample of the fishery. Three survey runs were conducted in the lower basin and two survey runs were conducted in the upper basin. The survey revealed great diversity with 16 species collected. An in depth look at several of these species will be covered in this report.

Table 1. Summary of primary fish species collected from Harwood's Mill Reservoir on April 29<sup>th</sup>, 2016

Species	#	CPUE (#/hr)	Largest Length	Average Length
Largemouth Bass	89	53.4	20.55"	9.29"
Chain Pickerel	11	6.6	20.98"	11.05"
Yellow Perch	175	105	10.91"	5.2"
Redear Sunfish	133	79.8	9.92"	4.72"
Bluegill	242	145.2	6.77"	3.39"
Black Crappie	50	30	8.46"	4.92"

### Largemouth Bass

The 2016 electrofishing survey provided some decent insight into the strength of the largemouth bass population. The survey produced a total of 89 largemouth bass for a Catch Per Unit of Effort (CPUE) of 53 fish/hr. This catch rate showed a large decline from the 2014 survey (CPUE = 117 fish/hr). The 2014 survey, conducted on November 5<sup>th</sup>, accounted for a large accumulation of juvenile bass (CPUE<sub>young</sub> = 89.3 fish/hr) compared to the fewer juvenile bass encountered in 2016 (CPUE<sub>young</sub> = 26.4 fish/hr). The 2016 survey collected 48 bass from the lower reservoir basin (CPUE = 48 fish/hr) and 41 bass from the upper basin (CPUE = 61 fish/hr). The lower basin provides better spawning habitat for bass during the spring. The two survey runs in the upper basin provided 41

bass (CPUE = 61 bass/hr). The catch rate of preferred-sized bass (bass  $\geq 15$  inches in total length) was 12 fish/hr, which showed an increase from the 2014 survey (CPUE-P = 8 fish/hr).

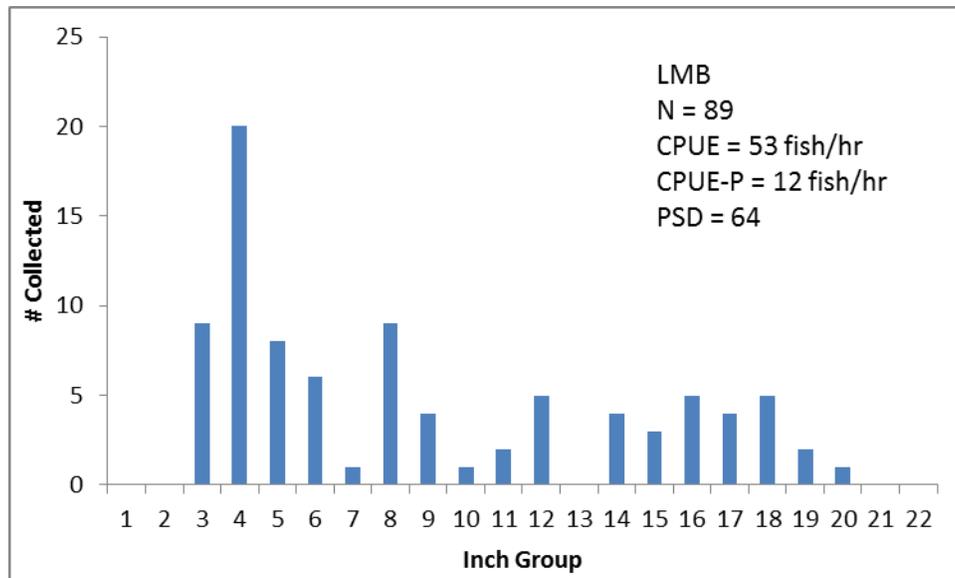


Figure 1. Length frequency of largemouth bass collected during the electrofishing of Harwood’s Mill Reservoir, April 29<sup>th</sup>, 2016

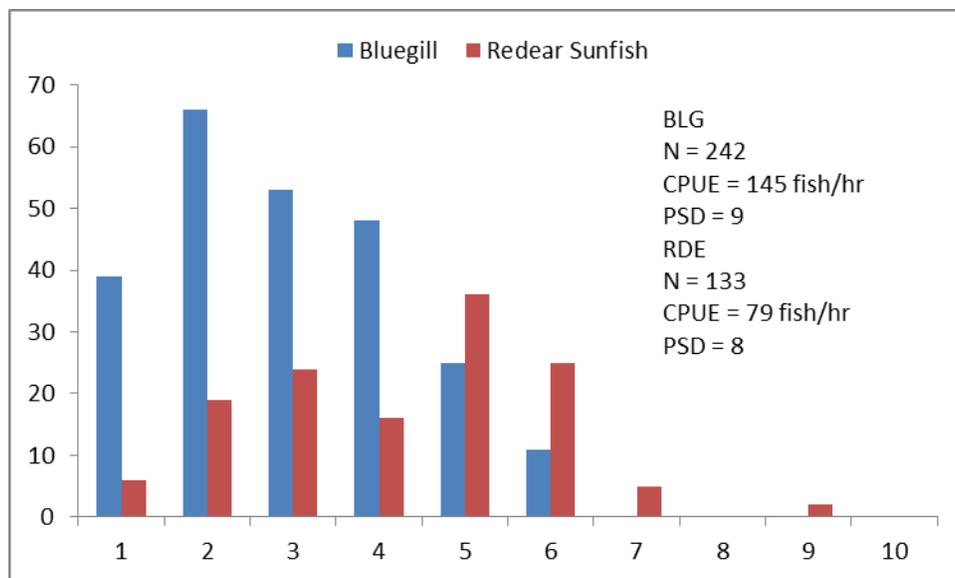
Fisheries biologists of the past established certain size classifications to describe the fish they collected. It is through these size classifications that population dynamics are analyzed. The size designations are stock, quality, preferred, memorable, and trophy. The PSD (Proportional Stock Density) is the proportion of stock-sized bass (8 inches or larger) that are also equal to or greater than 12 inches (quality size). A balanced bass/bluegill fishery has a bass PSD value within the 40–60 range. 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. The RSD-P (Relative Stock Density of Preferred bass) is the proportion of stock-sized bass that are also equal to or greater than 15 inches in length. The 2016 values for PSD and RSD-P (64 and 44) showed an increase from the 2014 survey (PSD = 54; RSD-P = 30), with the PSD value slightly above the desired range of 40-60. The 2016 PSD value represents the collection of 29 quality-sized bass from the total of 45 stock-sized bass. The RSD-P value represents the 20 preferred-sized bass ( $\geq 15$  inches) to the total of 45 stock-sized bass. The largest bass measured was 20.55 inches in total length with a weight of 5.46 pounds.

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. A higher relative weight value indicates fish with a better body condition. The relative weight values for stock, quality, and preferred bass ( $\geq 8''$ ,  $\geq 12''$ ,  $\geq 15''$ ) were 104, 104, and 104 respectively. These values showed a large decline when compared to the fall survey of 2014 (stock = 111, quality = 116, preferred = 120). The 2016 relative weight values showed less of a decline when compared to the spring 2011 survey (stock = 105, quality

= 106, preferred = 108). These relative weight values are still above the preferred range of 95 to 100 and show that the bass are finding plenty of food. The abundance of juvenile yellow perch and small gizzard shad are the forage base that the bass are targeting.

### Bluegill and Redear Sunfish

Harwood’s Mill Reservoir has an average bluegill population. The electrofishing survey produced 242 bluegill (CPUE = 145 fish/hr), which showed a large decline from the 2014 survey (CPUE = 221 fish/hr). The majority of the collected bluegill were in the 2 to 4 inch range. There was a limited abundance of bluegill in the 6 inch range. The average sized bluegill measured 3.39 inches, which showed a large decline from 2014 (mean TL = 4.64 inches). The largest bluegill measured 6.77 inches. The bluegill PSD value of 9 showed a slight increase from 2014 (PSD = 7). This PSD value reflects the fact that the survey collected 129 stock-sized bluegills in which 12 fish were of quality-size. No preferred-sized bluegills were collected. Bluegill growth rates have not been analyzed. The limited nutrients in this high flow through system may be holding back the growth rates of the bluegill population. Anglers can expect to have decent action from the bluegill, but should not expect to catch many larger fish during your average day on the water.



**Figure 2.** Length frequency of bluegill and redear sunfish collected from the electrofishing of Harwood’s Mill Reservoir, April 29<sup>th</sup>, 2016

The redear sunfish population provides some better results than the bluegill population when it comes to the possibility of encountering a few larger specimens. The survey produced a total of 133 redear sunfish (CPUE = 79 fish/hr), which showed a decline from the 2014 survey (CPUE = 120 fish/hr). The collected redear sunfish had a length frequency distribution from 1 to 9 inches. The average length for the redear sunfish was 4.72 inches. The redear sunfish population is decent and will surprise an angler from time to time.

## **Black Crappie**

The black crappie fishery within Harwood's Mill Reservoir has historically been severely limited. Past electrofishing surveys of Harwood's Mill Reservoir have yielded limited numbers of black crappie. Surveys have collected only a handful of black crappie at a time. The 2014 fall survey revealed some serious changes in the black crappie population. The total of 143 black crappie (CPUE = 107 fish/hr) showed a large increase from the 2011 survey (N = 11; CPUE = 6.6 fish/hr). Black crappies tend to school up tightly in deeper water more than bass and bluegill. So the typical shoreline electrofishing run could miss the black crappie if they were holding in deeper water. The 2016 spring electrofishing revealed 50 black crappie (CPUE = 30 fish/hr). The 2016 size distribution ranged from 3 to 8 inches, with the majority of fish in the 4 to 5 inch range. Positive reports have surfaced from anglers that fish the reservoir on a regular basis. Anglers have been able to catch their fair share of decent crappie from the reservoir. The collection of 18 stock-sized black crappie revealed a favorable relative weight value of 99. These larger crappie are finding an adequate amount of forage most likely in the form of juvenile bluegill.

## **Yellow Perch and Saugeye**

The yellow perch population appears to be dominated by an abundance of juvenile fish. The 2016 survey produced a total of 175 yellow perch (CPUE = 105 fish/hr). This catch rate showed a large decline from the 2014 survey that collected 578 yellow perch (CPUE = 433 fish/hr). The 2016 catch rate showed a closer similarity to the 2011 spring survey (CPUE = 118 fish/hr). The length distribution was 3 to 10 inches, with the majority of fish in the 4 to 6 inch range. Harwood's Mill Reservoir has some potential to produce a few larger yellow perch. Anglers may be surprised every once in a while by a better than average yellow perch, but they should be cautioned that there are very few fish greater than 6 inches in size. On the positive note, the abundance of 3 to 4-inch yellow perch will provide a great forage base for the various predator fish species. One of those predator fish species that anglers should be on the lookout for are the saugeyes that were stocked into the reservoir on May 22<sup>nd</sup>, 2013.

DGIF hatchery staff stocked 31,791 saugeye fingerlings into the reservoir as an initial attempt to diversify the fishery. This stocking was an allotment of surplus fish that the King & Queen Hatchery was trying to find a suitable home for. The electrofishing survey collected one saugeye that measured 19.52 inches and weighed 2.81 pounds. This saugeye was collected from the northern shoreline of the lower reservoir basin. A full assessment of the saugeye population has not been attempted. Night time electrofishing would be the best way to collect additional saugeye from the fishery. The abundance of juvenile yellow perch and gizzard shad will provide plenty of forage for the saugeye population. Reports have surfaced from several anglers of their success in catching a few decent saugeye over the last few years. The minimum size limit for saugeye is 18 inches with a creel limit of 5 fish/person/day.

## **Chain Pickerel**

The survey produced a total of 11 chain pickerel (CPUE = 6 fish/hr). This catch rate showed a major decline from the 2014 survey (CPUE = 46 fish/hr), but a slight increase from the spring 2011 survey (CPUE = 4 fish/hr). The chain pickerel length

distribution of the limited sample set was 2 to 20 inches. The average size pickerel measured 11.05 inches. The largest chain pickerel measured 20.98 inches and weighed 1.83 pounds. The chain pickerel will have the ability to surprise an angler from time to time. A few citation-sized pickerel have been caught by anglers over the last few years. Anglers are reminded that chain pickerel are a native fish species and serve an important role in controlling the excessive number of juvenile yellow perch that are present.

### **Additional Species**

The electrofishing survey of 2016 collected 16 fish species. The sample collected the above listed species along with limited abundance of brown bullhead (16), yellow bullhead (1), creek chubsucker (20), American eel (4), Eastern silvery minnow (2), pumpkinseed sunfish (6), golden shiner (7), bluespotted sunfish (6) and warmouth sunfish (20). Out of these species, the only one that will truly provide some angling excitement will be the brown bullhead, which had a high proportion of fish in the 12 to 13 inch range.

### **Sample Summary**

The 2016 electrofishing survey of Harwood's Mill Reservoir provided some additional insight into the current fishery. The fishery provides a high level of diversity with the collection of 16 fish species. The bass size distribution showed an abundance of juvenile bass making their way through the fishery. The survey showed a limited abundance of bass in the 10 to 13 inch range. The catch rate of preferred-sized bass showed an increase when compared to the 2014 survey. Harwood's Mill Reservoir has historically been one of the better bass fisheries for quality bass. It is quite possible that the timing of the survey did not yield the opportunity to cross paths with the 5 to 7 pound bass that are normally found during the electrofishing surveys. Relative weight values of collected bass were still above the desired range, but showed a decline from the 2014 survey. The size structure of the bluegill and yellow perch continues to leave something to be desired with the majority of these fish in the 3 to 6 inch range. The chain pickerel population showed a large decline in catch rate when compared to the 2014 survey. The black crappie population appears to have a high proportion of fish in the 4 to 5 inch range, which will need additional time to grow before exciting anglers in the future. Harwood's Mill Reservoir provides a wide assortment of fish diversity. Anglers may find some excitement from a variety of fish species that are present, but most of the action will be targeted at the largemouth bass population.

Boats can be rented on both sides of the reservoir on weekends and public holidays from May through September. Private boats can be launched from the ramp on the southern portion of the reservoir. There are picnic facilities and a popular biking trail. Further details can be obtained from the Newport News Department of Parks and Recreation at 757-886-7912. The reservoir is Oriana Road (Route 620) off of Denbigh Boulevard (Route 173).

