



Virginia Department of Game and Inland Fisheries 2017 Shields Lake Management Report

Shields Lake, located off the Boulevard in Richmond's Byrd Park, is owned and operated by the City of Richmond. This 6-acre lake is managed under the Department's Urban Lake Program and is stocked with harvestable-sized trout and channel catfish. The lake is mostly shallow (< 6 ft deep) and provides plenty of shoreline access for anglers willing to walk around the banks. The lake has recently been inundated with hydrilla growth. The excessive amount of nutrients that are washed into the lake serves as fuel to the SAV (submerged aquatic vegetation) growth.

On October 12th, 2016, the fish community of Shields Lake was sampled using boat electrofishing gear. The previous survey was conducted on October 20th, 2014. Some comparisons will be made between the two surveys. The survey revealed increased species diversity with 7 species collected. The species represented in order of abundance were bluegill, largemouth bass, channel catfish, yellow perch, redear sunfish, grass carp and koi. Shields Lake provides anglers with some excitement, but the majority of that excitement is based upon the stockings of trout during the winter months and channel catfish each year during the mid to late-spring. Without those stockings, the fishery has some severe limitations.

Largemouth Bass

The electrofishing survey encountered an excessive amount of hydrilla still growing at the time of the survey on October 12, 2016. This massive amount of aquatic vegetation has quickly spread to cover the majority of this shallow lake. There were a few open pockets that provided the most fish. The electrofishing survey was able to push forward to the incoming water that was flushing in from the Swan Lake outflow. Effort was made to collect as many fish as possible from the hydrilla flats. It is quite possible that a large % of fish were missed in this thick cover.

A total of 30 largemouth bass were collected for a CPUE (Catch Per Unit of Effort) of 120 fish/hr. This catch rate is well below the 2014 survey (CPUE = 327 fish/hr). The 2014 survey was bolstered by a large accumulation of juvenile fish. The strong year class of YOY (Young of Year) hatched in the spring of 2014 accounted for the majority of the bass collected. A total of 104 bass were in the 4-8 centimeter range (1.5-3 inch range). These juvenile fish took advantage of the hydrilla by using it for protective cover from the various predators that are present. The catch rate of juvenile bass in 2016 was 112 fish/hr and was based on the collection of 28 fish.

The size distribution of collected bass ranged from 2 to 10 inches. Only 2 stock-sized bass were collected. The largest bass measured in at only 10.55 inches and weighed 0.51 pound. Largemouth bass reproduction appeared to be poor from the 2016 spawn. The colder than average weather encountered during the heart of the bass spawn in April 2016 did not make

things easy for the limited bass brood stock. To protect the bass population, the bass will continue to be managed under the current regulation of only one bass per day over the minimum size limit of 18 inches. The great abundance of cormorants that frequently visit the Byrd Park lakes may be having a severe impact on the number of juvenile bass after their first growing season. The relative weight value for the 2 stock-sized bass was a disappointing 79 and showed the fish were having difficulties finding sufficient forage amongst the hydrilla growth. Relative weight values of adult bass should increase if the hydrilla density declines substantially. There is usually a time lag with any grass carp stocking. Complete eradication of hydrilla is only accomplished at extreme stocking rates of 15 fish/acre. There is no telling how many of the 120 stocked grass carp are still alive and present within the fishery.

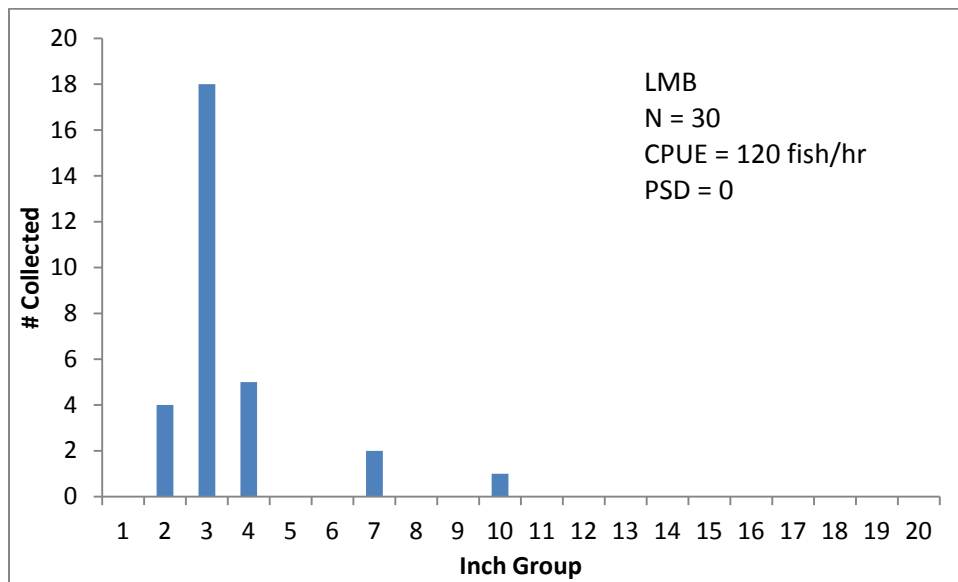


Figure 1. Length-frequency distribution of largemouth bass collected from Shields Lake on October 12th, 2016

A supplemental stocking of adult bass on April 6th, 2016 added 150 fish to the system. These bass were collected from Spring Branch Pond and Walker Coleman Pond. DGIF would like to thank the King & Queen Rod and Gun Club for allowing DGIF staff to conduct electrofishing surveys on their ponds to collect and remove some of the stock-piled bass. Each bass was measured for total length and weights were taken. The mean total length was 10.06 inches. The total weight of the 150 bass was 65.57 pounds with average weight 0.437 pound. Each bass then received a specific Floy tag for the sake of identification. Anglers were able to catch a few of the stocked bass toward the early part of the summer. These additional bass will hopefully survive long enough to strengthen the overall population. The electrofishing survey did not collect any of the tagged bass. The thick hydrilla growth most likely served as a deterring factor. Future surveys will look to collect tagged bass to track growth rate potential. There is no reward for these tagged bass. Anglers that are interested in the project and willing to talk about a tagged bass they may catch can call (804) 829-6580.

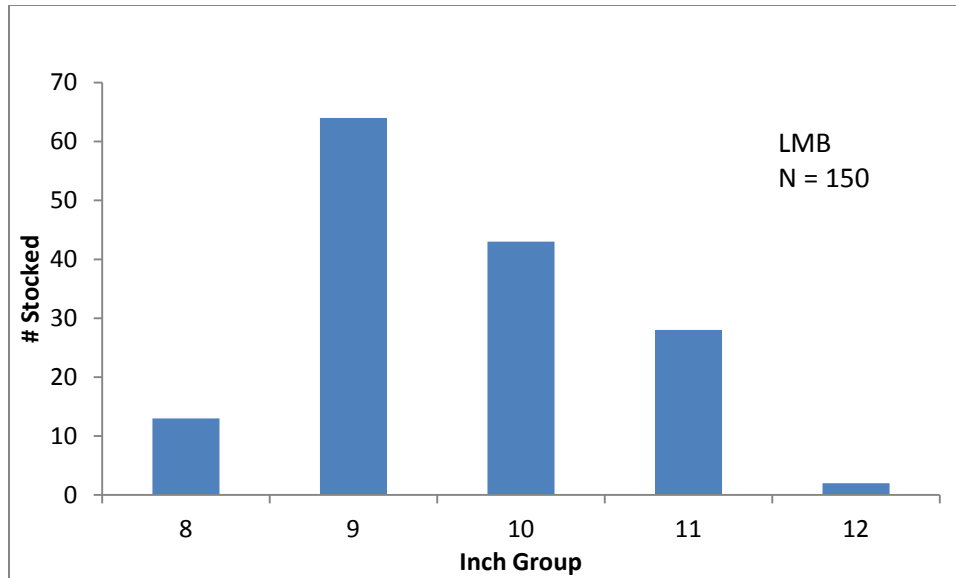


Figure 2. Length-frequency distribution of largemouth bass stocked into Shields Lake on April 6th, 2016

Sunfish

The survey was similar to the 2014 survey in revealing a poor abundance of sunfish species. The survey produced a total of 56 bluegill (CPUE = 224 fish/hr). This catch rate, although not great, still showed improvement from the 2014 survey (N = 35; CPUE = 105 fish/hr). Collected bluegill ranged in size from 1.61 to 5.04 inches, with the average size bluegill measured at 3.45 inches. The survey most likely missed some bluegill that were hiding deep within the hydrilla. Anglers should not expect to catch too many large bluegill out of Shields Lake. On a positive note, the relative weight value from the 36 stock-sized bluegill was a favorable 105. This value showed that the bluegill were finding plenty of available food and are in good overall health.

One redear sunfish was collected during the survey. This fish measured in at 4.72 inches. Anglers observed some larger redear sunfish on spawning beds during the kids fishing event the first weekend of June 2016. No other species of sunfish were encountered during the survey. DGIF staff collected an abundance of juvenile green sunfish while netting hydrilla from the shoreline during late October 2016. No adult green sunfish were collected during the hydrilla removal.

Yellow Perch

The survey revealed a limited sample of the yellow perch population with only 5 perch collected. This catch rate of 20 fish/hr is well below the 2014 survey (CPUE = 702 fish/hr). The 2014 survey reflected the extreme abundance of juvenile perch (CPUE = 612 perch/hr). The limited sample of perch in 2016 measured from 5.19 to 7.04 inches. The thick hydrilla growth most likely underestimated the strength of the yellow perch population. The yellow perch fishery may provide some excitement from anglers using small lures and baits. Anglers should not expect to catch too many trophy yellow perch from Shields Lake. The juvenile yellow perch will provide a forage base for the limited number of adult largemouth bass that are present.

Channel Catfish

The survey produced a total of 9 channel catfish (CPUE = 36 fish/hr). This catch rate showed a decline from the 2014 survey (N = 21; CPUE = 63 fish/hr). Shields Lake is stocked with channel catfish at a current rate of 292 fish/acre. This rate was reduced from the high rate of 375 fish/acre. The general fishing public enjoys fishing for these catfish over the course of the summer. Many of the stocked channel catfish have a hard time surviving their first year in Shields Lake due to the high level of angler harvest. The collected catfish ranged in size from 13.07 to 18.43 inches. The average size catfish measured in at 15.24 inches, which was an improvement from 2014 (Mean TL = 14.77 inches). The average weight of the collected catfish was 0.995 pound. The largest catfish weighed 1.69 pounds. All of the catfish were collected from a deep, open pocket of water in the center of the lake. These catfish and the thousands of others that have been stocked over the last few years are most likely the main reason why the bluegill population is in such poor shape. The juvenile bluegill are the main forage base for these stocked channel catfish.

Additional species and summary

The survey provided some additional excitement in the collection of one large koi. The fish measured 27.87 inches and weighed 9.97 pounds. This koi and the reported others that have been seen in the lake have been from illegal introductions. Ponds owners should be discouraged from stocking/dumping their unwanted fish into the lake. The possibility of introducing various fish diseases is the main reason why people should not stock there fish plus it is illegal. The survey collected just one grass carp. This fish measured 22.48 inches and weighed 5.36 pounds. All grass carp stocked during 2015 were marked with a Floy tag. This fish did not have a Floy tag or a visible scar from a shed tag. This fish was quite possibly part of the 2016 stocking which would represent an extremely quick growth rate.

Shields Lake is part of the Urban Trout Program. Rainbow, brown and brook trout are stocked annually at high rates, so anglers have a good chance of catching their limit, especially after the stocking dates. Anglers must possess a trout license in addition to a fishing license between November 1 and April 30. A trout license is not required from May 1 through October 31 or for juveniles under age 16. Anglers must follow the creel limit of 4 trout/person/day. Anglers can only actively use one fishing pole while fishing. This regulation holds true for the catfish population. Channel catfish are stocked each May to provide anglers with harvestable-sized fish. Most catfish are stocked at about 1 pound in size. Anglers can only harvest 4 catfish/person/day if they so desire.

Byrd Park has a picnic area, bathrooms, a running and activity trail, and is located adjacent to Maymont Park and the James River. Shields Lake is the lowest lake in the series of three impoundments. The urban program helps to create a valuable fishery for anglers throughout the winter (trout) and in the summer (catfish). Anglers are encouraged to take care of this resource and dispose of trash in the various garbage pails that are found in the park.