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

Echo Lake, located on Springfield Road in the northern part of Henrico County, is owned and operated by the Henrico County Parks and Recreation Department. This 12-acre lake is the centerpiece for this county park. The lake is managed under the Department's Community Lakes Improvement Program (CLIP) and is stocked annually with harvestable-sized channel catfish. The lake was drained in 2008 to allow for a large scale habitat improvement project. A settling basin was constructed above the lake and 14,500 cubic yards of sediment were removed from the lake. DGIF restocked the lake from 2009 to 2011 with bluegill, redear sunfish, largemouth bass, and channel catfish as a way to reestablish the fishery. Catch and release regulations for all fish species were put in place to allow the fish populations adequate time to survive and produce enough natural recruitment of future generations. The shoreline trail provides bank anglers with numerous places to fish. The fishing pier platform is another great place for anglers to fish from. Recent growth of excessive amounts of hydrilla makes fishing this impoundment difficult during the late summer to early fall time frame. Anglers are encouraged to try fishing Echo Lake before the hydrilla has the chance to cover the majority of the shoreline. Triploid grass carp were stocked into Echo Lake in June 2016 in hopes of eventually controlling the hydrilla growth. This initial stocking of 120 grass carp will be used to clear up the lake.

On October 4th, 2016, the fish community of Echo Lake was sampled using boat electrofishing gear. The previous sample was conducted on September 28th, 2015. The lack of a boat ramp ruled out the use of the 18.5 foot electrofishing boat typically used on most impoundments. A 14 foot electrofishing boat was used to conduct the electrofishing survey. The hydrilla growth was roughly 50% coverage of what was encountered during the 2015 survey. The decreased density of hydrilla made it easier to conduct the survey. The 2016 survey was successful in collecting 7 fish species. These species in order of abundance were bluegill, redear sunfish, largemouth bass, American eel, golden shiner, black crappie and warmouth sunfish. The shoreline circuit took 1,200 seconds (0.33 hr.) to complete. The water temperature was still rather warm at 22°C (71.6°F).

Largemouth Bass

The largemouth bass population within Echo Lake appears to be in fair shape. A total of 40 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass provided an expanded catch rate of 120 fish/hr, which showed a favorable increase from 2015 (N = 20; CPUE = 77 fish/hr). Out of the 40 collected bass, 26 fish were below the stock-size category of 8 inches. The large assortment of juvenile bass brought the average length down to 7.04 inches, which showed a decline from 2015 (mean length of 7.92 inches). The survey yielded two preferred-size bass greater than 15 inches. These preferred bass measured 17.64 and 18.11 inches. There weights were 3.02 and 2.91 pounds. The excessive amounts of hydrilla present during the 2015 survey may have allowed additional bass plenty of hiding places away from the electric field. Based on what was observed in 2015, the lack of brood stock bass was an area of concern. Only three bass greater than 12 inches in length were collected during the 2015 survey. The 2016 survey doubled that tally with 6 bass greater than 12 inches. The 2016 survey showed strong recruitment of juvenile bass in the 3 to 5 inch range. The cold weather of April 2016 did not influence the bass spawn too greatly. The catch and release regulations that are still in place should have allowed for a higher concentration of adult bass to be present. Illegal harvest by anglers or the predation of bass by otters may play some role in the limited presence of bass greater than 12 inches in length. To protect the adult bass population, the bass will continue to be managed under the current catch and release regulation.

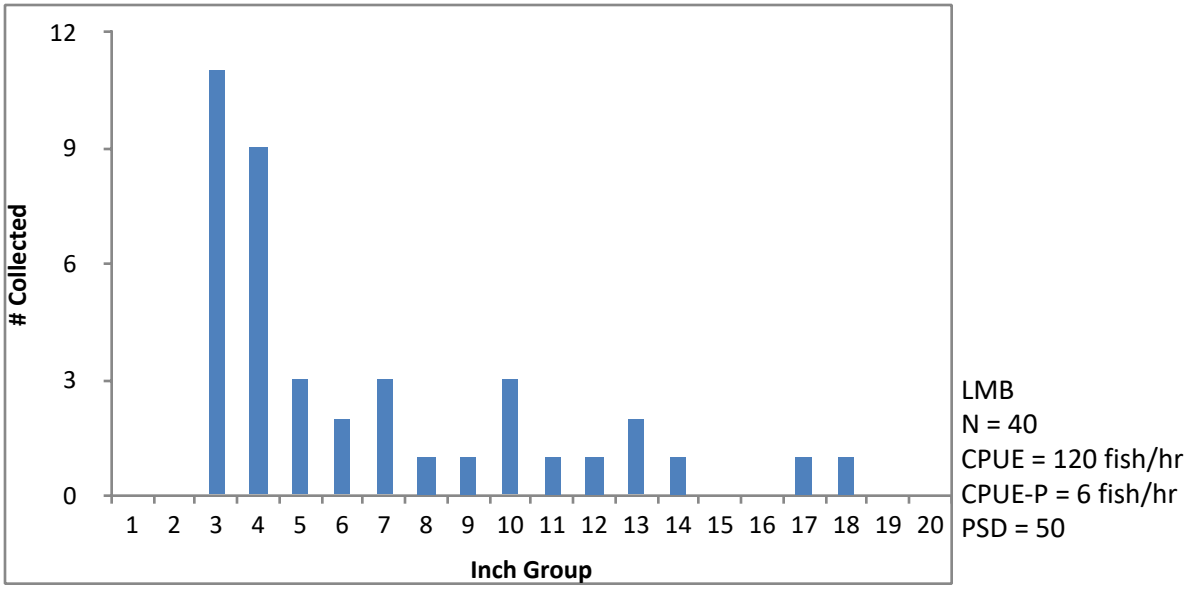

Figure 1. Length frequency of largemouth bass collected from electrofishing survey of Echo Lake on October 4th, 2016.

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 value for the 14 stocked-sized bass was 98, which showed an improvement from 2015 (Wr = 93). The relative weight values (quality = 96, preferred = 93) were within or close to the desired range. The decrease in hydrilla coverage has allowed the bass an easier opportunity to forage on the abundant bluegill population.

Bluegill and Redear Sunfish

The survey collected 318 bluegill for a catch rate of 954 fish/hr. This catch rate showed an increase from 2015 (N = 213; CPUE = 816 fish/hr). This catch rate is extremely high when compared to the catch rates of the other fish species. The bluegill catch comprised 72.6% of the total catch. The size distribution of collected bluegill ranged from 0.79 to 6.42 inches. The abundance of juvenile bluegill set the average size at 2.98 inches, down from the average of 3.3 inches in 2015. The survey produced a total of 161 stock-sized bluegill, with only 4 of these fish reaching the desired quality-size classification of 15 centimeters (5.9 inches). Relative weight data of the stock-sized fish was an impressive 115, which showed a large increase from 2015 (Wr_{stock} = 93). The 4 quality-sized fish had a relative weight value of 102, which was much greater than 2015 ($Wr_{quality}$ = 87). The decline in hydrilla growth may have freed up a portion of the nutrients flowing into Echo Lake to be used for primary productivity and zooplankton growth.

The survey yielded an increased abundance of redear sunfish with the collection of 75 fish (CPUE = 225 fish/hr). This catch rate showed a large increase from 2015 (N = 10; CPUE = 38 fish/hr). The redear sunfish size distribution ranged from 1 to 7 inches, with the average length redear sunfish at 4.13 inches. The largest redear sunfish measured 7.76 inches and shows some of the size potential these fish can attain if given enough time to grow. Anglers should not expect too much action from the redear sunfish population. The survey revealed a slight improvement in recruitment of juvenile redear sunfish. The observed improvements in the population of redear sunfish may also be directly tied to the decline in hydrilla growth.

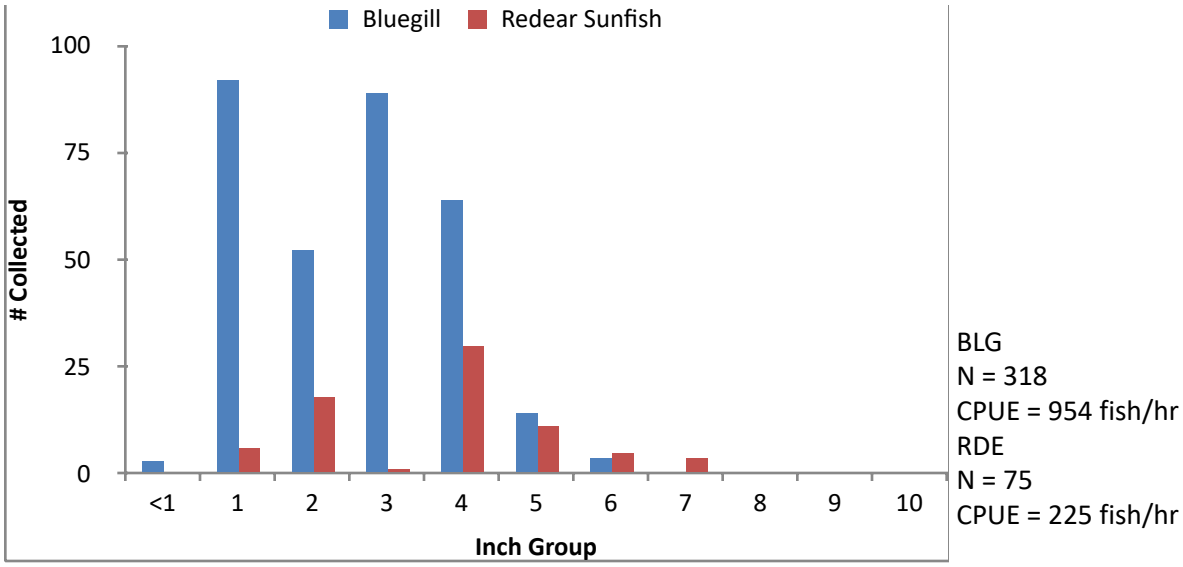

Figure 2. Length frequency of bluegill and redear sunfish collected from electrofishing survey of Echo Lake on October 4th, 2016.

Additional Species and Summary

The survey produced additional species diversity in the form of black crappie, American eels, golden shiner and warmouth sunfish. One black crappie was collected during the survey. This fish measured 4.65 inches in length. The black crappie population appears to be extremely limited. Two black crappie that measured 7.2 and 7.7 inches were collected during the 2015 survey. Two American eels were collected. The eels measured 16.34 and 17.13 inches. The survey collected one golden shiner that measured 3.62 inches. One warmouth sunfish of 4.3 inches in length was collected.

The survey did not reveal any channel catfish. Echo Lake was stocked with 600 channel catfish during October 2015 and again in mid-October 2016. These stockings will provide anglers with some decent action when the largemouth bass are not biting. DGIF hatchery staff purchased and stocked 120 triploid grass carp into Echo Lake in June 2016. Plans are to monitor the density of the hydrilla growth to see if an additional grass carp stocking is needed in the future. Some aquatic vegetation is desired to provide nursery habitat for juvenile fish. The fishery within Echo Lake has some potential, but anglers should not expect too much action from trophy fish. The majority of collected game fish provided less than ideal average lengths. This is just a drawn out way of saying there are plenty of small fish available. Anglers that fish the lake on a consistent basis might have a better feel for where the larger fish are located. Tight schools of larger-sized bluegill have been observed by the dam's spillway, but these fish were not collected during the survey.

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