Lake Chesdin 2015 Fisheries Management Report

Virginia Department of Game and Inland Fisheries

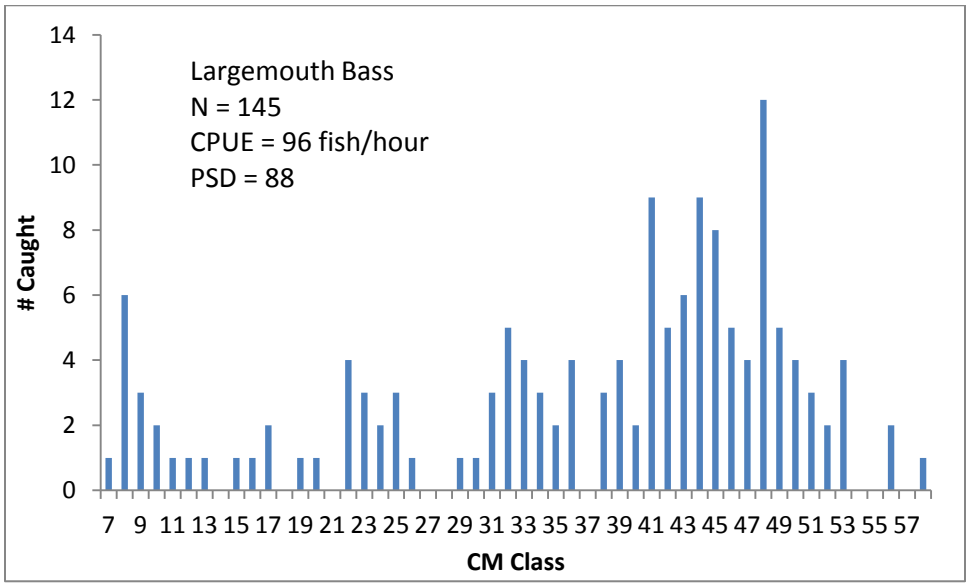
Lake Chesdin is a 3,100-acre water supply reservoir on the Chesterfield-Dinwiddie County line administered by the Appomattox River Water Authority. Chesdin is a productive lake that, for many years, has offered excellent largemouth bass fishing, good crappie fishing in spring and fall, and a great channel catfish fishery. It contains a diverse community of fish species that can provide plenty of excitement for anglers over the course of the various fishing seasons.

The Virginia Department of Game and Inland Fisheries conducted an electrofishing survey of Lake Chesdin on May 12th, 2014. The electrofishing survey consisted of covering six shoreline sites. Each survey run consists of 15 minutes of electrofishing effort. The combination of the runs provides a picture of the present fish assemblage. 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. Lake Chesdin has a thick coverage of water willow that lines the shoreline in most areas. This aquatic vegetation provides plenty of protective cover for various fish species that inhabit the shoreline regions of the lake. The 2014 survey concentrated on the collection of the various predator fish species that are in the system. These fish species were: largemouth bass, brown bullhead, channel catfish, white catfish, black crappie, American eel, white perch, yellow perch, chain pickerel and walleye.

Largemouth Bass

The largemouth bass population within Lake Chesdin appears to be in great shape. The overall size structure included an abundance of fish in the 16 – 20 inch range. A total of 145 largemouth bass were collected at a rate of 97 fish per hour. This rate is called CPUE (Catch Per Unit of Effort), and was up slightly from the previous survey, when CPUE = 88 fish per hour. This included an increase in the CPUE of preferred-size bass; 59 fish per hour, up from 47 fish/hour in 2013. Note however, catch of preferred-sized bass (fish 15 inches and larger in total length) often varies considerably from year to year depending on the number of female bass included in our survey samples. Female bass are generally the larger fish that you can see staging in and around shallow water spawning grounds. The 2014 survey encountered a fair number of female bass near the water willow edge, and the collection also included some larger male bass.

Figure 1. Length frequency distribution of largemouth bass collected from Lake Chesdin on May 12th, 2014.



The 2014 length distribution showed a high proportion of collected bass to be greater than 28 centimeters (11 inches) in length. Recruitment of juvenile bass has not been as strong over the last few years, but the presence of various year classes can be observed by the distribution peaks. The largest bass measured 22.95 inches and weighed 6.68 pounds. Lake Chesdin is one of those rare fisheries in which there appears to be more 3 to 5 pound bass than 1 to 2 pound fish. Strong year class recruitment and the abundance of gizzard shad have allowed the bass population to produce some quality fish over the last few years.

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 PSD and RSD-P values represent the distribution of collected fish, but one must take into account the total number of bass collected along with the total of stock-sized bass in the sample. The sample showed a PSD value of 88, which is a direct

reflection of the 110 quality-sized bass. The sample had a total of 125 bass that were stock size or larger. The RSD-P value of 70 is a direct reflection of the 88 preferred-sized bass collected. The 2014 PSD and RSD-P values were less than the 2013 values (PSD = 83, RSD-P = 68). The collection of 10 memorable-sized bass yielded a RSD-M value of 10 which was slightly less than the 2013 survey (RSD-M = 11).

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. Weights were taken on all collected bass. The relative weight values for stock, quality, preferred and memorable bass (≥8", ≥12", ≥15", ≥20") were 98, 100, 101 and 102. The 2014 relative weight values were within or above the desired range, but showed a decline from 2013 (stock = 102, quality = 105, preferred = 104, memorable = 103). The decline in relative weight values is most likely a reflection of the lake's forage base showing a dip in abundance when compared to the 2013 survey.

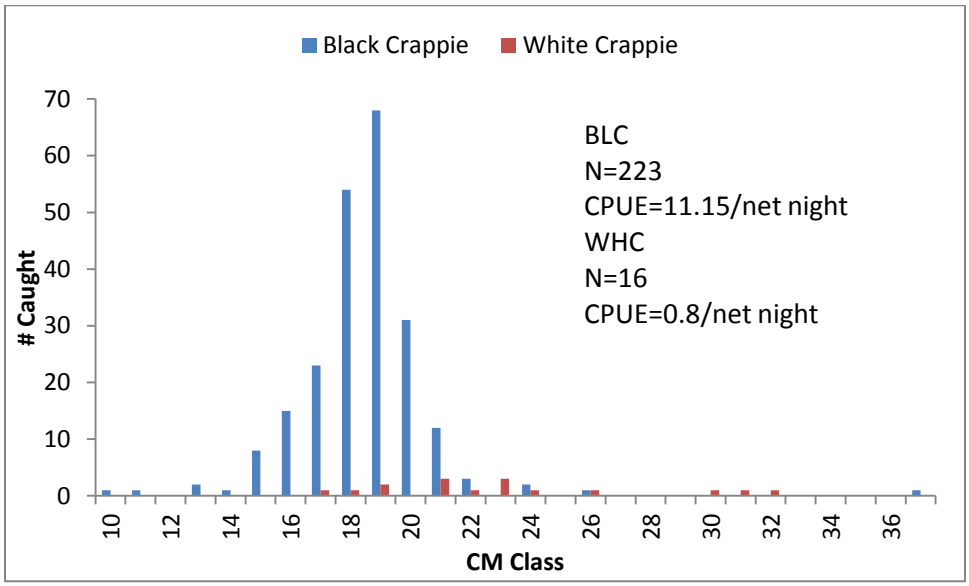
The gill net survey of Lake Chesdin collected some very respectable largemouth bass in the 5 to 7.5 pound range. The survey collected a total of 35 bass (CPUE = 2.66 fish/100 m^2). The collected bass revealed high relative weight values (stock = 108, quality = 111, preferred = 112, memorable = 111) that reflect the ease at which the adult bass are able to consume the abundant gizzard shad forage base.

Black Crappie and White Crappie

The electrofishing survey of Lake Chesdin did not produce too much excitement when it came to the collection of black crappie. A total of 5 black crappie were collected (CPUE = 3.33 fish per hour). The collection of black crappie depends on whether or not a school of fish is encountered during the shoreline survey. Crappie will typically school in deeper water during the day if they are not holding tight to a massive amount of shoreline brush in the form of a beaver hut or a fallen tree. The collected fish ranged in size from 7 to 11 inches.

To attain a better idea of the strength of the crappie population within Lake Chesdin, a trap net survey was conducted from March 31st – April 2nd, 2014. The trap net survey was able to produce a total of 223 black crappie. The majority of the collected black crappie were in the 16 to 21 centimeter range (6 to 8 inches). The largest black crappie measured an impressive 14.76 inches. This older fish managed to survive long enough to break away from the stunted population that defines the black crappie fishery. A limited abundance of juvenile black crappie were collected, with very few fish less than 15 centimeters in length. Relative weight data of collected crappie revealed less than ideal values (stock = 87, quality = 83, preferred = 80, memorable = 92). The competition for small forage fish is high due to the abundance of predator fish in the system. Black crappie are most likely in direct competition with the white perch population for any small forage items they can find.

Figure 2. Length frequency distribution of black crappie and white crappie collected during the trap net survey of Lake Chesdin on March 31st – April 2nd, 2014.



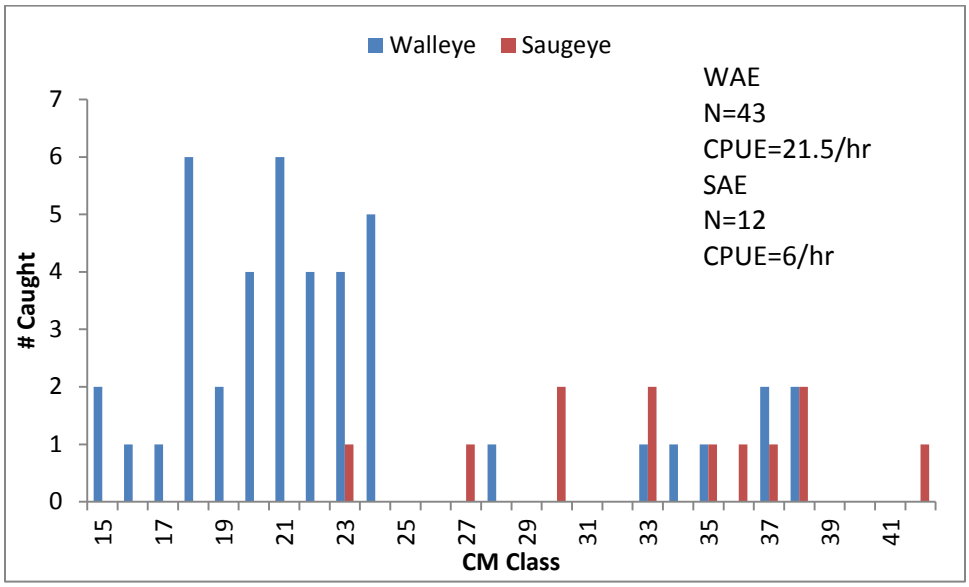
The gill net survey revealed a decent abundance of black crappie with the collection of 76 black crappie (CPUE = CPUE = 5.77 fish/100 m^2). The majority of collected crappie were within the stock-piled size range of 18-20 centimeters (7 to 8 inches). Anglers are encouraged to harvest these smaller black crappie in hopes of eventually restoring the population to a state of improved balance. The relative weight values (stock = 98, quality = 93, preferred = 93, memorable = 94) of the collected crappies in November showed some signs of improvement when compared to the spring trap net survey. It appears that these fish were able to key in on the juvenile bluegill that were produced during the spring and early spawns of 2014.

Walleye and Saugeye

The walleye population within Lake Chesdin has historically been low due to inconsistent stocking as a surplus-only water. The 2013 and 2014 hatchery production was very favorable which allowed for Lake Chesdin to be stocked with walleye and saugeye fingerlings both years. The saugeye appear to be doing really well with some of the 2" fish from the 2013 stocking already reaching 16 inches by the end of the fall 2014. The spring electrofishing survey of 2014 encountered a couple of walleye up in the shallow flats near the shoreline. This goes to show you that you never know when and where certain fish may be positioned in the water column. The night electrofishing survey that was conducted on November 5th, 2014 revealed a decent abundance of juvenile walleye and saugeye. The survey collected 43 walleye for a catch rate of 21.5 fish per hour. The survey also revealed the presence of 12 saugeye (CPUE = 6 fish per hour). The fall gill net survey provided some additional walleye in the 20 to 22 inch range as

well as some saugeye in the 12 to 15 inch range. The walleye and saugeye populations within Lake Chesdin will soon be surprising anglers that are patient enough to target them.

Figure 3. Length frequency distribution of walleye and saugeye collected during the night electrofishing of Lake Chesin on November 5th, 2014.



Summary

Lake Chesdin provides a variety of fish species for anglers to target. The largemouth bass population is in great shape with plenty of bass in the 3 to 5 pound range, with a good assortment of bass in the 6 to 7 pound range. Anglers are reminded that the majority of the bass population will be foraging upon the gizzard shad population. The abundance of small bluegill in the 3 to 5 inch range will also provide plenty of forage for the bass. The abundance of forage within the lake can also make fishing for bass a bit difficult as anglers have to find a productive pattern that matches what the fish are feeding upon. The black crappie and white perch populations are primarily based upon small fish in the 6 to 8 inch range. Anglers are encouraged to harvest these smaller fish in hopes of creating a better balance to the fishery at some point in the future. The walleye and saugeye that have been stocked over the last few years appear to be doing rather well with some decent growth rate reported from the various surveys that have been conducted. The fishery provides a good opportunity to catch some quality-sized channel catfish along with an abundance of white catfish and brown bullhead. The bluegill population is stunted with an abundance of fish in the 3 to 5 inch range. Very few bluegill are larger than 6 inches in total length. The fishery does yield some quality-sized redear sunfish in the 8 to 9 inch range that will take up a lot of the slack from the bluegill population.