



Little Creek Reservoir 2013 Fisheries Management Report Virginia Department of Game and Inland Fisheries

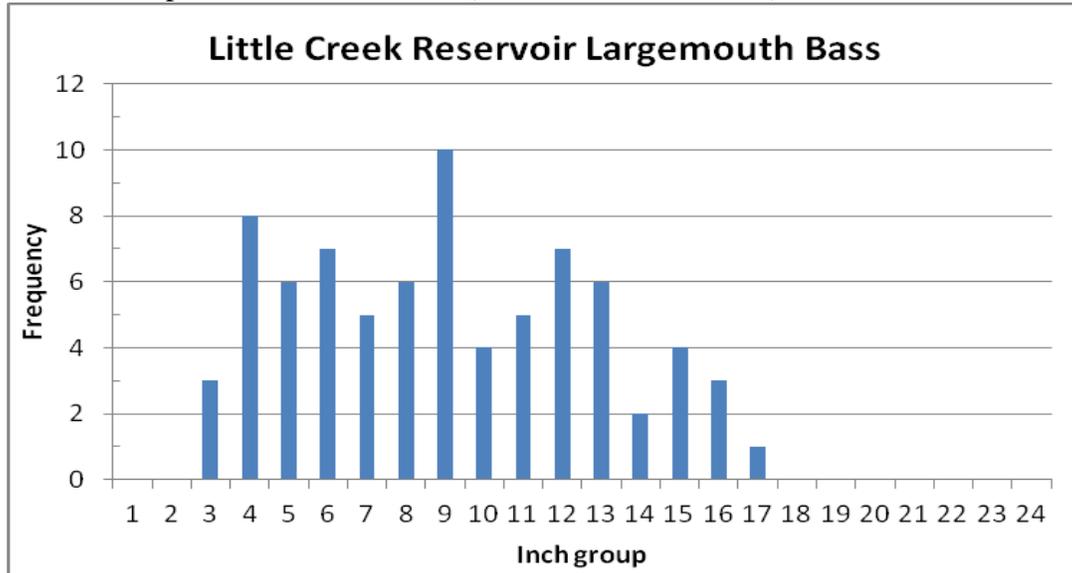
Little Creek Reservoir is owned by the City of Newport News and is located within James City County. This 947-acre reservoir has a relatively small watershed that can be supplemented by water pumped in from Chickahominy Lake or from Diascund Reservoir. Water from Little Creek Reservoir is pumped to the terminal reservoirs in the Newport News water supply system. James City County operates a public park at the lake. A boat ramp, courtesy pier, fishing pier, and concession stand are present at the park. The reservoir has numerous creek arms and coves that provide plenty of areas for anglers to try their luck. The majority of the reservoir has steep shoreline drop-offs with crystal clear water. The use of outboard engines is prohibited on Little Creek Reservoir. The use of trolling motors is permitted. The park rents jon boats with trolling motors and can be reached by calling (757) 566-1702.

The Virginia Department of Game and Inland Fisheries conducted an electrofishing survey of Little Creek Reservoir on April 24th and 30th, 2012. The last electrofishing survey was on April 19th and 28th, 2010. The survey was conducted in 6 regions of the reservoir to get a broad spectrum of the fish assemblage present. Each sample run was 20 minutes long to combine for two hours of electrofishing effort. The sample consisted of shocking along the shoreline habitat as close as possible, with the majority of the effort concentrated in the 2 to 5 foot depth range. A total of 14 species of fish were collected. This report will concentrate primarily upon the five major fish species: largemouth bass, chain pickerel, black crappie, redear sunfish and bluegill.

Largemouth Bass

The largemouth bass population within Little Creek Reservoir appears to be in fair shape. The clear waters and steep shoreline habitat have historically produced limited success when it comes to sampling bass. Little Creek Reservoir bass have the tendency to hold in deeper water and to be easily spooked by the electrofishing boat. A total of 77 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 38.5 bass/hr. This catch rate showed a decline from the 2010 survey (CPUE: 60 bass/hr). The size distribution of the collected bass can be seen on the enclosed length frequency graph. The warm spring weather of 2012 most likely sped up the spawning cycle of the largemouth bass. The larger female bass vacated the shallows by the time of the sample and the distribution shows the lack of any respectable sized bass.

Figure 1. Length frequency distribution of largemouth bass collected from Little Creek Reservoir on April 24th and 30th, 2012 (N: 77, CPUE: 38.5 f/hr).



The distribution showed a high proportion of bass in the 4 to 9 inch range. These bass represent the blending of a couple year classes of recruitment. A fair number of 11 to 13 inch bass were also collected. Our sampling efforts are just a representative picture of the fish community collected along the shoreline and various habitat structures on April 24th and 30th. 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 stock-sized bass (8 inches or larger) that are also equal to or greater than 12 inches (quality size). The sample showed a PSD value of 50, which is a direct reflection of the 24 quality-sized bass. The sample had a total of 48 bass that were stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40 – 60 range. The 2012 PSD value showed a slight increase from the 2010 value (PSD: 47). 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 2012 RSD-P value of 17 is a direct reflection of the 8 preferred fish being collected. This RSD value was similar to the 2010 survey (RSD-P: 17).

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, and preferred bass (>8”, >12”, >15”) were 100, 98 and 99 respectfully. These relative weight values were in the desired range and showed a favorable increase from the 2010 survey (Wr stock: 93, Wr quality: 90 and Wr preferred: 90).

The fall gill net survey collected a total of 31 largemouth bass for a CPUE of 1.8 bass/100 m². These bass ranged in size from 12 to 18.7 inches. A total of 21 preferred-

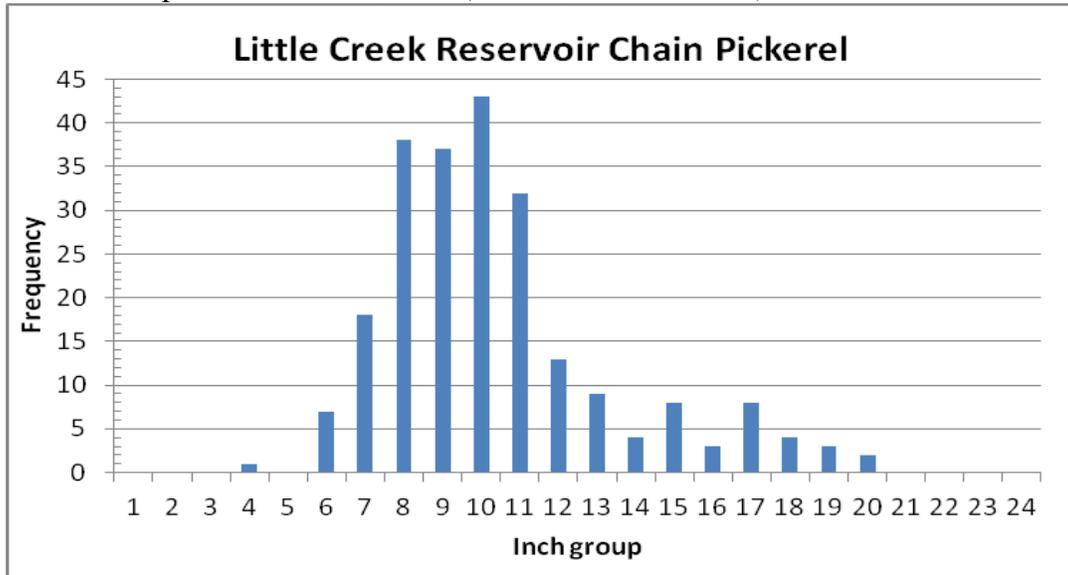
sized bass greater than 15 inches were collected from the deeper areas of the reservoir. Anglers are encouraged to fish deeper in the water column to catch some of these larger sized bass that will hold well away from the shoreline.

Chain Pickerel

The chain pickerel population within Little Creek Reservoir continues to be abundant and driven by several year classes of juvenile fish. A total of 230 chain pickerel were collected for a CPUE of 115/hr. This catch rate is much higher than the 2010 survey (CPUE: 40/hr). The 2012 size distribution ranged from 4 to 20 inches. The majority of the chain pickerel were in the 7 to 12 inch range. The reservoir has seen some good recruitment of juvenile chain pickerel over the last few years. The juvenile pickerel are taking advantage of the abundant sunfish population. The chain pickerel forage upon the excessive numbers of small bluegills that are present. Chain pickerel may also be foraging upon juvenile yellow perch. This is actually good for the perch population as it prevents the yellow perch fishery from becoming stunted with an excessive number of fish in the 3 to 5 inch range.

The average-sized chain pickerel collected during the electrofishing survey measured 10.89 inches. The largest chain pickerel measured 20.55 inches and weighed 1.9 pounds. The gill net survey yielded a few chain pickerel with only seven collected. These fish ranged in size from 15 to 20 inches. The electrofishing catch rate of chain pickerel was higher in Little Creek Reservoir than in every other public lake or reservoir sampled in Region 1, District 1 during the 2012 survey year. Little Creek Reservoir has the potential to become one of the better chain pickerel fisheries in the state if given a few years to mature while growth and survival rates remain consistent.

Figure 2. Length frequency distribution of chain pickerel collected from Little Creek Reservoir on April 24th and 30th, 2012 (N: 230, CPUE: 115/hr)

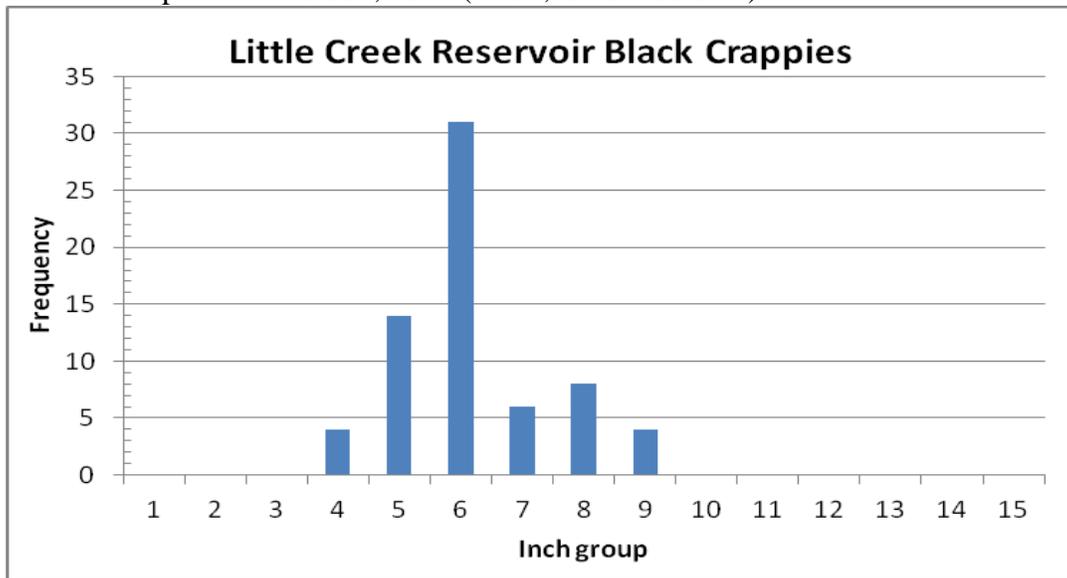


Black Crappie

The black crappie population appears to be in fair shape with majority of sample consisting of crappies in the 6-inch range. The electrofishing sample was able to collect 67 black crappies for a CPUE of 33.5/hr. This catch rate showed an increase from the 2010 survey (CPUE: 22/hr). 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 size distribution of the 2012 sample can be seen on the length frequency histogram. The largest black crappie measured 9.92 inches and the average size crappie measured 6.62 inches. The size distribution left something to be desired due to the fact that no larger crappies were collected. It appears that a large year class of crappie recruitment is making its way through the fishery. Spawning success of black crappies can be highly variable. Crappies can have several bad year classes in a row and then have a very large and healthy year class survive to keep the population supported for years to come. Angler that fish Little Creek Reservoir multiple times throughout the year have a better chance at figuring out the movements of these schooling fish and have a better chance of finding some of the larger specimens.

Figure 3. Length frequency distribution of black crappies collected from Little Creek Reservoir on April 24th and 30th, 2012 (N: 67, CPUE: 33.5/hr)



The gill net survey provided some additional data of the black crappie population with 17 black crappies collected. The catch rate of 1 crappie/100 m² was not very high. The distribution of crappies collected during the fall gill net survey ranged from 7 to 13 inches with the majority in the 8 to 9 inch range. The largest crappie measured 13 inches and weighed 1.1 pounds. Little Creek Reservoir has been known to yield a few trophy crappies to anglers every year.

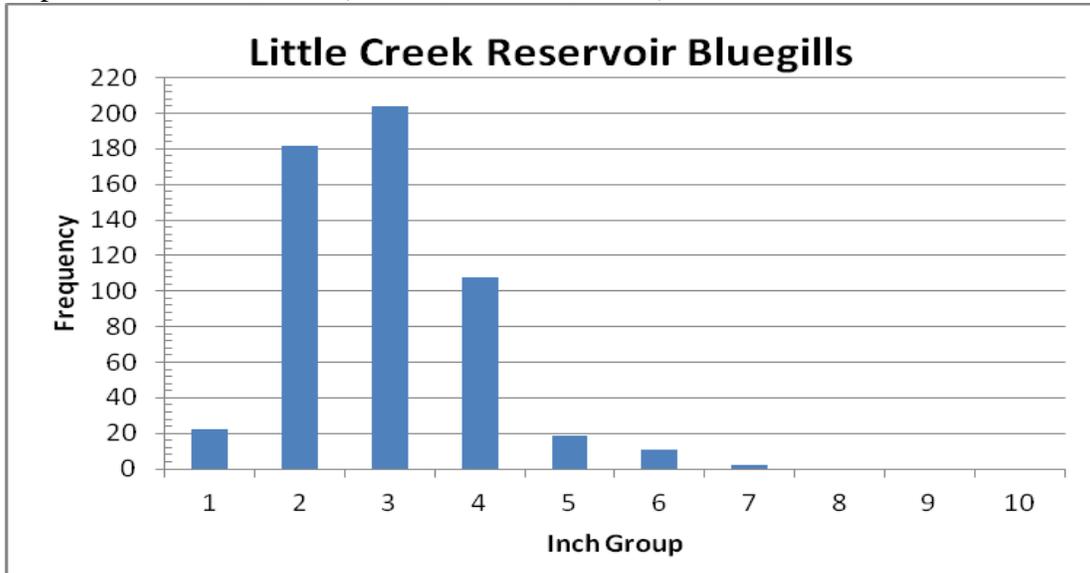
Redear Sunfish

The redear sunfish population appears to be in fair shape. A total of 76 redear sunfish were collected over the course of one electrofishing run. The expanded CPUE of 228/hr is much lower than the 2010 sample (CPUE: 511/hr). The 2012 size distribution consisted of fish in the 2 to 8 inch range with the majority in the 3 to 4 inch range. The abundance of small redear sunfish lowered the average sized redear sunfish to 4.83 inches in length. The largest redear sunfish measured 8.97 inches. Little Creek Reservoir is one of the few impoundments that appear to be very successful in producing strong year classes of redear sunfish. The reservoir has historically yielded a decent number of citation-sized redear sunfish to anglers each spring. The catch rate of citation sized redear sunfish has dropped over the last few years.

Bluegill

The sample revealed the bluegill fishery to be dominated by fish less than 5 inches in length. The electrofishing survey was able to collect 548 bluegills over the course of one sample runs (0.33 hr). The expanded CPUE of 1,644 bluegills/hr is extremely high and showed an increase from the 2010 sample (1,134 bluegills/hr). The average sized bluegill was 3.38 inches in length. The largest bluegill measured 7.76 inches. 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 5 is a direct reflection of 14 quality-sized bluegills collected. A total of 290 stock-sized bluegills were collected. The PSD value is well below the desired 20 - 40 range that would represent a balanced bluegill population. Although the PSD value did not reach the desired range, it did represent a minor increase in value from the 2010 survey (PSD: 4). There are a few decent bluegills within Little Creek Reservoir, but the majority of the sunfish action will come from the larger redear sunfish that are present.

Figure 4. Length frequency distribution of bluegill collected from Little Creek Reservoir on April 24th and 30th, 2012 (N: 548, CPUE: 1,644/hr)



Yellow Perch

Little Creek Reservoir has historically been one of the better regional waters for anglers to catch a citation-sized yellow perch. Unfortunately DGIF sampling has not been able to find the schools of larger perch that are present. Most of the larger perch hold in deeper water that the electrofishing boat cannot sample. The survey did yield 97 yellow perch for a catch rate of 48.5 perch/hr. The size distribution consisted of perch in the 3 to 8 inch range. The largest perch measured 8.6 inches and the average size was 5.4 inches. Anglers consistently catch numerous citation-sized yellow perch in the 12 to 13 inch range each year. A total of 39 yellow perch were caught and reported by anglers during the 2012 fishing season.

Remaining Species

The remaining 8 species of fish collected during the electrofishing survey were American eel (16), blueback herring (13), bowfin (1), brown bullhead (2), golden shiner (10), warmouth (35), margined madtom (1) and bluespotted sunfish (18). These fish were collected in limited abundance and provide some diversity to the fishery. The American eels ranged in size from 10 to 22 inches. The blueback herring ranged in size from 5 to 6 inches. The bowfin measured 26.7 inches and weighed 5.4 pounds. The brown bullhead measured 9.2 inches in length. The golden shiners ranged in size from 4 to 8 inches. The collected warmouths ranged from 2 to 7.5 inches.

Gill Net Survey Summary

The gill net survey was conducted on December 5-7, 2012. The western half of the reservoir was sampled the first night with 11 gill nets set off of main lake points. The eastern half of the reservoir was sampled the second night with the same nets. The gill net survey collected a total of 11 species.

The survey produced a poor abundance of striped bass with only 5 striped bass collected. The catch rate of 0.29 fish/100 m² is much lower than the 2010 striped bass catch rate (0.83 fish/100 m²). The weak gizzard shad forage base and a variety of other factors may have limited the survival rate of the stocked striped bass. The collected fish ranged in size from 23 to 28 inches. The relative weight values for these fish was less than ideal and show that they are experiencing extreme difficulties finding enough forage that they can utilize for growth.

The gill net survey collected 31 largemouth bass with a higher than average presence of bass greater than 15 inches in length. A total of 17 black crappies were collected in the gill nets. Only 8 gizzard shad were caught. The schools of shad must have been holding in deeper water away from the set gill nets. The 1.25" bar mesh gill nets were unsuccessful in collecting any blueback herring. A total of 7 chain pickerel were collected. The gill net survey was successful in collecting a total of 11 walleyes. These walleyes ranged in size from 19 to 24 inches. The increased catch rate of walleyes is a direct result of several years of uninterrupted stockings of walleye fingerlings. The remaining species collected during the gill net survey were channel catfish, creek chubsucker, golden shiner, redear sunfish and warmouth. These fish were all collected in limited abundance.

Summary

Little Creek Reservoir provides a wide variety of fish species for anglers. The electrofishing and gill net surveys were used to piece together as much data on the fishery as possible. These surveys were successful in collecting certain species while unsuccessful with others. The electrofishing survey revealed a decreased catch rate of largemouth bass (CPUE: 38.5/hr). The electrofishing size distribution showed a good abundance of bass less than 15 inches in length. The gill net survey showed a greater abundance of bass larger than 15 inches in length. Anglers that fish the reservoir on a regular basis are able to catch a fair number of bass in the 3 to 5 pound range. The bluegill fishery is primarily based on an abundance of small fish less than 5 inches in length. The black crappie population appears to have a large year class of 5 to 6 inch fish making its way through the fishery. Anglers can still find some larger crappie if they try hard enough. The redear sunfish population appears to have shown a decreased presence of larger fish. The chain pickerel population continues to grow and expand. The last few years have seen the chain pickerel population have great year class strength. The increased abundance of hydrilla and other submerged aquatic vegetation has surely helped to support the chain pickerel fishery.

Little Creek Reservoir has historically produced the highest number of citations for public reservoirs in Region 1, District 1. Anglers reported a productive 2012 fishing season with a total of 58 citations. The reservoir continues to produce good numbers of trophy yellow perch with 39 citations reported. A total of 7 sunfish citations were also reported. Little Creek Reservoir has yielded some impressive redear sunfish over the years. The remaining citations came in the form of black crappie (9), largemouth bass (1), chain pickerel (1) and striped bass (1).