



Little Creek Reservoir 2009

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 May 1, 2008. The last electrofishing survey was on April 27, 2006. The survey was conducted in 6 different regions of the reservoir to get a broad spectrum of the fish assemblage present. Each sample run was 20 minutes long to combine for a full 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 4 foot depth range. A total of 12 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.

Species	# Collected	CPUE (#/hr)	Largest Length	Average Length
Chain Pickerel	118	59	23"	12.8"
Largemouth Bass	101	50.5	21.7"	11.2"
Black Crappie	29	14.5	12.3"	9.1"
Redear Sunfish	148	222	8.5"	4.2"
Bluegill	405	608	7.0"	3.5"

Table 1. Summary of the May 1, 2008 electrofishing survey for the primary fish species of Little Creek Reservoir.

Largemouth Bass

The largemouth bass population within Little Creek Reservoir appears to be in decent 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. To our surprise, this was not the case during the 2008 survey. A decent algal bloom managed to give the water some color. A total of 101 largemouth bass were collected. The CPUE

(Catch Per Unit of Effort) for largemouth bass was a very respectable 50.5 bass/hr. This catch rate showed a major increase from the 2006 survey (CPUE=19.5 bass/hr). The size distribution of the collected bass can be seen on the enclosed length frequency graph.

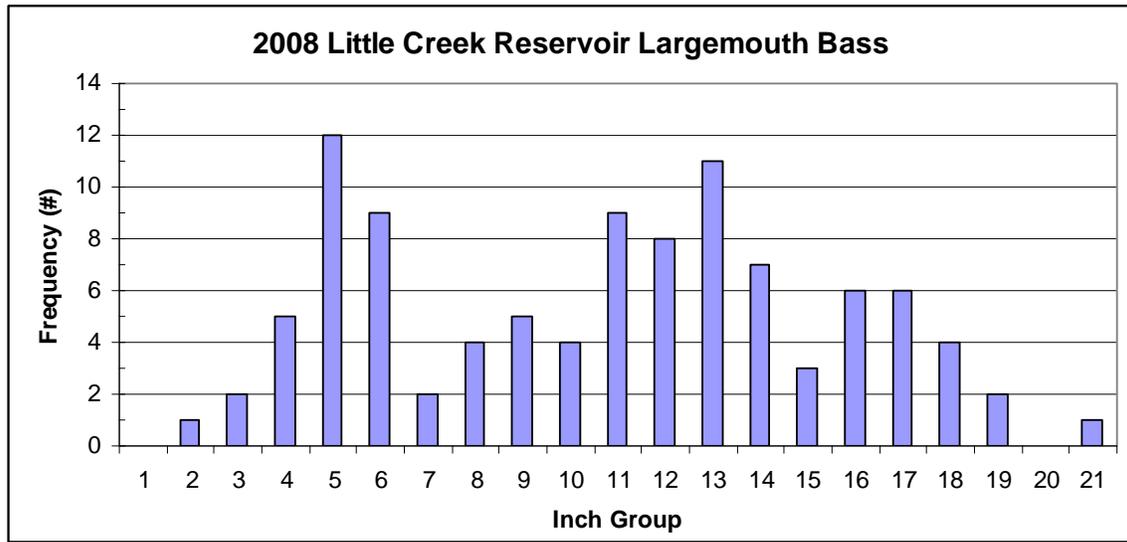


Figure 1. Length frequency distribution of largemouth bass collected from Little Creek Reservoir on May 1, 2008 (N=101, CPUE=50.5 f/hr).

The distribution showed a high proportion of bass in the 11 to 17 inch range. These bass will provide a great deal of the fishing excitement. The other abundant group of fish was the young bass in the 4 to 6 inch range. This group most likely represents the good recruitment from the 2007-year class. The distribution peaks on the histogram represent various year classes. Our sampling efforts are just a representative picture of the fish community collected along the shoreline and various habitat structures on May 1, 2008. 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 high PSD value of 72, which is a direct reflection of the 51 quality-sized bass. The sample had a total of 71 bass that were stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40 – 70 range. The 2008 PSD value was less than the 2006 value (PSD: 77). 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 2008 RSD-P value of 31 is a direct reflection of the 22 preferred fish being collected. This RSD value showed a slight decline from the 2006 survey (RSD-P: 36).

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 94, 94 and 96 respectively. These relative weight values were similar to the 2006 values and fall close to the desired range of 95 to 100.

Chain Pickerel

The chain pickerel population within Little Creek Reservoir continues to expand and provide anglers with good action throughout the year. A total of 118 chain pickerel were collected for a CPUE of 59/hr. This catch rate is much higher than the 2006 survey (CPUE = 24/hr). The 2008 size distribution ranged from 2 to 23 inches. The majority of the chain pickerel were in the 11 to 17 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 12.8 inches. This average size is larger than the average largemouth bass collected during the survey. The largest chain pickerel measured 23 inches and weighed 3.63 pounds. The gill net survey was successful in collecting a total of 28 chain pickerel. These pickerel ranged in size from 9 to 18 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 2008 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.

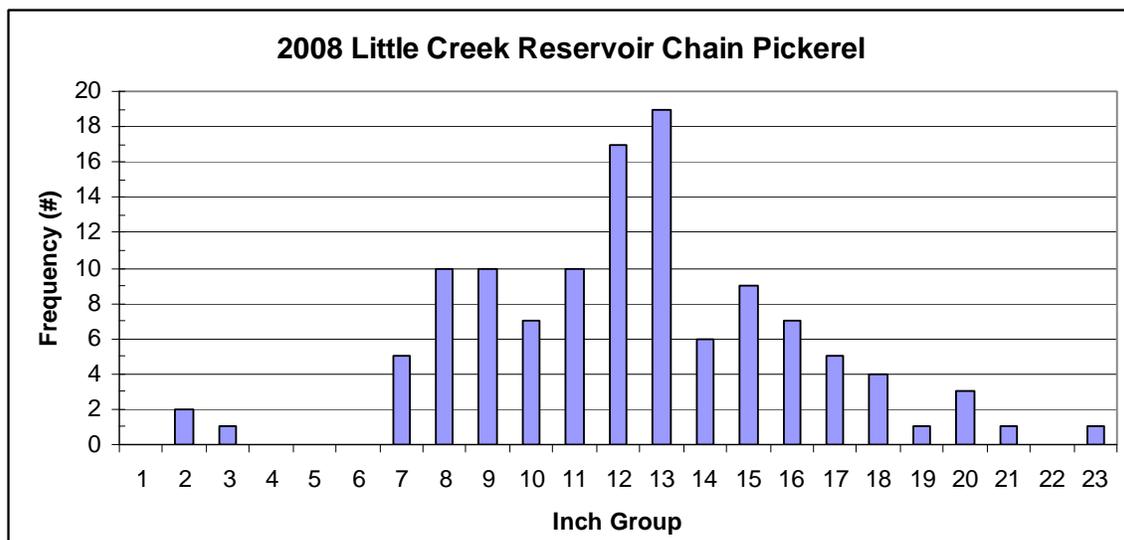


Figure 2. Length frequency distribution of chain pickerel collected from Little Creek Reservoir on May 1, 2008 (N = 101, CPUE = 50.5/hr)

Black Crappie

The black crappie population appears to be in decent shape with majority of sample consisting of crappies in the 8 to 10 inch range. The electrofishing sample was only able to collect 29 black crappies for a CPUE of 14.5/hr. This catch rate is the same as the 2006 survey (CPUE = 14.5/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 2008 sample can be seen on the length frequency histogram. The largest black crappie measured 12.3 inches. The average size crappie measured 9.1 inches. The limited abundance of juvenile-sized crappies is an area of concern. 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.

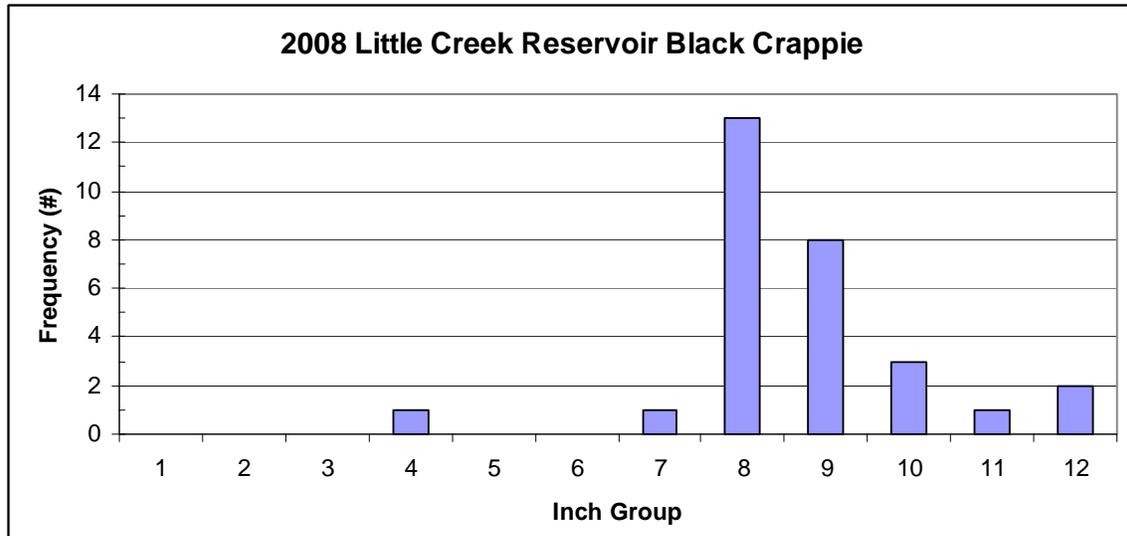


Figure 3. Length frequency distribution of black crappies collected from Little Creek Reservoir on May 1, 2008 (N = 29, CPUE = 14.5/hr)

The gill net survey collected a total of 31 black crappies. The catch rate of 1.18 crappies/100 m² is less than the 2006 gill net survey (CPUE = 4.1 crappies/100 m²). The use of full panel gill nets in 2008 will start a new standard of catch rates for various species. The experimental gill nets used in past surveys were successful in catching sunfish species, but not all that accurate in catching the target species of striped bass. The distribution of crappies collected during the fall gill net survey was centered in the 11 to 13 inch range. The largest crappie measured a very impressive 16.7 inches and weighed 2.6 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 decent shape even though an abundance of young fish was detected. A total of 148 redear sunfish were collected over the course of two electrofishing runs. The expanded CPUE of 222/hr is higher than the 2006 sample (CPUE = 186/hr). The 2008 size distribution consisted of a large proportion of fish in the 3 to 5 inch range. The abundance of small redear sunfish lowered the average sized redear sunfish to 4.2 inches in length. The largest redear sunfish measured 8.5 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 also yields a decent number of citation-sized redear sunfish to anglers each spring.

Bluegill

The sample revealed the bluegill fishery to be dominated by fish less than 6 inches in length (< 15 cm). The electrofishing survey was able to collect 405 bluegills over the course of two sample runs (0.66 hrs). The CPUE of 607.5 bluegills/hr showed an increase from the 2006 sample (540 bluegills/hr). The average sized bluegill was approximately 3.5 inches in length. All bluegills were measured by centimeter group and are displayed in centimeter groups. 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 8 is a direct reflection of 18 quality-sized bluegills 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 major increase in value from the 2006 survey (PSD: 0). The largest bluegill measured 7 inches in length. The majority of the bluegills were within the 4 to 10 centimeter range (1.75 to 4 inches). 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.

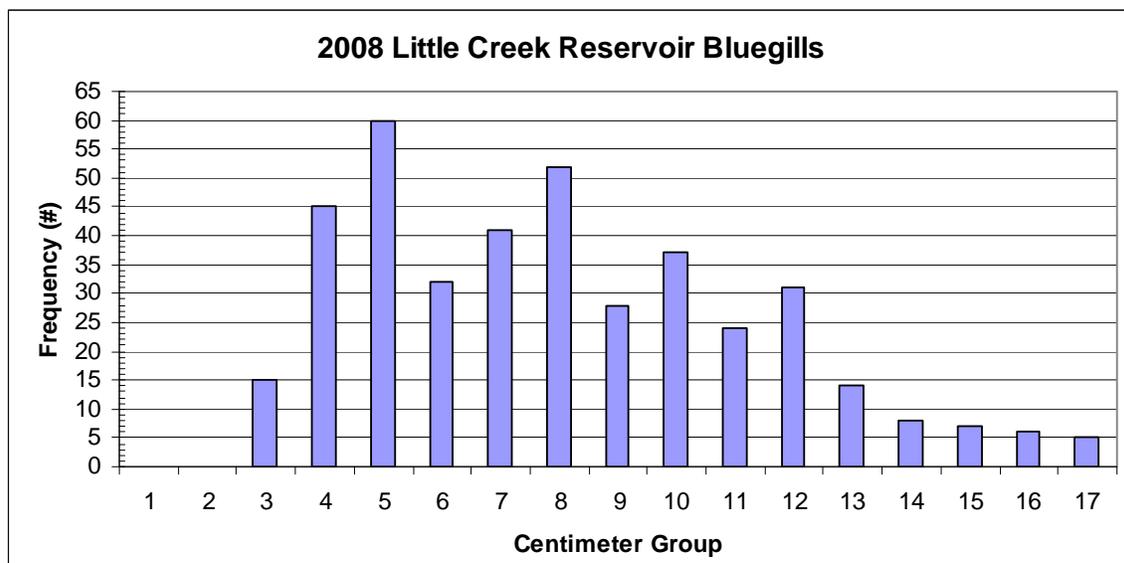


Figure 4. Length frequency distribution of bluegill collected from Little Creek Reservoir on May 1, 2008 (N = 405, CPUE = 607.5/hr)

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 large schools of perch that are present. A total of only 5 yellow perch were collected during the electrofishing. The size distribution consisted of perch in the 7.5 to 10.5 inch range. The gill net survey produced only 2 yellow perch that measured 9.5 and 10.5 inches. Anglers consistently catch numerous citation-sized yellow perch in the 12 to 13 inch range each year.

Remaining Species

The remaining 6 species of fish collected during the electrofishing survey were American eel (5), blueback herring (32), bowfin (1), brown bullhead (2), golden shiner (9) and warmouth (11). These fish were collected in limited abundance and provide some diversity to the fishery. The American eels ranged in size from 10 to 15 inches. The

blueback herring ranged in size from 5 to 7 inches. The majority of the blueback herring were collected in the western coves of the reservoir. The bowfin measured 27.6 inches and weighed 5.4 pounds. The brown bullheads were both 9 inches in length. The golden shiners ranged in size from 4 to 8 inches. The collected warmouth were from 4 to 7 inches.

Gill Net Survey

The gill net survey was conducted on November 17-19, 2008 and on December 17-19, 2008. The western half of the reservoir was sampled the first night with 9 gill nets set off of main lake points. The eastern half of the reservoir was sampled the second night with the same nets. The experimental gill nets of past surveys have been retired. Full length panel nets were purchased and used for the fall gill net survey. Each net measured 100 feet in length and was 8 feet in depth. The mesh bar lengths were 1.25", 2" and 3". The survey used 3 nets of each mesh size to cover each half of the reservoir. The gill net survey collected a total of 13 species.

The survey produced a decent abundance of striped bass. A total of only 21 striped bass were collected. The catch rate of 0.80 fish/100 m² is higher than the 2006 catch rate (0.59 fish/100 m²). Each mesh panel collected at least 2 striped bass. The 1.25" bar mesh caught 2 striped bass. The 2" bar mesh caught 9 striped bass. The 3" bar mesh caught 10 striped bass. The majority of the collected striped bass were in the 25 to 32 inch range. Only 2 striped bass were under the minimum size limit of 20 inches. The largest striped bass by length measured a 34.33 inches. The largest striped bass by weight went 13.42 pounds. Age and growth analysis revealed the presence of 8 years classes. The mean length at age for each year class was: Age 1+ = 12.5", Age 2+ = 16.6", Age 3+ = 24.9", Age 5+ = 29.6", Age 6+ = 32.2", Age 7+ = 30.2", Age 8+ = 28.8", Age 10+ = 30.5". The striped bass appear to be growing rather well for the first 5 to 6 years until the growth rate tends to slow down for older fish.

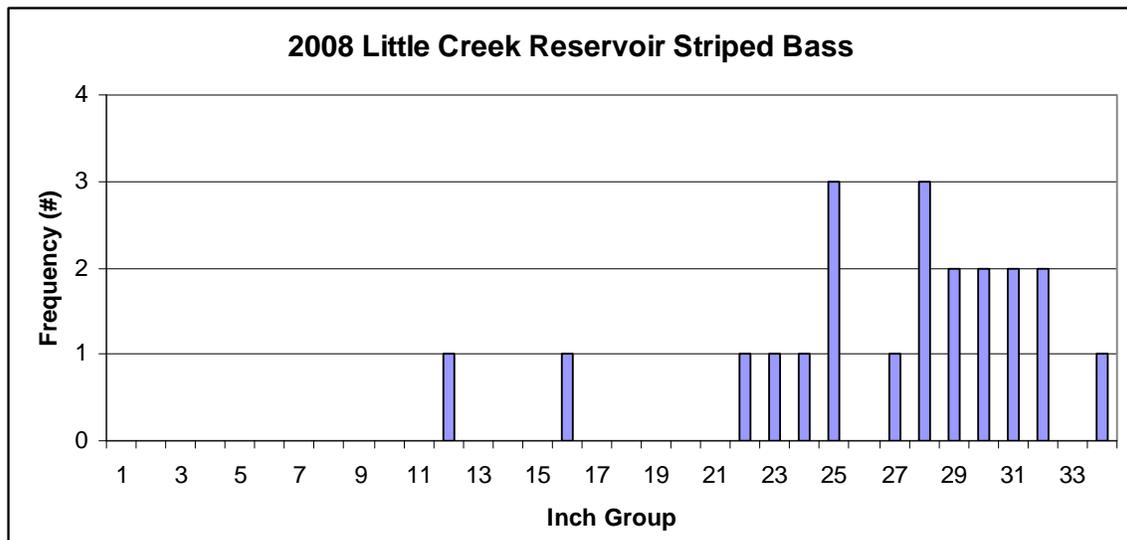


Figure 5. Size distribution of striped bass collected from the gill net survey of Little Creek Reservoir on November 17-19, 2008 and December 17-19, 2008 (N=21, CPUE: 0.80 fish/100 m²)

The gill net survey collected 37 largemouth bass that ranged in size from 10 to 22 inches. A total of 31 black crappies were collected in the gill nets. Only 15 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 28 chain pickerel were collected. The remaining species collected during the gill net survey were bluegill, redear sunfish, brown and yellow bullheads, channel catfish, yellow perch, creek chubsucker and golden shiner. 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 an increased catch rate of largemouth bass (CPUE: 50.5/hr). The size distribution showed a good abundance of bass in the 11 to 17 inch range with a few larger bass collected. Anglers that fish the reservoir on a regular basis are able to catch decent numbers of bass in the 3 to 5 pound range. The bluegill fishery is primarily based on an abundance of small fish less than 6 inches in length. The overall collection of black crappies was similar to the 2006 surveys with a high percentage of fish in the 8 to 10 inch range. A decent number of 11 to 12 inch crappies were also collected. The reservoir produces some nice redear sunfish in the 6 to 8 inch range with the chance of catching redear in the 10 to 11 inch range. 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 help to support the chain pickerel fishery.

The reservoir provides decent action for striped bass. Striped bass anglers are usually able to catch a few decent striped bass on any given day. The majority of striped bass anglers rely on catching their own bait (blueback herring, gizzard shad) before targeting the striped bass that live in the reservoir. The tricky part will be in finding the schools of bait fish. Some anglers are able to catch striped bass on bucktail jigs and a variety of plugs when the bass are on an active bite.

Little Creek Reservoir has historically produced the highest number of citations for public reservoirs in Region 1, District 1. Anglers reported a very productive 2008 fishing season with a total of 66 citations. The reservoir continues to produce good numbers of trophy yellow perch with 33 citations reported. A total of 12 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 (5), largemouth bass (4), chain pickerel (4), striped bass (2), white perch (1) and channel catfish (1). The new reservoir record for striped bass was set on June 26, 2008 when Willie Weber caught a trophy that went 41" and weighed 31 lbs. 10 oz. Little Creek Reservoir has the potential to produce some great striped bass.