



Beaverdam Swamp Reservoir 2013 Fisheries Management Report Virginia Department of Game and Inland Fisheries

Beaverdam Swamp Reservoir is a 635-acre water supply reservoir for Gloucester County. It was constructed in 1989 and reached full pool level during the winter of 1989-1990. The reservoir and park provide a variety of opportunities for the outdoor enthusiast. There are trails for hiking, biking, and horse riding. You may see deer, turkey, bald eagles as well as a variety of waterfowl. The reservoir serves as an attractive place for anglers to try their luck. The reservoir has plenty of interesting contour and structure. Several creek arms, numerous large points, and an abundance of flooded timber all add to the extreme variability of topography and fish habitat. The use of outboard engines is prohibited on Beaverdam Swamp Reservoir. The use of trolling motors is permitted. There are two boat ramps on Beaverdam Swamp Reservoir. The main ramp is located at the park off Route 616 and the other ramp is off Route 606. The Route 606 ramp offers easier access to the northern areas of the reservoir, but has been specifically designated for annual launch pass holders. Boat and equipment rental, bait, and snacks can be obtained at the main entrance. There is also a fishing pier, picnic facilities, and play areas for children. The park is open 7 days a week and every day of the year except for Christmas and New Year's Day. The concession and main boat ramp can be reached by taking Route 616 from Route 17 (Business), just to the west of Gloucester. For further details, please call the concessionaire at (804) 693-2107.

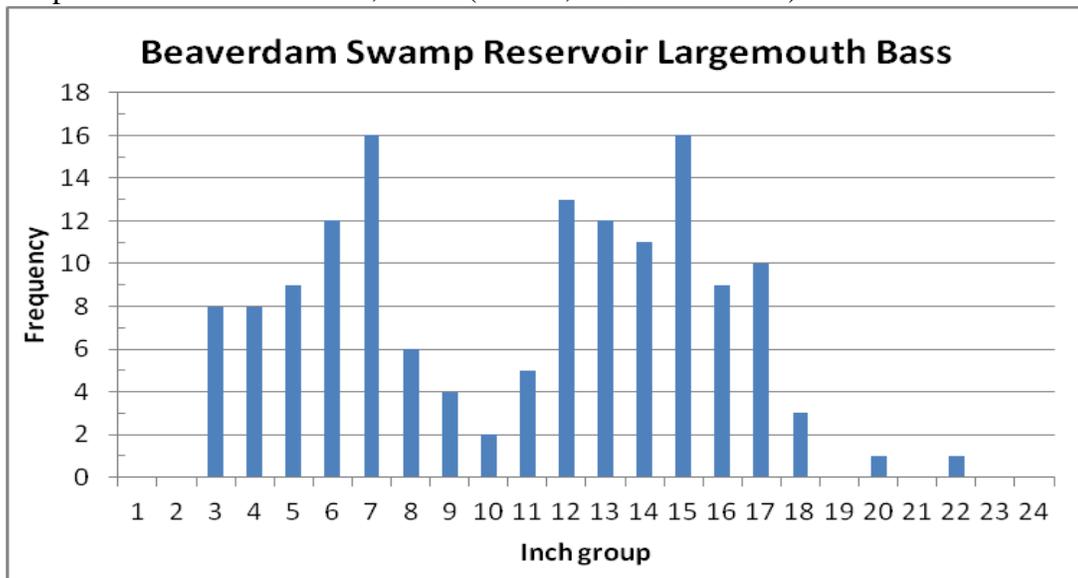
The Virginia Department of Game and Inland Fisheries conducted an electrofishing survey of Beaverdam Swamp Reservoir on March 22nd, 2012. This survey was conducted more than a month earlier than the April 25th, 2011 survey in an attempt to collect as many pre-spawn bass as possible. The 2012 survey consisted of sampling along 5 shoreline sections for a combined effort of 1.66 hours. The water temperatures varied from 19.7°C along the southern end of the reservoir to 21.9°C along the upper reaches of the reservoir. 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. The sample collected 10 fish species. This report will concentrate primarily upon the five game fish species of largemouth bass, bluegill, black crappie, redear sunfish and chain pickerel.

Largemouth Bass

The largemouth bass population within Beaverdam Swamp Reservoir appears to be in decent shape. A total of 146 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 87.6 f/hr. This catch rate showed a favorable increase from the 2011 survey (CPUE: 57.8 f/hr). The date of the survey allowed for some compensation to how warm the water had warmed up. The majority of collected bass were holding on a pre-spawn pattern along the outside edges of flooded timber. The overall size structure is similar to past years with a large proportion of bass in the 12 to

15 inch range. Based on percentage only, there was a higher percentage of bass greater than 15 inches when compared to past surveys. Similar to the 2011 survey, only two bass greater than 18 inches in length were collected. Anglers that fish the reservoir on a regular basis are still able to catch a larger bass every once in a while. Beaverdam Swamp Reservoir receives an excessive amount of fishing pressure. Anglers are encouraged to try different fishing techniques that might trigger some of the larger bass into biting. The 2012 sample revealed an increased presence of juvenile bass. The catch rate of young bass was 29.4 bass/hr. This rate showed the presence of a couple strong year classes making their way through the fishery and a major increase from the 2011 survey (CPUE: 6/hr).

Figure 1. Length frequency distribution of largemouth bass collected from Beaverdam Swamp Reservoir on March 22, 2012. (N: 146, CPUE: 87.6 f/hr)



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 2012 survey showed a PSD value of 80, which is a direct reflection of the 78 bass that were 30 centimeters (12 inches) or longer. The sample had a total of 97 bass that were stock size (20 cm/8 inches) or larger. This PSD value is well above the high end of a balanced bass/bluegill fishery and slightly lower than the 2011 sample (PSD: 81). The

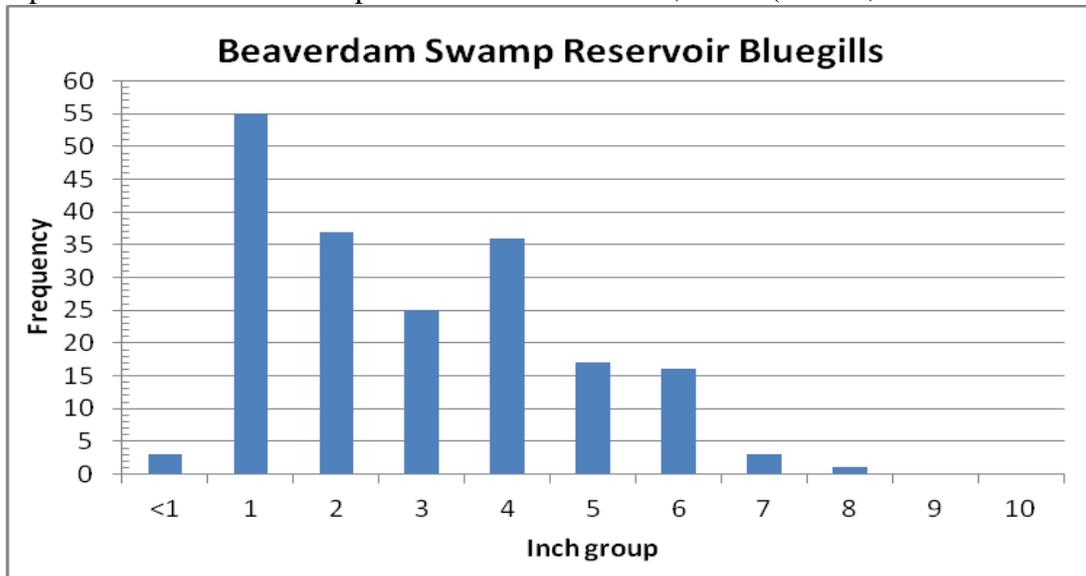
2012 RSD-P value of 41 is a direct reflection of the 40 preferred-sized bass collected. The RSD-P value showed an increase from the 2011 sample (RSD-P: 36).

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. A higher relative weight value indicates fish with a better body condition. The relative weight values for stock, quality and preferred bass (>8", >12", >15") were a very impressive 109, 110 and 111 respectfully. These values showed a favorable increase from the 2011 sample (95, 96 and 99 respectfully). The 2012 bass relative weights fell well above the desired 95 to 100 range. The bass are finding a plentiful supply of available forage fish that they can prey upon. The large school of juvenile gizzard shad found near the ranger station is one indication of how the food web dynamics have changed.

Bluegills

The sample once again revealed the bluegill fishery to be dominated by fish less than 6 inches in length. The electrofishing survey was able to collect a total of 203 bluegills during the two, full community sample runs. The CPUE of 289.5 bluegills/hr showed a major increase from the 2011 sample (CPUE: 152.3 f/hr). All collected bluegills were measured to the millimeter in length and then converted over to inch groups for length frequency display. The majority of collected bluegills were in the 1 to 4 inch range. A limited number of bluegills greater than 6 inches in size were collected.

Figure 2. Length frequency distribution of bluegills collected from the electrofishing samples of Beaverdam Swamp Reservoir on March 22, 2012. (N: 193, CPUE: 289.5/hr)



The PSD for the bluegill population is the proportion of quality size bluegills (5.9 inches or greater) in relation to the total number of stock size bluegills (3.15 inches and greater). The bluegill PSD value of 23 showed an increase from the 2011 sample (PSD: 20). The 2012 sample consisted of only 22 quality-sized bluegills greater than 5.9 inches in length. The PSD value showed some improvement and managed to reach the low end of the desired 20 to 40 range that would represent a balanced fishery. A total of 94 stock-

sized bluegills were collected. The largest bluegill measured 8.19 inches and the average-sized bluegill measured in at 3.35 inches.

Black Crappies

Based on the past electrofishing and trap net surveys, the black crappie population appears to be in decent shape. The 2012 electrofishing survey was similar to the 2011 survey in that both years provided very few black crappies during the electrofishing effort. The 2012 survey collected 7 black crappies that ranged in size from 7.8 to 11.7 inches. The average size for the crappies measured 10.38 inches. The relative weights of the collected crappies were rather poor (stock: 85, quality: 84 and preferred: 85). These low relative weight values show that these fish were experiencing some difficulties finding sufficient forage.

This small sample size is a prime example of the hit or miss success when finding schooling fish. Locations of large schools of crappies depend on pre-spawn movements in and around selected spawning flats. It is quite possible that the majority of the crappie spawn had been completed before the survey date due to the extremely warm weather. Beaverdam Swamp Reservoir has been producing a fair number of citation-sized black crappies over the last few years. Anglers reported 10 citation crappies during 2012.

Redear Sunfish

The redear sunfish population appears to be in fair shape. A total of 31 redear sunfish were collected during the 2 sample runs for a CPUE of 18.6/hr. This catch rate was less than the 2011 sample (CPUE: 35.3/hr). The 2012 size distribution ranged from 1 to 8 inches with the majority of fish in the 6 to 8 inch range. The average size redear sunfish measured 5.9 inches in length. The largest redear sunfish measured only 8.31 inches. This fish was decent, but not as impressive as the 10.95 inch redear sunfish caught during the 2011 survey. Redear sunfish tend to congregate along the banks for the spawning season during the early May time period. Anglers willing to try something other than bass fishing may be surprised if they target these schools of redear sunfish in and around the mitigation areas along the western shoreline. The survey revealed the continued poor representation of juvenile redear sunfish with only 5 juvenile fish less than 4 inches collected.

Chain Pickerel

The chain pickerel population within Beaverdam Swamp Reservoir appeared to have expanded over the last few years, but recent surveys have shown declines in catch rates. The 2012 survey yielded a total of 24 chain pickerel for a CPUE of 14.4 f/hr. This catch rate is below the 2011 CPUE of 16.5 f/hr. The 2012 collection ranged from 1 to 16 inches with most fish in the 11 to 16 inch range. The largest pickerel measured 16.85 inches. Chain pickerel will take advantage of the bluegill forage base that is present along with hopefully controlling the numbers of juvenile yellow perch. The relative weight data, for the limited sample, showed stock-sized pickerel (Wr: 98) and quality-sized fish (Wr: 97) to finding a decent amount of forage that they utilize for growth. Beaverdam Swamp Reservoir has produced a few citation-sized pickerel over the last few years. Citation-sized fish will continue to excite anglers if given the chance by anglers that release them unharmed.

Yellow Perch

The 2012 survey collected a total of 45 yellow perch (CPUE: 27 f/hr). This catch rate showed an increase from the 2011 survey (CPUE: 18 f/hr). The collected perch ranged in size from 3 to 8 inches. The largest yellow perch measured 8.97 inches and the average size was 5.92 inches. It is quite possible that the larger perch were holding in deeper water and not up near the shoreline. Anglers had been catching an increased number of larger perch over the last few years. A total of 19 citation-sized yellow perch were reported during 2010. This follows up a total of 13 citation perch reported during 2009. Only one citation-sized perch reported during 2011. Anglers reported 4 citation yellow perch during 2012. Larger perch are present as it seems they prefer to be caught on jigs and minnows instead of electrofishing methods.

Remaining Species

The remaining 4 species of fish collected in low abundance during the electrofishing survey were: brown bullhead (12), gizzard shad (2), golden shiner (6) and bluespotted sunfish (2). These fish species provide some diversity to the fishery and the possibility of exciting an angler from time to time. Several anglers were taking advantage of the school of gizzard shad that held near the fishing pier for several weeks. These anglers used a cast net to collect gizzard shad for use as bait to catch some really nice largemouth bass from the pier. Although not collected during any of the recent surveys, channel catfish are present within the reservoir and offer anglers another fishing opportunity worth exploring. Some anglers have been able to catch some respectable catfish over the years.

Electrofishing Summary:

The electrofishing survey of Beaverdam Swamp Reservoir collected a total of 10 fish species. The primary fish species are the largemouth bass, bluegill, black crappie, redear sunfish and chain pickerel. These species comprised the majority of the fishery's biomass. The reservoir still provides some decent bass fishing even though the numbers of citation-sized bass has dropped over the last few years. The majority of the bass sample consisted of bass in the 11 to 14 inch range with a good number of fish in the 15 to 17 inch range. The survey collected 146 largemouth bass for a catch rate of 87.6 bass/hr. The late-March sample allowed for the collection of some larger female bass in a pre-spawn pattern to show a better distribution of the population. The collected bass showed higher relative weight values when compared to past surveys.

The bluegill fishery is primarily based on small fish less than 6 inches in length. The catch rate of bluegill (115.8 f/hr) showed a decline when compared to the 2011 survey (CPUE: 152.3 f/hr). The electrofishing total of only 7 black crappies showed the spotty nature of finding these schooling fish. The catch rate of redear sunfish showed a slight decline, but an average size that was much better than the bluegills. The reservoir has a decent yellow perch population that has created excitement for a number of anglers that target them. Although the electrofishing effort was unable to collect any decent-sized yellow perch, anglers have been having good luck with the 10 to 12 inch yellow perch. The citation data from 2012 revealed 15 citations reported. These citations consisted of 10 black crappies, 4 yellow perch and 1 largemouth bass.

Trap Net Survey Summary

A trap net survey was conducted on Beaverdam Swamp Reservoir from March 12-14, 2012. This survey is conducted primarily to collect additional data on schooling fish species such as black crappies, bluegills and redear sunfish. The last Beaverdam Reservoir trap net survey was conducted during the spring of 2009. The survey used 10 trap nets over the course of two nights for a combined effort of 20 net nights. The reservoir is broken up in half so that the lower half can be sampled first and then the upper half the second night.

The survey collected 104 black crappies for a CPUE of 5.2 f/net night. This catch rate showed a major decrease from the record catch rate found during the 2009 survey (CPUE: 32.3 f/net night). The size of collected black crappies ranged from 8–39 cm (3–15.5 inches), with the majority of the sample consisting of crappies in the 24–31 cm range (9.5 – 12.2 inch range). A total of 85 preferred-size crappies were collected. The relative weight values for collected crappies consisted of Stock: 90, Quality: 90, Preferred: 90 and Memorable: 90. These relative weight values showed an increase from the 2009 values (Stock: 84, Quality: 84, Preferred: 83 and Memorable: 83). The one trophy-sized crappie had a relative weight of 96. This trophy female crappie measured 15.5 inches and weighed 2.7 pounds.

The trap net survey collected a decreased abundance of bluegills with a total of 1,072 collected (CPUE: 53.6 f/net night). The catch rate showed a major decline from the 2009 survey (CPUE: 318.1 f/net night). The size distribution of bluegills ranged from 1 to 8 inches. The sample collected 367 quality-sized bluegills. A total of 61 preferred-sized bluegills were collected. The survey collected 135 redear sunfish (CPUE: 6.75 f/net night). This catch rate showed a major decline from the 2009 survey (CPUE: 14.95 f/net night).

The trap net survey collected an additional 10 species. These species collected in limited abundance were: largemouth bass, brown bullhead, creek chubsucker, white perch, yellow perch, chain pickerel, gizzard shad, golden shiner, bluespotted sunfish and green sunfish.