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. 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 that anglers can use to launch their own private boats. 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 ranger’s station 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 May 4th, 2015. The previous electrofishing survey was conducted on May 1st and 8th, 2014. The 2015 survey consisted of sampling along 5 standardized shoreline sites for a combined effort of 1.66 hours. The water temperatures varied from 20.9°C along the southern end of the reservoir to 22.8°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 11 fish species. This report will concentrate primarily upon the game fish species of largemouth bass, bluegill, redear sunfish and yellow perch.

Largemouth Bass

The largemouth bass population within Beaverdam Swamp Reservoir appears to be in good shape. A total of 120 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 72 fish/hr. This catch rate showed a favorable increase from the 2014 survey (CPUE = 46 fish/hr), even though the CPUE was slightly less than the average CPUE value (1996-2014) of 76 fish/hr. The date of the survey was past the prime time for the largemouth bass spawn. Scheduling difficulties did not allow for a mid-April survey to be conducted. The majority of collected bass were holding on a post-spawn pattern along the outside edges of flooded timber. The length distribution of collected bass ranged from 5 to 20 inches, with a high proportion of bass less than 12 inches in length. The second largest peak of distribution was centered on fish in the 12 to
15 inch range. The CPUE of preferred-sized bass (≥ 15 inches) was fair at 15 fish/hr. This catch rate was slightly higher than the 2014 survey (CPUE\text{preferred} = 14 \text{ fish/hr}). A mid-April survey would most likely have yielded additional preferred-sized bass that were tight to the banks during the spawn. 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 from the various bass tournaments throughout the year. Anglers are encouraged to try different fishing techniques that might trigger some of the larger bass into biting. The 2015 sample revealed a slight increased presence of juvenile bass. The catch rate of young bass was 17 fish/hr, which is not great by any means, but still higher than the 2014 survey (CPUE\text{young} = 6 \text{ fish/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 2015 survey showed a PSD value of 60, which is a direct reflection of the 55 quality-sized bass from the total of 91 stocked-sized bass. The PSD value falls right at the top limit of the desired PSD range of 40–60. The PSD value showed a more balanced population when compared to the 2014 survey (PSD = 76). The 2015 RSD-P value of 27
is a direct reflection of the 25 preferred-sized bass collected. The RSD-P value showed a decline from 2014 (RSD-P: 35).

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 impressive at 101, 102 and 101 respectfully. These values showed a favorable increase from the 2011 survey (\(W_{\text{r\_stock}} = 95\), \(W_{\text{r\_quality}} = 97\), \(W_{\text{r\_preferred}} = 97\)). The 2015 bass relative weight values fell above the desired 95 to 100 range. The bass are finding a plentiful supply of available forage fish that they can prey upon. Large schools of juvenile gizzard shad have recently been found in various regions of the reservoir. This forage base of shad in the 2 to 6 inch size range will provide adequate food for the bass population while the general trends in the bluegill population have shown a decline.

**Bluegill**

The electrofishing survey was successful in collecting 302 bluegill (CPUE = 182 fish/hr). This catch rate showed an increase from 2014 (CPUE = 126 fish/hr). The bluegill size distribution ranged from 1 to 8 inches, with a high proportion of fish in the 2 to 5 inch range. The survey revealed a higher than average presence of bluegill greater than 6 inches in length. The PSD for the bluegill population is the proportion of quality-sized bluegill (5.9 inches or greater) in relation to the total number of stock-sized bluegill (3.15 inches and greater). The bluegill PSD value of 29 showed a decline from the 2014 survey (PSD = 51), but was still within the desired range of 20-40. The 2015 sample consisted of 59 quality-sized bluegill greater than 5.9 inches in length. The survey produced a total of 202 stock-sized fish. The recent average PSD for bluegill (1996 – 2014) was a value of 21. The largest bluegill measured 8.58 inches and the average-sized bluegill measured in at 4.39 inches

![Figure 2. Length frequency distribution of bluegill collected from the electrofishing survey of Beaverdam Swamp Reservoir on May 4, 2015](image)
Redear Sunfish

The redear sunfish population appears to be in fair shape. A total of 37 redear sunfish were collected during the survey (CPUE = 22 fish/hr). This catch rate showed a decline when compared to the 2014 survey (CPUE = 27 fish/hr). The size distribution ranged from 5 to 9 inches with the majority of the fish in the 7 to 8 inch range. The average size redear sunfish measured 7.5 inches in length. The largest redear sunfish measured in at 9.88 inches. Beaverdam Swamp Reservoir may not have the highest concentration of redear sunfish, but the fishery has the capacity to grow a few large fish that reach the 10 to 11 inch mark. 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 was similar to past years in revealing poor representation of juvenile redear sunfish. The survey failed to collect any redear sunfish less than 5 inches in length. This week recruitment falls in line with the decreased abundance of bluegill. The black crappie population, although not represented in this electrofishing survey, is very abundant and may be teaming up with the yellow perch population to forage heavily on sunfish fry and fingerlings.

![Length frequency distribution of redear sunfish collected from the electrofishing survey of Beaverdam Swamp Reservoir on May 4, 2015](image)

Yellow Perch

The electrofishing survey collected a total of 131 yellow perch (CPUE = 79 fish/hr). This catch rate showed a major increase from the 2014 survey (CPUE = 32 fish/hr). Yellow perch size distribution was rather broad at 3 to 10 inches, with various year classes of recruitment observed. The largest yellow perch measured 10.91 inches and the average size was 5.37 inches. It is quite possible that the larger perch were holding in deeper water and not near the shoreline. Yellow perch will be the first fish species to spawn in Beaverdam Swamp Reservoir, followed thereafter by the chain pickerel population. The schools of perch will congregate in areas where they can find...
any submerged aquatic vegetation that has survived the winter. Yellow perch will deposit fertilized eggs in the aquatic vegetation and then migrate back to deeper water. There is no parental care given to the eggs and any hatched perch fry. The rather recent explosion of hydrilla growth in the reservoir has created favorable conditions for yellow perch survival. The decreased abundance of the chain pickerel population has allowed a large percentage of yellow perch to survive. Anglers had been catching an increased number of larger perch over the last few years. Anglers reported 10 citation yellow perch during 2015. A citation-sized yellow perch needs to be either 12 inches in length or weigh 1.25 pounds. Larger perch are present as it seems they prefer to be caught on jigs and minnows instead of electrofishing methods.

![Figure 4. Length frequency distribution of yellow perch collected from the electrofishing survey of Beaverdam Swamp Reservoir on May 4, 2015](image)

**Additional Fish Species**

The remaining fish species collected in rather low abundance during the electrofishing survey were: brown bullhead (N = 6), creek chubsucker (N = 34), black crappie (N = 1), chain pickerel (N = 6), gizzard shad (N = 2), golden shiner (N = 8) and bluespotted sunfish (N = 2). These fish species provide some diversity to the fishery and the possibility of exciting an angler from time to time.

The black crappie population is extremely strong within Beaverdam Swamp Reservoir. Black crappie will spawn relatively early in the spring and will retreat to deeper water after the spawn. Recent electrofishing surveys have had a poor time collecting black crappie. The 2015 survey collected one juvenile crappie that measured 3 inches. Past trap net surveys have shown the majority of the crappie to be healthy and in the 11 to 13 inch range.

Anglers should keep a close eye on the water’s surface to see if they can detect the schools of juvenile gizzard shad that are present. These schools of shad have been found near the fishing pier in past years, allowing anglers to use a cast net to collect some nice bait for bass and some of the larger crappie. 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.

The chain pickerel population has shown a recent decline in overall abundance. The reason behind this decrease may reflect poor recruitment along with excessive harvest/killing by certain anglers. Chain pickerel are a native fish species to Virginia that serve a purpose in the food dynamics of the fishery. The pickerel population will actually help to control an overabundance of juvenile yellow perch. The recent increase in juvenile yellow perch along with the decrease in chain pickerel leads one to believe that the equilibrium balance has shifted.

**Electrofishing Summary:**

The electrofishing survey of Beaverdam Swamp Reservoir collected a total of 11 fish species. The primary fish species collected were bluegill, largemouth bass, yellow perch and redear sunfish. These species comprised the majority of the fishery’s biomass. The fishery has an abundance of black crappie that were not represented during this early-May survey. 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 high proportion of bass less than 12 inches in size along with an assortment of bass in 13 to 15 inch range. The survey collected 120 largemouth bass for a catch rate of 72 bass/hr. The collected bass revealed desirable relative weight values when compared to past surveys. Bass were in healthy condition and finding an adequate supply of forage.

The bluegill fishery has experienced some change over the last few years. The extremely high catch rates of the past have shifted to reveal a lower abundance of juvenile fish. The 2015 catch rate of 182 bluegill/hr did reveal a favorable increase in fish greater than 6 inches in length. 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. The yellow perch population has shown a recent spike in abundance with the CPUE of 79 fish/hr. 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 2015 revealed 14 citations reported by anglers. These citations consisted of 10 yellow perch, 2 black crappie and 2 chain pickerel. The variety of fish species within Beaverdam Swamp Reservoir will provide excitement for anglers on the Middle Peninsula of Virginia that want a taste of freshwater action.

The report was written by Scott Herrmann, DGIF Fisheries Biologist, Region 1, District 1 (804) 829-6580 ext. 126