



Lake Brittle Management Report

Popular Report

Federal Aid Project – F111R

February 2020

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1320 Belman Road

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Lake Brittle (77 acres) is located in Fauquier County near the town of Warrenton. This lake was impounded in 1953 and became the first lake in Virginia built with Dingell-Johnson Funds which are tax dollars from the sale of fishing tackle (now referred to as the Sport Fish Restoration Act). Lake Brittle offers anglers a typical warm water fishery comprised of Largemouth Bass, Bluegill, Redear Sunfish, Black Crappie, and Channel Catfish. The lake is stocked annually with Walleye and Channel Catfish, while the other species are self-sustaining. Walleye, a cool water species, have historically done well in this small impoundment and offer anglers a unique opportunity to catch a traditionally northern species.

The lake is fertilized annually to stimulate the aquatic food chain. The added nutrients increase the lake's productivity and overall fish production but are used within the system without adding to nutrient loads downstream. In 2017, JMU was contracted to conduct a study on impoundments to evaluate nutrient budgets and assess the effectiveness of VDGIF's fertilization program to ensure impacts downstream were negligible. This initiative was due in large part to the 2010 United States Environmental Protection Agency (EPA) Total Maximum Daily Load (TMDL) nutrient reduction strategy. Results confirmed that the VDGIF impoundments fertilized were nutrient sinks with no export of nitrogen or phosphorous.

Lake Brittle is sampled on a regular basis with electrofishing to get an accurate picture of the fisheries status. Electrofishing (EF) is an active sampling method used to determine abundance, density, and species composition of fish populations. Walleye sampling is done at night, as the species is primarily nocturnal and enters shallow water during early spring to spawn and feed. Typically, community sampling is done in daylight. Historically, Brittle has consistently been one of the top NOVA district waters for catch rate of Largemouth Bass.

VDGIF fisheries biologists have sampled the fishery annually since an illegal introduction of Northern Snakehead in 2015 to monitor potential effects on the fish community. Most recently, an EF sample was conducted in April 2019. Biologists use shoreline EF to obtain estimates of population size structure and relative abundance. Abundance is usually described as a catch rate in number of fish per hour (CPUE, or Catch per Unit Effort). Biologists employ numerical descriptors of length-frequency data such as Proportional Size Distribution (PSD) and Relative Size Distribution (RSD) when evaluating fish populations. PSD is calculated by dividing the number of fish \geq minimum quality length by the number of fish \geq minimum stock length x 100. Quality length is defined as the minimum size of fish most anglers like to catch (these are by national standards -for example, 12" for Largemouth Bass). Stock length is the minimum length at which a fish provides recreational value and/or is recruited to the fishery (8" for Largemouth Bass). RSD is the percentage of any designated length group found within a population. RSD is calculated by dividing the number of fish \geq specified length by the number of fish \geq minimum stock length x 100. Preferred bass are those 15" or larger, while memorable bass are those 20" or larger.

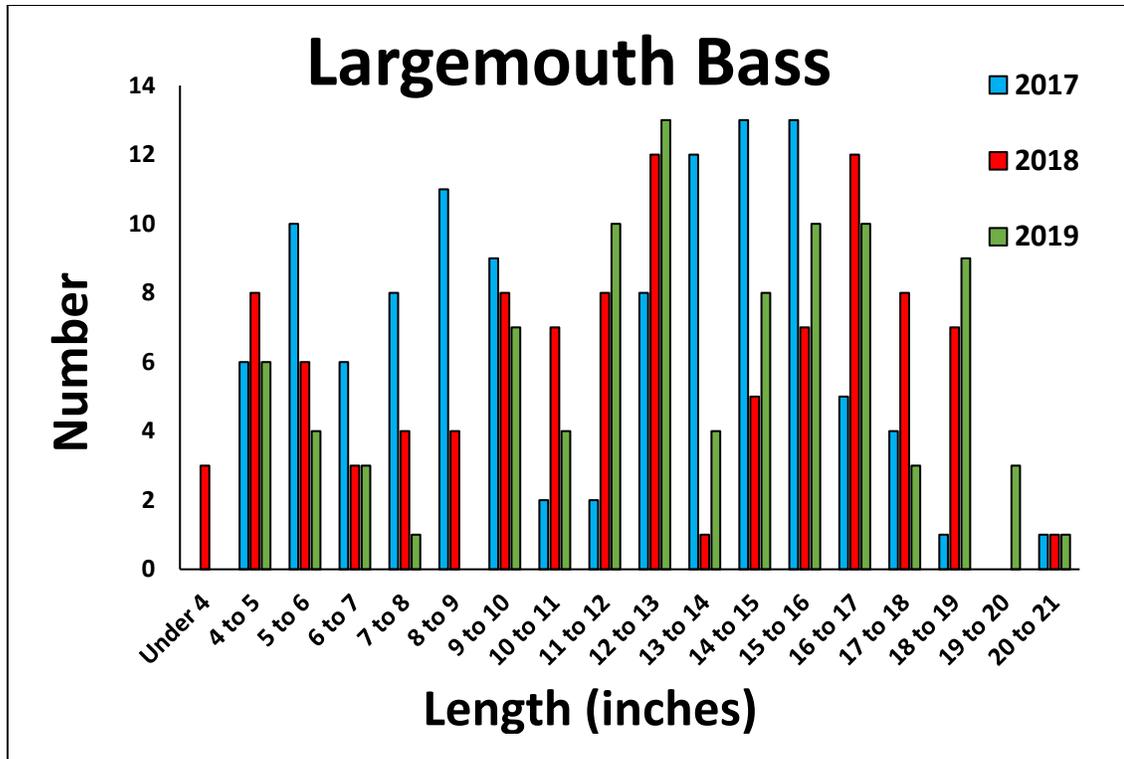
Largemouth Bass

The population size structure of Largemouth Bass (LMB) in 2019 was slightly better than the previous sample than 2018. PSD increased to 79 in 2019 from 73 in 2018. A PSD value of 40-70 indicates a balanced fish population. Relative Size Distribution of preferred fish (RSD-P; ratio of adults greater than 15") was unchanged in 2019 (49, which was excellent) and is indicative of a desirable size structure. Total catch per unit effort (CPUE) of LMB (105 fish/hr)

in 2018 decreased slightly in 2019 to 96 fish/hr which is still a good catch rate. CPUE of preferred size bass remained the same in 2019 (40/hr).

The LMB population of Lake Brittle is in excellent condition with bass averaging 2-3 pounds with 6 pound fish available. Due to the combination of fishing pressure and abundant forage; Largemouth Bass can be difficult to catch at Lake Brittle, as bass feed heavily upon Gizzard Shad and Bluegill. A good fish finder will allow you to find schools of baitfish and bass feeding on them. Anglers should try a variety of bait fish imitating lures such as crank baits (lip-less and diving) and soft plastic jerk baits. Lake Brittle has consistently ranked at or near the top of the list of 17 impoundments in the NOVA district for CPUE of preferred bass and currently is ranked third in the district.

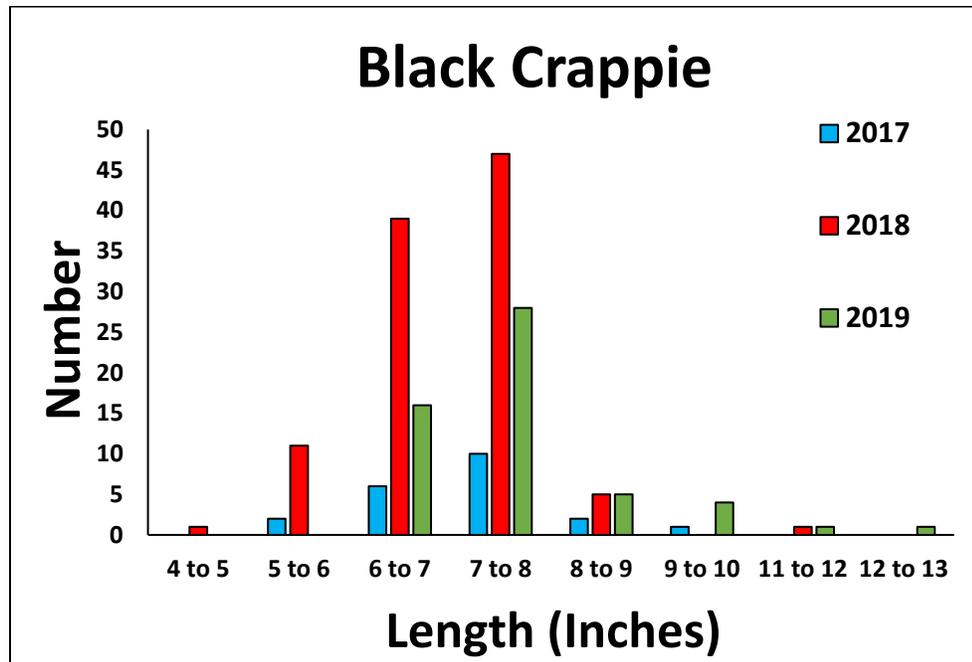
Anglers may harvest five bass per day but are encouraged to practice catch and release on larger bass, as their value to the fishery can provide enjoyment for many others and contribute to the spawning stock.



Black Crappie

Black Crappie (BLC) electrofishing CPUE was lower in 2019 (55 fish/hr) compared to 2018 (104 fish/hr). Lake Brittle provides a marginal BLC fishery with numerous fish in the 6-9” range. Proportional Size Distribution (PSD) increased from 15 to 29 in 2019 suggesting a near balanced population. A PSD of value of 30-60 is indicative of a balanced population. Crappie populations are known to fluctuate due to high annual variation in spawning success. Lake Brittle is no exception, with large numbers of small crappie (<8”) dominating the population. Anglers are encouraged to harvest any crappie caught up to the 25-fish/day creel limit. Crappies are readily available lake-wide during spring to early summer, and some larger fish up to 13” are available. Anglers should concentrate on fishing structure whether it is a downed tree or a

marked fish attractor. Fish attractors are located around the lake, marked with buoys for easy identification. Small jigs or minnows seem to work best on this prolific panfish.

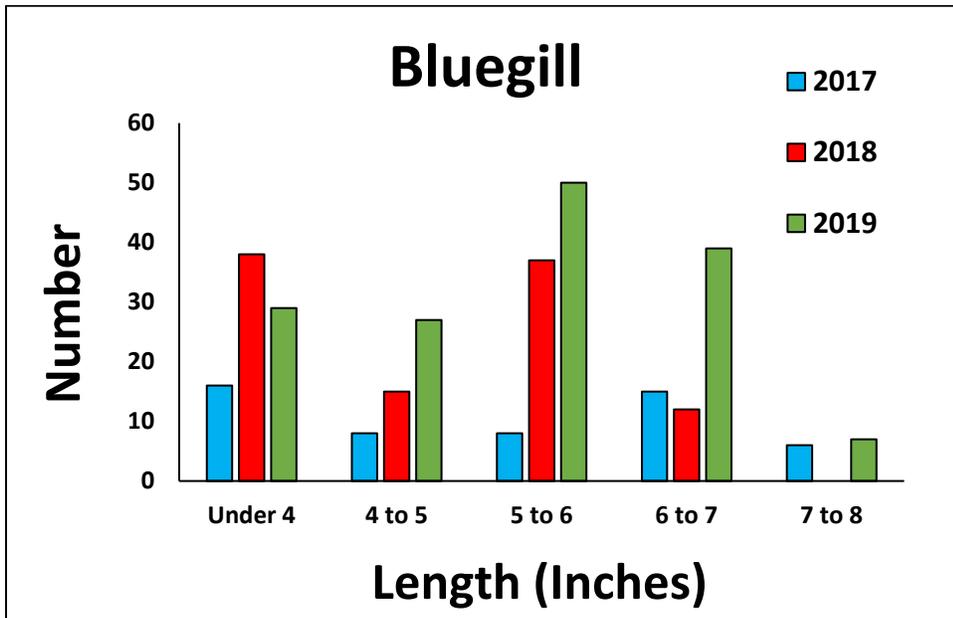


Panfish

Bluegill (BLG) electrofishing PSD increased in 2019 (41) from 22 in 2018 suggesting the population is balanced. Panfish fisheries are typically considered balanced when PSD falls in the range of 20 – 60. CPUE increased in 2019 to 152 fish/hr from the previous 102/hr. Redear Sunfish (RDE) PSD values increased greatly from 14 in 2018 to 87 in 2019, while CPUE decreased from 2018 (36 fish/hr) to 2019 (23 fish/hr). Electrofishing data indicated most of fish were 4 to 7 inches, these populations appeared stable.

Ample opportunities exist for anglers to target panfish during spring/summer when fish move shallow to spawn and are easily accessible to bank or boat anglers. Natural baits such as

worms or crickets tend to work best. There is no size limit on sunfish (Bluegill, Redear Sunfish, Warmouth, etc.) in Lake Brittle, and anglers may harvest 50 sunfish (combined) per day. Anglers are encouraged to harvest to thin the populations and allow for increased growth rates eventually resulting in larger fish. Opportunities also exist to catch Yellow Perch at Lake Brittle.



Channel Catfish

Lake Brittle provides a good Channel Catfish fishery and receives annual stockings of 20/acre since no natural reproduction occurs. Anglers are encouraged to fish along the shore to find that perfect little hot spot. Ten Channel Catfish per day may be harvested. Anglers can catch them on a variety of baits including night crawlers, minnows, chicken livers, and cut bait. If bigger Channel Catfish are what you're after, then cut bait is the way to go.

Walleye

Walleye (WAE) were initially stocked in 1979 to provide a diversified fishery and are typically stocked annually at 100/acre to maintain the fishery. During March and April 2019, the WAE population was sampled at night with boat electrofishing. A total of 32 WAE were collected for a suboptimal catch rate of 4 fish/hour (the goal for small impoundments is ≥ 10 fish/hr). Spring daytime community sampling resulted in similar WAE catch rates. The population size structure is mainly comprised of larger fish up to 26". WAE have been stocked in numerous lakes, as these excellent eating fish have become a prized game fish by many anglers. Lake Brittle has produced large Walleye over the years up to 7 pounds.

Anglers are encouraged to try trolling deep diving crank baits and spinner rigs off deep water break lines and points adjacent to deep water. Anglers could also try a variety of soft plastic grubs on jig heads and slowly bounce them over the bottom. Anglers should also remember that Lake Brittle stratifies during the summer and Walleye along with most other fish stay above the thermocline (usually less than 10 feet) during this time. Serious anglers can try fishing Lake Brittle at night when Walleye actively feed. There is a 5 per day 18" minimum size on Walleye in Lake Brittle.

Northern Snakehead

Northern Snakehead (NSH) were illegally introduced into Lake Brittle around 2015. Since then, biologists annually sample snakehead in an effort to learn more about their ecology and biology, food habits, growth, and behavior. Biologists have been monitoring the Lake Brittle fish community very closely to see if impacts are occurring as a result of the introduction.

Walleye surveys at night over the past 4 years NSH CPUE was 4, 6, 1 and 2 fish/hr which suggested a decreasing trend in abundance. However, snakehead CPUE over the last 4 years during daytime community sampling (CPUE of 0, 5, 14 and 19 fish/hr) depicts an increase which could be attributed to sampling bias, as fish are more easily collected in daylight and young of the year (YOY) make up a large portion of the collection. Sampling efforts combined show a more stable trend with (CPUE 4, 6, 2 and 4 fish/hr). All Northern Snakehead caught were removed from the lake, aged, and evaluated for food habits. Bluegill were the forage of choice as NSH are known opportunistic feeders and Bluegill are the most abundant species. However, to this point the BLG population has remained stable.

Anglers targeting NSH should fish very shallow near heavy vegetation and/or structure using weedless lures such as frogs. Often these fish will give away their position as they rise to the surface to gulp air, or roll and expose their back. During the spawning season you may spot their fry balls which adult snakeheads guard aggressively. Northern Snakehead are a very good eating fish, and there are numerous ways to prepare it. Anglers are encouraged to harvest these fish. However, it is illegal to possess a live snakehead so the fish must be dead before leaving the lake. Effective methods to kill the fish are removal of the head, gills arches or internal organs.

General regulations are posted at the parking area at Lake Brittle. Fishing is permitted 24 hours a day and a boat ramp is available for anglers to use free of charge. In addition to boat access, there is ample shoreline for bank anglers and a public fishing pier. A concession is seasonally operated at the lake (open March – October, days and hours to be determined) which offers boat rentals, live bait, fishing tackle, and snacks.

Lake Brittle can be reached from Rt. 29 by turning east onto Rt. 600 near New Baltimore.
Once on Rt. 600, turn right onto Rt. 793 and follow trailblazer signs to the lake.

For more information about Lake Brittle, please contact:

Virginia Department of Game and Inland Fisheries

1320 Belman Road

Fredericksburg, VA 22401

540-899-4169

Boat rental/concession

540-341-1995

Or visit the Lake Brittle facebook page