

Two Mile Run Reservoir (aka Justice Lake)

Venango County

May 2019 Black Bass Night Electrofishing Survey



Figure 1. Aerial photo of Two Mile Run Reservoir, Venango County.

Two Mile Run Reservoir is a 144 acre impoundment located approximately 9 miles south of Dempseytown, Pennsylvania. The lake was constructed in 1971 and is contained within Two Mile Run County Park. The lake and surrounding park are owned and operated on behalf of Venango County. The Pennsylvania Fish and Boat Commission manages the lake for public fishing and recreational boating activities. Boating is restricted to human-powered or electric motors and ice fishing is permitted. Two paved boat launches are located at the lake, one on the north end and the other near the southern

end (Crosby Beach), both of which have ample parking (see Figure 1). Two Mile Run Reservoir is one of a limited number of “two-story” lakes in Pennsylvania that stratifies in summer. Simply stated it has a hypolimnion (deep cold-water layer) in the summer with temperature and dissolved oxygen levels sufficient to sustain year-round survival and angling opportunities for trout. The lake receives annual plantings of adult trout in the spring during the preseason and inseason fishing periods. It is also stocked once in the winter to provide additional ice angling opportunities. The lake also receives alternate year stockings of 12-14 inch yearling tiger musky. Black bass harvest is regulated under the [Big Bass Program](#) and [Statewide Regulations for Commonwealth Inland Waters](#) apply to harvest of all other species. To increase angler success in this impoundment, [fish habitat structures have also been placed in the lake](#) over the years as part of the Commission's Cooperative Fish Habitat Improvement Program.

During the night of May 8, 2019 Fisheries Management Area 2 and 9 staff conducted a black bass survey to assess bass population abundance and size structure. Results from this survey indicated that Two Mile Run Lake continues to maintain a dense population consisting of both Largemouth Bass and Smallmouth Bass. During this one-night survey, three runs lasting approximately 30 minutes each for a combined effort of 1.5 hours were performed. Captured bass were measured for total length, weighed to the nearest gram, and a scale sample was collected before fish were released. Scales were removed from fish to estimate age and quantify growth. The relative abundance of bass was determined using catch per hour (CPH) of electrofishing effort.



Photo 1. Area 2 Fisheries Biologist Aide (FBA) Nicholas Nelson with a quality size Largemouth Bass captured during night electrofishing at Two Mile Run Reservoir.

As mentioned, Two Mile Run Reservoir is managed with Big Bass Regulations. The Pennsylvania Fish and Boat Commission's Big Bass program established benchmarks to define quality bass populations.

Catch rates of 35 bass per hour for all bass, 7 bass per hour \geq 12 inches and 2 bass per hour \geq 15 inches are indicative of a quality bass population. Results of this year's survey was excellent, with the capture of 366 black bass in total (Largemouth Bass - 208 and Smallmouth Bass - 158), that ranged in size from 3 to 21 inches in length, yielding an impressive combined catch rate of 244 bass per hour (Figures 1 & 2). The measured assessment catch rates for Largemouth Bass at 138.7 bass per hour and Smallmouth Bass at 105.3 bass per hour were the highest on record (Figure 2). Equally impressive were the catch rates of Largemouth Bass \geq 12 inches at 126 bass per hour and Smallmouth Bass at 35.3 bass per hour, which were both record highs and were well above the historic average catch rates of 42.7 and 10.8 fish/hr, respectively, for black bass at this impoundment. Additionally, the measured catch rates for both Largemouth Bass and Smallmouth Bass \geq 15 inches were equal at 7.3 bass per hour (14.6 combined bass per hour \geq 15 inches) in 2019. A again, both statistics were record highs and were well above the historical mean catch rates of 3.6 and 2.1 bass per hour for this size group (Figure 2). Furthermore, the majority (81%) of the bass captured in 2019 were between 9 - 14 inches in length, which should provide good bass fishing opportunities presently and in the future. Two of our largest bass captured included a Largemouth at 20.9 inches that weighed 5.8 pounds and a Smallmouth at 20.3 inches weighing 4.1 pounds (see Photo 2).

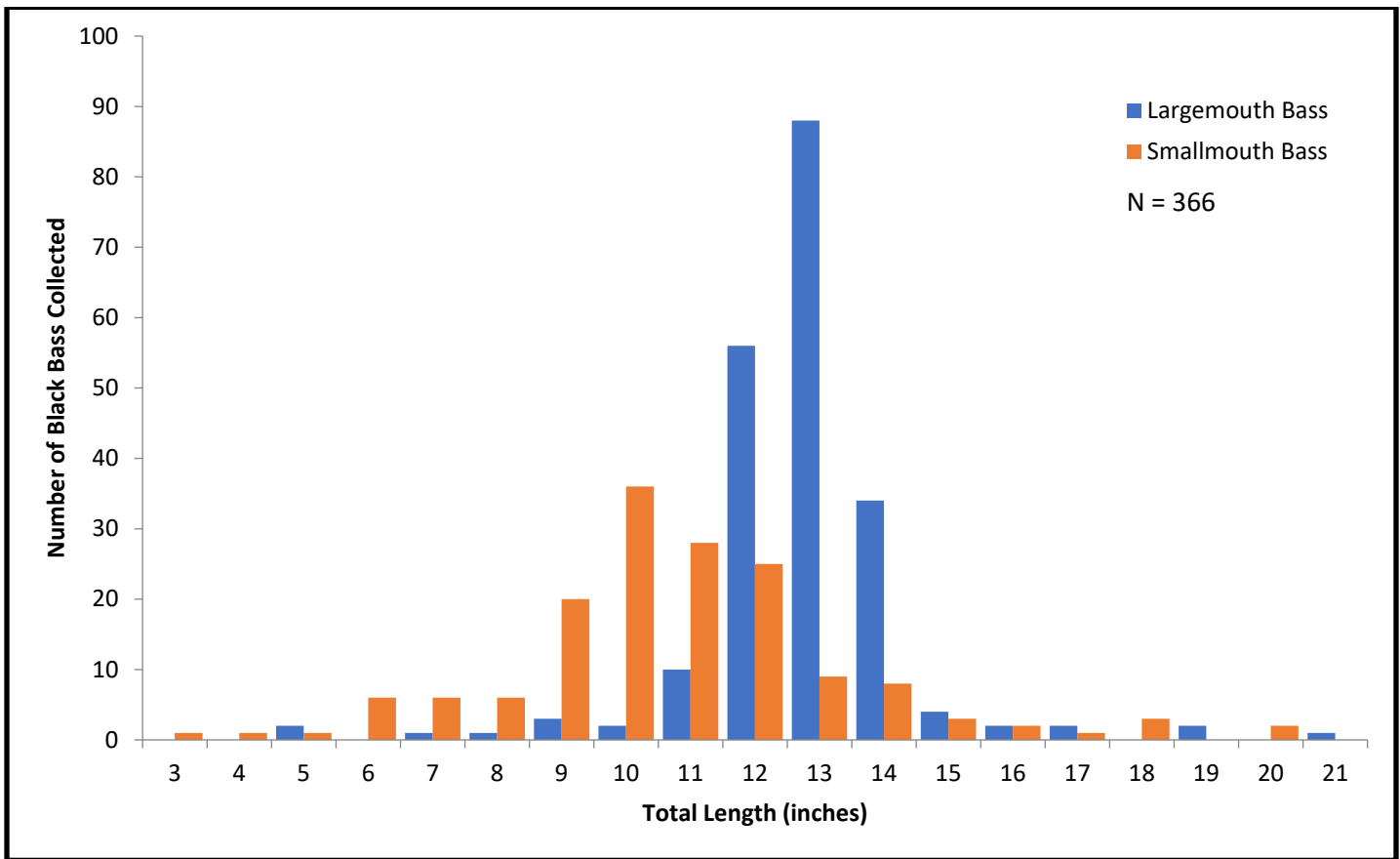


Figure 1: Length frequency distribution of Largemouth and Smallmouth Bass collected from Two Mile Run Reservoir on May 8, 2019.

The size structure of the bass population in Two Mile Run Reservoir has improved since implementation of the Big Bass Program Special Regulations in 1998. The improvement in the size structure of the population was first realized in 2000, just a few years after implementation of the special regulations. Size structure has continued to improve in both quantity and quality of bass with each successive survey. The improvement in the size structure of the population may be due to special regulations and changes in angler behavior, specifically the popularity of catch and release fishing.

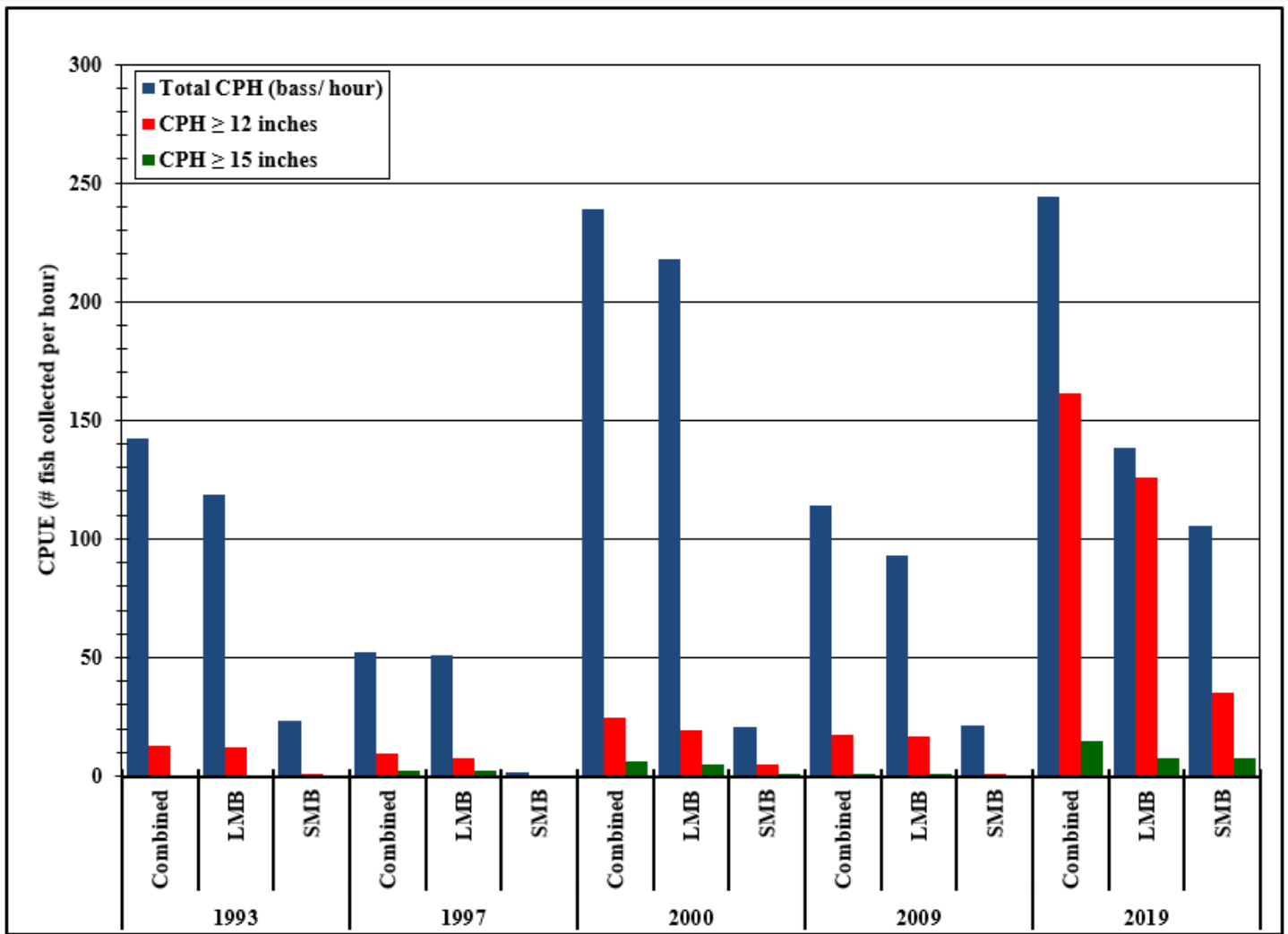


Figure 2. Catch rates of Largemouth Bass (LMB) and Smallmouth Bass (SMB) collected in Two Mile Run Reservoir on May 8, 2019 compared to catch rates in previous years.



Photo 2. FBA Nicholas Nelson with a Smallmouth Bass (left) and Largemouth Bass (right) captured during night electrofishing at Two Mile Run Reservoir.

Overall, Two Mile Run Reservoir contains excellent fishing opportunities for various species of stocked trout along with abundant and sizable populations of Largemouth Bass and Smallmouth Bass. Fair to good fishing opportunities for panfish, specifically Bluegill and Black Crappie, are also present at the lake based upon our cursory observations while collecting black bass. Our Area 2 office continues to receive angler reports of quality fishing opportunities for tiger musky. We plan to return to the lake, utilizing trap nets in early spring, to assess the current population and to further determine if our tiger musky stocking efforts are meeting musky management plan benchmarks in providing high quality fishing opportunities.

Brian Ensign, Area 2 Fisheries Biologist