

Kahle Lake

Venango/Clarion Counties

2008 - 2018 Largemouth Bass Surveys – Night Boat Electrofishing

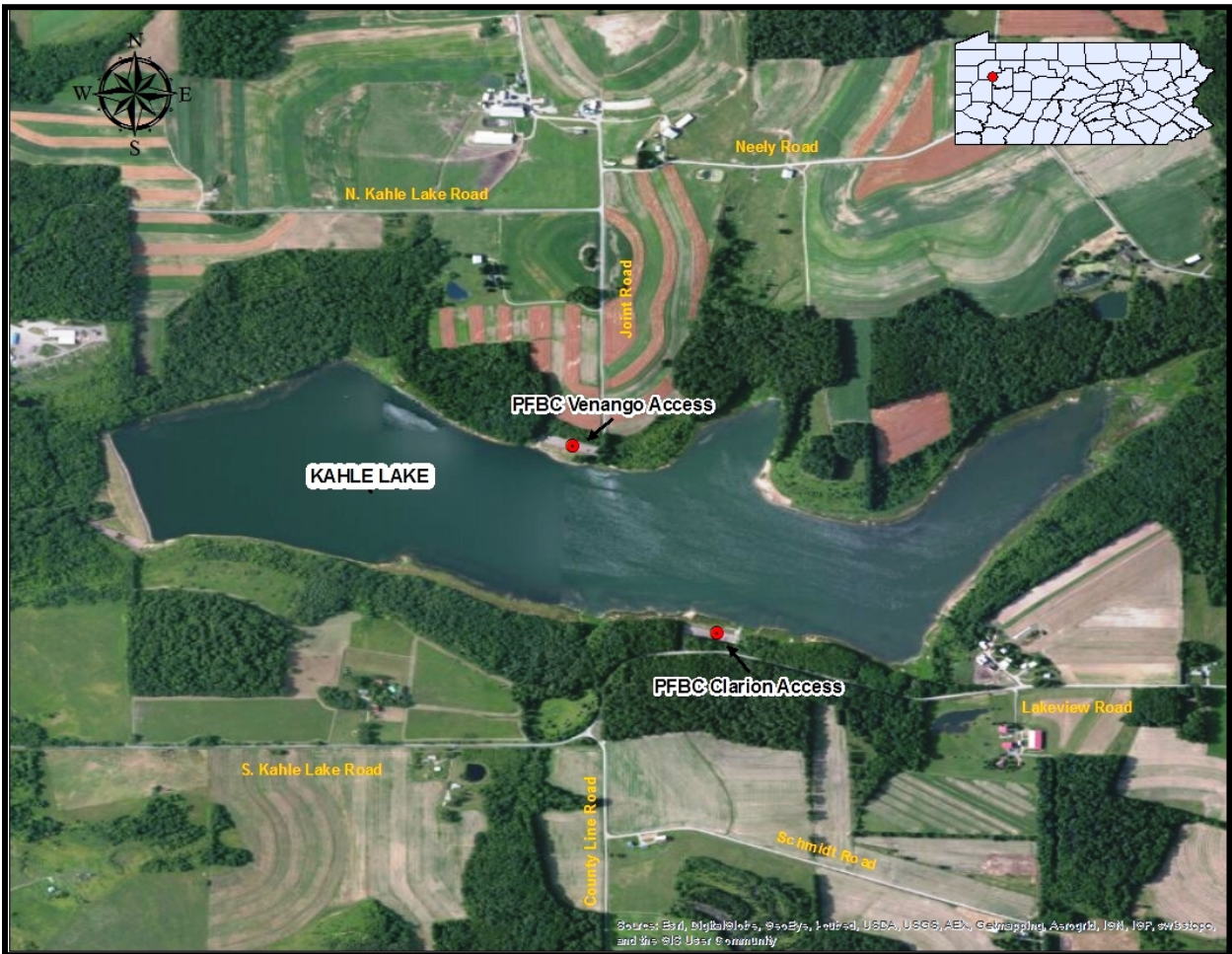


Figure 1. Aerial photograph of Kahle Lake located in Clarion and Venango counties.

Kahle Lake is a 251-acre, PFBC-owned impoundment located in Clarion and Venango Counties, near the town of Emlenton, Pennsylvania. Boating is restricted to human-powered or electric motors and ice fishing is permitted. Located at the lake are two paved boat launches, one at the north end (Venango Co.) and the other on the south end (Clarion Co.), both of which have ample parking (see Figure 1). Since 2009, the water level at Kahle Lake has been maintained at approximately three feet below normal pool. The PFBC expects to maintain the current level until alternate funding to repair the dam breast and spillway can be obtained. During this time period boaters should use extra caution when launching their boats and are encouraged to utilize the Venango County boat launch, located on the northern end of the lake for optimal launching conditions, especially later in the summer when water levels are lower.

The lake is managed to provide fishing opportunities for Largemouth Bass, Bluegill, Black Crappie, Yellow Perch and Brown Bullhead. Specifically, the bass population is managed under [Big Bass Regulations](#) and [Commonwealth Inland Regulations](#) apply to all other species.

This highly productive (alkalinity 43 parts per million in 2018) impoundment continues to maintain a dense and quality Largemouth Bass population. The lake is a popular destination among bass anglers, drawing anglers from across the state. In addition to the excellent bass fishery, Kahle Lake maintains quality panfish populations for those interested anglers.

The Pennsylvania Fish and Boat Commission (PFBC), in collaboration with Dr. Andrew Turner and environmental biology major students from Clarion University of Pennsylvania, conduct Largemouth Bass surveys at Kahle Lake in October each year. The purpose of these surveys is to assess the current state of the lakes' Largemouth Bass population and to compare these data to surveys of prior years. Night-time boat electrofishing (NBEF) gear is used to sample the lakes entire shoreline. These annual surveys have been conducted for over two decades except for 2012, the only year where sampling did not occur.

This informal partnership between Clarion University and the Fish and Boat Commission has been beneficial for several reasons. First, from a student's perspective, while under the tutelage of Dr. Andrew Turner (Professor of Aquatic Sciences), students studying fisheries biology and other related fields within the environmental sciences major gain valuable field experience to complement their in-class studies. Field skills and hands-on skills that are enhanced include: knowledge of electrofishing principles and techniques, fish taxonomy, biological collection, and proper data recording techniques. Second, the PFBC has benefited by having additional skilled assistance in fish netting and processing numerous fish samples. As a result of high student participation and collaboration on this survey we can complete sampling and process a very large volume of fish samples in just one evening.

During the evening of October 9th, 2018 Fisheries Management staff from Linesville and Tionesta offices along with Clarion University students sampled Kahle Lake using night-time boat electrofishing (NBEF) gear. Two electrofishing boat crews performed eight runs (average run time = 20 min) to sample the entire 4.2 miles of shoreline which totaled 5.58 hours of effort. For comparison, relative abundance of Largemouth Bass caught was determined by using catch per hour (CPH) of electrofishing effort. All captured bass were measured for total length and a sub-sample (10 fish from each 1-inch size group) were weighed to the nearest gram and had a scale sample taken to determine age and growth statistics. Once processed, all bass were released immediately back into the lake.

Historically, catch rates for Largemouth Bass in Kahle Lake have been exceptional when compared to other Northwest PA waters of similar size. This year's numbers and catch rates, again, were outstanding. A total of 1,456 (2nd highest on record) Largemouth Bass were captured and ranged in size from 1 to 19 inches (Table 1 & Figure 2). The largest bass caught measured 19 inches and weighed 2.3 pounds. Equally impressive was this year's catch rate of 260.8 bass per hour, which was 4th highest on record and higher than the 10 year mean of 238 bass per hour and the long-term mean of 200 bass per hour. Catch rates for quality size bass (bass \geq 12 inches) was the 7th highest on record at 54.4 bass

per hour. Overall, the long-term mean total catch rate of 200 bass per hour for all bass and 50.2 bass per hour \geq 12 inches have remained consistent, especially over the last seven years.

Kahle Lake is managed with Big Bass Enhancement Regulations. The Pennsylvania Fish and Boat Commissions' 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. In Kahle Lake, catch rates for all bass, bass \geq 12 inches and bass \geq 15 inches have exceeded these Big Bass benchmarks since 1993. Even more impressive is that these record high catch rates observed in 2013, 2014, 2017 and 2018 have occurred while the lake remains in a partial drawdown state (mandated at 3 feet below normal pool).

Table 1. Length frequency distribution and catch rate (CPH) statistics for Largemouth Bass captured by night-time boat electrofishing in Kale Lake from 2008 to 2018, excluding 2012.

Length Group (in.)	2018	2017	2016	2015	2014	2013	2011	2010	2009	2008
1	2					1		1		
2	7	1		5	23	20	7	12	9	5
3	273	31	49	147	215	376	193	45	105	42
4	224	109	128	127	59	223	247	104	129	34
5	48	63	35	37	10	34	104	46	18	4
6		2	8	2	6	24	6	9	30	20
7	9	56	49	12	66	235	8	41	63	73
8	42	316	58	28	85	186	55	56	49	106
9	90	142	27	16	84	137	116	55	50	47
10	241	240	24	35	213	267	53	59	99	34
11	245	157	57	97	205	116	57	64	45	44
12	137	92	105	147	137	78	71	50	54	74
13	93	107	102	88	107	90	52	24	47	42
14	43	46	47	42	64	39	37	28	20	23
15	9	6	9	8	22	16	8	10	13	8
16	2	4		1	5	4	3	4	4	2
17					1	3		1	1	1
18	1		1	1	1	1		1	3	
19	2			1	1				2	
20				1						
21					1					
22										
Total Catch	1456	1372	699	794	1305	1850	1017	600	741	560
Total Catch Per Hour (CPH)	260.8	269.9	173.4	211.8	296.6	409.3	240.4	161.7	189.8	133.4
CPH of Bass ≥ 12 inches	54.4	50.1	54.6	77.1	76.1	51.1	40.4	31.8	35.9	35.6
CPH of Bass ≥ 15 inches	2.5	2.1	2.5	3.2	7.0	5.3	2.6	4.3	5.7	2.6
Total Effort (Hours)	5.58	5.08	4.03	3.75	4.40	4.52	4.23	3.71	4.01	4.20

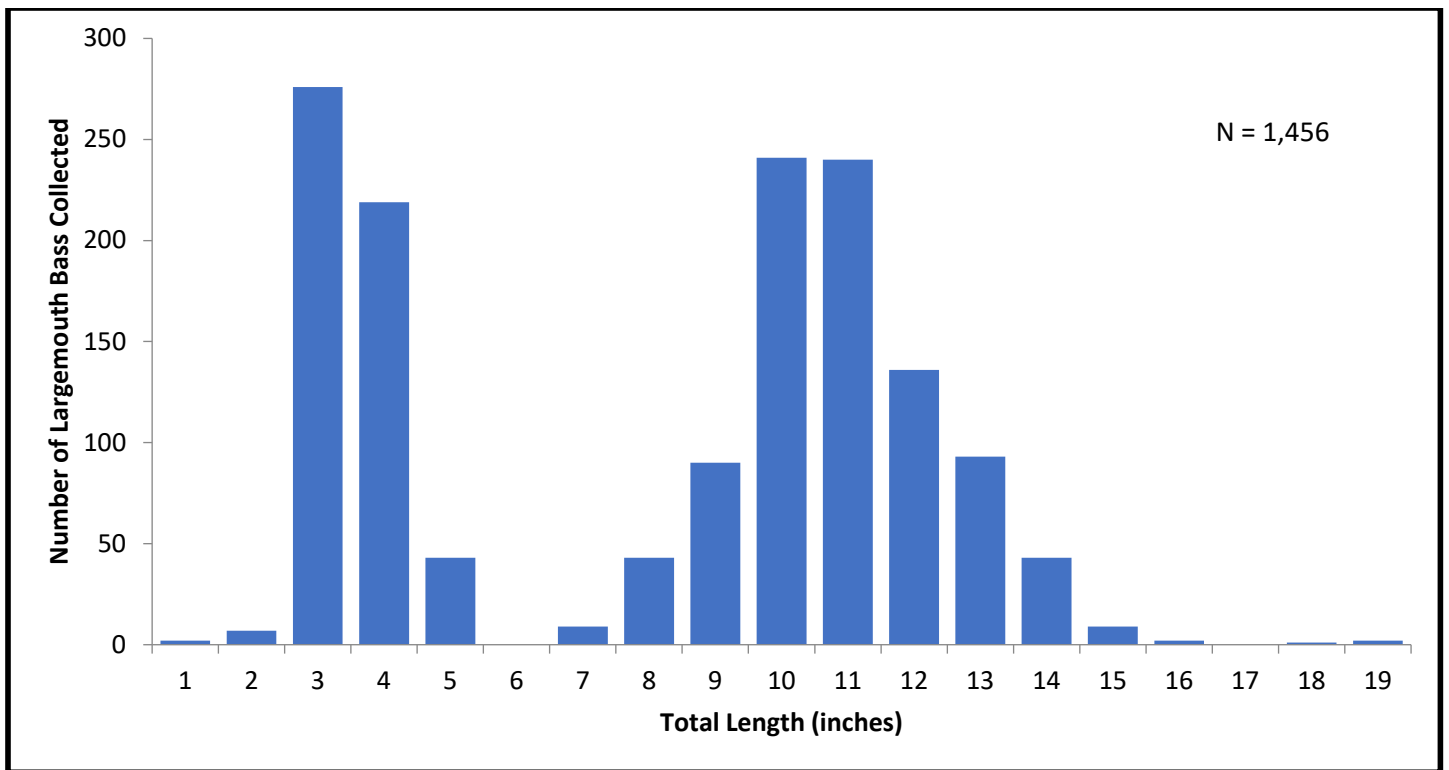


Figure 2. Length-frequency distribution of Largemouth Bass captured during night-time boat electrofishing from Kahle Lake on October 9th, 2018.

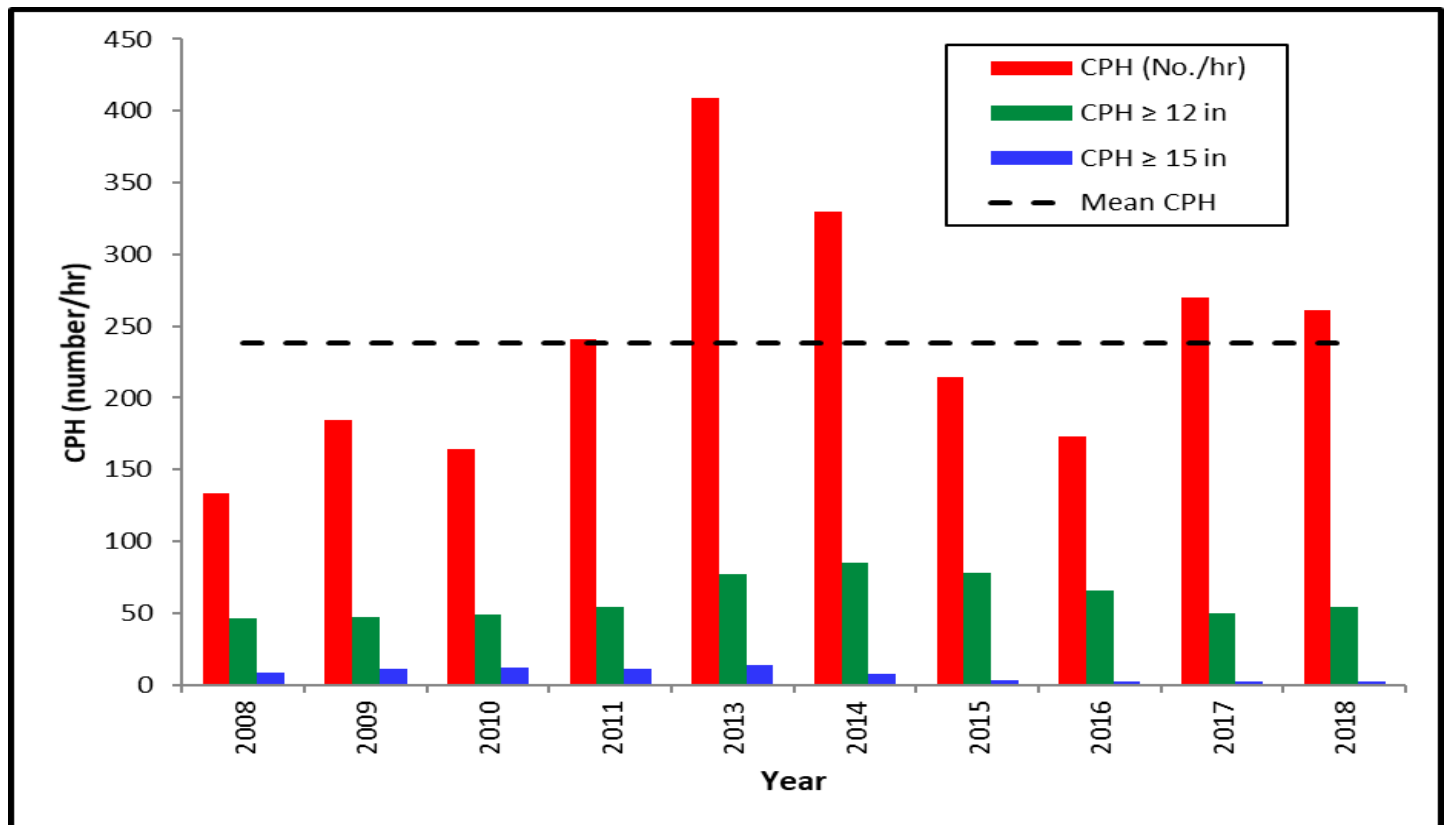


Figure 3. Night-time boat electrofishing catch rates (CPH) for Largemouth Bass from Kahle Lake for the years 2008 to 2018, excluding 2012.

Another highlight of this year's sampling was the impressive number of young bass captured. In 2018, the catch rate for young-of-the-year (YOY) bass was 98 fish per hour, higher than the 10 year mean of 80 YOY per hour (Figure 4) and substantially above the long-term mean of 68.6 YOY per hour. Equally impressive is that YOY Largemouth Bass grow exceptionally fast in Kahle Lake and can reach up to 7 inches in length in their first year of life. Additionally, the abundant numbers of these younger bass in the 3 to 5 inch range (549), not only this year but also over the past several years, are indicative that good spawning success and high survival rates of spawning adults continues to occur annually in Kahle Lake. With multiple year classes being represented; anglers can expect this naturally reproducing self-sustaining Largemouth Bass population to continue to provide great fishing opportunities now and well into the foreseeable future.

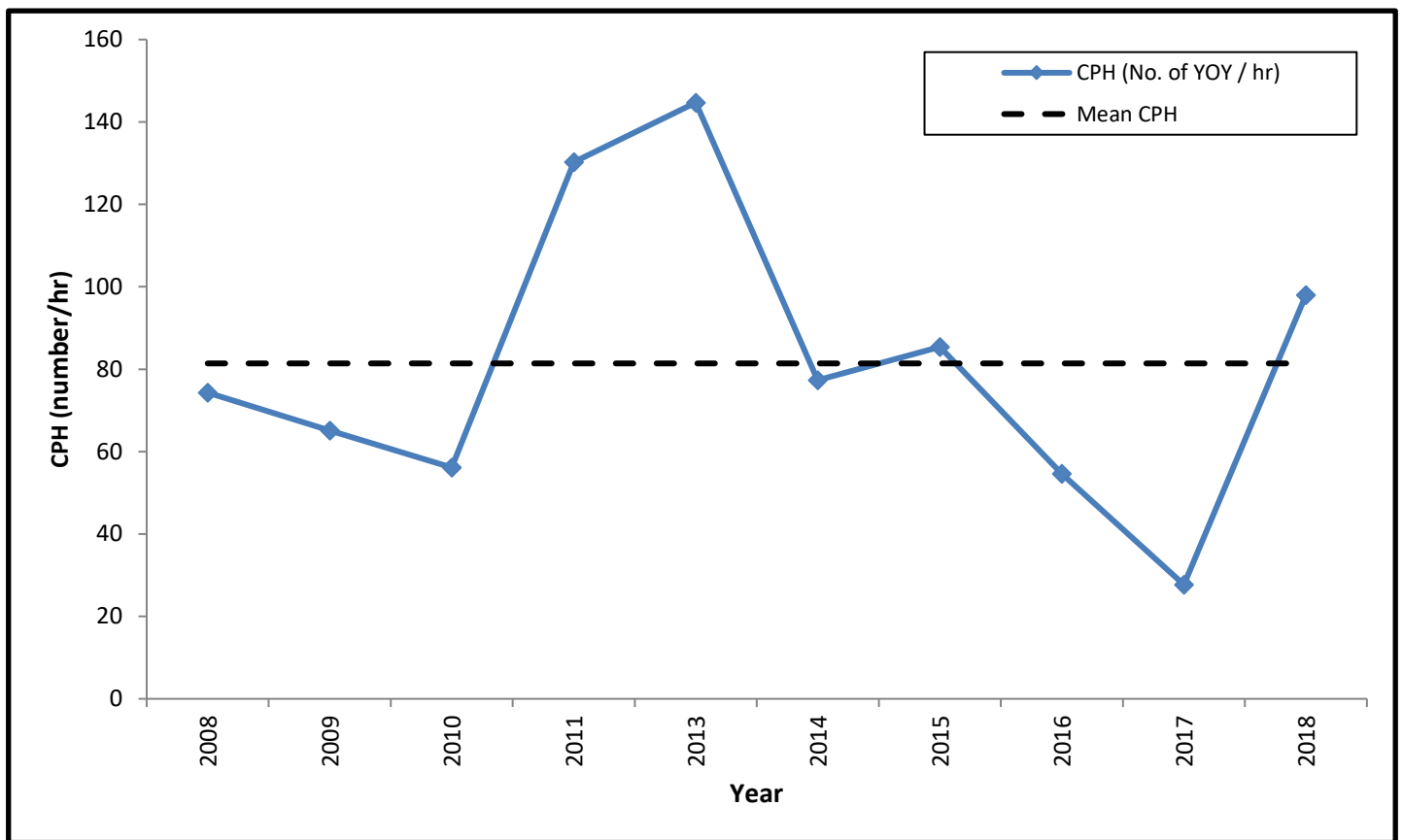


Figure 4. Night-time boat electrofishing catch rates for young-of-the-year (YOY) Largemouth Bass from Kahle Lake between the years of 2008 – 2018, excluding 2012.

Other species observed but not targeted included good numbers and sizes of Bluegill, Pumpkinseed, and Black Crappie. Fair numbers of Yellow Perch up to 12 inches were also observed. Anglers report occasional catches of Walleye; however, we did not observe any during our sampling efforts in 2018. Walleye stockings were terminated in 2015, although the occasional fish from these historical stockings may still be present.

We share photos of Clarion University survey collaborators below and wish to acknowledge their valued contributions in assessment work at Kahle Lake (Figures 5-9). We look forward to continued collaboration and partnership that benefits Pennsylvania anglers.



Figure 5. Dr. Andrew Turner, Professor of Environmental Biology at Clarion University of Pennsylvania, and Clarion University Students Tanner Miller and Brianna Henry collecting a water sample before the start of electrofishing operations.



Figure 6. Clarion University Environmental Biology student Devin Mendez measuring, weighing and collecting a scale sample from a Kahle Lake Largemouth Bass.



Figure 7. Clarion University Environmental Biology Student Stephen Wilbur seen here displaying one of several quality-sized Largemouth Bass captured at Kahle Lake.



Figure 8. Dr. Andrew Turner, Professor of Environmental Biology at Clarion University of Pennsylvania, with another quality-sized Largemouth Bass captured at Kahle Lake.



Figure 9. Group photo: Dr. Andrew Turner and Clarion University Environmental Biology students (2018).

- Fisheries Management Areas 1 and 2