

Mahoning Creek Lake

Armstrong County

Spring 2018 Channel Catfish Survey



Aerial photo of Mahoning Creek Lake, courtesy of google earth.

Mahoning Creek Lake is a 279-acre (summer pool) U.S. Army Corps of Engineers (USACE) owned impoundment located approximately 17 miles southeast of the town of Distant, PA in Armstrong County. Constructed in 1941 primarily for flood control, it is characterized as a long and narrow meandering reservoir situated among steep-sided valleys with forested hillsides. Mahoning Creek Lake can be difficult to fish especially for those who are unfamiliar with it. Due to its limited shore line access and steep sided banks it is primarily fished by boaters. Boating on the lake is limited to a maximum of 10 horsepower and since the reservoir services a hydro-electric generation facility, water levels may fluctuate several feet during peak generation events. The lake offers two boat launches: a Pennsylvania Fish and Boat Commission (PFBC) access ramp (Sportsmen Area) located on the east side and a private access ramp (Milton Loop) operated by Armstrong County on the west side. For those outdoor enthusiasts who are new to fishing, Mahoning Creek Lake is an official "Fishing Pole Loaner Site." The program is a joint venture between USACE Mahoning Creek Lake, PFBC and the Future Fisherman

Foundation to promote fishing. Anyone can sign out a fishing pole and tackle box complete with hooks and gear from the park office at the dam. [For additional information on recreation opportunities at Mahoning Creek Lake visit the USACE website.](#)

The PFBC regulates harvest of warmwater and coolwater fishes at Mahoning Creek Lake with Inland statewide regulations. The lake is stocked annually with Channel Catfish fingerlings and in alternate years with Muskellunge yearlings. The PFBC manages Channel Catfish populations in many of its lakes and ponds across the Commonwealth through judicious stocking. The objectives of this survey were to evaluate the overall abundance and size structure of the Channel Catfish population in Mahoning Creek Lake and to determine if the lake is meeting the minimum requirements for producing a high-quality fishery as outlined in the PFBC’s [Catfish Management Plan](#). Inventory of selected game fish and panfish species was also conducted during this survey.

Trap Net & Gill Net Sampling:

Biologists from PFBC Fisheries Management Area 2 and USACE office in Pittsburgh surveyed Mahoning Creek Lake targeting pre-spawn Channel Catfish during the week of May 15th, 2018. A total of twenty-four net sets consisting of Pennsylvania style trap nets and six-panel experiment gill nets were set in water depths ranging from 10 to 50 feet deep and were fished overnight (approximately 24 hours). Combined, trap nets and gill nets captured a total of 1,394 fish in 554.12 hours of effort representing eighteen different species (Table 1). Captured fish were measured for total length and a sub-sample (10 fish from each 1-inch size grouping) were weighed to the nearest gram. To determine age and year of stocking, a representative number of Channel Catfish were retained. Typically, biologists collect scales from fish to assess growth. Catfish are unique in that they don’t contain scales; thus, age and growth details were described using otoliths, an inner ear bone, which are also known as “ear stones”. Relative abundance, or catch rate of fish collected, was expressed as catch-per-unit-effort (CPUE); or number of targeted-fish collected per unit of time gear was deployed or “fishing.”

Table 1. Abundance and size ranges of fish collected during spring trap net and gill net sampling at Mahoning Creek Lake during the week of May 15th, 2018.

Species	Number	Size Range (inches)	Comments
Channel Catfish	82	2 - 30	59% ≥ 20 inch
Muskellunge	8	25 - 39	
Northern Pike	5	16 – 34	60% ≥ 24 inch *MSL
Largemouth Bass	4	17-19	100% ≥ 12 inch *MSL
Smallmouth Bass	1	16	
White Crappie	616	4 - 14	10% ≥ 9 inch
Black Crappie	414	4 – 15	2% ≥ 9 inch
Bluegill	10	5 - 6	

Pumpkinseed	1	6	
Yellow Perch	12	5 – 8	42% ≥ 7 inch
Walleye	1	25	
Hatchery Brook Trout	1	Adult	
Brown Bullhead	180	6 – 17	71% ≥ 12 inch
Yellow Bullhead	23	8 - 13	35% ≥ 12 inch
Golden Redhorse	6	6 - 17	
Common Carp	1	19	
White Sucker	26	8 - 17	
Golden Shiner	3	6 - 9	
Total	1,394		

Note: *MSL = Minimum Size Limit

Results from May trap net and gill net sampling were encouraging and yielded a total catch of 82 Channel Catfish. Good numbers of both younger and especially larger size adults were documented with multiple year classes represented. Additionally, of the 82 Channel Catfish captured, 59% (48) were greater than 20 inches in length with the largest fish measuring 30 inches and weighing 13 pounds. The calculated catch rate of 0.10 fish/hr was well above the maximum statewide objective of 0.045 fish/hr established for all Channel Catfish lakes described as having a high-quality population.

Mahoning Creek Lake contains good quality Channel Catfish habitat consisting of sunken logs, submerged tree stumps and a muddy bottom, hollow logs and hollow stumps comprise preferred nesting sites for adult Channel Catfish. Ideal natural lake habitat structures such as these provide the necessary components to further increase the likelihood that natural reproduction could and has been occurring over the years. In fact, we found multiple age classes of Channel Catfish that were produced in years where no stocking occurred. At the current time, the PFBC will continue to stock Channel Catfish to maintain or enhance the current population. However, future studies will be designed to assess the levels of natural reproduction in the lake and to determine if stocking is necessary. To document and assess these reproduction levels, surveys targeting young-of-the-year (YOY), prior to stocking events, will be scheduled.

The PFBC began stocking Channel Catfish fingerlings in Mahoning Creek Lake in the late 1970's with the primary goal to provide enhanced recreational fishing opportunities and to create a targeted fishery. The lake receives 3,500 fish annually, but the number of fingerlings stocked has been much higher in recent years due to the availability of fingerlings produced by our hatchery system.

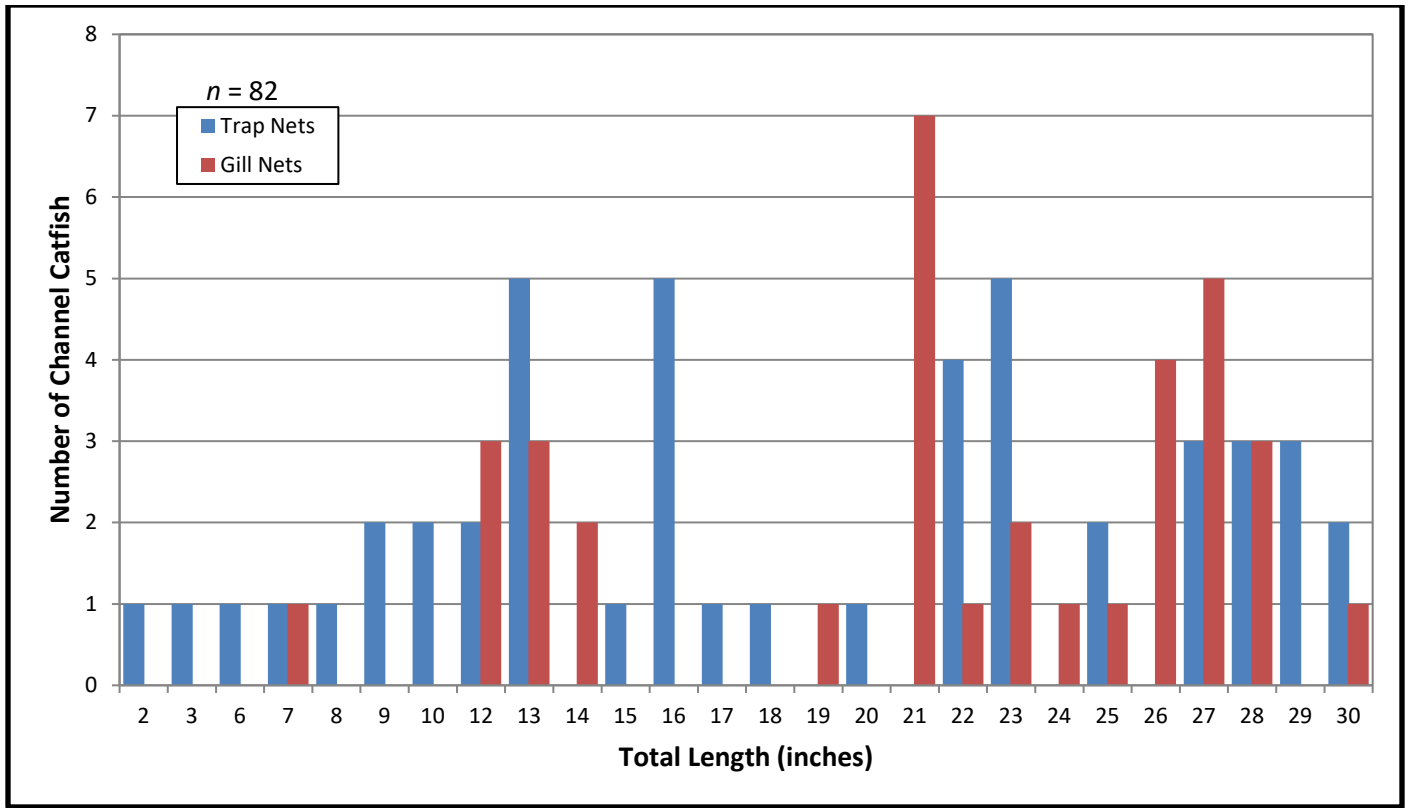


Figure 1. Graph showing length frequency distribution of Channel Catfish caught in trap nets and gill nets combined at Mahoning Creek Lake in 2018.



USACE Wildlife Biologist John Chopp and Water Quality Biologist Amy Nelson with a pair of quality sized Channel Catfish.



A juvenile Channel Catfish captured in our trap nets in Mahoning Creek Lake.

Other fishing opportunities that are of interest to anglers in addition to Channel Catfish include a variety of panfish species such as White Crappie, Black Crappie and Yellow Perch. The predominant panfish species collected were White Crappie and Black Crappie, both of which were collected in record numbers. Of the 616 White Crappie sampled only 10% were greater than 9 inches. Despite most fish being on the smaller side, we also captured a few quality size individuals up to 16 inches in length. Good numbers of Black Crappie were also present, but again, few individuals were of quality size (≥ 9 inches). The Brown Bullhead and Yellow Bullhead populations continue to provide anglers a nice sustainable recreational fishery.

Since this survey specifically targeted Channel Catfish, when water temperatures were near 70 degrees, sampling conditions were not ideal for capture of other game species in proportion to their abundance such as Northern Pike and Yellow Perch. Species such as these typically spawn in the early spring when water temperatures are between 46-53 degrees, just shortly after ice-out conditions, with abundance and size structure best assessed at that time. Also captured in our trap nets were four adult size Largemouth Bass ranging in size from 17 to 19 inches and one Smallmouth Bass at 16 inches. Typically, black bass are not captured in proportion to their abundance in this lake using trap nets but are more vulnerable to other sampling gears such as night-time boat electrofishing, which we typically use to assess the status of the Largemouth Bass population.



Several quality-sized White Crappie captured in our nets at Mahoning Creek Lake.

Tiger muskies were historically stocked in Mahoning Creek Lake back in the late 1970's but were recently terminated in 2017. Fingerling survival was poor, and a tiger muskellunge fishery never developed. A significant effort was made by our agency over this 30-year period to provide anglers with opportunities to catch trophy sized fish. While tiger muskies never produced a quality fishery, apparently two purebred Muskellunge stocking events occurring in 2005 and 2006 did take hold. For instance, in 2010 we captured four purebred muskies and their size range and ages were determined to be 4-5-years old. Results of this year's 2018 survey documented the capture of eight additional purebred muskies, providing further evidence that the progeny from the two historical events and the adults documented in the 2010 survey have helped to repopulate the lake. Additionally, recent angler reports have documented catches of purebred muskies further reinforcing our 2010 and 2018 survey results. It's also quite possible, given the number of musky captured, although unproven and/or documented at this time, that some level of natural reproduction must have occurred in recent years (2010-2017) to support our 2018 catch data and angler reported catch. Since it appears that habitat conditions are more favorable for purebred musky, Mahoning Creek Lake will now receive alternate year stockings of yearling (12-14 inch) Muskellunge. Thus, as with Channel Catfish future Muskellunge surveys will target young of year before any stocking events to verify any incidence of natural production.



Area 2 Fisheries Biologist Brian Ensign with a purebred Muskellunge captured in our trap nets at Mahoning Creek Lake.

Anglers interested in great Channel Catfish fishing opportunities seeking abundant numbers with good size distribution should plan to visit Mahoning Creek Lake. Our recently enacted stocking strategies to further enhance the Muskellunge population should also provide enhanced fishing opportunities for now and in the future. Many anglers who fish Mahoning Creek Lake often take advantage of the low fishing pressure compared to other higher-profile lakes and continue to catch consistent numbers of quality sized Largemouth Bass with fair numbers of trophy bass also present. The PFBC would like to

extend our thanks to the Mahoning Creek Lake staff and water quality biologists from USACE Pittsburgh District for their assistance with these fish surveys.

Brian A. Ensign
Fisheries Biologist Area 2