Pennsylvania Fish & Boat Commission Biologist Report

Kyle Lake

Jefferson County

2014 - 2015 Channel Catfish Trap Net & Hoop Net Survey & Catch of other Panfish and Gamefish

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Aerial photo of Kyle Lake, Google Earth 2015.

Kyle Lake is a 165-acre Pennsylvania Fish and Boat Commission (PFBC) owned impoundment located in Jefferson County. The lake can be accessed by taking Exit 97 off Interstate 80 and traveling west on State Route 830 through the town of Falls Creek. The PFBC evaluated the Channel Catfish population in Kyle Lake between the years of 2014 and 2015. Over this two-year period biologists from the Fisheries Management Area 2 office used Pennsylvania-style trap nets set in the spring (May) and baited tandem hoop nets in the fall (September) to sample the lakes Channel Catfish population.

The PFBC manages Channel Catfish populations in some of its lakes and ponds across the Commonwealth through judicious stocking. However, some of these lakes and ponds contain populations that are partly sustained by natural reproduction, while others

are solely dependent upon hatchery stockings. The objectives of the two year Kyle Lake evaluation were to evaluate the overall abundance and size structure of the Channel Catfish population and to determine if the lake is meeting the minimum requirements for producing a high-quality fishery through stocking as outlined in the PFBC's Catfish Management Plan (*currently in review*). An inventory of the other gamefish and panfish species collected was also carried out during these surveys.

Captured fish were measured for total length and a sub-sample (10 fish from each 1 inch size grouping) was weighed to the nearest gram. Additionally, otoliths (Channel Catfish), pelvic fin rays (Northern Pike), and scale samples (all other game and panfish) were collected in order to determine age and compute growth statistics. 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".

Fishing pier occupied by anglers targeting panfish at Kyle Lake.

Trap Nets:

A total of twenty-two trap nets were set between the weeks of May 5th, 2014 and May 11th, 2015. Four trap nets were set daily in water depths ranging from 4 to 12 feet and were allowed to fish overnight (approximately 24 hours). Our trap net effort consisted of 1,073 hours and a total of 2,209 fish were captured yielding 13 different species. Results from all trap net sampling are detailed in Table 1.

Table 1. Abundance and size ranges of fish collected during spring trap net sampling at Kyle Lake during the weeks of May 5th, 2014 and May 11th, 2015.

Species	Number	Size Range (inches)	Comments
Channel Catfish	14	19 – 26	100% ≥ 15 inch
Northern Pike	16	15 – 33	43% ≥ 24 inch *MSL
Largemouth Bass	9	6 - 16	22% ≥ 15 inch *MSL
Black Crappie	863	3 – 16	16% ≥ 9 inch
Bluegill	585	3 – 9	66% ≥ 7 inch
Pumpkinseed	215	4 – 9	73% ≥ 7 inch
Yellow Perch	28	6 – 11	54% ≥ 9 inch
White Crappie	9	7 – 13	56% ≥ 9 inch
Brown Bullhead	356	8 – 17	78% ≥ 12 inch
Yellow Bullhead	63	6 – 12	6% ≥ 12 inch
White Sucker	24	13 – 22	N/A
Golden Shiner	25	8 – 9	N/A
Brook Trout – Hatchery	2	10 - 11	100% ≥ 7 inch
Total	**2,209**		

Note: *MSL = Minimum Size Limit

Results from the two year spring trap net sampling yielded a total of 14 adult Channel Catfish. Although the total abundance was low, their overall size was impressive. All fish captured were over 20 inches in length with the largest fish measuring 26 inches and weighing 10.5 pounds (pictured below). The combined calculated catch rate of 0.013fish/hr. was below the minimum statewide objective of 0.045 fish/hr established for all Channel Catfish lakes described as having a high-quality Channel Catfish fishery. In comparison to previous year's catch, the combined mean catch rate for trap nets during the 2014 and 2015 sampling years was higher than the 2006 survey, but far less than the 1998 survey.

A trophy sized Channel Catfish captured in Kyle Lake trap nets.

Hoop Nets:

Fisheries Biologist returned in the fall of 2014 and 2015 to set a combined total of sixteen baited hoop nets during the weeks of September 12th, 2014 and September 11th, 2015, respectively. This technique was designed to specifically target catfish. Four net sets, in "tandem" (three nets connected in a series), were set daily in water depths ranging from 4 to 8 feet and were allowed to fish for a 72 hour period (three consecutive overnight sets). Each hoop net was subsequently baited with cheese logs consisting of pressed cheese, soybeans molasses, peanuts and soy that were placed in mesh bags and attached near the cod or "tail" end of the net. Results from the two year fall hoop net sampling yielded a total of 2 adult Channel Catfish. After the hoop net survey was completed we later learned that that the cheese logs used in 2015 may have been less effective in their attraction characteristics. The supplier had switched formulas. This newer recipe could likely explain why we experienced low hoop net catches.

Over this two-year period our hoop net sampling effort totaled 957.70 hours yielding a total catch of 590 fish comprising 10 different species. Results of our hoop net sampling

Baited tandem hoop nets ready for deployment (photo curtesey of FM Area 8).

are detailed in Table 2. The calculated hoop net Channel Catfish catch rate of 0.002 fish/hr fell well below the minimum statewide objective of 0.045 fish/hr. Although only two Channel Catfish were captured in hoop nets, size captured exceed 20 inches as was the case for trap nets.

The PFBC began stocking Channel Catfish fingerlings in Kyle Lake in the late 1970's with the primary goal to provide enhanced recreational fishing opportunities. In 1985 the lake was completely drained as a result of structural deficiencies with its water control towers. Fingerling stockings resumed in October of the same year, just shortly after the lake was refilled. Alternate years of stocking were replaced with annual stockings beginning in 2007 as fingerlings became more readily available through our hatchery system. Over this 29 year period the PFBC stocked in excess of 85,000 fingerlings. The result of these stockings has not yielded a catch rate of Channel Catfish that is desired in our State-wide plan.

Kyle Lake is one of several lakes located across the state where spawning habitat will be enhanced to assess potential limitations of that habitat. The current survey is intended to gather baseline catch rate data and then assess abundance change following enhancement of spawning habitat. With the stocking program establishing the requisite spawning stock or, in this case a reasonable number of mature fish, future goals will be directed to promoting a self-sustaining population through natural reproduction. In order to bolster the number of naturally produced Channel Catfish fry

Table 2. Abundance and size ranges of fish collected during fall hoop net sampling at Kyle Lake during the weeks of September 12th, 2014 and September 11th, 2015.

Species	Number	Size Range (inches)	Comments
Channel Catfish	2	24 – 26	100% ≥ 15 inch
Northern Pike	1	21	-
Largemouth Bass	7	11 - 15	22% ≥ 15 inch *MSL
Bluegill	173	6 – 8	66% ≥ 7 inch
Pumpkinseed	294	6 - 8	73% ≥ 7 inch
Yellow Perch	2	11	54% ≥ 9 inch
White Crappie	2	9 - 10	56% ≥ 9 inch
Brown Bullhead	37	10 - 16	78% ≥ 12 inch
Yellow Bullhead	6	10 - 11	6% ≥ 12 inch
White Sucker	6	19 – 22	N/A
Total	**530**		

Note: *MSL = Minimum Size Limit

Channel Catfish spawning box.

via natural reproduction, Channel Catfish spawning boxes (pictured above) will be deployed in selected areas of Kyle Lake in the future. Channel catfish are cavity spawners and deployment of these boxes is intended to enhance natural production and survival of juvenile Channel Catfish.

Recent studies conducted by the PFBC Lake Habitat section have documented that wooden boxes (pictured above) have been successfully utilized by spawning adults when deployed in other PA Channel Catfish stocked impoundments. Strategically placing artificial spawning boxes in Kyle Lake will provide cavity habitats to encourage Channel Catfish spawning and provide nursery areas for catfish fry. By creating high-quality Channel Catfish populations in selected lakes, especially for those that lack spawning habitat such as Kyle Lake, the use of these spawning boxes over time is anticipated to reduce need for stocking. In order to concisely evaluate the effectiveness of these boxes, fingerling stockings were discontinued in 2014, stocking cessation will remain in effect until 2020.

Other sport fish of interest to anglers, captured in excellent numbers with good size structure, were Bluegill, Pumpkinseed and Black Crappie (Table 1 & 2). Although Channel Catfish were our primary targeted species, the timing of our survey and/or gear type were not ideal for comparative evaluation of other more popular species, such as Largemouth Bass, Walleye and Northern Pike.

A legal size Northern Pike captured in Kyle Lake trap nets.

Our survey occurred when water temperatures were warming and above 70° F, which was ideal for capture of spawning cats. Such a temperature was not ideal for capture of Northern Pike, although we captured seventeen. This naturally reproducing population continues to be sampled in moderate numbers during each survey. Captured Northern Pike (6 males: 10 females) ranged in size from 15 - 33 inches with 43% being of legal size (≥ 24 inches). The handful of females we captured appeared spawned out. Typically Northern Pike spawn in early spring (March/April) when water temperatures are between 46 – 53° F, just shortly after ice out conditions.

Left: Largest Black Crappie measuring 16 inches, Right: Two of the largest White Crappie at 13 and 14 inches.

Kyle Lake continues to support an abundant panfish population. Black Crappie was the predominant panfish species collected in our trap nets. Of the 174 Black Crappie sampled,63% were greater than 7 inches in length with many fish in the 11 inch range. In comparison to the previous survey, this year's catch of Black Crappie was nearly twice that amount, indicating that the Black Crappie population continues to improve with each successive survey. Good numbers of Bluegill and Pumpkinseed were also sampled with 42% and 54% being ≥ 7 inches, respectively. Fair numbers of Yellow Perch were captured and are providing harvestable size fish with several individuals in the 11 inch range. Although White Crappie were found in fewer numbers, their size was impressive, with all fish measuring between 12 - 14 inches in length. Brown Bullhead outnumbered Yellow Bullhead by a 5:1 ratio with a majority of the Browns between 13 and 15 inches.

Also captured in our trap nets were eight Largemouth Bass with the largest measuring 16 inches and weighing 3 pounds. Typically Largemouth Bass are not captured in trap nets but rather are more vulnerable to other sampling gears such as night-time boat for further information regarding the status of the Largemouth Bass population.

Nice size Yellow Perch captured in Kyle Lake trap nets.

electrofishing. Kyle Lake's Largemouth Bass population is managed under Big Bass Regulations where fish must measure at least 15 inches to harvest. See the previous 2006 Kyle Lake Web Report

In conclusion, Kyle Lake provides good angling opportunities for a variety of species. The Channel Catfish population is providing fair numbers of quality size fish for anglers to catch and will continue to be evaluated to see if increases in abundance are possible. An abundance of quality sizes of Black Crappie and Bluegill are available. Good numbers of Pumpkinseed and fair numbers of Yellow Perch are also available for anglers to harvest. The Brown and Yellow Bullhead population is sustaining a nice size structure and supports a sustainable recreational fishery.

FM Area 2 Fisheries Biologist Brian Ensign with a trophy size Largemouth Bass captured in Kyle Lake trap nets.

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