

Pennsylvania Fish & Boat Commission Biologist Report

Sugar Lake

Crawford County

Spring 2024 Trap Net and Night Boat Electrofishing Surveys



Fisheries Biologist Aides Joel Dean and Ben Smith holding four nice size Largemouth Bass captured during night-boat electrofishing on Sugar Lake

Sugar Lake is a 90-acre open-system (no dam), natural glaciated lake located approximately seven miles northeast of Cochranton, in Crawford County. The lake is accessible from PA Route 27 and PA Route 173. The lake's outlet forms Lake Creek, a tributary to Sugar Creek, which flows through the Erie National Wildlife Refuge's Southern Sugar Lake Division. There is one Pennsylvania Fish and Boat Commission (PFBC) owned boat launch with limited parking for about 10 vehicles with trailers located on the western shore. Shoreline fishing opportunities on Sugar Lake are restricted primarily due to the number of private residences and surrounding wetlands (Erie National Wildlife Refuge). For that reason, Sugar Lake's fishing opportunities are best enjoyed by boat.

The PFBC stocks the lake with yearling Muskellunge every other year, most recently in 2023. Muskellunge are managed under the Brood Stock Lakes Program and black bass are managed under the Big Bass Program. All other lake warmwater fish populations are managed under Statewide Regulations for Commonwealth Inland Waters. Anglers are encouraged to consult the PFBC summary book for further details regarding seasons, sizes, and creel limits.

Biologists from the Fisheries Management Area 2 office set and retrieved Pennsylvania-style trap nets to evaluate the lake’s Muskellunge and panfish populations and conducted a night-time boat electrofishing survey to evaluate the black bass population in May 2024. Specifically, we wanted to evaluate the status of the Muskellunge stocking program to determine if it was meeting the minimum criteria for producing a high-quality fishery as identified in the Muskellunge Management Plan. Pennsylvania-style trap nets were used to assess the lake’s Muskellunge and other sportfish populations. Relative abundance, or catch rate, of fish collected was expressed as catch-per-unit-effort (CPUE); or number of targeted fish collected per unit (hours) of time gear was deployed or “fishing”.

Muskellunge and Panfish Trap Net Assessment

During the week of May 6th, we completed 12 overnight sets of Pennsylvania style trap nets totaling 281.33 hours of effort.

Muskellunge

No Muskellunge were captured during our 2024 survey. Sugar Lake was considered a “last chance water” going into the 2024 survey regarding continuation of muskellunge stocking. During the 2017 survey, catch rates were high enough (barely) to justify continuing the stocking program. Stocking of Muskellunge into Sugar Lake will be reevaluated during our upcoming meetings of the state-wide Muskellunge Work Group as updates are made to the PFBC Muskellunge Management Plan. Currently, biannual stockings of yearling Muskellunge are not providing a quality fishery in Sugar Lake.

Other esocid species captured during our survey include a 35-inch Northern Pike and two Chain Pickerel (one in our trap nets and one during boat electrofishing).

Table 1. Year, number, catch rate (fish/h), and length (in) of Muskellunge during four spring trap net surveys between 1996 and 2024 at Sugar Lake.

Year	Number	Catch Rate (fish/ h)	Length (in)
1996	11	0.025	26 - 46
2007	1	0.004	38
2017	8	0.017	32 - 39
2024	0	0.000	

Panfish

A total of 3,005 individuals were captured representing 14 species (Table 2) with panfish comprising 79% of the total trap net catch (Table 2). The predominate panfish species captured was Bluegill, followed by Black Crappie, Pumpkinseed, and Yellow Perch. Most of the Bluegills, about 68%, were greater than 7 inches long. Black Crappies were less common than Bluegills in our nets but still accounted for about 31% of our total catch. Of the Black Crappies, about 96% were 7 to 8 inches. Pumpkinseeds up to 7 inches and Yellow Perch up to 10 inches were also collected in lower abundance. Brown and Yellow bullhead populations are healthy and should continue to provide anglers with a sustainable recreational fishery (Table 2).



Three of the many quality-length Bluegills captured in our trap nets at Sugar Lake.

Table 2. Species, number, and length range of catch from 2024 trap net survey on Sugar Lake, Crawford County.

Species	Number	Length (in)
Bluegill	1,438	5 - 8
Black Crappie	931	4 - 11
Gizzard Shad	382	13 - 15
Brown Bullhead	88	9 - 14
Yellow Bullhead	66	7 - 13
Bowfin	27	17 - 30
Pumpkinseed	26	5 - 7
Yellow Perch	20	6 - 10
White Sucker	12	Not measured
Golden Shiner	11	Not measured
Chain Pickerel	1	15
Largemouth Bass	1	19
Golden Redhorse	1	Not measured
Northern Pike	1	35

Largemouth Bass Night-Time Boat Electrofishing Assessment:

Fisheries Management staff from Area 2 returned to Sugar Lake on the night of May 16th to evaluate the status of the Largemouth Bass population via night-time boat electrofishing (NTBEF). Four runs totaling 1.33 hours of effort were conducted along the shoreline. A total catch of 93 Largemouth Bass were netted and ranged in length from 3 to 20 inches for a catch rate of 69.8 fish per hour (Figures 4 & 5). Largemouth bass catch is down slightly since the last survey but remains consistent with the historical average for all length categories.

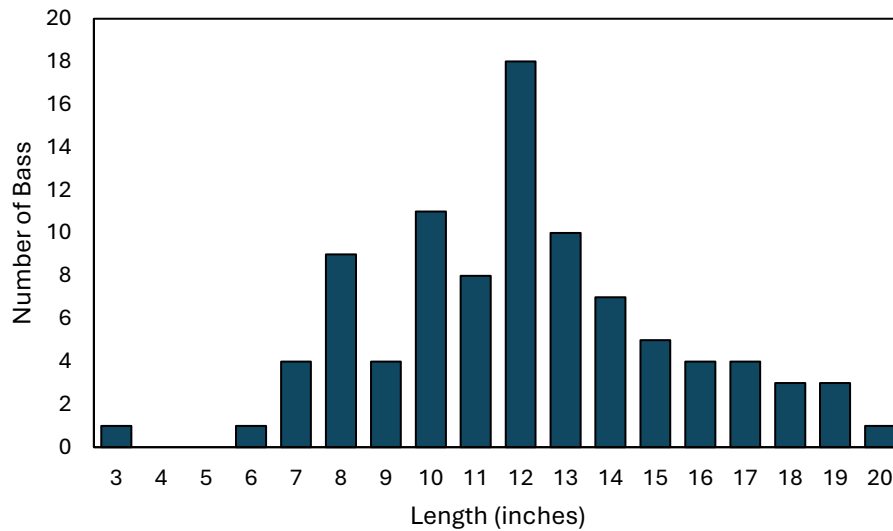


Figure 4. Largemouth Bass length frequency distribution from Sugar Lake during spring 2024.

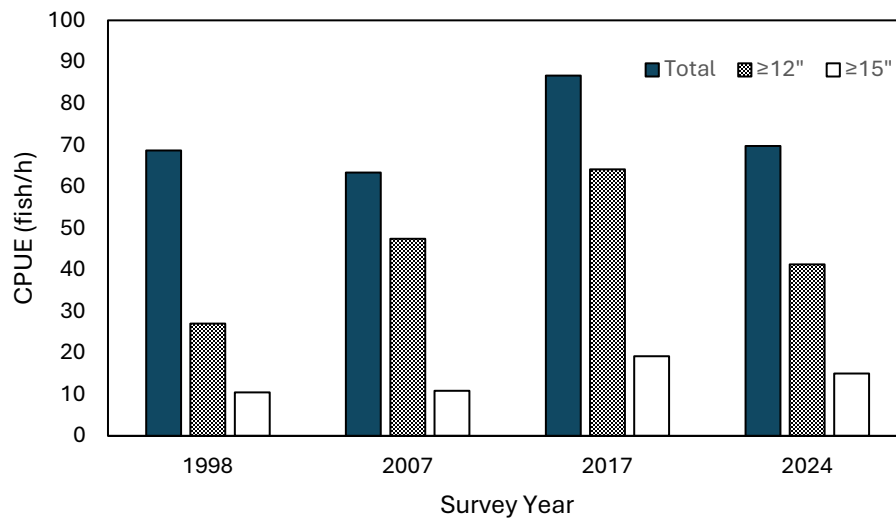


Figure 5. Largemouth Bass night-time boat electrofishing catch per unit effort (fish/ h) in Sugar Lake 1998-2024.



Left: Fisheries Biologist Garrett Herigan with a Bowfin captured in our trap nets. Right: Fisheries Biologist Aide Joel Dean with a Chain Pickerel captured during the night-boat electrofishing survey of Sugar Lake.

Conclusion

Sugar Lake provides quality angling opportunities for a variety of species. The Largemouth Bass population continues to be excellent, providing anglers with abundant bass between 12 and 15 inches, including several of large individuals. The panfish fishery provides abundant Black Crappies and abundant preferred-length Bluegills. Both Brown and Yellow bullheads are present in good numbers and should continue to support a sustainable recreational fishery.

Fisheries Management Area 2