

*Pennsylvania Fish & Boat Commission Biologist Report*

## **Edinboro Lake**

Erie County

**Spring 2025 Trap Net and Night Boat Electrofishing Surveys**



*Fisheries Biologist Aide Isaak Jones with a 41 inch female Muskellunge captured in Edinboro Lake.*

Edinboro Lake is a naturally-formed, glacial lake which covers 240 acres and is located near the town of Edinboro in Erie County. The outlet forms the headwaters of Conneauttee Creek which enters French Creek approximately seven miles downstream. The Pennsylvania Fish and Boat Commission (PFBC) manages Edinboro Lake as a warmwater fishery using Commonwealth Inland Waters Regulations. The lake is stocked annually with fingerling Walleye and biannually with yearling Muskellunge. Additionally, Edinboro Lake is part of the Muskellunge Brood Stock Lakes Program utilized by our state hatchery system. Anglers are encouraged to consult the PFBC summary book for further details regarding the Brood Stock Lakes Program.

The PFBC conducted fish population surveys at Edinboro Lake with the objective of evaluating the overall abundance and size structure of the lake's warmwater and coolwater fish populations and determine if stocking in Edinboro Lake is meeting the minimum criteria for producing high-quality Muskellunge and Walleye fisheries as outlined in the PFBC's respective species management plans. Pennsylvania-style trap nets were used to sample the lake's Muskellunge, Walleye and panfish populations while night-time boat electrofishing was used to survey the black bass populations.

## Muskellunge, Panfish, and Walleye Trap Net Assessment

During the week of April 14, 2025, staff from Fisheries Management Area 2 completed 16 overnight sets of Pennsylvania-style trap nets totaling 370.8 hours of effort.



*Fisheries Management Area 2 staff processing fish collected in PA style trap nets on Edinboro Lake.*

### Muskellunge

Four Muskellunge were captured in our trap nets in 2025 ranging from 34 to 41 inches in length. Two additional individuals were captured during black bass night boat electrofishing; however, they are not included in trap net catch per unit effort (CPUE) calculations. Trap net CPUE in 2025 was noticeably lower than the previous surveys (Table 1); however, it is likely the 2016 through 2021 surveys likely benefitted from previous high stocking rates as part of a yearling Muskellunge survival study. Muskellunge CPUE has exceeded the minimum criteria for a quality fishery in each of the last five surveys and therefore will continue to receive biannual stockings of yearlings.

**Table 1.** Year, number, catch per unit effort (CPUE, fish/ h) and length of Muskellunge captured during four spring trap net surveys between 2008 and 2025 at Edinboro Lake.

Year	Number	CPUE	Length (in)
2008	16	0.03	27-43
2016	39	0.05	15-45
2018	17	0.06	26-36
2021	21	0.02	15-43
2025	4	0.01	34-41

## Panfish

A total of 1,194 individuals were captured representing 11 species with panfish comprising almost 97% of the total trap net catch (Table 2). The predominate panfish species captured was Bluegill, followed by Black Crappie, Yellow Perch, Pumpkinseed, Yellow Bullhead, and Rock Bass. The majority (89%) of Bluegills captured were of quality-length (6- 7 inches). Over two-thirds of the Black Crappies captured were quality-length (8 inches) or larger. Yellow Perch were captured up to 9 inches long. Pumpkinseed, Rock Bass, and Yellow Bullhead are also present although in lower abundance than previously mentioned panfish.

**Table 2.** Species, number, and length of fish captured during 2025 trap net survey on Edinboro Lake.

Species	Number	Length range (in)
Golden Shiner	3	-
Yellow Bullhead	8	8-14
Muskellunge	4	33-41
Rock Bass	4	5-8
Pumpkinseed	24	4-7
Bluegill	843	2-8
Smallmouth Bass	3	14-20
Largemouth Bass	2	3-18
Black Crappie	147	3-11
Yellow Perch	127	3-9
Walleye	32	14-27

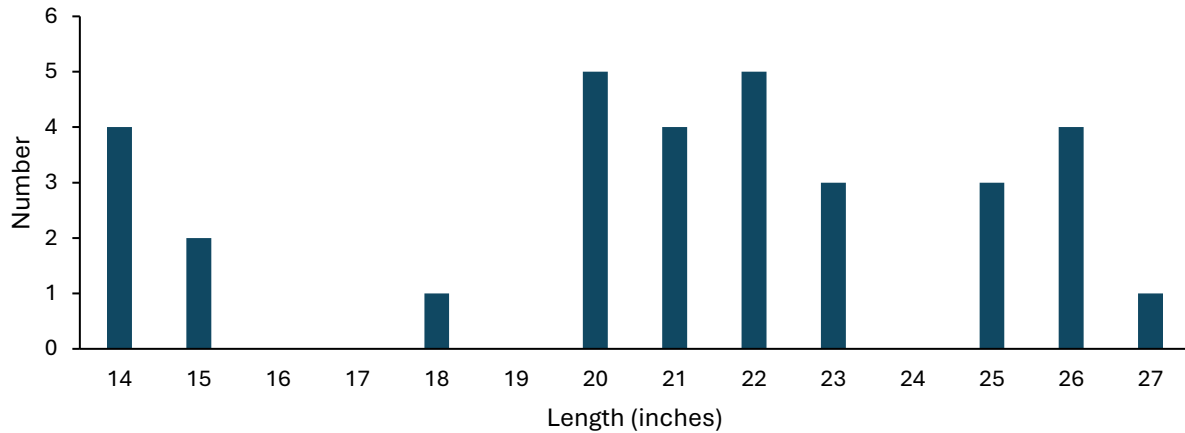


*Bluegills caught in Edinboro Lake by PFBC trap nets.*



## Walleye

A total of 32 Walleyes were captured in 2025. All but four of the fish captured were legal length ( $\geq 15$  inches) with the largest measuring 27 inches (Figure 1). Fingerling stockings in Edinboro Lake are performing well and have established a quality Walleye fishery in the lake.



**Figure 1.** Length-frequency distribution of Walleyes at Edinboro Lake; spring 2025



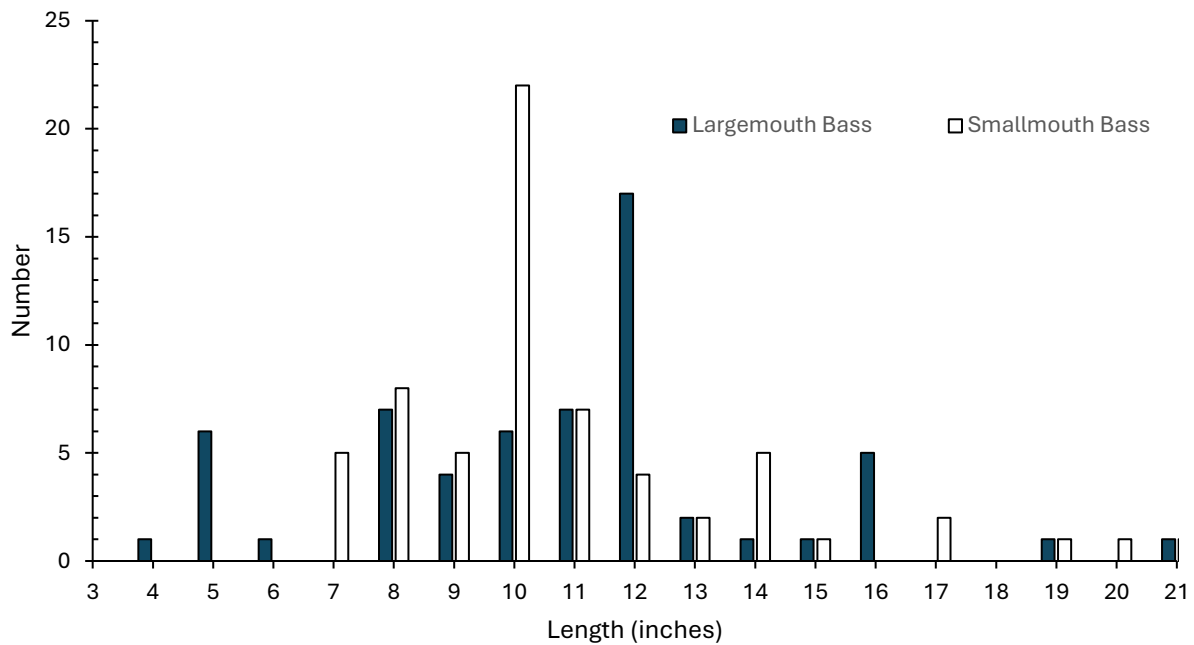
*Fisheries Biologist Aide Joel Dean with a 27" Walleye (left) and Fisheries Biologist Aide Isaak Jones with an 18" Largemouth Bass (right) captured in Edinboro Lake.*

## **Black Bass Night-Time Boat Electrofishing Assessment:**

PFBC staff returned to Edinboro Lake on the night of May 15<sup>th</sup> to evaluate the status of the black bass populations via night-time boat electrofishing (NTBEF). Two runs totaling 1.12 hours of effort were conducted along the shoreline. Both Largemouth Bass and Smallmouth Bass were captured in similar numbers. A total of 60 Largemouth Bass were netted and ranged in length from 4 to 21 inches for a catch rate of 53.5 fish per hour (Figures 2 & 3). Sixty-four Smallmouth Bass were

captured ranging from 7 to 20 inches in length for a catch rate of 57 fish per hour (Figures 2 & 4). The total black bass CPUE was 110.5 fish per hour.

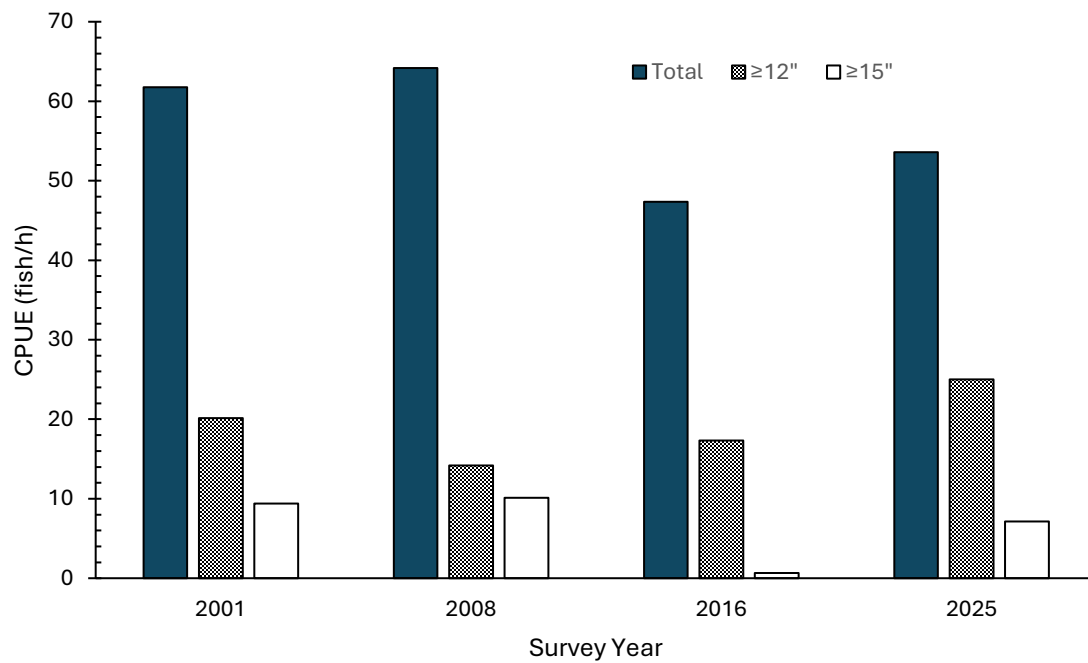
The Largemouth Bass population in Edinboro Lake has remained stable over the past 25 years (Figure 3) while the Smallmouth Bass population is at an all-time high (Figure 4). Both species contribute to a robust black bass fishery in the lake which provides anglers with the opportunity to catch a 20-plus-inch bass of either species.



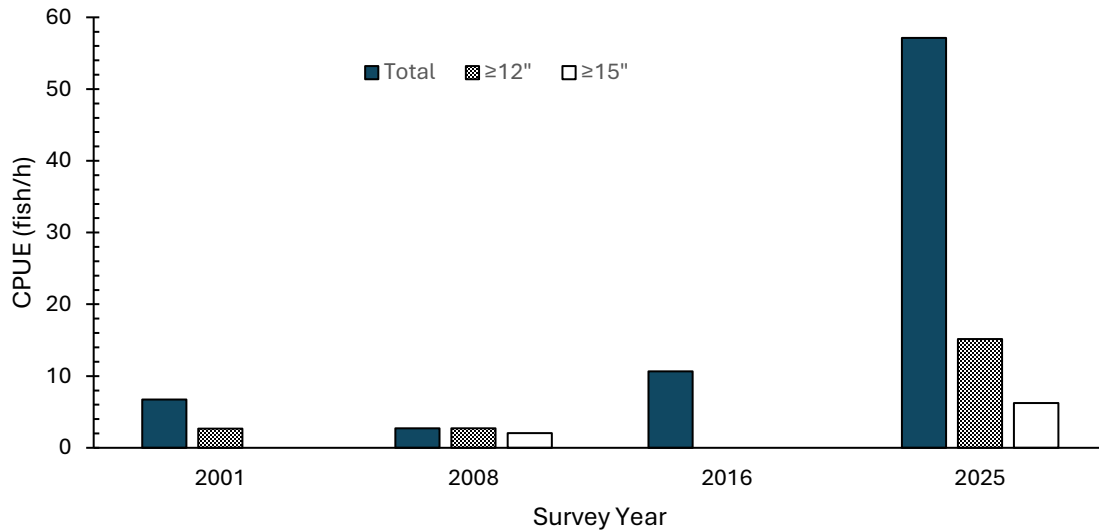
**Figure 2.** Length-frequency distribution of Largemouth Bass and Smallmouth Bass at Edinboro Lake; spring 2025



*Fisheries Biologist Aide Joel Dean with a Largemouth Bass (left) and Fisheries Biologist Garrett Herigan with a Smallmouth Bass (right) captured in Edinboro Lake*



**Figure 3.** Largemouth Bass night-time boat electrofishing catch per unit effort (fish/h) in Edinboro Lake.



**Figure 4.** Smallmouth Bass night-time boat electrofishing catch per unit effort (fish/h) in Edinboro Lake.



*A trophy-length (> 20") Smallmouth Bass captured by trap nets in Edinboro Lake.*

## **Conclusion**

In conclusion, Muskellunge and Walleye stockings in Edinboro Lake are producing sizable populations which will provide anglers with good fishing opportunities now and into the future. In addition, the black bass fishery provides anglers with the opportunity to target both Largemouth and Smallmouth Bass in good numbers. Other species such as Bluegill and Black Crappie can be caught as well and help contribute to a locally popular fishery in Edinboro Lake.

Good Luck!

*Fisheries Management Area 2*