

Francis E. Walter Reservoir

Luzerne/Carbon Counties

2024 Fish Population Evaluation: Night-boat Electrofishing Survey

Francis E. Walter Reservoir (FE Walter) is an impoundment in Luzerne and Carbon counties located at the confluence of the Lehigh River and Bear Creek. The FE Walter Reservoir is owned and operated by the U. S. Army Corps of Engineers (USACE) as a flood control facility and secondarily for supporting water-based recreation. Lake levels vary seasonally, from the wintertime base pool of 1,300-ft (80-acres) to the late spring target pool elevation of 1,370-ft (480-acres) as per the annual Recreation Operations Plan. FE Walter is open to the public for water-based recreation. There is a kayak launch along the western shore and a motorboat launch on the eastern bank.

The Pennsylvania Fish and Boat Commission (Commission) Area 5 biologists conducted 10 single-pass, night boat electrofishing surveys on June 17th and 18th, 2024. Surveys lasted 10 minutes each and encompassed 2.1 miles of shoreline. After capture, all fish were enumerated by species, total length measured, and released.

A total of 379 fish were captured composed of 13 species. Smallmouth Bass (N = 140), Yellow Perch (N = 123), and Bluegill (N = 34) were the most frequently collected species. Black Crappie, Brown Bullhead, Chain Pickerel, Common Carp, Golden Shiner, Largemouth Bass, hatchery Rainbow Trout, Rock Bass, White Sucker, and Yellow Bullhead were infrequently captured (N ≤ 30).

Lengths of collected Smallmouth Bass ranged from 2 inches to 12 inches with the majority (67%) of fish being between 3-inch and 6-inch length groups (Table 2). Yellow Perch were primarily (73%) 4 inches – 8 inches with seven percent (7%) of the total catch being 8 inches or longer. Seventy-five percent (75%) of captured Bluegill were in the 3-inch and 4-inch length groups. Black Crappie (N = 29) length frequencies were bimodal; with the 3-inch group representing 48% of the catch and 2-inch group 28% of the catch. Two Largemouth Bass measuring 2 inches and 4 inches were also captured.

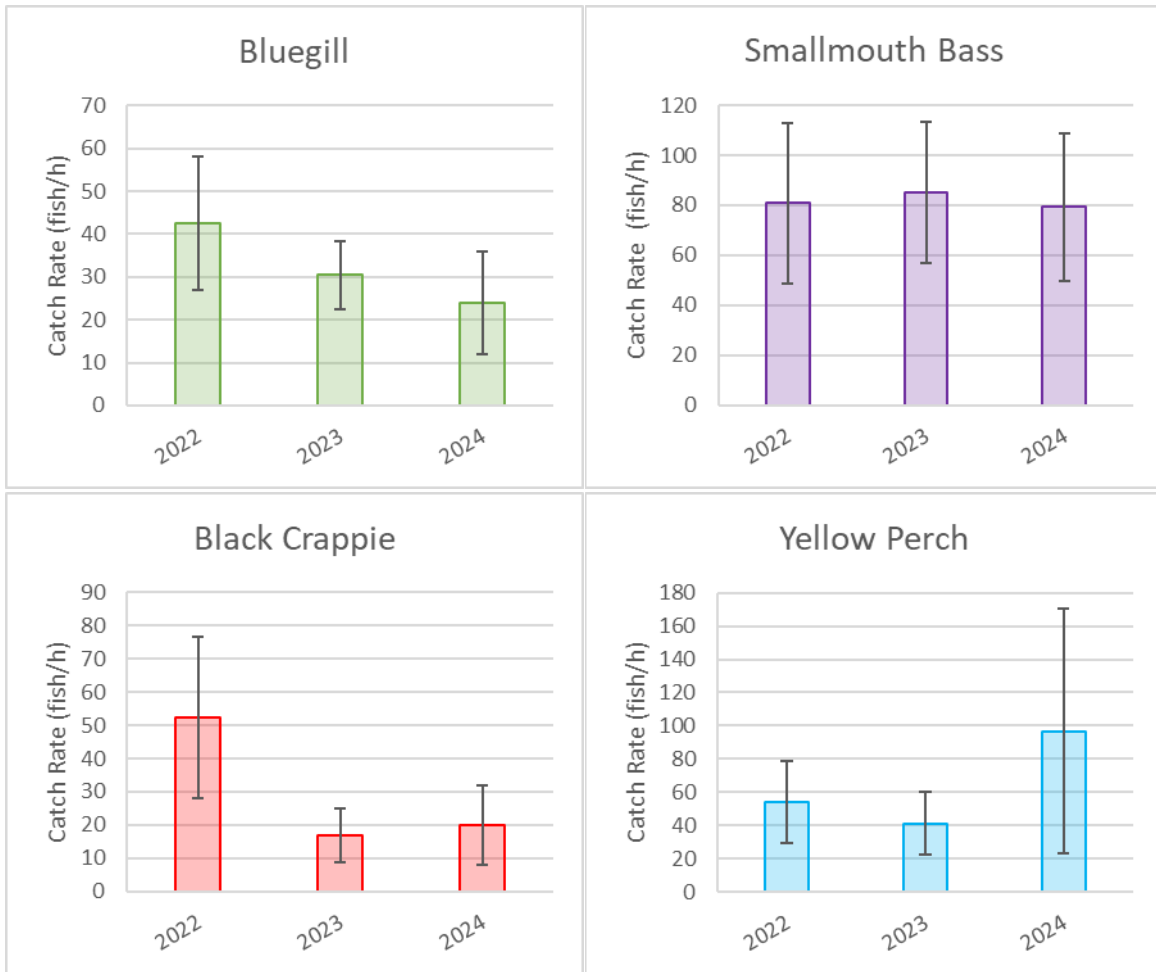
Monitoring Temporal Trends

We can track changes of relative abundance of different species over time by comparing annual mean species-specific catch rate (fish/h; Figure 1). Smallmouth Bass catch rates (2022: 80.8 fish/h, 2023: 85.1 fish/h, 2024: 79.2 fish/h) have remained steady since 2022 (Figure 2). Yellow Perch catch rates for 2024 (111.8 fish/h) appear to have increased since 2023 (41.2 fish/h) and were also higher than in the 2022 survey (54.0 fish/h). Bluegill catch rates have decreased over the time-series, though the decrease from 2023 to 2024 does not appear to be a true reflection of diminished abundance, indicated by broadly overlapping confidence intervals. Black Crappie catch rates are also diminished but seem to have remained relatively steady from 2023 to 2024 (8.1 fish/h, 11.9 fish/h). Overall, it appears that panfish and Smallmouth Bass populations in FE Walter Reservoir are stable.

Table 2. Length frequency (inches) of gamefish species caught during night boat electrofishing surveys at Francis E Walter Reservoir, June 2024

Length (in)	Species								
	Yellow Bullhead	Brown Bullhead	Chain Pickerel	Rock Bass	Bluegill	Smallmouth Bass	Largemouth Bass	Black Crappie	Yellow Perch
0	0	0	0	0	0	0	0	0	1
1	0	0	0	0	2	0	0	1	10
2	0	0	0	3	1	2	1	8	14
3	0	0	0	3	15	40	0	14	19
4	0	0	0	9	10	14	1	0	32
5	1	0	0	11	5	17	0	1	22
6	3	0	0	2	1	23	0	1	16
7	1	0	0	1	0	20	0	1	6
8	0	2	0	0	0	11	0	3	2
9	1	2	0	0	0	5	0	0	1
10	0	1	1	0	0	7	0	0	0
11	0	0	0	0	0	1	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
Total	6	5	1	29	34	140	2	29	123

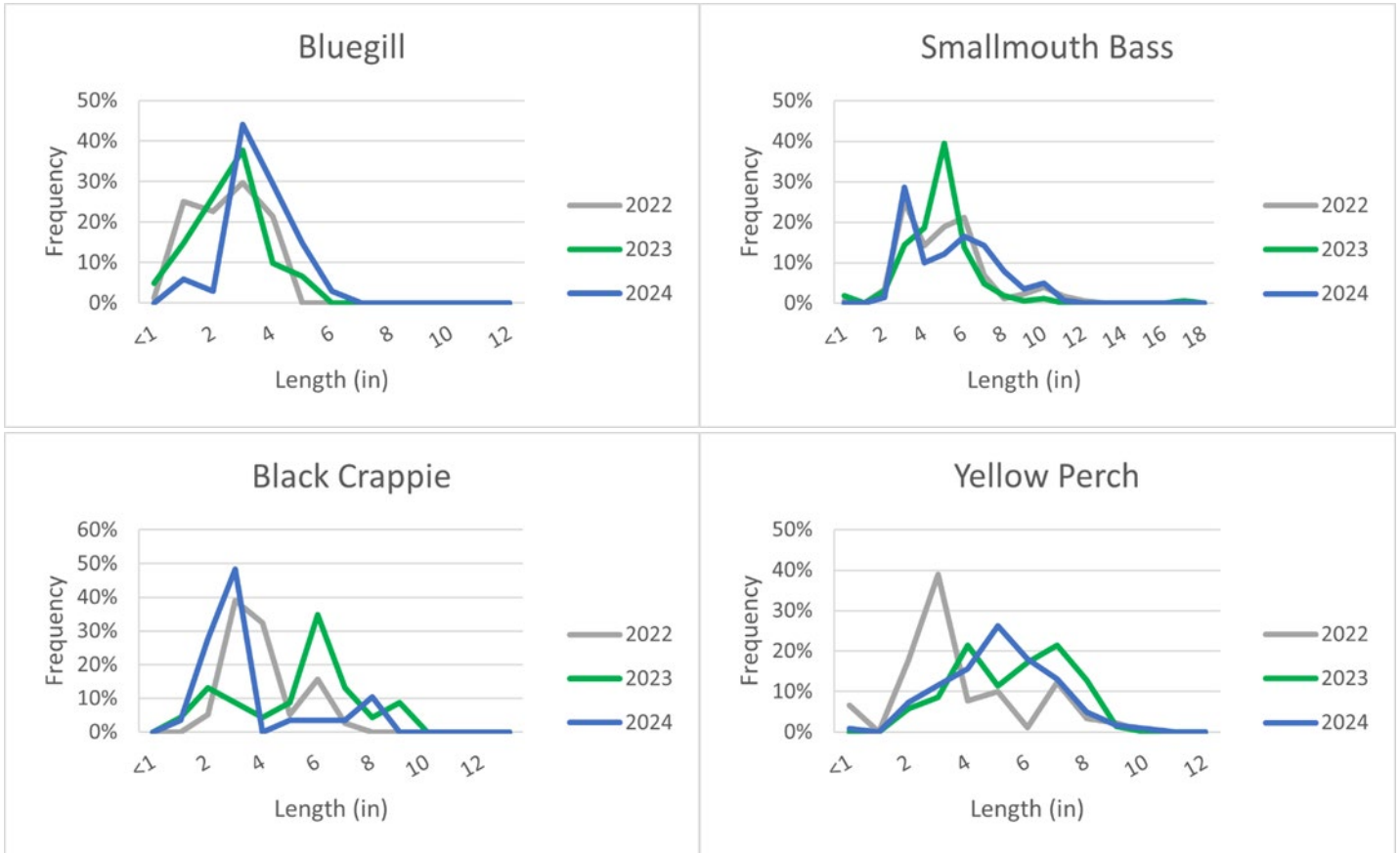
Figure 1. Annual mean catch per unit effort (CPUE; fish/h) and associated 95% confidence intervals for selected species captured during night boat electrofishing surveys at Francis E Walter Reservoir, June 2022-2024



Conclusion

Stable catch rates and a broad range of length classes indicate FE Walter Reservoir's Smallmouth Bass and panfish populations are doing well. The large number of smaller length-class fish is encouraging, as these fish will continue to age and increase in size, they will eventually reach the sizes desired by the fishery. The low catch of larger fish may be a factor of catchability, as larger fish tend to inhabit the deeper sections of the reservoir, outside the influence of the boat electrofishing gear. Anglers can look forward to frequent catches of panfish and Smallmouth Bass at Francis E Walters Reservoir. The Commission anticipates monitoring will continue into the foreseeable future.

Figure 2. Length-frequency distribution (total length; inches) of select species captured during night-boat electrofishing transects in Francis E Walter Reservoir, June 2022-2024



Elliot Hoogerland
Area 5 Fisheries Biologist Aide

Daryl Pierce
Area 5 Fisheries Manager