

# Willowbrook Lake Bass and Sunfish Survey (#222007)

FIN: SI-14-4-P1063A

Melissa K Cohen, Region 2 Fisheries

01/17/2023

Willowbrook Lake is an approximately 4.5-acre freshwater pond in Staten Island’s Greenbelt in the Lower Hudson Watershed. Shoreline fishing is available around most of the pond with limited access from the Northern side due to vegetation and shallow water. Willowbrook has few aquatic macrophytes and low water clarity. Waterfowl, including ducks and geese, are often present in significant numbers. It is home to largemouth bass and sunfish communities, typically found in New York City lakes and ponds, and is fished recreationally. As with most NYC freshwater lakes and ponds, fishing is catch-and-release, only, by both NYC and New York State recreational fishing regulations.

DEC Region 2 Fisheries staff survey Willowbrook Lake biannually to estimate relative species abundance and document changes in fish species composition. This boat electrofishing survey, executed the evening of 20 September 2022, included collection of nine common carp and eight bluegill sunfish for contaminant testing as part of New York State’s Toxic Substances Monitoring Program (TSMP). Survey methods followed those described in the DEC Black Bass and Sunfish Sampling Manual for Lakes and Ponds (Brooking et al., 2018). Nearly the entire shoreline, except the shallow northern end, was fished in three, eleven-minute electrofishing runs. Water temperature was 79°F, pH 10.7, Secchi disc depth 0.5 feet and conductivity 384 μS/cm<sup>3</sup>.

A total of 447 fish of six different species were captured in 0.36 hours of electrofishing. Species consisted of bluegill and pumpkinseed sunfish, largemouth bass, brown bullhead, golden shiner, and common carp. Largemouth bass ranged in length from 11.4 to 16.5 inches and relative weight was 109.6. Bluegill and pumpkinseed sunfish were captured in approximately equal proportions with the majority below quality size (six inches) (Table 1). The nine carp collected for TSMP analyses are not included in the catch rate table because these fish were caught after protocol-required electrofishing effort. A total of 38 American eel and one carp were observed but not captured.

Table 1. Catch rates for fish captured during a 2022 electrofishing survey of Willowbrook Lake

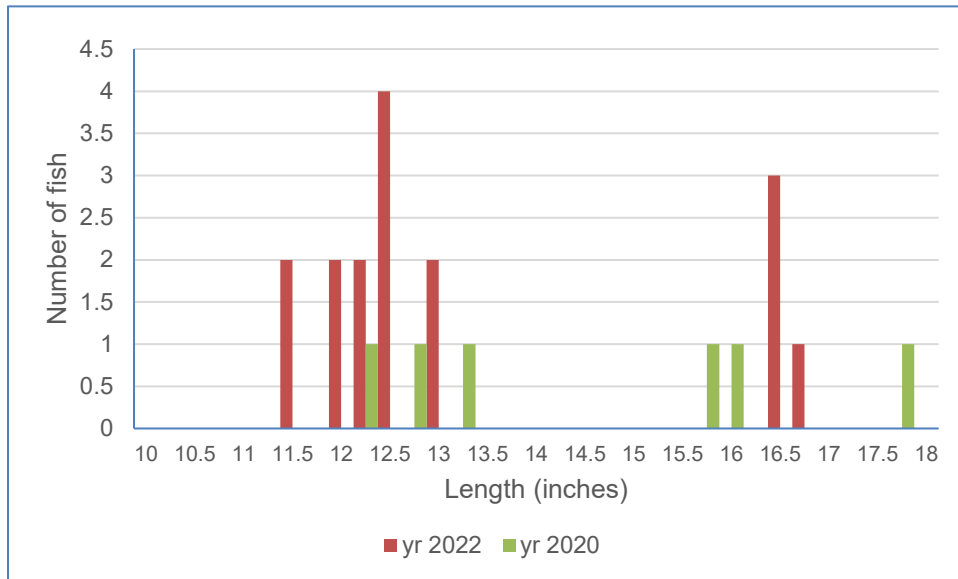
Species	Total catch	Time (h)	Catch rate (fish/hour; standard error) for 2022 survey					
			All sizes	YOY	≥ Stock	≥ Quality	≥ Preferred	≥ Memorable
Bluegill	170	0.36	472(104)	228(53)	222(49)	16.7()	0	0
Brown bullhead	2	0.36	6(3)	0	6(3)	3(3)	0	0
Golden shiner	88	0.36	244(96)	*	*	*	*	*
Largemouth bass	16	0.36	44(7)	0	44(7)	39(7)	11(3)	0
Pumpkinseed	162	0.36	450(126)	292(99)	92(14)	0	0	0

Largemouth bass size range of this survey was similar to that of the 2020 survey, but overall catch rates were higher, as were those of larger-sized fish (Figure 1). Relative weight was slightly higher than that (103) determined from the 2020 survey. Panfish species proportions have changed since the 2020 survey. Pumpkinseed had been found in significantly higher numbers than bluegill, in the 2020 survey, whereas bluegill and pumpkinseed catch rates were comparable in the 2022 survey. Young-of-the-year fish of both species were found in large numbers in this survey as they were in 2020. Common carp were found in much lower numbers in this survey than in 2020. Only one carp was observed and none captured during the time stipulated by the sampling plan. In contrast, 66 carp were observed during the 2020 survey. Golden shiner were captured in numbers similar to those in 2020.



The increase in largemouth bass catch rate and size and decrease in carp numbers are both positive trends for the Willowbrook Lake fishery.

Figure 1 Largemouth bass size distribution for 2022 and 2020 electrofishing surveys of Willowbrook Lake.



### Literature Cited

Brooking, T., Loukmas, J., Jackson, R., VanDeValk, T. 2018. Black bass and sunfish electrofishing protocol for lakes and ponds. New York State Department of Environmental Conservation, Federal Aid in Sportfish Restoration, F-63-R, Study 2, Job 2-2.3, Albany, New York.