

**Cazenovia Lake Trap Net Survey (Survey #:722002)
James Everard, Region 7 Fisheries****01/20/2023**

Cazenovia Lake is a 1,165-acre mesotrophic lake located in the Town of Cazenovia, Madison County. Access to the lake is possible at McNitt State Park where carry-in watercraft and ice fishing access are available. In addition, car-top and ice access is available from the Department of Transportation (DOT) parking area off Route 20, and there is public access by permit for trailered watercraft from the Village owned Lakeside Park boat launch.

A trap-net survey was conducted on May 11-12, 2022 as part of the statewide Big Panfish Initiative (BPI). Trap net sampling was done using six-foot Oneida trap nets following protocol outlined in the New York Sunfish and Crappie Trap Netting Protocol (Loukmas 2020). A total of six nets were set, 3/night on both May 11 and 12. Target species were bluegill, pumpkinseed, and black crappie.

Overall, 501 fish were caught, representing 12 species (Table 1). Of the target species, bluegill were most numerous with 253 caught, followed by pumpkinseed ($n=60$), and black crappie ($n=56$). For this survey, sunfish are the bluegill and pumpkinseed catch combined ($n=313$), and crappie is the black crappie catch. Catch per unit effort (CPUE) for sunfish was 52 fish/net-night ($SE=34$) for \geq stock (≥ 3 in) size sunfish. Crappie CPUE was 9/net-night ($SE=4$) for \geq stock size (≥ 5 in) (Table 2).

Sunfish in the 7.5-inch size group were the most frequently collected (Figure 1). The sunfish proportional stock density (PSD) of 96 is above the target PSD of 70 outlined in the New York Sunfish and Crappie Management Plan (here after referred to as "the plan") (NYSDEC 2020; Table 3). The sunfish relative stock density (RSD_8) of 29 is very close to the plan target of 30, but the RSD_{10} of zero is below the target of 5. These numbers suggest that the sample population had a high percentage of quality (≥ 6 in) sunfish, and a fair number of preferred (≥ 8 in) but no memorable (≥ 10 in) sized. The 2022 PSD was higher than for the 2021 BPI survey and for sunfish collected in the 2012 Centrarchid/General Biological survey (Everard 2013; Table 4). It should be noted that the 2012 survey used boat electrofishing and gill-nets and took place in May and July. The mean relative weight (Wr) for all size sunfish of 88 ($SE=0$) also falls below the plan target Wr of 100 (Table 5). The Wr index uses a range of 95 to 105 as the "benchmark" for fish in good condition (Pope and Kruse 2007). The 2022 Wr was similar to the other two surveys (Table 4). The mean length at age-5 for sunfish was 6.8 inches (6.7" for bluegill and 7.0" for pumpkinseed) and the percentage of the stock (≥ 3 in) sample \geq age-5 was 95% (Figure 2). This would suggest that the sample population was comprised of older (\geq age-5) fish with mean growth rates just above the NY spring average of 6.5 inches at age-5 (Brooking et al. 2018). However, the 6.8 inch mean length fell just below the plan target of 7 inches even though it was the longest of the three surveys (Table 4).

Crappie in the 9-inch size group were most frequently collected (Figure 3). The crappie PSD of 84 is above the plan target PSD of 60 and the RSD_{10} of 21 is above the plan target of 20. It should be noted that only 56 crappie were collected, and 100 fish are considered the minimum for calculating accurate PSD and RSD 's. These numbers suggest that the sample population had a high percentage of quality (≥ 8 in) and some preferred (≥ 10 in) crappies but no memorable (≥ 12 in) or trophy (≥ 15 in) sized. The 2022 PSD and RSD_{10} were the lowest of the

three surveys (Table 6). The mean W_r for all size crappie was 97 (SE=1) which is just below the target W_r of 100 (Table 5). The mean length at age-4 was 8.3 inches and well below the plan target of 10 inches. The proportion of the stock (≥ 5 in) in the sample \geq age-4 was 93% (Figure 4). This suggest that the sample population is comprised of older individuals that are slightly slow growing by NY standards, as the NY spring average length at age-4 is 8.7 inches (Brooking et al. 2018). Many definitions of stunting exist, but Heath and Roff (1987) define stunting as a population with “drastically” reduced growth rates. Cazenovia Lake crappie would not be considered stunted as they are just “slightly” slower growing than the NY average. The 2012 survey mean length at age-4 for crappie was 10.5 inches while the 2021 mean was 8.4” (Table 6).

As this survey was the second of a five-year study, there are no recommendations at this time and the survey will be repeated in 2023.

Table 1. Species of fish caught and catch per unit effort (fish/net-night) during May 2022 trap netting of Cazenovia Lake, Madison County. Standard error is in parentheses.

Species	Total	Fish/net-night
Chain Pickerel	15	2.5 (1)
Golden Shiner	7	1.2 (1)
White Sucker	8	1.3 (1)
Yellow Bullhead	6	1.0 (1)
Brown Bullhead	14	2.3 (1)
Rock Bass	59	9.8 (4)
Pumpkinseed	60	10.0 (4)
Bluegill	253	42.2 (30)
Smallmouth Bass	2	0.3 (1)
Largemouth Bass	21	3.5 (1)
Black Crappie	56	9.3 (4)
Yellow Perch	1	0.2 (0)
Total	501	

Table 2. Spring trap-net catch of target species from Cazenovia Lake, Madison County, on May 11-12 2022. CPUE values are mean catch rates by net-night, with standard error in parentheses.

Species	Total Catch	CPUE (Fish/net-night)				
		All	\geq Stock	\geq Quality	\geq Prefer	\geq Mem
Sunfish	313	52 (34)	52 (34)	50 (34)	15 (12)	-
Crappie	56	9 (4)	9 (4)	8 (4)	2 (2)	-
Pumpkinseed	60	10 (4)	10 (4)	10 (4)	4 (2)	-
Bluegill	253	42 (29)	42 (29)	40 (30)	11 (10)	-

Table 3. Number of fish caught of stock, quality, preferred (Pref), memorable (Mem), and trophy lengths and resulting PSD, RSD_P , RSD_M and RSD_T in May 2022 on Cazenovia Lake, Madison County.

Species	Stock	Quality	Pref	Mem	Trophy	PSD	RSD_P	RSD_M	RSD_T
Sunfish	313	299	90	0	0	96	29	0	0
Black Crappie	56	47	12	0	0	84	21	0	0
Pumpkinseed	60	60	22	0	0	100	37	0	0
Bluegill	253	239	68	0	0	94	27	0	0

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Table 4. Objectives from the study plan used to compare the sunfish collected in a 2012 Centrarchid/General survey, and 2021 and 2022 BPI surveys on Cazenovia Lake, Madison County.

Year	PSD	RSD ₈	RSD ₁₀	Mean	
				Wr	Length Age-5
2012	74	52	0	89	6.3"
2021	86	32	0	88	6.2"
2022	96	29	0	88	6.8"
Objective	70	30	5	100	7.0"

Table 5. Mean relative weight (Wr) by size categories for fish sampled on Cazenovia Lake, Madison County, in May 2022. N is number of fish in the size category and standard error is in parentheses. Pref=preferred and Mem=memorable

Species	All		≥Stock<Quality		≥Quality<Pref		≥Pref<Mem		≥Mem<Trophy	
	N	Wr	N	Wr	N	Wr	N	Wr	N	Wr
Sunfish	312	88 (1)	14	87 (2)	207	89 (1)	90	86 (1)	-	-
Black Crappie	55	97 (1)	9	93 (2)	35	98 (2)	10	98 (3)	-	-
Pumpkinseed	60	89 (1)	-	-	38	88 (1)	22	91 (2)	-	-
Bluegill	252	88 (1)	14	87 (2)	169	89 (1)	68	85 (1)	-	-

Table 6. Objectives from the study plan used to compare the crappie collected in a 2012 Centrarchid/General survey, and 2021 and 2022 BPI surveys on Cazenovia Lake, Madison County.

Year	PSD	RSD ₁₀	Mean	
			Wr	Length Age-4
2012	97	90	92	10.5"
2021	93	47	99	8.5"
2022	84	21	97	8.3"
Objective	60	20	100	10.0"



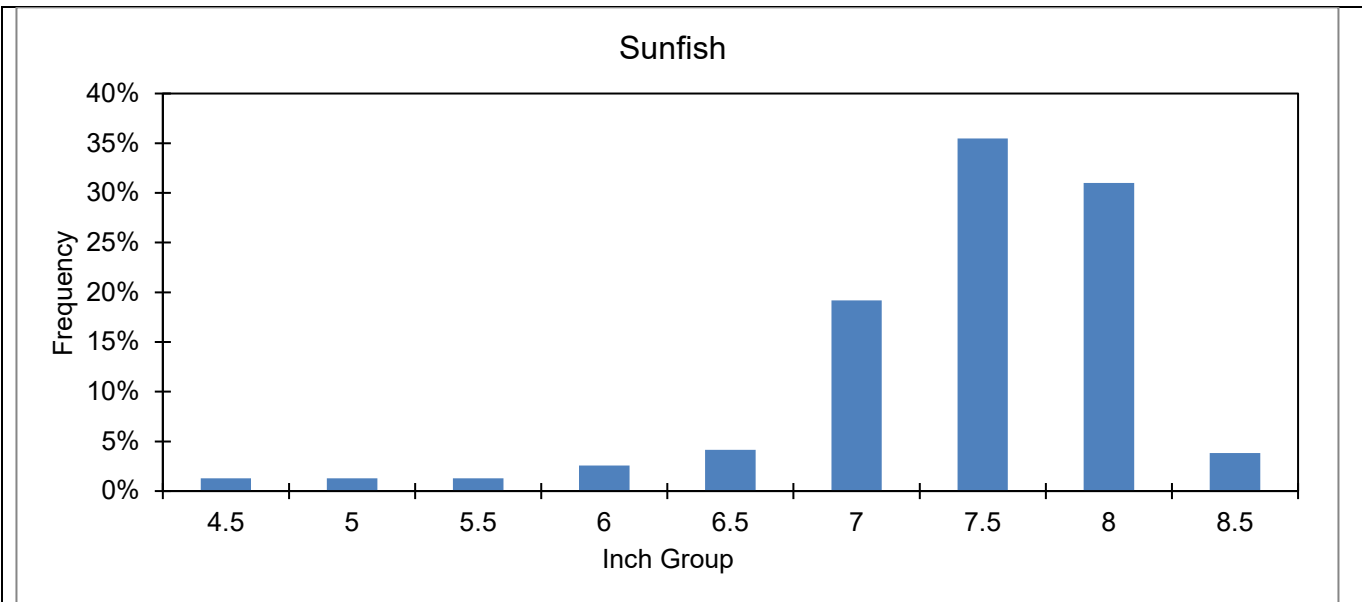


Figure 1. Length frequency distribution of sunfish collected in May 2022 on Cazenovia Lake, Madison County.

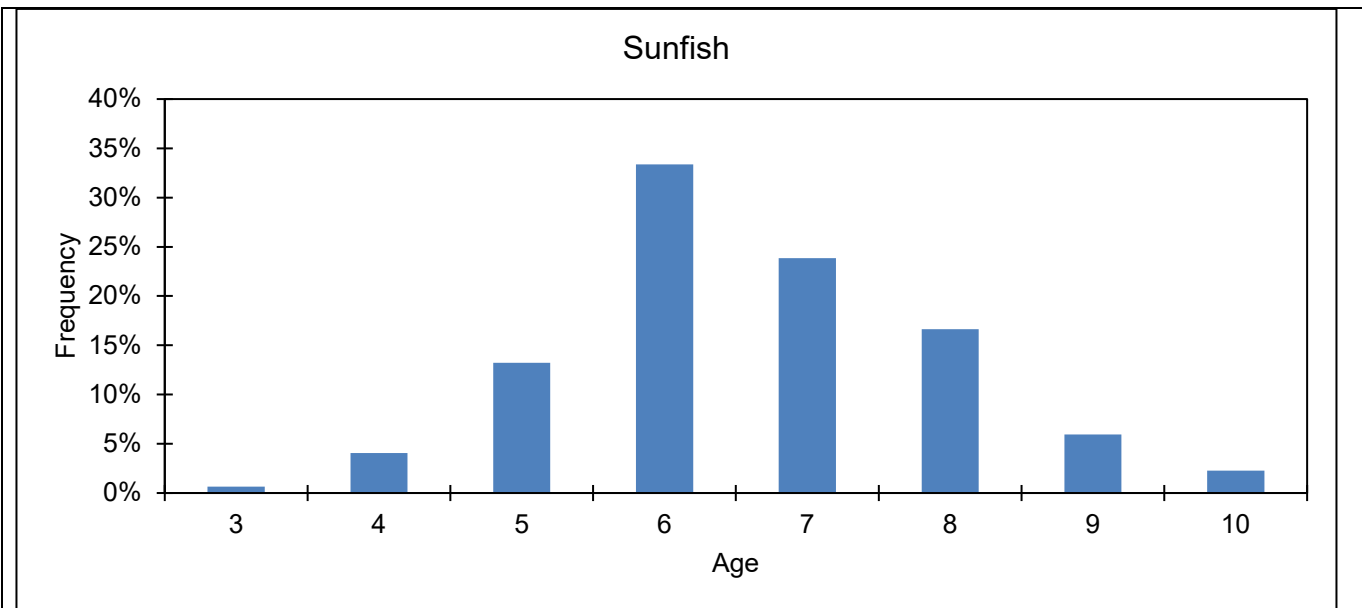


Figure 2. Age frequency distribution of stock size (≥ 3 in) sunfish collected in May 2022 on Cazenovia Lake, Madison County.

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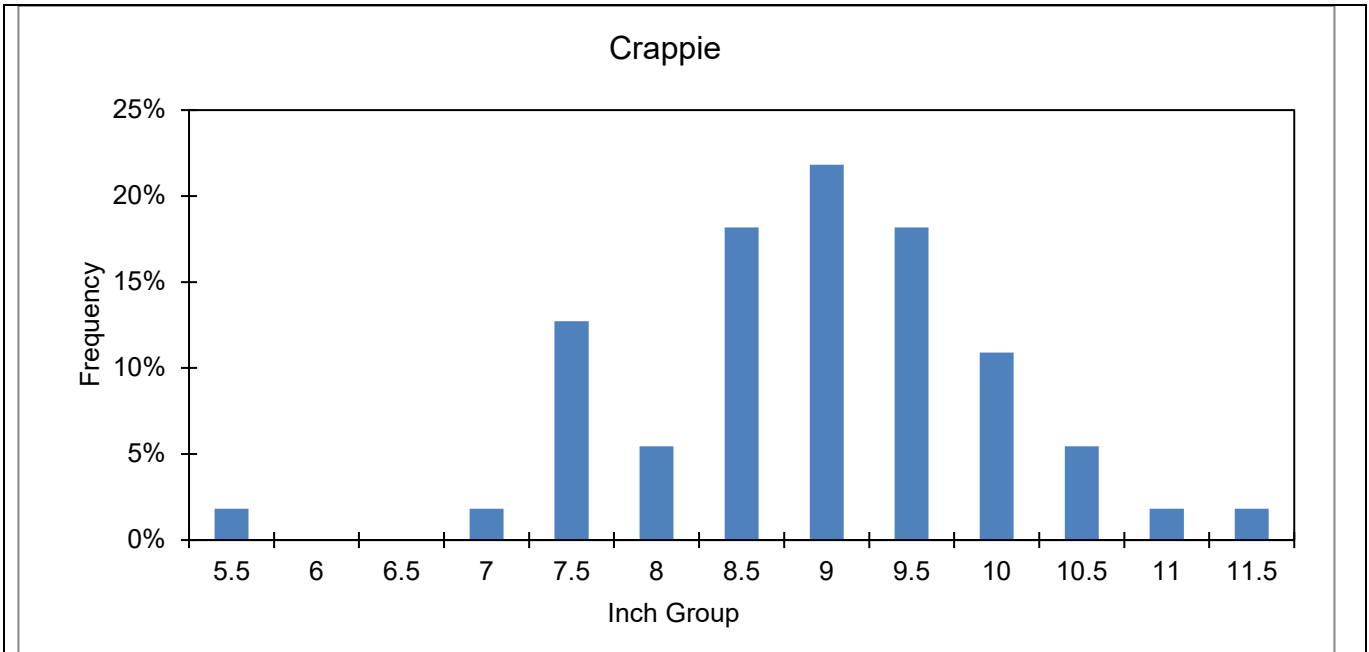


Figure 3. Length frequency distribution of crappie collected in May 2022 on Cazenovia Lake, Madison County.

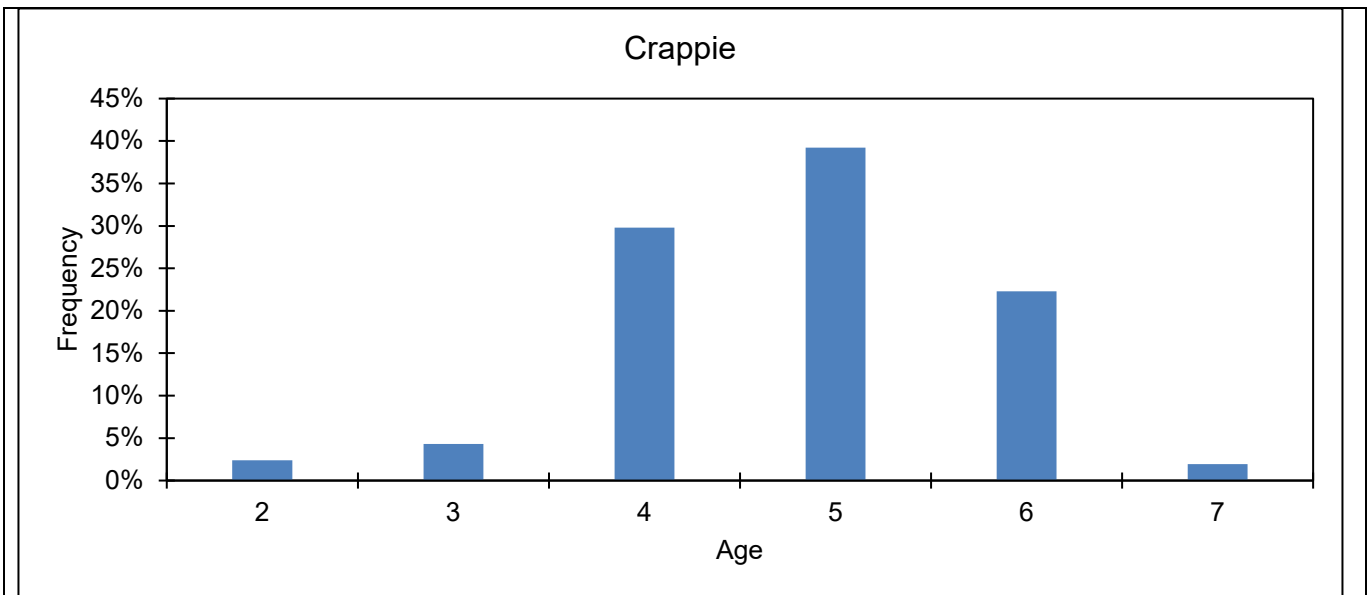


Figure 4. Age frequency distribution of stock size (≥ 5 in) crappie collected in May 2022 on Cazenovia Lake, Madison County.



Literature Cited

- Everard, James F. 2013. Cazenovia Lake Fisheries Survey 2012. New York State Department of Environmental Conservation, Cortland, NY.
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