

# Fish Creek Young of Year Population Estimate (Survey #:622014) Les Resseguie, Region 6 Fisheries

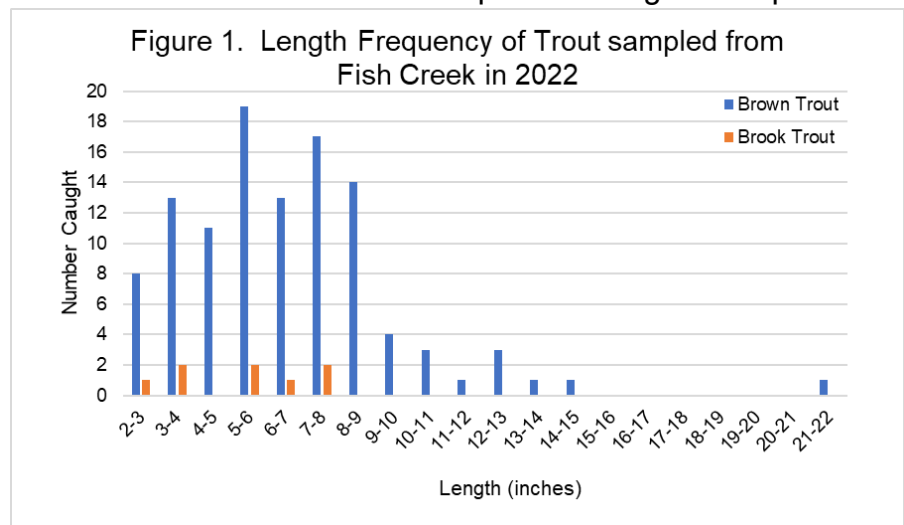
06/12/2023

Fish Creek (ONT-19-70) is a 14-mile-long tributary to the Black River in the Town of Grieg, Lewis County. It is classified as C(TS) by NYSDEC Division of Water (i.e., suitable for fishing and trout spawning). Ample public access is available through 5.4 miles of Public Fishing Rights (PFR) easements which include three Fisherman Parking Areas (FPA). Fish Creek is managed as Wild-Quality (NYSDEC 2020) from the confluence with the Black River upstream to 1.0 miles above North South Road. Special fishing regulations apply for trout with an open season of April 1 – October 15, daily creel limit of 3 fish with no more than one over 12 inches; and an October 16 – March 31 catch and release, artificial lures only season. In response to angler concerns regarding the new catch and release season and potential negative impacts to wild trout spawning and recruitment, a statewide evaluation was initiated (2021-2024) to determine if the new regulation negatively impacts young-of-year (YOY) production in select trout streams across New York (NYSDEC 2021).

Using backpack electrofishing and three pass depletions, three standard sites were surveyed in 2021 (Resseguie 2022) to evaluate the relative abundance of young-of-year (YOY) trout within the Wild-Quality section.

The same sites and survey methodology was repeated on 8/30/22 and 9/1/2022 and a total of 117 brook trout and brown trout were collected ranging 2.4-21.7 inches (Figure 1). Based on length frequency distribution, 35 were classified as YOY ( $\leq 5$  inches; 125 mm). Using the binomial depletion model (Sullivan 2003), we calculated YOY population estimates and capture efficiencies with 95% confidence intervals for each year (Table 1).

In 2022, YOY population estimates were lower at the three sites surveyed and capture efficiency was lower at Site 1 and Site 2 as compared to 2021. These decreases are likely partly attributable to a storm event that caused increased stream discharge that occurred prior to sampling Site 2 and Site 3, and difficult sampling at Site 2 due to the presence of deep swift pools and large woody debris which impacted staff ability to effectively net fish. Despite this, data indicated good production of YOY trout. To maintain consistency, no modifications to site location or survey methodology is anticipated and data will continue to be collected each year through 2024.



Temperature loggers, set to capture hourly temperature data were deployed at two locations from June through September to better understand trout habitat on Fish Creek. Temperature data can be highly variable daily, but suggest decent thermal habitat exists in Fish Creek with water temperatures averaging 61-64°F (high of 74°F, low of 51°F) across the sample period. Data for 2021 and 2022 can be viewed at [SHEDS Stream Temperature Database \(ecosheds.org\)](https://ecosheds.org).

**Table 1. The 2021 and 2022 Catch per Unit Effort (CPUE, fish/acre), estimated young of year population estimate (N; estimated fish/acre) and capture efficiencies (p; probability of capture aka YOY capture efficiency) with 95% confidence intervals (Brown and Brook trout combined).**

	Site	Number of All Trout	Number of YOY Trout	Acres	CPUE	CPUE	N	p
					All trout (per acre)	Trout (per acre)	Estimated YOY per acre (95% CI)	YOY Capture Efficiency (95%CI)
2021	1	46	17	0.29	160	59	17 (17-17)	0.78 (0.56-0.89)
	2	71	28	0.27	265	105	30 (28-33)	0.58 (0.43-0.7)
	3	56	22	0.21	267	105	23 (22-27)	0.55 (0.39-0.68)
	Total	173	67	0.77	226	88		
2022	1	42	10	0.25	168	40	10 (10-11)	0.67 (0.41-0.84)
	2	48	17	0.3	158	56	20 (17-24)	0.46 (0.3-0.61)
	3	27	8	0.24	113	33	8 (8-9)	0.68 (0.38-0.86)
	Total	117	35	0.79	178	44		

### Literature Cited

NYSDEC. 2020. New York State Trout Stream Management Plan. Albany, NY: New York State Department of Environmental Conservation.

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Sullivan, P. and Boomer, S. 2003. An Empirical Bayes Approach for Estimating the Binomial N from a Multiple Pass Depletion Survey with Application to Trout Streams in a New Your State Watershed. Cornell University.