

## Crystal Creek Young of Year Population Estimate (Survey #:621012) Les Resseguie, Region 6 Fisheries

6/3/2022

Crystal Creek (ONT-19-45) is a 14-mile-long tributary to the Black River in the Lewis County Town of New Bremen. The stream is classified as C(T) and A(T) by NYSDEC Division of Water (i.e., suitable for fishing (C) and drinking (A), and trout present). Ample public access is available through 10.5 miles of Public Fishing Rights easements which include two Fisherman Parking Areas. Crystal Creek is managed as a Wild-Quality trout stream from the confluence with the Black River upstream to Crystal Pond Dam, and from Crystal Pond upstream to Erie Canal Road as outlined by the New York State Trout Stream Management Plan (TSMP; NYSDEC 2020). Angling regulations for trout in this Wild-Quality reach are an open season of April 1 – October 15 and a daily creel limit of three fish with no more than one over 12 inches; and an October 16 – March 31 catch and release season, artificial lures only. 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 in 2021 to determine if the regulation, permitting catch and release from October 16 through March 31, was negatively impacting young-of-year (YOY) production in select trout streams across New York (NYSDEC 2021). The evaluation will occur each year through 2024.

Using backpack electrofishing, three sites were surveyed on Crystal Creek from August 27 - September 2, 2021 to evaluate the relative abundance of YOY trout within the Wild-Quality section. A total of 239 brook trout and brown trout were collected (ranging 2.2-12.4 inches), 85 of which were classified as YOY ( $\leq 5$  inches) based on length frequency distribution. We calculated population estimates, estimated capture efficiencies, and 95% confidence intervals using the Leslie DeLury Binomial Estimator (Table 1). Temperature loggers, set to capture hourly temperature data from June through September, were deployed at two locations to better understand trout habitat on Crystal Creek. This data can be viewed at [SHEDS Stream Temperature Database \(ecosheds.org\)](https://ecosheds.org).

Capture efficiency of YOY trout was lower at Site 1 and was likely due to swift water habitat making it difficult for staff to wade and effectively net fish in a section of the survey reach. Sites 2 and 3 were sampled effectively and, to maintain consistency, no modifications to site locations or survey methodology is anticipated. Site 3 is located within the formerly stocked reach below Crystal Pond Dam. It was encouraging to see the response of the wild trout following the removal of the stocking policy in 2020. Data collected in 2021 provides a baseline for comparison to the YOY assessment surveys that will occur each year through 2024.

Natural reproduction of brown trout and brook trout is well documented; therefore, this stream is recommended for reclassification with Standard upgrades to (TS) (Trout Spawning).



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**Table 1. Young of Year Population Estimate (N; YOY/acre) and capture efficiencies (P; proportion of population captured) with 95% confidence upper and lower estimates.**

	Site 1	Site 2	Site 3
N-Lower	147.9	85.4	62.8
N-Estimate	170.1	95.2	65.0
N-Upper	196.3	108.7	74.6
P-Lower	0.27	0.35	0.40
P-Estimate	0.36	0.51	0.60
P-Upper	0.43	0.64	0.75

**Literature Cited**

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

NYSDEC. 2021. *Angler Use and Wild Trout Young of Year Recruitment; Evaluating New York’s Winter Catch and Release Season*. Albany, NY: New York State Department of Environmental Conservation.

