

West Branch Beer Kill Trout Population Survey (Survey #323021)

Robert D. Adams, Region 3 Fisheries

September 2023

The West Branch Beer Kill (Ulster County) is a cold-water tributary of the Beer Kill that has historically supported a stocked brown trout fishery. Its 12,600-acre watershed is mostly forested, with limited urban and agricultural land use. The managed reach of the West Branch Beer Kill is limited to the four-mile section of stream that lies from the confluence with the Beer Kill upstream to Windsor Lake. Decent public fishing access is available in this stretch, with over half of the banks accessible through a combination of municipal lands, Public Fishing Rights (PFR) easements, and informal access (see Figure 1).

The West Branch Beer Kill stocking history goes back to at least 1931 and continued through 2020. The most recent stocking policy of 2200 yearling and 100 two-year-old brown trout was based on a 1995 trout population survey, which determined the reach fell into a Type As trout fishery (Engstrom-Heg 1990). However, the 2020 revision to the New York State Inland Trout Stream Management Plan led to a re-evaluation of management strategies for trout fisheries throughout the state (NYS 2020). A review of the 1995 survey data indicated the management reach of the West Branch Beer Kill met the qualifications of a 'Wild-Quality' stream, defined by a wild trout biomass of 40 pounds per acre or a density of 300 yearling and older wild trout per mile (see Figure 2). In 2021, the managed reach was designated as 'Wild-Quality' with the stipulation that the status of the wild trout population be evaluated in the next several years.

In 2021 and 2023, multi-pass depletion sampling was performed at seine-blocked sites within the management reach. The three 2021 sites were located within PFR sections, and the 2023 survey site was situated in a municipal park found upstream from previous survey sites. During each run, all trout were captured, determined to be of wild or hatchery origin, measured, and released outside the blocked section of stream. Site-specific density and biomass estimates are compared with the 1995 survey results in Table 1, while annual combined estimates are compared in Figure 2. Length frequencies for wild and stocked brown trout are compared in Figure 3. As shown in Table 1, both 1995 sites met both 'Wild-Quality' metrics, while only two of the three 2021 sites exceeded the trout per mile metric and only one met the pounds per acre metric. Neither 'Wild-Quality' metric was met at the 2023 sampling site, but as in other survey years, the presence of larger wild fish in the sample indicates conditions were suitable for survival to older ages. Young-of-year brown trout were caught in 1995 and 2023, confirming wild production occurs in the reach (Figure 3).

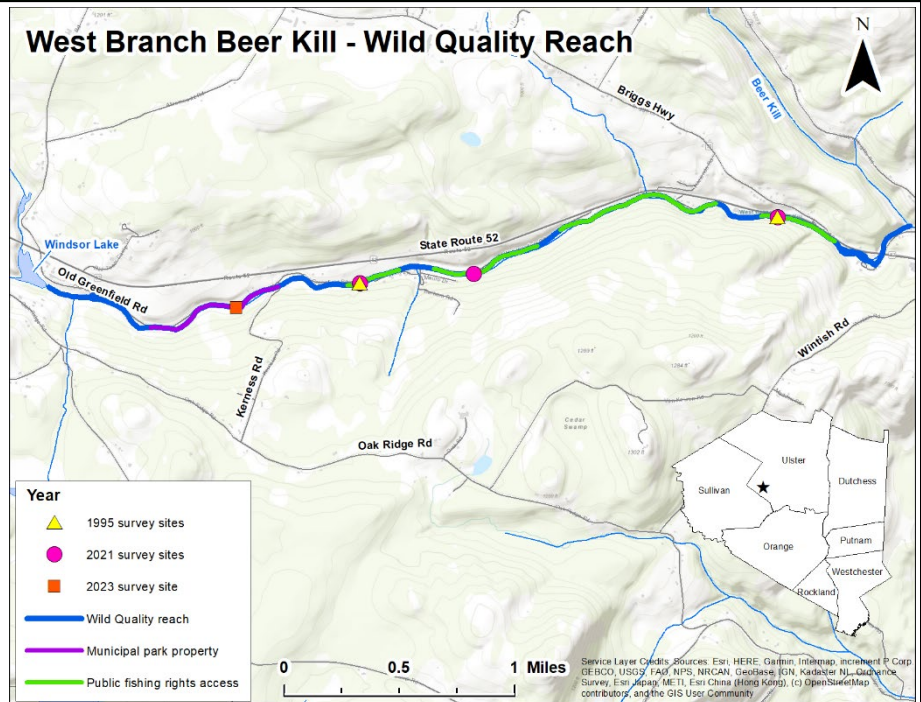


Table 1. Population metrics by site for 1995, 2021 and 2023 surveys

| Management metric | 1995 | | 2021 | | | 2023 |
|------------------------------------|---------|--------|--------|--------|--------|--------|
| | 3.0 RM* | 0.7 RM | 2.6 RM | 2.1 RM | 0.7 RM | 3.6 RM |
| Estimated wild trout lbs / acre | 44.4 | 63.6 | 2.6 | 22.5 | 40.5 | 20.2 |
| Estimated wild trout age 1+ / mile | 415 | 687 | 99 | 307 | 588 | 173 |

*RM = miles from confluence with Beer Kill



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The 2021 and 2023 results indicate a borderline population size when it comes to the management designations, but habitat within the reach likely supports reproduction and survival to older ages. Therefore, a more routine fish and habitat sampling schedule is needed to better evaluate the status of the wild trout population moving forward. Until further data are collected, the managed reach of the West Branch Beer Kill will continue to be designated as a 'Wild-Quality' stream as the mean estimated wild trout yearlings per mile in 2021 exceeded the 'Wild-Quality' standard. This stream should be sampled again in the next 3-5 years.

Figure 2. Population Metrics (Wild Brown Trout only) - sites combined

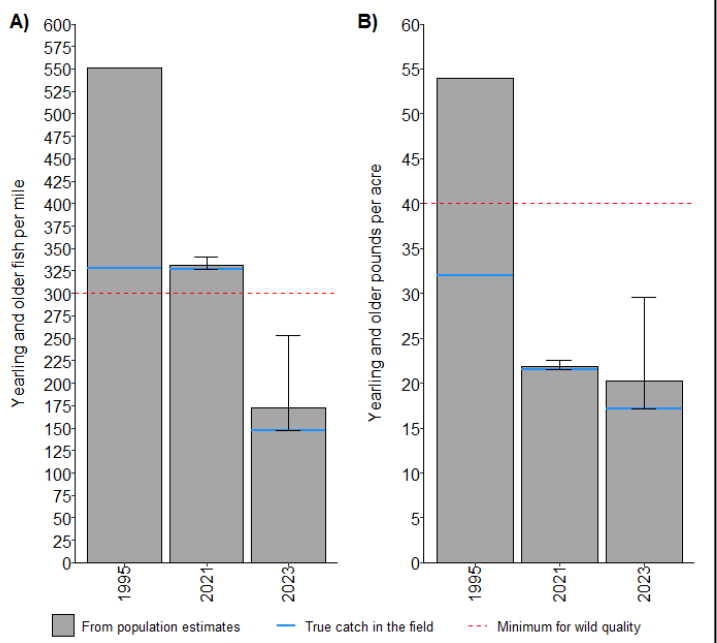
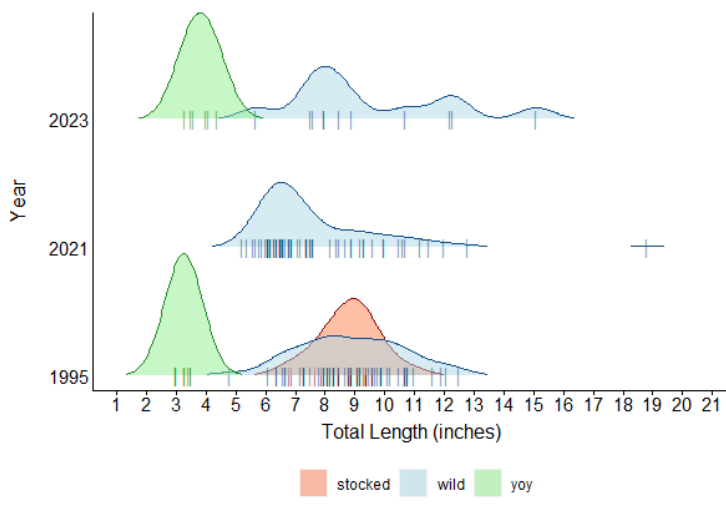


Figure 3. Brown trout length densities by year



Literature Cited

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

Engstrom-Heg, R. (1990). *Guidelines for stocking trout streams in New York State*. New York State Department of Environmental Conservation publication. Albany, NY.

