

Wild Brown Trout Population Trends in the Batten Kill, 1984-2005

Kenneth M. Cox, Vermont Fish & Wildlife Department

Background

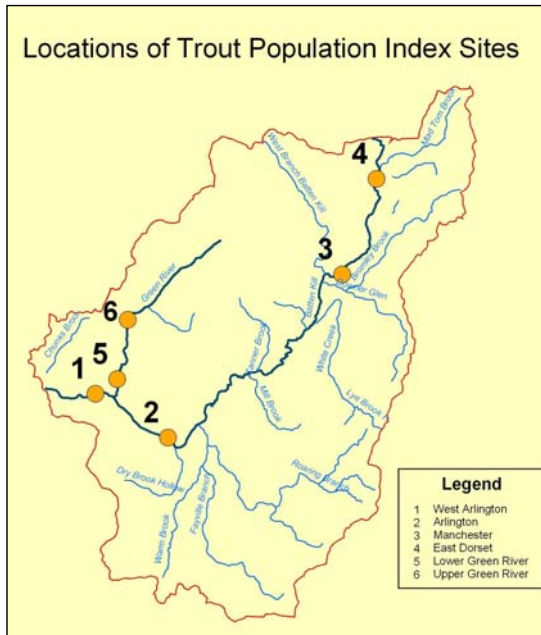
Knowledge about the abundance and structure of fish populations is essential to making informed fishery management decisions. Populations are dynamic and, therefore, fluctuate over time in response to environmental factors and human exploitation. Fish population surveys are one tool fisheries biologist employ to track changes in populations and evaluate management strategies. Over the past 22 years wild trout populations in the Batten Kill have been monitored nearly annually by means of electrofishing surveys. Consequently, changes in brown and brook trout populations have been closely followed and management of the recreational fishery through regulations has been adjusted in response to significant shifts in fish abundance and/or size structure. Since the early 1970s, the Batten Kill main stem fishery has been based exclusively on wild trout production. Population and angler catch data indicate the fishery provided high quality angling in the absence of stocking; however, during the mid 1990s the brown trout population experienced a significant decrease in abundance and fish size structure. In response to this development, the Fish & Wildlife Department in 2000 closed the lower 20 miles of the Batten Kill main stem to trout harvest and initiated investigations and studies of possible causes for the brown trout population decline. Annual population surveys continue to be critical to monitoring current status of trout populations in the river.

Study Objective

- Conduct annual surveys of trout populations at the four established long-term index sites on the Batten Kill main stem.
- Monitor populations in the Green River and other locations on the Batten Kill as staff time and resources permit.
- Evaluate trout populations as they may be affected by current angling regulations and environmental factors.

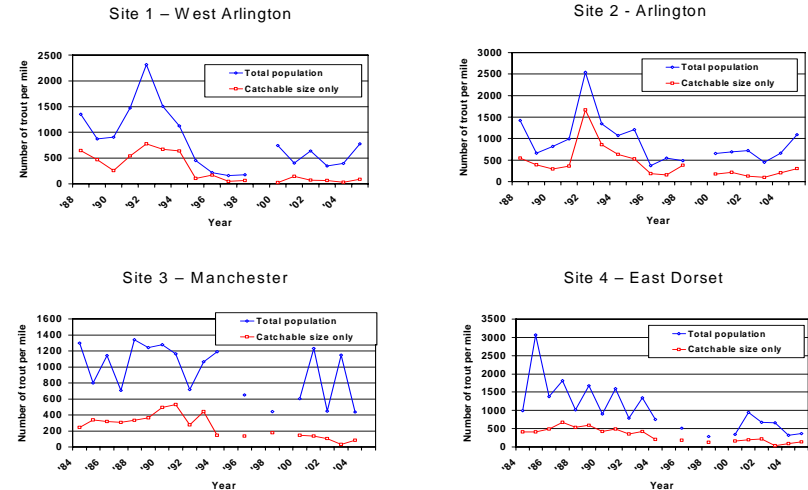
Study Methods

Trout populations are monitored annually in late summer at four index sites on the Batten Kill main stem. Sites vary in length (range 507-734 feet) and are selected to represent habitat typical of the section of river in the immediate area. Each population survey is done by electrofishing involving a minimum of two removal samples to extrapolate estimates of fish abundance which is partitioned into estimates of five fish size classes (young-of-the-year, yearlings <6 inches, 6-9.9 inches, 10-11.9 inches, ≥ 12 inches).



Results

- Factors reducing the Batten Kill's brown trout carrying capacity became evident at the four index sites between 1994 and 1996.
- Prior to the downturn, the brown trout population (all size classes combined) averaged 1,284 fish/mile; since then the overall average has dropped to 582 fish/mile, a 54.7% reduction in the population.
- The average numbers of fish making up the catchable-size (≥6 inches) component of the population over the past 22 years has decreased by 72.9%, i.e. from 506 fish/mile to 137 fish/mile.
- Over the past five years the numbers of trout <6 inches appears to have improved modestly over densities observed during the mid to late 1990s.
- A similar trend for the catchable-size fish population is not evident at this time; however, this population appears to have stabilized.
- In 1974, the brown trout population in the lower Batten Kill was estimated to have been 356 fish/mile of which 313 were catchable-size.
- Green River trout populations do not exhibit similar trends observed in the Batten Kill main stem. In contrast, populations densities are high (average 2,384 brown trout/mile; 278 catchable-size fish/mile).



Conclusion

- Brown trout population and size structure trend data suggest the Batten Kill has established a lower carrying capacity level than what existed prior to the mid 1990s.
- Results from other studies and investigations indicate habitat is the likely limiting factor.

Acknowledgements

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