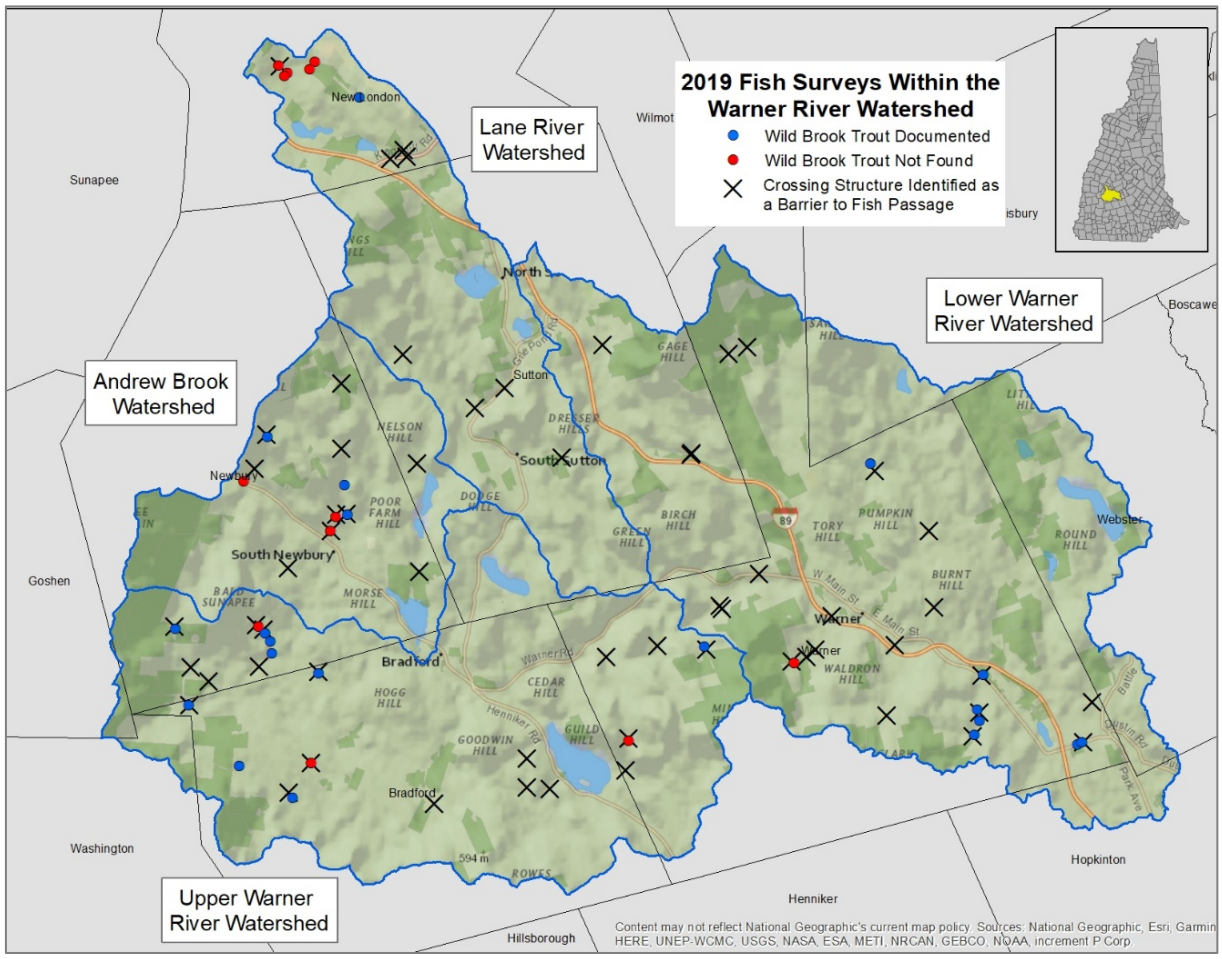
Warner River Watershed Conservation Project- 2019 Field Season Summary

Wild brook trout captured during a stream survey in Newbury. James Canwell, NHFG intern photo

The level of volunteer support throughout 2019 gave us the ability to complete the goals we set for data collection and outreach. We are continuously grateful for this level of assistance, dedication and genuine interest in the project. It would not be possible to have the same level of knowledge about the watershed without your involvement. **In 2019, 28 volunteers provided over 440 hours of support.**

We directed our efforts during the 2019 field season to assess fish and macroinvertebrate populations adjacent to selected stream crossing structures in the watershed. These surveys were needed to better refine our final list of priority stream crossing structures (e.g. culverts, bridges and arches) which, if replaced, would provide a significant benefit to wild brook trout and other aquatic species while reducing the possibility of flooding and road failure. We plan to take this information to communities within the watershed and identify opportunities to collaborate and replace these problematic structures. Moving forward, we anticipate using what we have learned in other watersheds throughout New Hampshire.

Judy Clouse (left) and Maria Villarreal (right) collect aquatic macroinvertebrates from Ballard Brook in Warner



The circles on the above map of the Warner River Watershed show the locations of our 2019 surveys. These surveys were conducted to help direct our efforts to replace problematic stream crossing structures in the watershed. The X symbol indicates the presence of a stream crossing structure which has been identified as not providing the ability for fish to move through them to find more desirable habitats.

Prior to this year's effort, volunteers recorded the physical condition of these stream crossing structures throughout the watershed between 2014 and 2016. This information was used to identify the structural condition, the locations where barriers to fish passage exist, the potential vulnerability to extreme flood events and the level of alteration to the natural processes of a stream. With this information in hand, Kat Crowley, a graduate student at Plymouth State University who now works for the Nature Conservancy in Ohio, help develop a model which uses those parameters to identify priority stream crossing structures to replace. Despite having information from over 140 locations within the Warner River Watershed there was a need to collect specific information about the fish community and water quality adjacent to some stream crossing structures.

During the 2019 field season, we were able to determine the fish communities adjacent to 29 stream crossing locations. Wild brook trout were found at 16 (55%) of these locations. Water quality scores based on aquatic macroinvertebrate assemblages were also collected at these sites. The majority of these locations were identified as having either *excellent* water quality (54%) or *good* water quality (38%). Only 8% of the locations were identified as having *fairly poor* water quality. Volunteers also helped promote the Warner River Watershed Conservation Project by staffing our outreach exhibit during the Hopkinton Fair, Warner Fall Foliage Festival and Newbury Old Home Day. These events, which typically include a fly tying demonstration and aquatic macroinvertebrate display, help watershed residents learn about the objectives of this project and how to get involved.

In an effort to begin to address some of these problematic stream crossing structures in the watershed, we conducted four assessments on Ballard Brook in Warner. This wild brook trout stream has several culverts identified as being both barriers to fish passage and vulnerable during flood events. We anticipate working with the town of Warner to find funding to replace these structures and restore habitat connectivity while mitigating the threat of culvert failure.

A culvert along the higher reaches of a tributary to Andrew Brook in Newbury. We visited several of these types of stream crossing structures to determine if fish are still present in the upper extent of these watersheds. At this location, twenty wild brook trout were captured below the culvert and no fish were found on the upstream side.

Walt Ryan providing a fly tying demonstration to attendees at the Warner Fall Foliage Festival. Walt also provided fly casting instructions during the Newbury Old Home Day.

True Kelley, Nancy Martin, Sandy Sonnichsen, Chip Cilley, and Bonnie Hill (left to right) are grateful to be out of their waders after spending a warm day along streams in Bradford.

2020 Plans and Volunteer Opportunities

We expect there to be a need for another summer of field data collection and other volunteer opportunities in 2020. Please be on the lookout for emails from George after the snow melts. There's also opportunities to help with project planning by joining the Warner River Watershed Conservation Project steering team. Please let George know if you are interested.

Some of these opportunities we envision during the field season include:

- Staff at outreach events throughout the watershed
- Support with reestablishing streambank vegetation
- Assistance with fish and aquatic macroinvertebrate surveys to help refine a priority land protection model
- Assisting with streambed adjustment to reduce culvert outlet drops and improve fish passage

Thank you again for your level of interest and support for this project. We look forward to working with you in 2020.