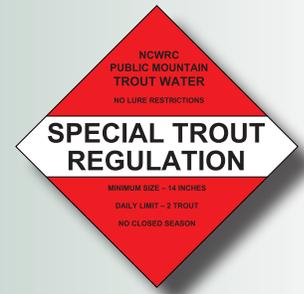




The Bridgewater Tailrace Brown Trout Fishery

December 2018



The Catawba River below Lake James in Burke and McDowell counties, known as the Bridgewater Tailrace, has been managed for many years by the N.C. Wildlife Resources Commission (NCWRC) as a tailwater trout fishery. The upper mile of this fishery is stocked during the spring and summer with catchable size trout (> 10 inches in length) and managed under Hatchery Supported regulations, allowing a daily harvest of seven trout and no bait or size restrictions. The 11-mile reach extending below this point is classified as a Special Regulation Trout Water, allowing a daily harvest of two trout that must be greater than 14 inches in length with no bait restrictions.

From 1996 to 2008, the Special Regulation Trout Water reach was stocked each spring with 25,000–50,000 fingerling (1–3 inches in length) Brown Trout, in the hopes of establishing a high-quality fishery. Surveys during this period suggested that survival of stocked fish was highly variable and possibly impacted by elevated water temperatures and low dissolved oxygen levels during late summer months. However, recent upgrades to Bridgewater Hydro Station have resulted in more consistent minimum flows and increased dissolved oxygen levels, possibly improving the survival of stocked trout. These changes led the NCWRC to consider a new stocking approach. In 2012, the NCWRC initiated a five-year study to evaluate annual fall stockings of 10,000 advanced fingerling (8–10 inches in length) Brown Trout. The goal of this study was to determine if this new management approach, in conjunction with the recent flow and dissolved oxygen changes to the Bridgewater Tailrace, will improve the fishery.

Project Objectives:

- Determine if stocking advanced fingerlings in the fall will increase Brown Trout abundance.
- Assess summer survival of stocked Brown Trout by comparing spring and fall catch rates.
- Confirm if water temperatures are within a suitable range for year-round Brown Trout survival.
- Evaluate various harvest regulations to optimize the fishery, with a focus on the production of large trout.



The Bridgewater tailrace is located in Burke and McDowell counties.



Brown Trout in the Bridgewater Tailrace grow very fast. It only takes a few years for stocked fish to become trophies if they persist. The new regulation will possibly allow more trout to grow to 14 inches and beyond. (Photo: Chris Wood)



Stocked Brown Trout have a small piece of metal, also known as a “tag,” embedded in the cheek. The “tag wand” acts as a metal detector. Using this technique NCWRC biologists can determine if the fish is stocked or wild, how old the fish is, and how fast it is growing. (Photo: Chris Wood)



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Methods:

- From 2011 to 2016, 10,000 advanced fingerling (8–10 inches) Brown Trout were reared and tagged with coded wire tags. Different anatomical tag locations were used each year, allowing researchers to determine the age of recaptured fish.
- All Brown Trout were stocked between the Bridgewater Canoe Launch and Watermill Road Access Area at four strategic points. This reach was chosen due to the availability of high-quality habitat and feasibility of stocking.
- Fifteen locations containing high-quality habitat were identified within the 11-mile reach and were sampled each spring and fall, from 2012 to 2016, using boat-mounted electrofishing equipment.
- Lengths and weights were taken for all Brown Trout collected, catch per unit effort (number of fish captured per hour of electrofishing) was calculated, and age was determined for all tagged fish.
- Water temperature data were collected using remote temperature loggers and assessed to provide insight into trout survival throughout the year.
- The data obtained were used to evaluate how changes in growth and survival would affect stocked Brown Trout population responses to various harvest regulations (i.e., length and creel limits).

Results:

- Stocking advanced fingerlings in the fall has created a popular fishery, even though the fishery is dominated by young (age-1), small (< 12-inch length) Brown Trout, with few surviving to age-2.
- Despite a large decline in age-1 Brown Trout between spring and fall surveys, temperatures were rarely at levels detrimental to Brown Trout populations.
- Although only a small proportion of stocked Brown Trout survived their first summer in the Bridgewater Tailrace, those that did appeared to persist and grow to large sizes.
- Despite few fish reaching older age classes, growth of Brown Trout in the Bridgewater Tailrace is comparable to other well-known tailwater fisheries in the southeast. As a result, a more conservative harvest regulation that protects young, recently stocked fish may help more fish reach larger sizes.
- An evaluation of several possible length and creel limits suggested increasing the minimum size limit to 14 inches and reducing harvest to two trout a day may improve the fishery.

What's next?:

- The NCWRC will continue stocking 10,000 advanced fingerling Brown Trout and evaluating the persistence of these fishes in the Bridgewater Tailrace.



NCWRC biologist holding a nice Brown Trout from the Bridgewater Tailrace. (Photo: Chris Wood)



NCWRC biologists use an electrofishing raft to collect Brown Trout from the Bridgewater Tailrace. (Photo: Chris Wood)

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