Jackson River Tailwater
2010

Background

The Jackson River Tailwater was born in 1982 with the creation of Lake Moomaw in Alleghany and Bath Counties, Virginia. The recreational portion of the tailwater is a 17 mile reach, from the stilling basin below Gathright Dam, to the water treatment plant intake in Covington. There is a two mile segment, from the water treatment plant in Covington to City Park in Covington that is legally navigable, but is not recommended for recreation due to heavy industry. Flows are carefully controlled by the U. S. Army Corps of Engineers to maintain downstream water quality, control flood events, and to provide recreation (Table 1). Negotiations during construction of Lake Moomaw resulted in an agreement to provide five public access areas to the river. At the same time, an agreement was struck to develop the tailwater into a self-sustaining trout fishery. An intake tower, consisting of ten, multi-level portals, was constructed to provide high quality water downstream of Gathright Dam.

Month	Before	After
January	200	158
February	267	168
March	367	171
April	268	194
May	217	231
June	131	269
July	58	283
August	63	278
September	62	245
October	111	188
November	160	161
December	169	158

Table 1. Mean monthly flows in cubic feet per second before and after dam construction

From 1982 to 1989, surface water was exclusively released from Lake Moomaw into the Jackson basin. Summer water temperatures in the tailwater were too warm for a reproducing trout population. Smallmouth bass, rock bass, redbreast sunfish, chain pickerel, and stocked trout provided most of the angling during that 7 year period. Beginning in October, 1989 water was “pulled” from the cold, oxygenated layer of Lake Moomaw and the beginning of trout management in the Jackson River Tailwater was born. Water was taken exclusively from the thermocline until June, 1993, when it was “blended” from the warm, oxygenated surface of Lake Moomaw and the cold, anoxic layer deep in the lake. By doing this, the thermocline stayed intact much deeper into the

summer, providing much needed habitat for trout in the lake. Today, water temperatures immediately downstream of Gathright Dam are usually between 58^0 and 60^0 F.

The first truckload of trout was stocked on an ice-cold day in December, 1989. Approximately 25,000 brown trout and 25,000 rainbow trout advanced fingerlings were stocked annually until 1997. Half-wild brown trout and Kamloops rainbows were stocked with Crawford browns and Wytheville rainbows to add genetic variety. After eight years of stocking, enough sexually mature trout remained in the tailwater, and natural reproduction began to take place. The current populations of rainbow and brown trout resulted from this aggressive stocking campaign.

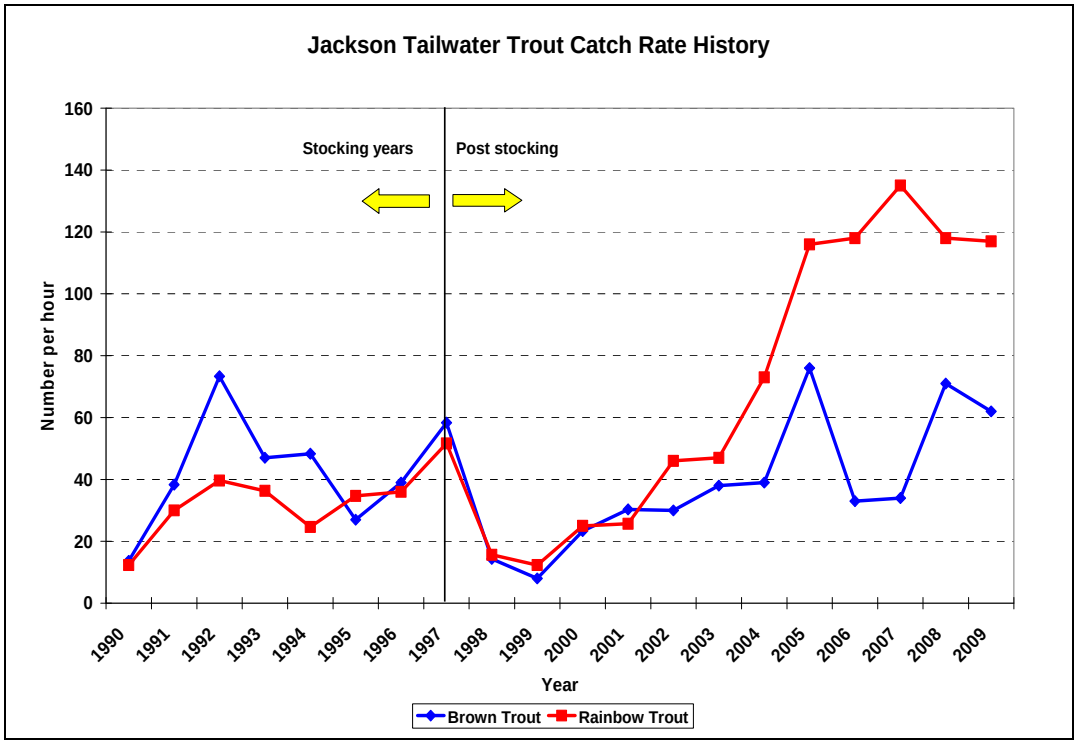
Boat electrofishing has been the primary sampling tool to assess fish populations in the tailwater. A 14-foot jon boat has been specially designed to access and sample the small rivers of western Virginia. Originally, three permanent stations were established for long-term monitoring: Big Rock, Skips, and Intervale. These reaches typify the upper, middle, and lower reaches of the tailwater, respectively. As of 2009, these three stations have been sampled annually 20 consecutive years, minus one at Skips. Three other stations were added beginning in 1997 for a total of six permanent sampling locations. Jenkins Ford, near Cedar Creek, was only sampled in 1990 and 1991. It was replaced with a station directly below Gathright Dam. Not all of the stations are located on public access areas due to the difficultly in launching a boat at these areas. The small electrofishing boat allows biologists to sample riffles, runs, and pools very effectively.

Fish sample station name	Location downstream of Gathright Dam (miles)
Dam	0.1
Big Rock	5.0
Kyles	6.3
Skips	10.8
Intervale	15.5
Westvaco	17.5

Table 2. Sample stations and distance from Gathright Dam

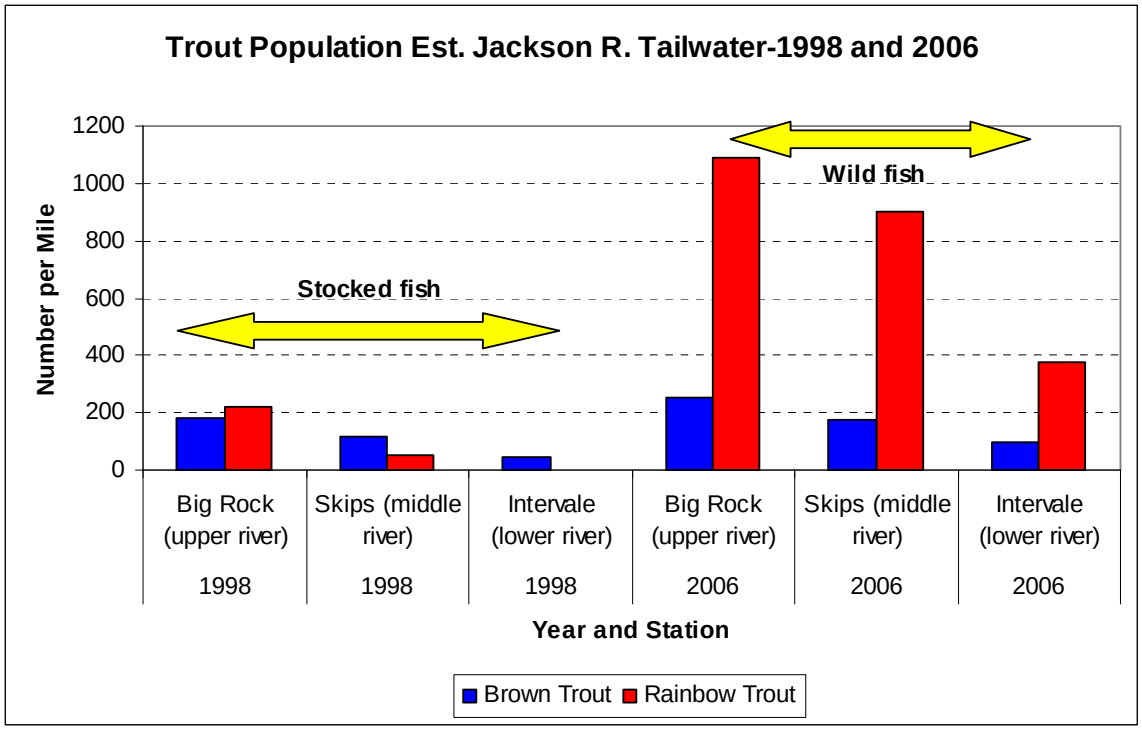
Fisheries

The graph below is a composite catch rate history for both rainbow and brown trout for the entire period of fish sampling for the three permanent stations.



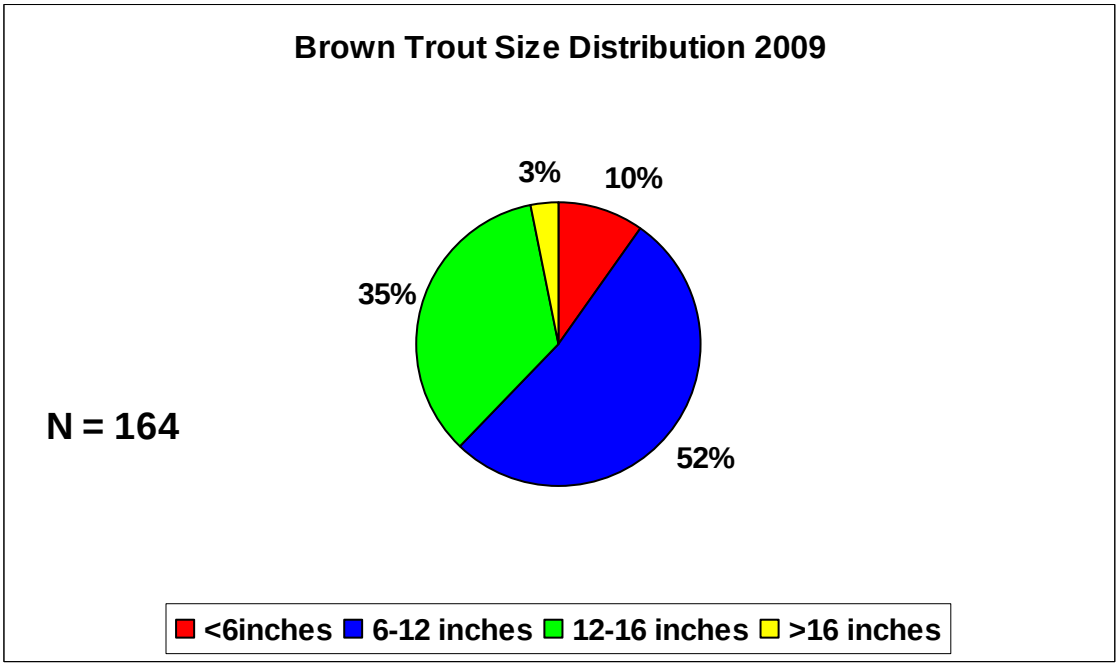
The graph is split by a vertical black line that indicates the end of advanced fingerling stocking. It is obvious that both species declined in relative abundance beginning in 1998 and bottoming out in 1999. After that point in time, naturalized rainbow and brown trout continue to prosper in the tailwater. Catch rates for both species rapidly increased between 2004 and 2005, but brown trout had a harsh correction in numbers, while rainbows continued to spread. Today, three out of four trout collected by electrofishing are rainbows.

How many trout does this represent? Mark-recapture population surveys were undertaken in 1998 and 2006 at the three permanent stations. This process consists of marking or tagging a batch of fish, releasing them, then attempting to recapture them. Simple mathematics gives the scientist a rough estimate, with a confident interval. The results below represent a glimpse of the pre and post stocking era in the tailwater. The best location for catching trout while DGIF was stocking was at Big Rock, where one could expect to find around 400 trout per mile. This was split evenly between brown and rainbow trout. At Intervale, the location furthest from Gathright Dam in this graph, not enough rainbows were collected to make an estimate.

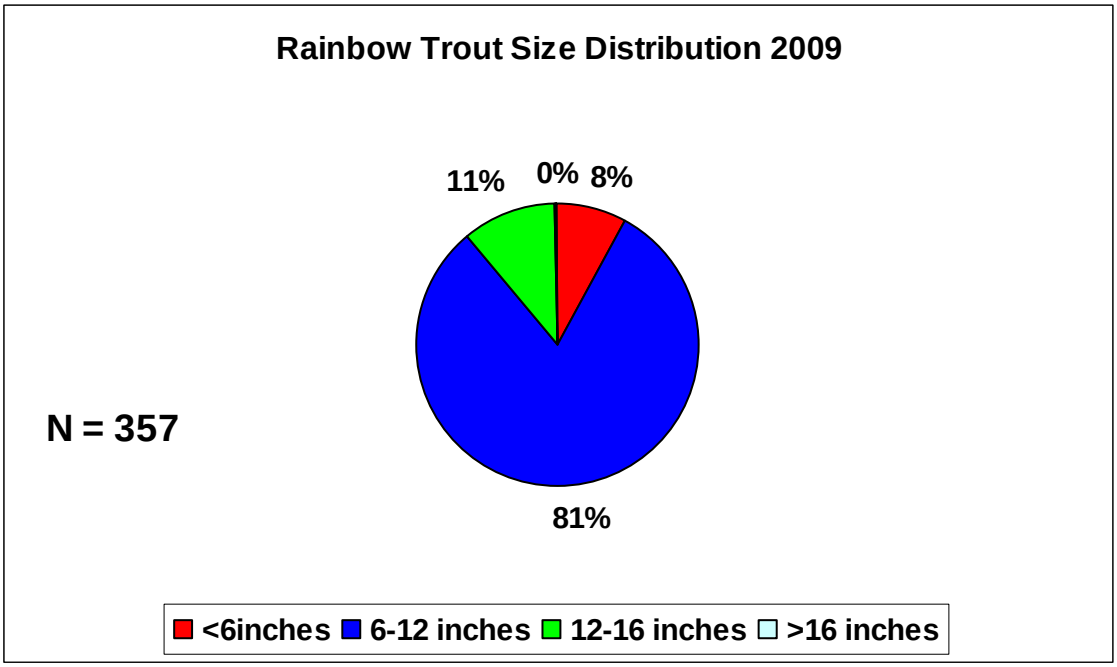


Conversely, in 2006, rainbows dominated the salmonid population in the tailwater. Over 1,000 rainbows per mile were estimated at Big Rock alone in 2006. Rainbow trout have even eclipsed brown trout at Skips and Intervale. In short, there were plenty of wild rainbow trout distributed throughout the reach.

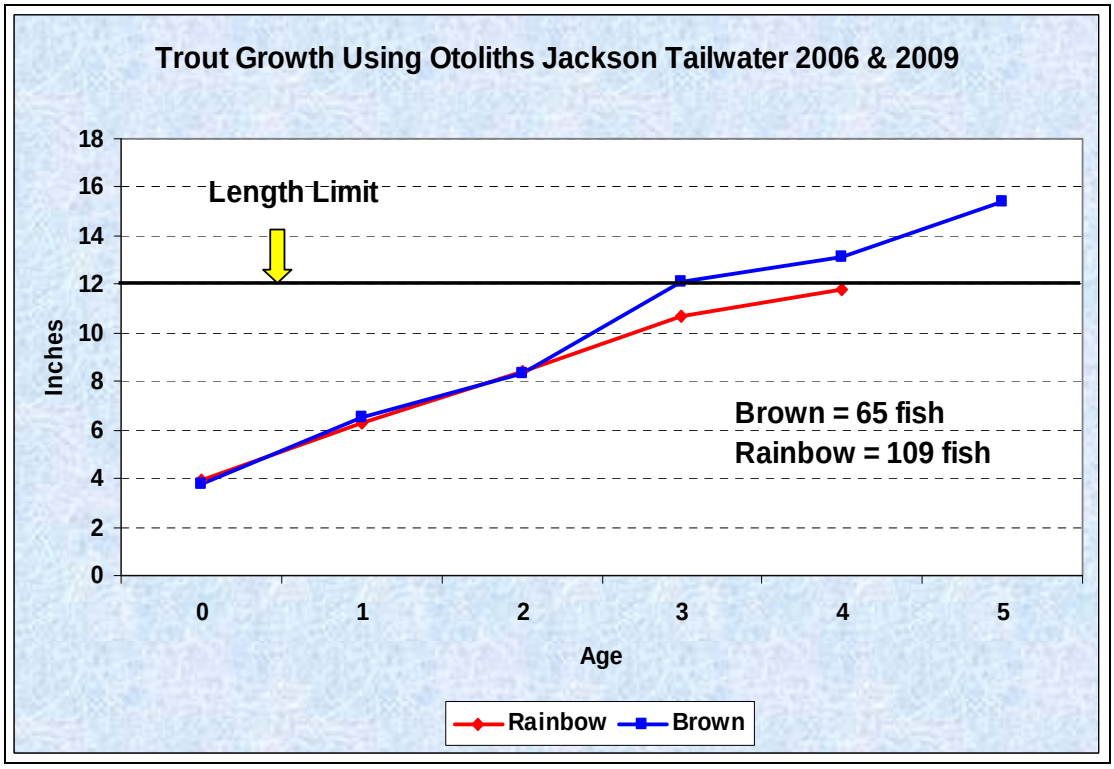
Anglers are always curious about size distribution within each trout species. The two pie graphs below break down the 2007 trout populations between four size groups.



Thirty eight percent of the 164 brown trout collected and processed in 2009 were over 12 inches long. A sizeable number were greater than 16 inches, with several topping 20 inches in length.



Combine the red and blue slice of the above pie graph, and it is easy to calculate the percent of young and juvenile rainbows that dominate the tailwater. One 18 inch rainbow out of 403 was collected and released, but it does not figure into this graph. A large number of < 10 inch "cookie cutter" rainbows are found directly downstream of Gathright Dam.



How fast are the trout growing? DGIF uses otoliths, or earstones, to age most of the fish we collect. We formerly used scales, but there is greater accuracy in aging fish with otoliths. The figure above indicates that both brown and rainbow trout grow at the same pace through Age 2. It is after this age when brown trout begin to accelerate their growth pattern. By Age 3, the average brown trout is greater than 12 inches. This is considered to be good growth for a tailwater stream. Brown trout growth in Smith River, another coldwater tailwater in Virginia, attain an average length of 9 inches by Age 3, compared to 12 inches in the Jackson River.