

Non-Native Trout

Brook Trout *Salvelinus fontinalis* Rainbow Trout *Oncorhynchus mykiss*
Brown Trout *Salmo trutta*

FISHING IN THE ROARING FORK VALLEY

Residents and visitors to the Roaring Fork Valley understand the importance of the cold clear water that is constantly rushing by us. The water from the Frying Pan, Roaring Fork, and Crystal Rivers (along with countless streams) is key to the survival of fish, riparian plants and animals, as well as for recreation by rafters, kayakers, anglers, bird watchers, and other outdoor enthusiasts! In a 2002 report, the Colorado Division of Wildlife noted that the fishing industry is a major source of revenue and jobs in Colorado, contributing nearly \$800 million dollars annually. A similar report study by the Roaring Fork Conservancy showed that the lower Frying Pan alone contributed \$4 million dollars. The economic stability of the valley is due, in part, to the cool clean waters that brook, brown and rainbow trout call home here in the Roaring Fork Watershed.

HISTORY & FOOD OF NON-NATIVE TROUT

Brook trout are native in northeastern North America whereas brown trout are native to Europe and western Asia. Brown trout were introduced to the United States in the late 1880s. German and Scottish fish breeders most likely sold strains of brown to American breeders and by the late 1890s they had found their way to Colorado.

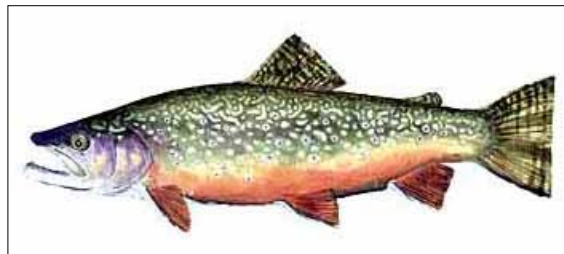
Rainbow trout are native to the northern Pacific Slope of the contiguous United States, Canada, and Alaska; they also made their way to Colorado in the late 1880s.

Young brook trout mostly feed on small insects and as they age they turn to larger invertebrates including many aquatic insects, minnows and other small fish. They have few aquatic predators because few piscivorous (fish-eating) fish live where they do, but herons and kingfishers, are known to prey on young brooks. Larger trout, especially brown trout, may eat smaller brook trout.

Brown trout are active feeders of a variety of foods: aquatic insects (caddisflies, stoneflies, and

mayflies), zooplankton, worms, crayfish, snails, and a variety of small fish. Larger trout may also make small browns a tasty meal.

Young rainbow trout may start out feasting on water fleas and then add aquatic insects like caddisflies, mayflies, and midges to their diet. As they grown larger they include small fish, but continue to consume larval and adult insects. They also supplement their diet with other kinds of food, such as



Brook trout have light spots on a dark background and wavy lines on their back.

snails, leeches, fish eggs, side-swimmers, and algae. Young rainbows trout often are eaten by a variety of piscivorous fishes, such as small mouth

bass, and larger trout. Kingfishers, herons, eagles, osprey, and raccoons also feed on rainbows.

SPAWNING BEHAVIOR

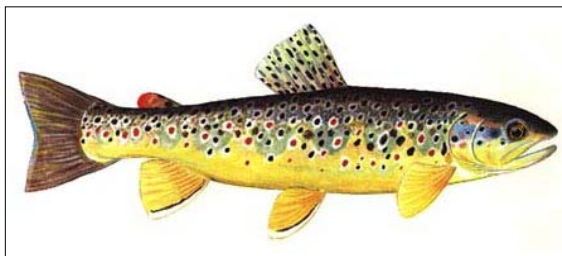
In general brook and brown trout are fall and winter spawners, while rainbows spawn in the spring.

However, the season itself does not dictate spawning: water temperature does.

The behavior of each trout species spawning ritual is described below. In general, sexually mature trout return to the waters in which they were born, find a mate, make a nest (called a redd), and then the female lays all of her eggs (in several stages) to be fertilized by a male. These eggs hatch into

alevins (free swimming embryos with large yolk sacs) at suitable water temperatures and go on to begin their maturation into adults, and start the process all over again.

BROOK TROUT: Many male and female brook trout reach sexual maturity in their first or second year of their life. When water temperatures reach between 5 and 10 degrees Celsius they make preparations to reproduce. They are drawn to make their nests in



Brown trout have red and black spots on their head, body and gill covers.

riffles where cool spring waters pass through the gravel. After the eggs have been laid and fertilized the female uses her tail to cover the eggs with gravel, and then the male and female leave their nest. It will take up to five months for the young to fully incubate and emerge. When the embryos hatch into alevins their yolk sac will be their only energy source until they are large and strong enough to forage for food.

BROWN

TROUT:

Brown trout also return to the waters where they were born to spawn in the fall, but



these fish take three to four years to mature. They typically pair up and choose a gravelly bottomed stream with spring seeps and good moving water. The female then makes a saucer shaped depression in the gravel, while the male defends the nest and her work. When she is ready, she drops into the nest to lay the eggs, and the male follows her fertilizing them at the same time. Next she covers the eggs with gravel and the pair repeat this process until the female has laid all of her eggs. Depending on her size a female can lay between 400 and 2000 eggs! Brown trout also leave their young-never to see them again. Once the embryos hatch, the alevins are able to survive up to 12 weeks on their attached yolk sac.

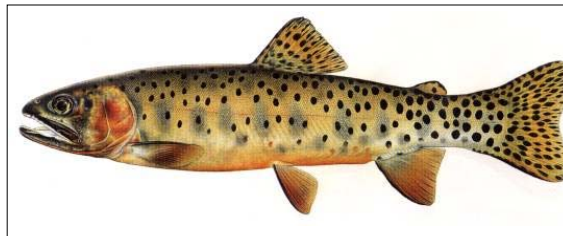
RAINBOW TROUT: The spawning behavior of rainbows is fairly similar to brook and brown trout, although they spawn in the spring. They choose to spawn in headwater streams during spring runoff once water temperatures have reached five degrees Celsius. The female scrapes a nest into the gravel, and a male joins her to fertilize her eggs. These embryos will develop for 20-80 days (depending on water temperatures) and stay in the gravel for another two weeks as alevins while their fins develop. After that time they swim up and begin feeding in the stream.

IMPACT ON NATIVE POPULATIONS

The only native trout in the area is the Colorado River cutthroat. Competition with non-native trout (embryos born in the fall have an advantage over fish born in the spring), hybridization with rainbow trout, whirling disease, among many other human impacts has reduced the native population of cutthroat trout. The Colorado River cutthroat is down to about 5% of its historic habitat, and scientists believe an estimated 25 % of the remaining populations contain genetically pure lines. For these reasons the Colorado River cutthroat trout are a species to watch and and monitor in the future.

CONSERVATION AND OBSERVATION

One section of the Roaring Fork River (McFarlane Creek downstream through Aspen to the Upper Woody Creek Bridge) was the first designated wild trout water in the state. This means that the river has a self-sustaining trout population. While this is an amazing distinction, it is not the only high quality water in the area, since other sections of the Roaring Fork River are designated wild trout waters and gold medal waters as well. The Roaring Fork Valley is a great source of year-round fishing and anglers are sure to find brooks and rainbows up high and browns and rainbows at lower elevations.



Native Colorado cutthroat trout have heavy dark spots on the sides and tail and two colorful blood-red stripes on each side of the throat under the jaw.

The brook and brown trout populations are wild in the valley while rainbows have trouble reproducing in the violent spring flows. For that reason the CDOW annually stocks 4.5 million eight inch rainbows in Colorado waters.

If you're looking for excellent fishing and beautiful scenery the Roaring Fork Valley is a great destination. Great water quality means bigger and better fish for your next adventure! And while you're on the water most likely you'll run into several other outdoor enthusiasts willing to share some local information, and good stories.

Written by Krista Prokosch, August 2005



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