



## Brook Trout

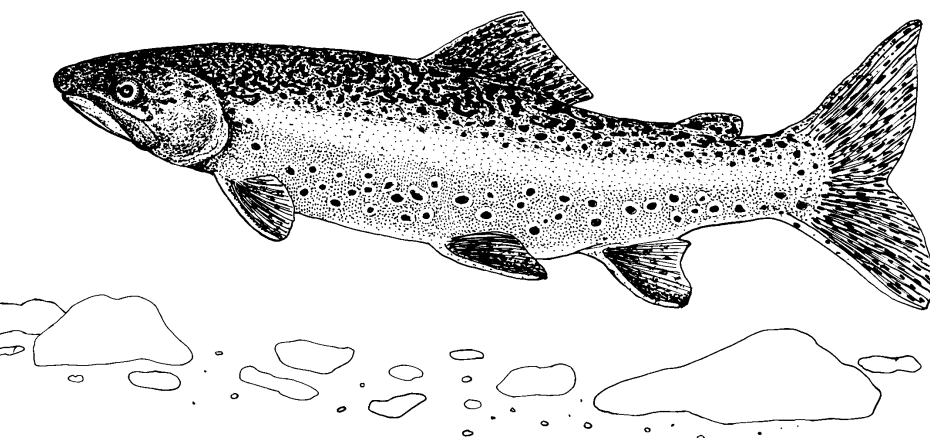
*Salvelinus fontinalis*

The brook trout is regarded as one of North America's most beautiful native fish species. In the Southern Appalachians, local fishermen often call them "speckles," though technically these fish are actually char and belong to the family Salmonidae. Recent genetic studies suggest that the native brook trout found in the Southern Appalachians, including the mountains of western North Carolina, may be a separate subspecies of the brook trout found farther north.

### History and Status

Brook trout, along with Atlantic salmon, lake trout, Arctic char and graylings, originated in far northern waters, but their ranges were expanded south by the advancing ice of the glacial period. When the ice receded, these species were left landlocked in waters far from their original home.

The brook trout is the only trout native to western North Carolina. Southern Appalachian mountain streams once teemed with speckled trout where abundant rainfall, cool climate, cold groundwater and dense forest cover provided optimum living conditions. In the late 1800s, huge logging companies began to cut the vast stands of virgin timber in the South. Early loggers constructed poor roads and rail lines up river valleys and conducted massive clearcuts on steep slopes, using splash dams to transport the logs downstream. This caused irreparable damage to stream habitats through extensive erosion, siltation and scour-



ing. Rainbow (from the Pacific Coast) and brown trout (from Europe) were stocked by railcar beginning in the late 1800s to replace the brook trout populations destroyed by logging operations.

In the Southeast, brook trout compete poorly with rainbow and brown trout for available habitat. As a result, brook trout have become isolated in high-elevation headwater streams where food, space and spawning habitat are limited.

With continued development of the mountain region and further encroachment on habitat by man and non-native species, the future of the wild brook trout is of concern. State and federal agencies are developing strategies to identify, maintain and expand existing wild brook trout populations to ensure their survival in their native range.

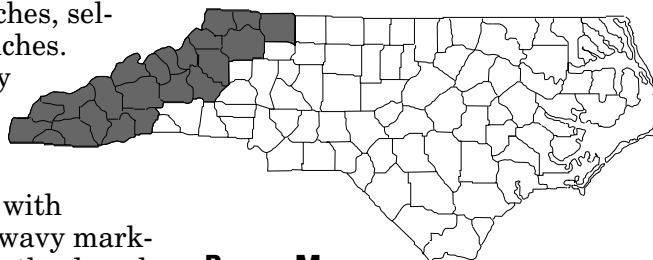
### Description

In North Carolina, brook trout are generally small, ranging in size up to about 8 inches, seldom more than 12 inches. They are handsomely colored with the back and upper sides of the body typically olive-green with mottled, dark green wavy markings that extend onto the dorsal and caudal fins. The lower sides

are lighter with yellow spots interspersed with fewer spots of bright red surrounded by blue. The lower fins are orange with a narrow black band next to a white band that borders the forward edge. Spawning fish acquire a heightened brilliance when the belly and lower fins become a bright red-orange. The color of a fish can vary from one area to another, depending upon the surrounding habitat.

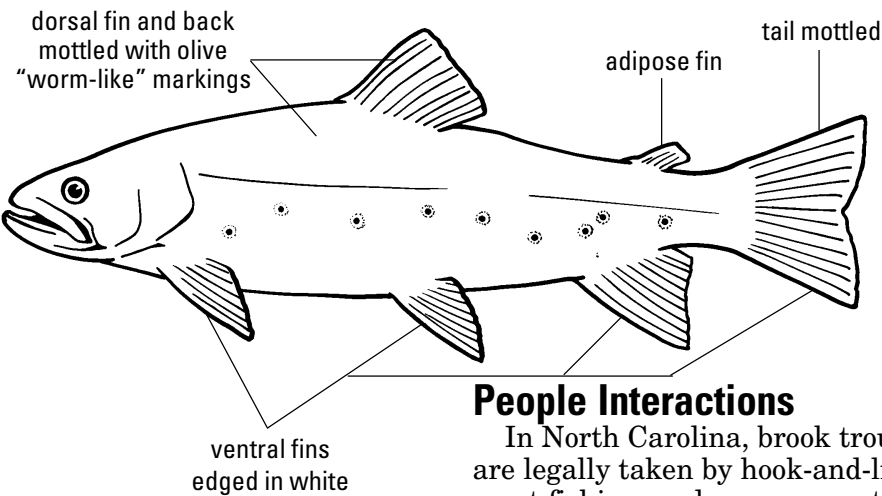
### Habitat and Habits

Brook trout are most abundant in isolated, high-altitude headwater streams and brooks where the water is free of pollution and rich in oxygen, and where water temperatures seldom exceed 68 F and no competing species are found. They also occur in lakes and beaver ponds. Brook trout prefer streams with stable water flows, silt-free gravel for spawning and an abundance of deep pools and riffles with sufficient in-stream cover, such as logs, boulders and undercut banks.



**Range Map:**  
Occupied range ■

**WILD  
Facts**



**BROOK TROUT**

**Classification**

Class: Osteichthyes  
Order: Salmoniformes

**Average Size**

Length: 6 in. to 8 in.  
Weight: ¼ to ½ lbs.

**Food**

Variety of aquatic and terrestrial insects, earthworms, snails, crayfish, salamanders, frogs and occasionally small fish.

**Spawning**

Occurs in fall, generally September through November. Female constructs nest (redd) in gravel. Adults do not guard nest. Number of eggs vary from 100 to 5,000 depending upon the size of female. Incubation period varies depending upon water temperature. Eggs hatch in 50 days at 50 F.

**Young**

Called alevins. Remain in nest (redd) for 1 to 3 months until yolk sac is absorbed, then emerge as free-swimming fry. Most reach sexual maturity in 2 to 3 years.

**Life Expectancy**

Generally short-lived, seldom longer than 4 years in the wild. Maximum 8 years.

**People Interactions**

In North Carolina, brook trout are legally taken by hook-and-line sport fishing, and management is directed toward enhancing and protecting wild populations. Anglers prize brook trout for their delicate flesh and superior flavor, and also because of their willingness to take artificial and natural baits. Fly rods with artificial flies and light spinning tackle with either small spinners or bait are most often used. Brook trout remain a key to the past for many people, symbolizing the wild and pristine conditions that once existed throughout our ancient mountain forests.

**References**

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- McClane, A. J. *McClane's New Standard Fishing Encyclopedia and International Angling Guide* (New York: Holt, Rinehart and Winston, 1965).

**Credits**

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In North Carolina, brook trout spawning begins in September and continues through November. The female selects a site at the tail of a pool, usually in sand or gravel, and constructs a nest, called a redd, by working the bottom sediments into a depression several inches deep. The male courts the female and chases away intruding males. The fish then settle into the redd and release eggs (100 to 5,000) and sperm (milt) simultaneously. The fertilized eggs are covered with gravel and remain in the redd until they hatch in the early spring (usually March).

**Range and Distribution**

The brook trout is native to eastern North America from Labrador and the Saskatchewan Valley southward along the Appalachian Mountains to northern Georgia. They have been widely introduced in the western United States and throughout the world where cold, clean waters are found.

In North Carolina they are found only in the mountains, with most wild populations existing in small, isolated, headwater streams at elevations above 3,000 feet. Habitat destruction, introduction of non-native species, acid rain and overfishing have all contributed to the decline in the range and numbers of wild brook trout. Since 1900, the brook trout range is thought to have declined by about 75 percent.