

Chapter 2: Salmonids in PA











Trout		Identification	
Brook trout <i>Salvelinus fontinalis</i> PA's Official State Fish		 Brook trout has red spots with bluish halos.	 Worm-like pattern (vermiculation) on back.
Brown trout <i>Salmo trutta</i>		 Front edge of fins white or lighter in color.	 Brown trout has dark spots, few or none on tail.
Rainbow trout <i>Oncorhynchus mykiss</i>		 Rainbow trout has dark spots, especially on tail, and a pink lateral stripe.	
Golden rainbow trout <i>Oncorhynchus mykiss</i>		 Golden rainbow trout has deep-yellow or orange coloration. Some have darker gold stripe.	

Illustration: Ted Walke

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Brook Trout (*Salvelinus fontinalis*)

As one of Pennsylvania’s native Trout, this vibrant and stunning salmonid is labeled as our state fish. Brook Trout are also recognized by local names such as native trout, natives, brookie, and speckled trout, the scientific epithet *fontinalis* in fact means “living in springs.” Brook Trout occur naturally in small, cold, clean streams. These fish can also adapt to ponds and lakes, as well as instream beaver ponds. Brook Trout are found in Pennsylvania as wild populations in the Ohio, Susquehanna, Genesee, Potomac and Delaware River watersheds. Naturally self-sustaining populations can still be found in limestone spring-fed streams and cold, mountain creeks that also have lots of mountain laurel, rhododendron, and hemlock to provide additional shade. Brook Trout are unique in that they can tolerate relatively acidic waters, but not temperatures much over 65 degrees Fahrenheit.



Brook trout live in small, coldwater streams within Pennsylvania and throughout the northeastern United States through the Great Lakes and south along the Appalachian Mountains to Georgia. They spawn in the fall, from mid-September to early November. Eggs develop over winter and hatch in early spring.

Brook trout are members of the Char family and can be identified by the following characteristics:

Physical characteristics	
Body color	Dark green, Worm-like pattern known as vermiculations on back.
Sides	Shade of light green/lavender tone with irregular marks. They also have scattered red dots surrounded by blue halos.
Belly	Pale yellow/orange with black streak down the middle.
Fins	Pectoral, pelvic and anal fins are orange with white edge and black stripe.
Size	
At maturity (two to three years of age), wild brook trout range from 5 inches to 18 inches long, depending on availability of food, shelter and water quality.	
# of eggs	
Adult females, depending on size, will lay less than 100-1,000 eggs, with only a small percentage (approximately 1-2%) surviving.	

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Brown Trout (*Salmo trutta*)

Not native to Pennsylvania, these fish are now naturalized and widespread here in the wild, even becoming the main trout species in streams previously dominated by Brook Trout. Brown Trout were introduced to the United States in the 1800s from various locations, including Scotland and Germany. Pennsylvania received its first Brown Trout in 1886. Brown Trout are closely related to Atlantic Salmon (*Salmo salar*).



Brown Trout spawn in the fall, a little later than Brook Trout, from October through mid-November. The female digs a shallow gravel nest on the stream bottom called a “redd”. A redd is located where there is good water flow to bring oxygen to the eggs. After spawning, the eggs receive an additional covering of gravel. Eggs develop over winter and hatch the following spring.

Brown Trout can be identified by the following characteristics:

Physical characteristics	
Body color	Brownish in overall tone.
Sides	The back and upper sides are dark-brown to gray-brown, with yellow-brown to silvery lower sides. Large, dark spots are outlined with pale halos on the sides, the back and dorsal fin, with reddish-orange or yellow spots scattered on the sides.
Belly	White and with a pale shading of yellow.
Fins	Clear, yellow-brown, and unmarked.
Size	
At maturity (two to three years of age), Brown Trout range from 5 inches to 18 inches long, depending on availability of food, shelter and water quality. A trophy Brown Trout can exceed 30 inches.	
# of eggs	
Adult females, depending on size, will lay anywhere from 4,000 – 12,000 eggs with only a small percentage (approximately 1-2%) surviving.	

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Rainbow Trout (*Oncorhynchus mykiss*)

A western North American species, native to the Pacific slope from California to Alaska. Rainbow Trout were introduced throughout the state in efforts to restore degraded trout fisheries. Today, as wild fish, Rainbows sustain reproducing populations in only a handful of fast-falling creeks scattered around the state. As stocked, hatchery-reared fish, Rainbow Trout occur in every major drainage throughout Pennsylvania.

Rainbow Trout are known as “spring spawners.” They spawn in the spring, from mid-March through April. The female digs a shallow gravel nest on the stream bottom called a “redd”. A redd is located where there is good water flow to bring oxygen to the eggs. After spawning, the eggs receive an additional covering of gravel. Hatching will occur in late spring or early summer.



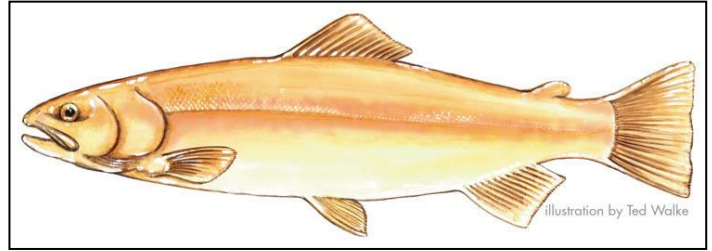
Rainbow Trout can be identified by the following characteristics:

Physical characteristics	
Body color	Silvery-Gray to Dark-Green
Sides	A pinkish or reddish lateral stripe, sometimes with lavender or orange overtones, from the gill cover running the length of the fish to the tail. Dark spotting along back and sides.
Belly	White belly
Fins	The caudal fin (tail fin) and adipose fin have small dark spotting. The pectoral and pelvic fins are pinkish in color and lack spotting.
Size	
At maturity (two to three years of age), rainbow trout range from 5 inches to 18 inches long, depending on availability of food, shelter and water quality.	
# of eggs	
Adult females, depending on size, will lay less than 100-12,000 eggs, with only a small percentage (approximately 1-2%) surviving.	

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Golden Rainbow Trout (*Oncorhynchus mykiss*)

The Golden Rainbow Trout is a Rainbow Trout reared through artificial fish culture conditions and stocked as a novelty for angling sport. This strain of Rainbow Trout was originally found in the West Virginia hatchery system in 1954. Through selective breeding with regularly marked Rainbow Trout, an all-gold, Golden Rainbow Trout was developed. In 1963, this fish strain was popularized as the “West Virginia Centennial Golden Trout.” Pennsylvania and other states hybridized the pure strain of West Virginia Golden Trout with normal Rainbows and produced Palomino Trout, which were true genetic Palominos. Palomino trout were first stocked in Pennsylvania in 1967. Although Palominos were stocked as both average-sized and large trout, today’s Golden Rainbow is raised only to trophy size for anglers and stocked throughout the state.



Spawning in the wild is highly unlikely, because Golden Rainbows are highly visible in streams both to anglers and predators. Golden Rainbows and Palomino Rainbows grow larger and faster than regular Rainbows. They have “hybrid vigor,” a trait often seen in crossbred plants and animals. Their food preferences are similar to those of other trout.

Golden Rainbows can be identified by the following characteristics:

Physical characteristics	
Body color	Bright Orange, No spotting
Sides	Pink or red tones on their cheeks and with the rainbow’s reddish lateral stripe.
Belly	White belly
Fins	Pinkish lower fins, No spotting
Size	
At maturity (two to three years of age), rainbow trout range from 5 inches to 18 inches long, depending on availability of food, shelter and water quality.	
# of eggs	
Adult females, depending on size, will produce 100-12,000 eggs in the hatchery setting depending on size.	

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