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About Us Special Topics Teaching About Animal Names Help

Home Kingdom [Animalia](#) Phylum [Chordata](#) Subphylum [Vertebrata](#) Class [Actinopterygii](#) Order [Salmoniformes](#) Family [Salmonidae](#) Species [Salmo trutta](#)

[Previous page](#)

Salmo trutta

(brown trout)

Information [Classification](#)

2005/05/14 03:21:14.058 GMT-4

By *Andrew Idema*

Kingdom: [Animalia](#)
 Phylum: [Chordata](#)
 Subphylum: [Vertebrata](#)
 Class: [Actinopterygii](#)
 Order: [Salmoniformes](#)
 Family: [Salmonidae](#)
 Genus: [Salmo](#)
 Species: **Salmo trutta**

Geographic Range

Brown trout are native to Europe. The species is found in Iceland and on the Northwest coast of Europe, along the Mediterranean and south to India. They have been introduced to appropriate streams all over the world.

Biogeographic Regions: nearctic (introduced); palearctic (native); oriental (introduced); ethiopian (introduced); neotropical (introduced); australian (introduced .

Other Geographic Terms: cosmopolitan .

Habitat

The species can live in a higher temperature than most other trouts, and this is probably why they were introduced to America. They are a succesful and aggressive species who are permanent residents in America.

Aquatic Biomes: rivers and streams.

Physical Description

Adult browns are generally thirteen to sixteen inches in length, although old individuals can reach a much larger size. Their bodies are olive brown or green shading to a yellowish white on the belly. The sides of the fish have beautiful red spots surrounded by a pale halo.

Some key physical features: bilateral symmetry 

Reproduction

Brown trout mature at about 3 or 4 years of age. They spawn in the fall from October into December. When they spawn, they head into shallow headwater brooks of the river. The female scoops out a hollow on a gravel "bed" where she can lay her eggs. As she releases the eggs on the bed, the male simultaneously releases milt to fertilize them. The pair continues this process until all of the female's eggs are spent. The female then covers the fertilized eggs with sand or gravel for protection. The eggs are then left to develop and hatch the following spring. Browns do not necessarily come back to the same bed to spawn each year, but they come back to the same general area of the river.

Behavior

When brown trout spawn, the male and female are not monogamous. These trout mate every year, and they are not likely to have the same mate year after year. Occasionally, large males take over a bed already occupied by a smaller, less aggressive trout. After spawning, browns move rapidly downstream to wintering areas. Populations are heavily dependent on redd density. The ideal redd for brown trout to reproduce is characterized by small substrate particles averaging .5 inches in diameter, a water velocity of 7 inches/second, and a depth of about one foot. Brown trout are most active in the early morning and evening and when the water temperatures are near 55 degrees Fahrenheit. During the day, or times when they are not feeding, large browns seek refuge in slow water with ample cover. The most common types of cover are overhang, submerged logs or vegetation, or deep water. They will not move from these sites except to feed and will return when they are finished.

Key behaviors: natatorial , motile 

Food Habits

Smaller brown trout feed primarily on insects. The most important insects vary with the season but the bulk of them are either mayflies, caddis, midges or terrestrials. Browns in smaller streams are also dependent on food washed from the banks. Small browns select an area for feeding in a drift and do not move from it until a predator is introduced. This foraging site is characterized by a good view of the drift near refuge sites such as deep water or complex structure. Small browns never feed immediately upstream of a larger fish. Large browns' diets are more diverse than that of younger browns. Smaller trout account for 80% of the large brown's diet. The remaining diet consists of large aquatic insects such as Hexagania and Brown Drake mayflies and larger species of caddis flies, crustaceans, snails, amphibians, and food washed from the bank. Also, the feeding habits of large browns is primarily nocturnal. They eat whatever is in the immediate area, preferably about 4 inches from the stream's floor in riffles, pools, or eddies. In contrast to young browns, large brown trout do not sit and wait for food, they hunt it actively.

Economic Importance for Humans: Negative

There are some negative effects from brown trout since the species was introduced in America. They compete with native trout and other fish species, but they are not known to have been the cause of any species' extinction. Another negative effect is their contribution to the lamprey population in many rivers. Since browns were introduced, the lamprey's population has increased. Trout Unlimited decreases the lamprey's population whenever it gets out of hand by poisoning the streams where they thrive or by electric shock. This helps the browns and the other species who are victims of the lamprey.

Economic Importance for Humans: Positive

The main economic benefit of brown trout is the sport of fishing for the species. Many people pursue the sport fishing and some flyfish for browns. Many fisherman donate money to conservation groups to keep the sport alive. Also, browns make a delicious meal.

Conservation Status

Brown trout are protected by a particular group called "Trout Unlimited" whose mission is to "conserve, protect and restore North America's coldwater fisheries and their watersheds" (T.U.'s annual report, 1996).

Other Comments

Some brown trout have been reported to reach weights of up to thirty pounds and lengths of three feet.

Contributors

Andrew Idema (author), University of Michigan: June, 1999.

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