



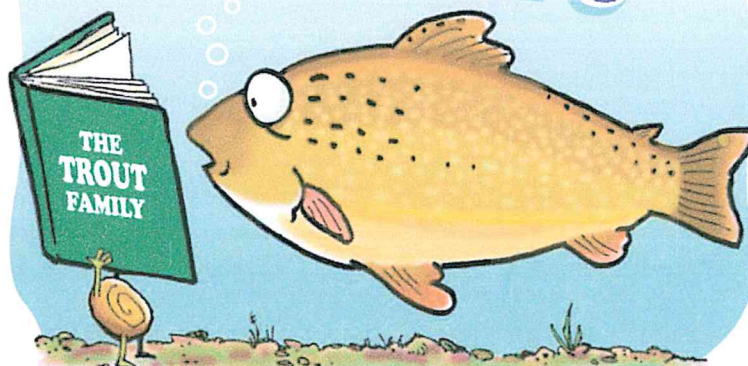
# PLAY

Spring  
2015

Pennsylvania • League • of • Angling • Youth

## All About Trout

Trout and salmon are very popular with Pennsylvania's anglers. **Taxonomists** know this group of fish as the Family Salmonidae. The Salmonidae family is large, with 39 different species of trout and salmon. There are 12 different species of trout and salmon that occur or once occurred naturally or through stocking in Pennsylvania (Longjaw Cisco, Cisco, Lake Whitefish, Pink Salmon, Coho Salmon, Rainbow Trout, Sockeye Salmon, Chinook Salmon, Atlantic Salmon, Brown Trout, Brook Trout and Lake Trout). Only five species are native to Pennsylvania (Longjaw Cisco, Cisco, Lake Whitefish, Brook Trout and Lake Trout), and the family is native to cold streams, rivers and lakes. See the following two pages for more information. One member of the family is Pennsylvania's official state fish, the Brook Trout. Read this issue to learn all about trout.



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### Vocabulary *(Watch for these words!)*

- **Crustaceans** - a type of animal (such as a crayfish that has several pairs of legs and a body made up of sections that are covered in a hard outer shell)
- **Endangered** - seriously at risk of becoming extirpated
- **Extirpated** - no longer surviving in regions that were once part of their range
- **Fingerling** - a small fish about the length of a person's finger
- **Fry** - newly hatched young fish
- **Headwater streams** - the upper streams that flow into a main stem of a river or lake
- **Parr marks** - vertical lines that appear as the fry develops, which camouflage and protect the trout
- **Phylogenetic tree** - a branching diagram or "tree" showing the relationships among various species based upon similarities and differences in their physical or genetic characteristics
- **Redd** - a gravel spawning nest created by female trout swishing their tails
- **Sac fry/alevin** - a newly hatched salmon or trout that is still attached to the yolk sac
- **"Swim-up" fry** - when a sac fry swims up to the surface of the water and begins eating
- **Taxonomist** - scientist who specializes in taxonomy, which is the science of describing, classifying, naming and identifying organisms
- **Yolk sac** - a sac that is attached to the gut of an embryo and encloses the yolk



# Who's Related to Whom?

Biologists use diagrams like the one below to show the relationship between species. This diagram is known as a **phylogenetic tree**. Ciscoes, whitefish and some salmon species are only found in Lake Erie. Species such as Rainbow Trout, Golden Rainbow Trout, Brown Trout and Brook Trout are found throughout Pennsylvania.

## BROWN TROUT (*Salmo trutta*)

**Translation of scientific name:**  
"Atlantic Salmon" "trout"

**Status:** native to Europe and introduced to Pennsylvania waters in 1880s

**Habitat:** cold/cool (50- to 70-degree F range) streams, rivers and deep lakes



**Spawn:** October through December

**Eggs produced:** 200 to 3,000 eggs

**Average length:** 10 to 12 inches long

**Average lifespan:** 4 to 8 years

## RAINBOW TROUT

(*Oncorhynchus mykiss*)

**Translation of the scientific name:**

"hooked snout/hooked lower jaw"

**Status:** native to western North America, introduced to Pennsylvania waters in the late 1890s

PINK SALMON (*Oncorhynchus gorbuscha*)

COHO SALMON (*Oncorhynchus kisutch*)

RAINBOW TROUT (*Oncorhynchus mykiss*)

GOLDEN RAINBOW TROUT (*Oncorhynchus mykiss*)

SOCKEYE SALMON (Kokanee) (*Oncorhynchus nerka*)

CHINOOK SALMON (*Oncorhynchus tshawytscha*)



ATLANTIC SALMON (*Salmo salar*)  
BROWN TROUT (*Salmo trutta*)

## BROOK TROUT (*Salvelinus fontinalis*)

**Translation of scientific name:**  
"char" "of springs"

**Status:** native to Pennsylvania

**Habitat:** small, cold

(50- to 60-degree F range) streams

**Spawn:** September through November

**Eggs produced:** less than 100 to 1,000 eggs

**Average length:** 5 to 7 inches long

**Average lifespan:** 2 to 5 years



\* BROOK TROUT  
(*Salvelinus fontinalis*)

\* LAKE TROUT  
(*Salvelinus namaycush*)

## LAKE TROUT (*Salvelinus namaycush*)

**Translation of scientific name:**  
"char" "Lake Trout"

**Status:** native to Pennsylvania

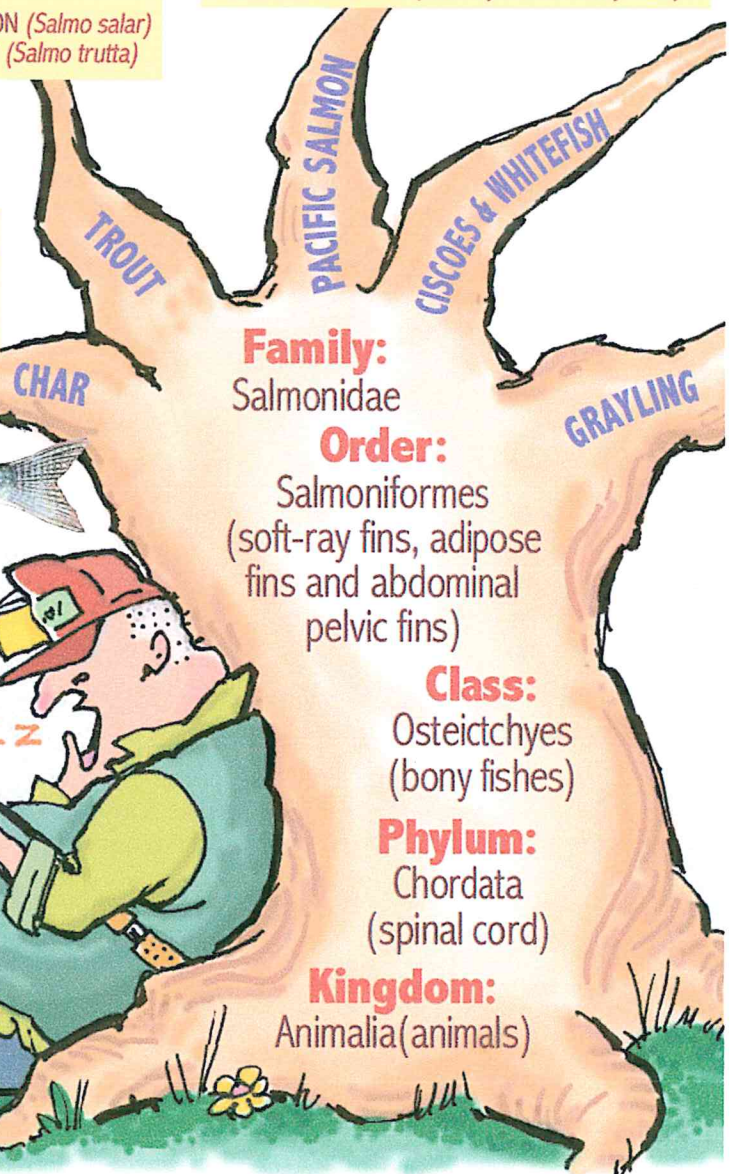
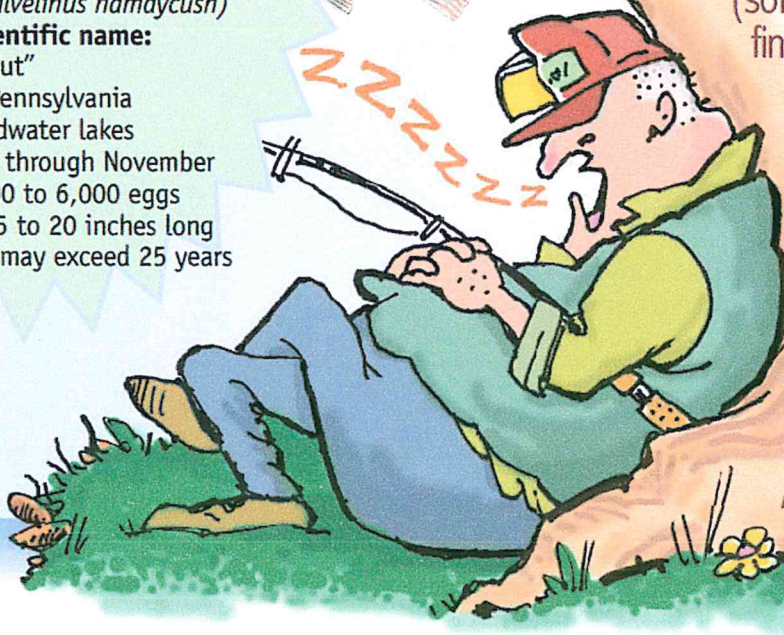
**Habitat:** large, coldwater lakes

**Spawn:** September through November

**Eggs produced:** 400 to 6,000 eggs

**Average length:** 15 to 20 inches long

**Average lifespan:** may exceed 25 years



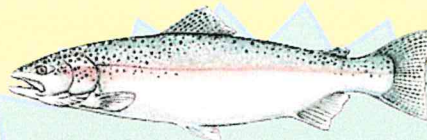
**Family:**  
Salmonidae

**Order:**  
Salmoniformes  
(soft-ray fins, adipose fins and abdominal pelvic fins)

**Class:**  
Osteichthyes  
(bony fishes)

**Phylum:**  
Chordata  
(spinal cord)

**Kingdom:**  
Animalia (animals)



**STEELHEAD** (*Oncorhynchus mykiss*) are migratory Rainbow Trout.

**Translation of the scientific name:** "hooked snout/hooked lower jaw"

**Status:** native to western North America, introduced to Pennsylvania waters in the late 1890s

**Habitat:** cool waters (50- to 70-degree F range) of Lake Erie

**Spawn:** November through April (swim up Lake Erie tributary streams to spawn)

**Eggs produced:** 3,000 to 5,000 eggs

**Average length:** 22 to 24 inches long

**Average lifespan:** 6 to 8 years



**Habitat:** cool (50- to 70-degree F range) streams and rivers

**Spawn:** November through April

**Eggs produced:** 500 to 3,000 eggs

**Average length:** 10 to 12 inches long

**Average lifespan:** up to 8 years

\* **LONGJAW CISCO** (*Coregonus alpenae*)

**EXTIRPATED**

\* **CISCO** (*Coregonus artedii*)

**ENDANGERED**

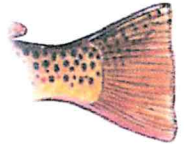
\* **LAKE WHITEFISH** (*Coregonus clupeaformis*)

**NOT FOUND IN PENNSYLVANIA**

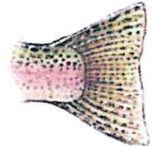
## Trout and Salmon Characteristics

- Elongated and torpedo-shaped bodies
- Soft-rayed dorsal fin
- Adipose fin between the caudal (tail) and dorsal fin
- Favor streams, lakes and rivers where water temperatures are less than 70-degrees F with a preferred temperature range between 50- and 65-degrees F
- Likes waterways with a clean bottom, rocks and gravel

**Brown Trout** has dark spots, few or none on tail.



**Rainbow Trout** has dark spots, especially on tail, and a pink lateral stripe.



**Lake Trout** has light spots over entire body. Tail deeply forked.



## State Fish Facts

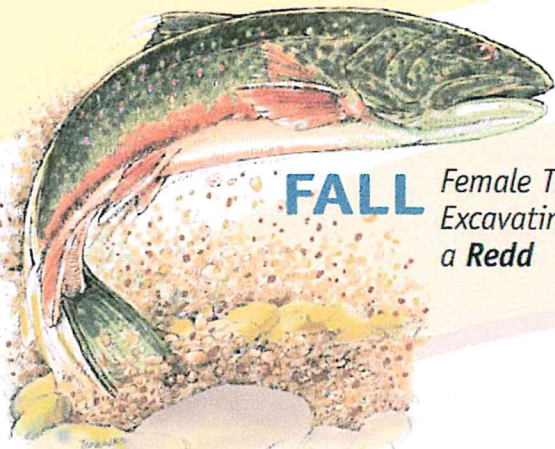
Brook Trout are classified as char, not trout. Chars live more north than other Salmonids. They prefer cold, clean, high-oxygenated waters. Today, their home waters are small **headwater streams**. Nicknames for the Brook Trout include speckled trout, squaretail or brookies.

Before European settlement, Brook Trout lived in most Pennsylvania streams. The growing human population resulted in landscape changes. Timber was overharvested, coal was mined and flowing waters became sewers. Populations of Brook Trout were eliminated from many waters because of the resulting pollution, habitat loss and warmer waters.



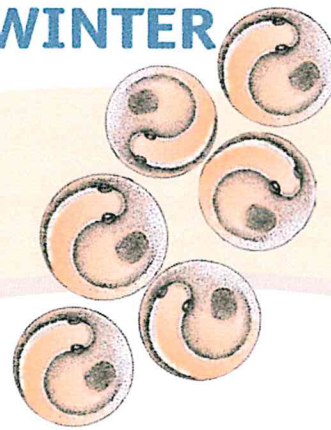
# There's No Place Like Home!

## Brook Trout Life Cycle



**FALL** Female Trout  
Excavating  
a Redd

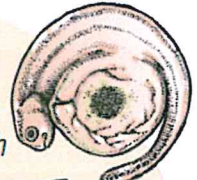
### WINTER



Fertilized Eggs  
(Eyed Egg-Stage);  
 $\frac{1}{4}$  inch or less in diameter

### SPRING

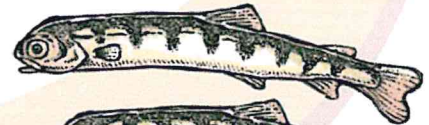
Sac Fry/Alevin;  
 $\frac{3}{4}$  inch to 1 inch



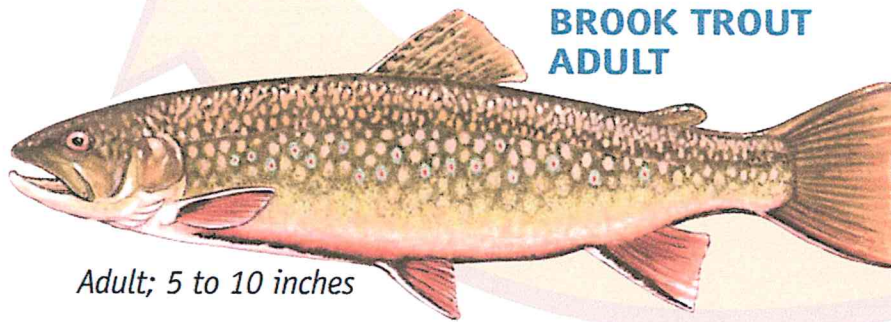
After  
Hatching;  
 $\frac{3}{4}$  inch to 1 inch



### SUMMER



Fingerlings  
with Parr Marks;  
2 to 3 inches



**BROOK TROUT  
ADULT**

Adult; 5 to 10 inches

## What's for Dinner?

Brook Trout eat aquatic and land insects, other fish, **crustaceans**, worms and more. Learn what they eat during each life stage in the wild and in a hatchery.

### WILD BROOK TROUT

**Egg:** nutrients from the yolk

**Sac Fry:** nutrients from the yolk sac

**Fry:** plankton and other microscopic organisms in the stream

**Fingerling:** aquatic insects (i.e.: stoneflies, mayflies and caddisflies) as well as land insects (i.e.: ants, beetles and grasshoppers) and small fish

**Adult:** other fish, aquatic and land insects.

### HATCHERY-RAISED BROOK TROUT

**Egg:** nutrients from the yolk

**Sac Fry:** nutrients from the yolk sac

**Fry:** granular food about the size of black pepper

**Fingerling:** granular food about the size of cornmeal

**Adult:** granular food pellets about the size of Grape Nuts™ cereal