

## ***FASHION A FISH, PENNSYLVANIA-STYLE***

-Aquatic Guide-© 1987, 1992, 2000, 2001 Council for Environmental Education. Adapted with permission from Project WILD, Project WILD Aquatic Education Activity Guide. The complete Activity Guide can be obtained by attending a KARE Workshop. For more information, contact the Pennsylvania Fish and Boat Commission at 71705-7833, or visit us on the web at [www.fish.state.pa.us](http://www.fish.state.pa.us).

- Objectives** For younger students: Students will be able to classify fish according to body shape and coloration.
- For older students: Students will be able to: (1) describe adaptations of fish to their environments, (2) describe how adaptations can help fish survive in their habitat, and (3) interpret the importance of adaptations in animals.
- Background** Aquatic animals are the product of countless adaptations over long periods of time. These adaptations, for the most part, are features that increase the animals' likelihood of surviving in their habitat.
- When a habitat changes, either slowly or catastrophically, the species of animals with adaptations that allow them many options are the ones most likely to survive. Some species have adapted to such a narrow range of habitat conditions that they are extremely vulnerable to change. They are over-specialized and are usually more susceptible than other animals to death or extinction.
- In this activity, the student design a kind of fish. They choose the adaptations that their fish will have. Each choice they make would actually take countless years to develop. As these adaptations become part of the fish's design, the fish becomes better suited to the habitat in which it lives. Because of the variety of conditions within each habitat, many different fish can live together and flourish. Some adaptations of fish are shown in the table that follows.
- The major purpose of this activity is for students to investigate the concept of adaptation in fish.
- Materials** Five cards for each adaptation from the masters provided: mouth, body shape, coloration, reproduction (only the body shape and coloration cards are needed for younger children); large drawing paper for each group of three to four students; markers
- Procedure**
1. Assign students to draw a picture of a kind of animal that has a special adaptation--for example, long necks on giraffes for reaching high tree leaves to eat.
  2. Conduct a class discussion on the different drawings made and the value of different kinds of adaptations to animals. Ask students to identify different kinds of adaptations in humans.
  3. Divide the class into groups of three to four students each.
  4. Give each group one of the adaptation cards from each of the four categories: one for coloration, mouth, body shape and reproduction. Also give each group a copy of the "Adaptations and How They Help" hand-out.

5. Ask the students to "fashion a fish" from the characteristics of the cards in the set they receive. Each group should:

- Create a fish that includes all four characteristics on their cards,
- Name the fish, and
- Draw in and describe the habitat to which their particular fish is adapted.

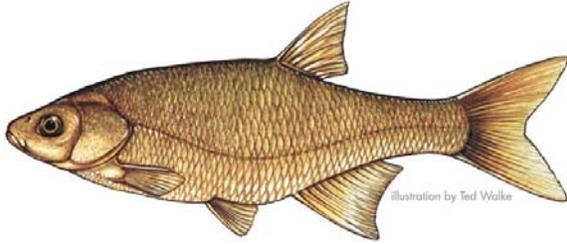
6. When all groups have finished, have one person from each group stand and tell the rest of the class about his/her group's fish, and how it is adapted for survival.

## ADAPTATIONS AND HOW THEY HELP

<u>ADAPTATION</u>	<u>ADVANTAGE</u>	<u>EXAMPLES</u>
<b>Mouth</b>		
sucker shaped mouth	feeds on very small plants and animals	sucker, carp
elongated upper jaw	feeds on prey below it	sturgeon
elongated lower jaw	feeds on prey above it	trout
duckbill jaws	grasps prey	muskellunge, pike
extremely large jaws	surrounds prey	largemouth bass
<b>Body Shape</b>		
torpedo shape	fast moving	trout, salmon
flat-bellied	bottom feeder	catfish, sucker, sculpin
vertical disk	feeds above or below	bluegill, sunfishes
humped back	stable in fast moving water	chubs, razorback sucker, coho salmon
snake-like	streamlined for long distances	American eel
<b>Coloration</b>		
light-colored belly	predators have difficulty seeing it from below	minnows, perch
dark upperside	predators have difficulty seeing it from above	bluegill, catfish
vertical stripes	can hide in vegetation	musky, bluegill, yellow perch, smallmouth bass
horizontal stripes	can hide in vegetation	largemouth bass, striped bass
mottled coloration	can hide in rocks	trout, rock bass, crappie
<b>Reproduction</b>		
eggs on bottom	hidden from predators	trout, salmon, most minnows
eggs in bottom nests	protected by adults	sunfish (bluegills, LM/SM bass)
eggs in burrow nests	protected from predators and by adults	catfish
floating eggs	dispersed in high numbers	striped bass, shad
eggs on vegetation	stable until hatching	perch, pike, musky, carp

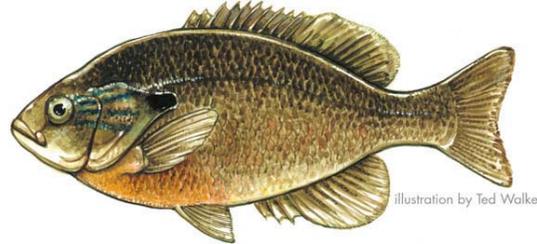
**Coloration**--Light-colored belly

**GOLDEN SHINER**



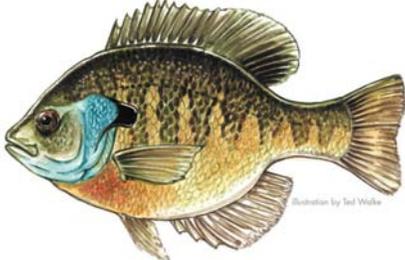
**Reproduction**--Eggs deposited in bottom nests

**REDBREAST SUNFISH**



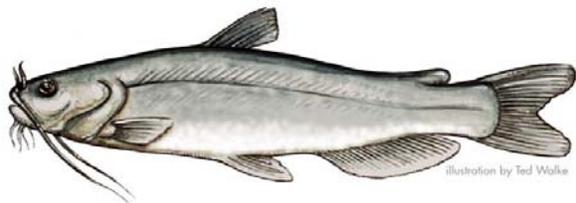
**Coloration**--Dark upper side

**BLUEGILL SUNFISH**



**Reproduction**--Eggs deposited in burrow nests

**WHITE CATFISH**



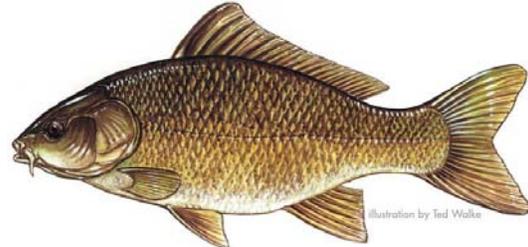
**Coloration**—Mottled

**BROWN TROUT**



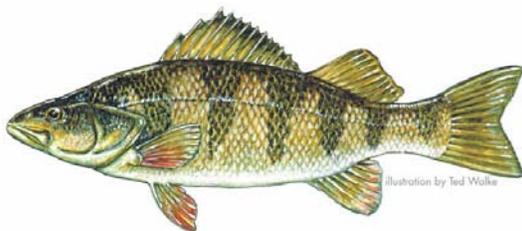
**Reproduction**--Eggs deposited on plants

**COMMON CARP**



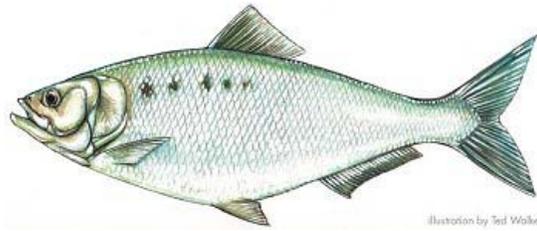
**Coloration**--Vertical stripes

**YELLOW PERCH**



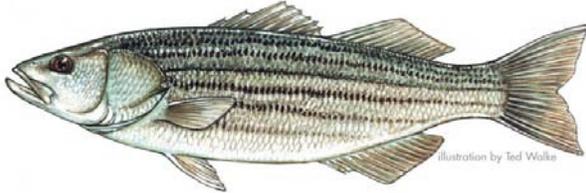
**Reproduction**--Free floating eggs

**AMERICAN SHAD**



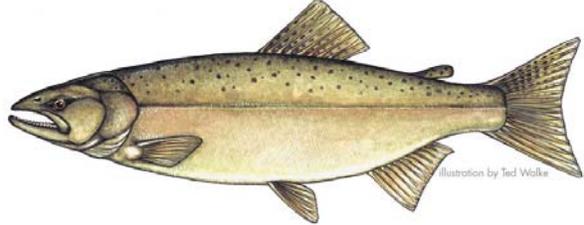
**Coloration**--Horizontal stripes

**STRIPED BASS**



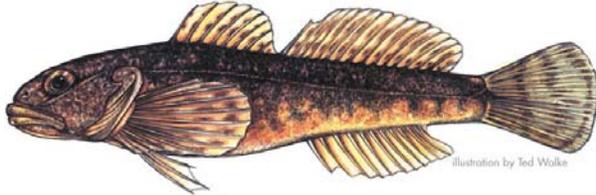
**Reproduction**--Eggs deposited on the bottom

**COHO SALMON**



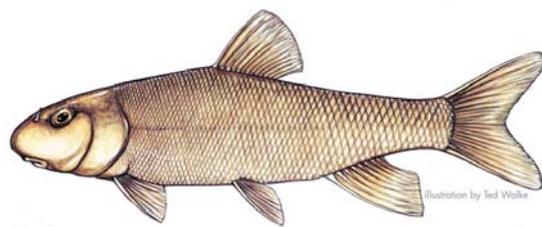
**Body Shape**--Flat-bellied

**SLIMY SCULPIN**



**Mouth/Feeding**--Sucker-shaped

**WHITE SUCKER**



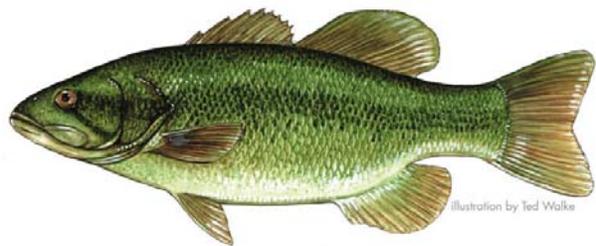
**Body Shape**--Torpedo-shaped

**NORTHERN PIKE**



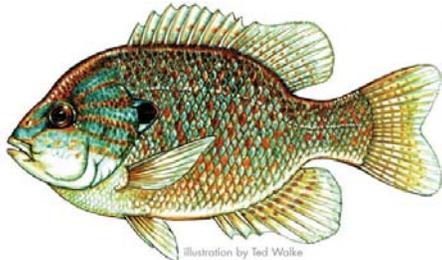
**Mouth/Feeding**--Extremely large

**LARGEMOUTH BASS**



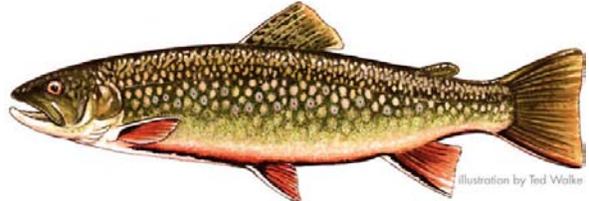
**Body Shape**--Vertical disk

**PUMPKINSEED SUNFISH**



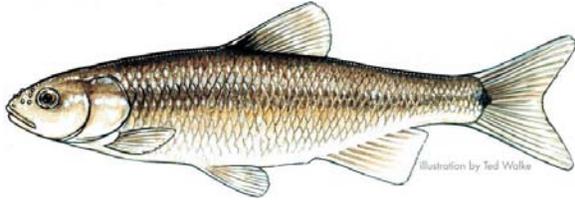
**Mouth/Feeding**--Elongated lower jaw

**BROOK TROUT**



**Body Shape**--Humped back

**CREEK CHUB**



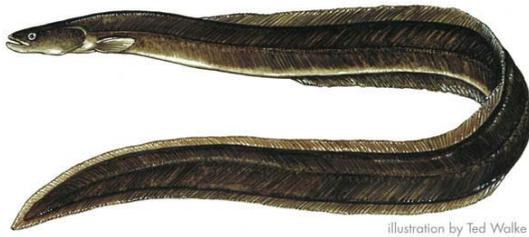
**Mouth/Feeding**--Elongated upper jaw

**SHORTNOSE STURGEON**



**Body Shape**--Snake-like

**AMERICAN EEL**



**Mouth/Feeding**--Duckbill jaw

**TIGER MUSKELLUNGE**

