

PLAY

Pennsylvania • League • of • Angling • Youth

Why Fish Need Trees

Trees do their job quietly. But their job is important. Each fall they remind us that they are there with a blaze of color. But if they weren't, fishing in Pennsylvania would be very different.



Trout have very specific habitat needs. They can't live in places that don't meet those needs. This is true for all fish. That is why it is important to understand the importance of habitat. "Habitat" is the places where fish live. Trees play an important role in trout stream habitat. Really, streamside trees do several jobs. This issue of the PLAY Newsletter focuses on the importance of streamside trees to trout and other fish.

Biologists call the area along the edge of a stream or river the **riparian zone**. Streamside trees live in this riparian zone. Trees and other plants in the riparian zone do three very important jobs. These plants help to hold the stream banks together. If they weren't there, high water would wash soil away from the banks. Biologists say that these plants **stabilize** the stream banks. That soil can smother places where trout eggs incubate.

Riparian trees and plants also offer **shelter** for trout. Trout and other fish hide from predators under roots and branches of streamside plants. Fish can even hide in the shadows of leaves. The shade from riparian plants

also shields the water from the sun. This helps keep the water cooler in summer.

Streamside plants are important to stream **food** webs. Insects feed on leaves and other parts of plants when these plants fall in the water. Trout and other fish feed on these insects.

Streamside trees are important to all aquatic critters, not just trout. Read on and learn more about the important job of streamside trees.

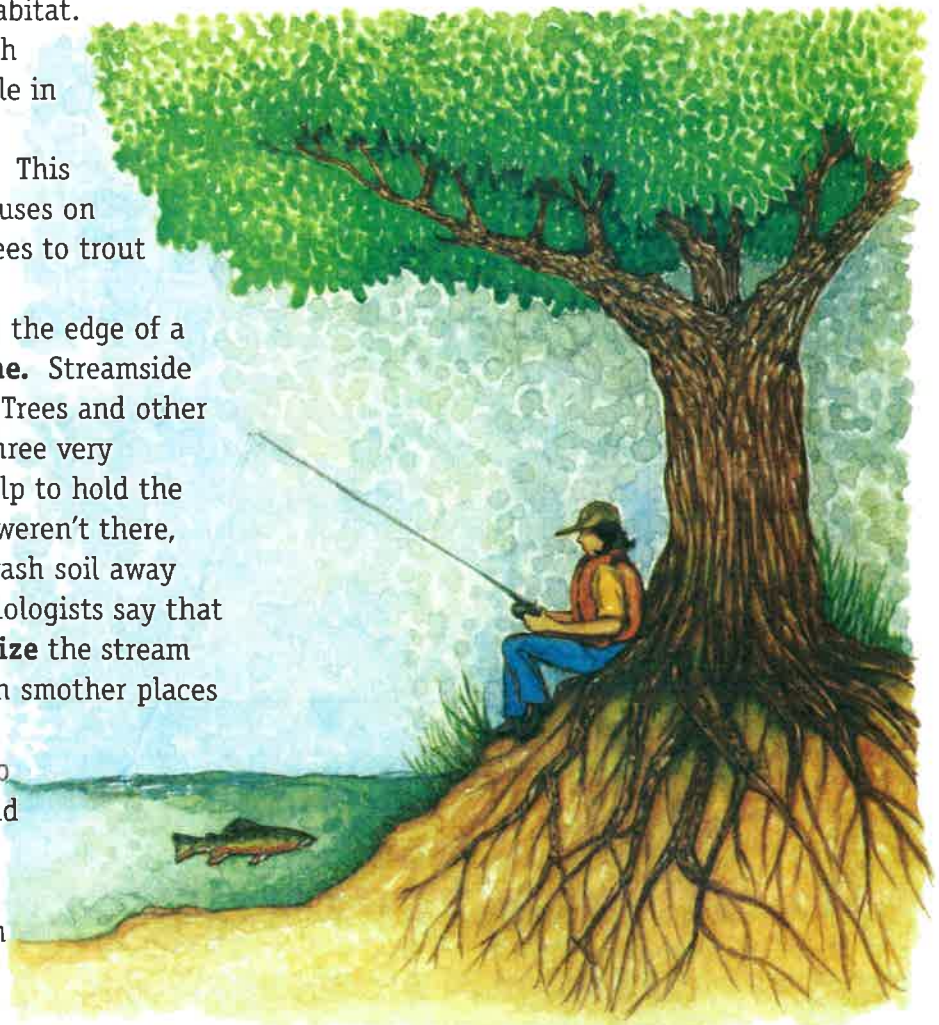


illustration-Ted Walke



Aquatic Leaf Eaters

Plants are important links in any food web.

They are usually the first link in a food chain in the web. Plants are eaten by plant eaters. Plant eaters are eaten by predators. If there are no plant eaters, there are no predators.

In aquatic habitats, the plants may be tiny. These plants are called phytoplankton. Phytoplankton are plentiful in ponds, lakes and some large rivers. These habitats may also support large plants such as duckweed or milfoil. These plants are the foundation of food webs in those habitats.

But some of the most important plants in some ecosystems are found outside of the water. This is true for small streams. Plant-eating insects depend on leaves and other material from streamside plants. Biologists call this stuff falling into the stream from plants "**litter.**" Bugs then feed on this litter.

Biologists call the bugs that feed on leaf litter "**shredders.**" Some species of stone flies, crane flies and caddis flies are shredders. They chew up the leaves when they fall into the stream.

Shredders get a little help, though. Fungus and small microorganisms attach to leaves. They help "soften" the leaves, and make it easier for the insect to digest the leaves.

But it doesn't end there. The shredders give off waste. Those wastes are gathered or filtered by other insects downstream. These insects then feed on the wastes. **That's recycling!**



- ① Leaf enters stream
- ② Microbes and fungus attach to leaf and soften it
- ③ Shredders eat leaf
- ④ Wastes from shredders wash downstream.



Aquatic Insect Word Search

WATER
BOATMAN

Find the aquatic insect names in the word search below.
Words appear across, up and down or diagonally.



CRANE FLY



CADDIS FLY



HELLGRAMMITE



DAMSELFLY



DRAGONFLY



BLACKFLY



WATER
STRIDER



MAYFLY



WATER
PENNY



STONE FLY

P Y W A T E R S T R I D E R Z Q R B E H
 I W A T E R P E N N Y V J E D V C D O O
 O J T B L A C K F L Y O F S F R Y A M M
 L H E L L G R A M M I T E E E E V G B L Q
 Q D R B N D A C D H Q T H Z B R D E X L
 S J B E A O N L N D R Q A T W J J A D V
 G J O X D U E O M Q I M F X O M W K J U
 D R A G O N F L Y Z P S T O N E F L Y M
 L N T L N M L O Q M A Y F L Y L X W S I
 B G M Y V B Y O J W I O I L U A Q Y A I
 M D A M S E L F L Y P H Y A Y L T R N L
 E N N A H U I B Q J D P Y L Q M F D N C
 R F L N J K U X T T A V J W T A R Q T G
 X X H W E L P M U L R A B Q K P X C J G
 R R C S J H X H N I P S G I K W J O P B
 L U C X J B B P T O M K X J Q K Q M I W
 G M X X U P S J B D I T O T I Y T K B Z



Gimme Shelter!

We need shelter from weather. We count on our homes to protect us. Life would be very hard if we didn't have a home to protect us.

Fish also need shelter. They don't need protection from the weather as we do. But shelter is important to their survival. Streamside trees and their roots offer shelter. Large rocks and boulders in the stream do, too. But why do fish need shelter?

Fish have many predators. They are eaten by birds, raccoons and other mammals, and even other fish. Fish use shelter to hide from predators. Predators do eat some fish. Predators eat fish that they are able to catch. But more fish are able to hide and avoid being eaten. Trout and other fish hide from predators under roots and branches of streamside plants. Fish can even hide in shadows made by plants. Trees give fish a place to hide. If there weren't places to hide, predators might eat all the fish.

In Commission hatcheries, we put up netting and fences. Netting and fences take the place of trees and other vegetation. The netting and fencing keep most predators out.



Huntsdale Fish Hatchery

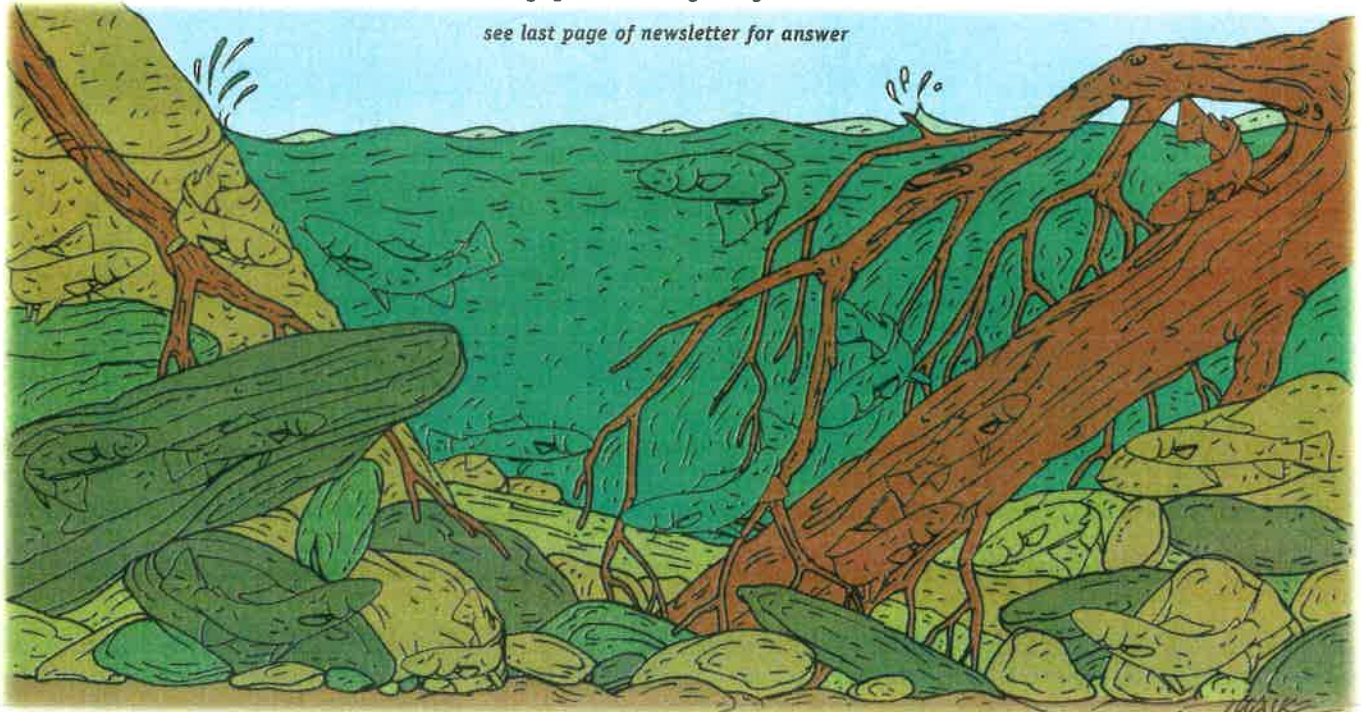
Fish in rivers and streams also need shelter from moving water. They don't burn all their energy staying in one place. That's why we find fish behind big rocks.

Trees shelter us from the sun on hot summer days. Trees shelter small streams from the sun. This helps keep the water cooler in summer. Scientists have found that a small stream with trees would be 10 degrees warmer in the summer without the shade of trees.



Shelter Hide and Seek: How many fish can you find in the streamside artwork below?

see last page of newsletter for answer



Protecting Trees

The Fish and Boat Commission works hard to protect riparian (streamside) trees and vegetation.

Pennsylvania and the United States have laws and regulations that protect them. The Fish and Boat Commission, the Department of Environmental Protection, and the U.S. Army Corps of Engineers enforce these laws and regulations.



When people want to do something in the stream or along the banks of a stream, they must apply for a permit. The Fish and Boat Commission reviews about 1,000 of these permit requests each year. We look at the request to make sure it doesn't harm the fish and the things they need to survive. We make people fix what they damage. Sometimes we don't let them do things in the stream. That's how we protect things important to fish.



photo: Ted Walke

Pennsylvania Stream ReLeaf

Lush forests once covered most of Pennsylvania. By the 1800s, Pennsylvania's landscape had changed. Can you name some activities that changed it? Forests along streams and lakes were removed or thinned. This changed water quality and habitat. As a result, fish and wildlife suffered.

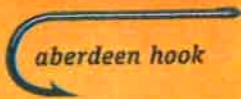
How do forests protect streams and lakes? A streamside forest slows runoff from rain and snow. The forest gives the runoff time to soak into the soil. Eroded soil particles settle out. The soil, leaf litter (layers of dead leaves) on the forest floor, and roots can take up some pollutants, such as excess fertilizer.

Restoring forests along our waterways costs less than removing pollutants from the water. Leaves and twigs from the trees fall into the stream. They provide food and shelter for animals that live there. Trees provide shade from summer sun. Shade keeps water temperatures cool for fish. Forests support many more kinds of plants and wildlife than mowed streamside.

Pennsylvania has developed a plan, called Stream ReLeaf, that encourages everyone to restore and conserve forests along streams and lakes. You can help. Do you know of a stream on your school's property, or in a nearby park? Ask your teacher what can be done to restore the streamside forest. Environmental clubs at some schools have helped plant trees and shrubs along their streams.

For information on Stream ReLeaf, contact the PA Department of Environmental Protection, Bureau of Watershed Conservation, P.O. Box 8555, Harrisburg, PA 17105-8555; phone 717-787-5267; www.dep.state.pa.us.

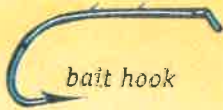
Stream RELEAF
Replenishing Pennsylvania's Streamside



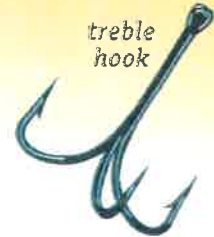
aberdeen hook



egg hook



bait hook



treble hook

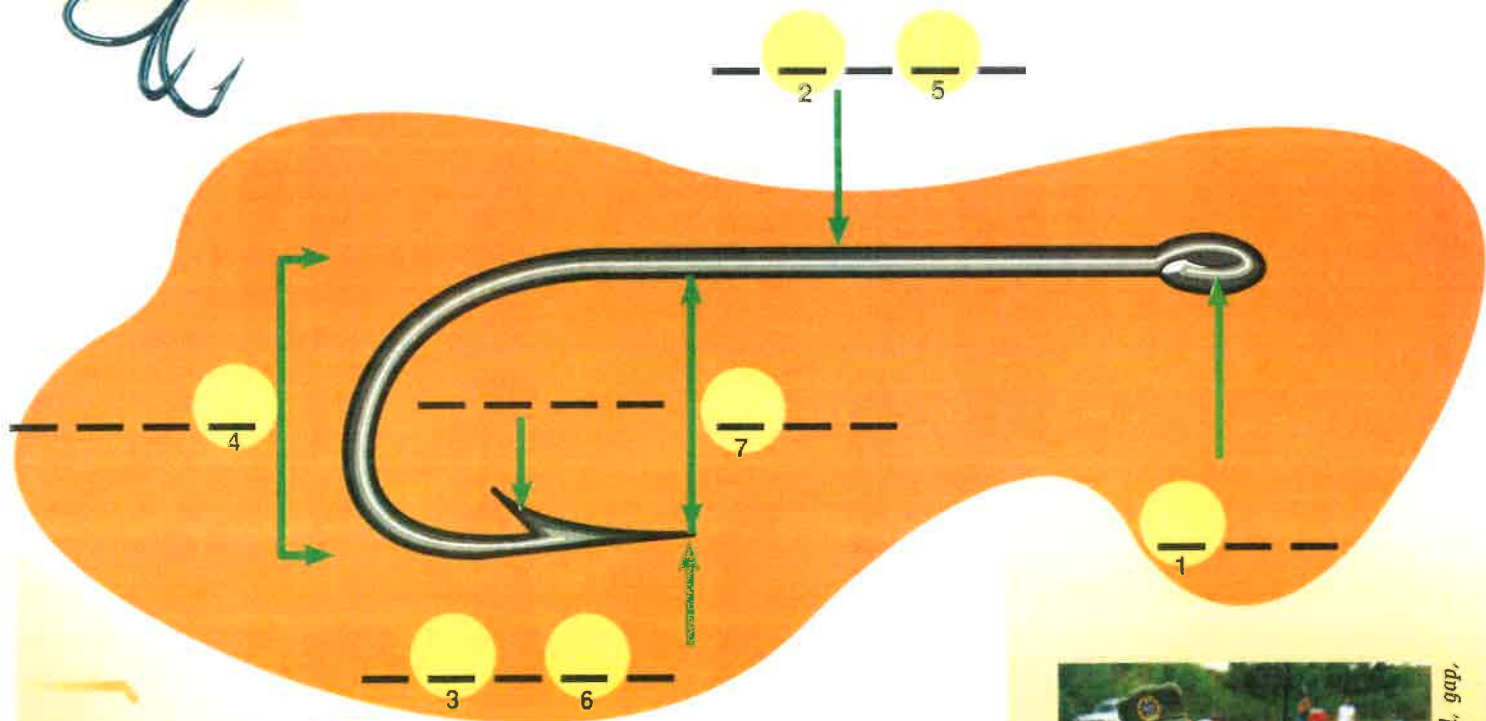
Parts of a Hook

Directions

1. Label the parts of this hook.
2. Use the letters in the circles to complete the sentence below.



Photo: Clarence Lowry, Illustration: Ted W. Lee



G t

 o k e

o

f i s h n !



Hook parts answers: hook parts; eye, point, barb, shank, bend, gap, Sentence answer: Get hooked on fishing!



STRAINERS

Trees in streams are good for fish. But we have to be careful near these trees. People who canoe call trees fallen into the water "strainers." Strainers are common on rivers and streams. Strainers are just like the strainer, or colander, used in the kitchen when draining spaghetti or cleaning vegetables.

Strainers are deadly obstacles on the river. The water flows through the tree and holds a canoe or a person against the tree. In a strainer, boaters are like the spaghetti or vegetables in the colander. Water flows past the spaghetti and through the holes in the colander. Water flowing fast between docks and bridge piers on a river or stream is another kind of strainer.

Avoid strainers. They can be dangerous. If you find yourself stuck against a strainer, do not worry about your canoe or boat. A boat can be replaced. You can't be! Get out of the boat and pull yourself over the strainer. If you can't do that, get yourself on top of the strainer and sit there. It will be easier to find you sitting on top of the strainer than looking for you as you float down the river or stream.

Always wear your personal flotation device (life jacket).

It is designed to keep you floating in the water.



Photo and Illustration: Ted Wolfe



