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# CRAZY for CRAYFISH

Have you ever explored a creek or stream? If so, you've probably found a crayfish. Crayfish are fun to catch. They look like mini lobsters. Some people call them crawdads, crawfish or mudbugs. Crayfish are a type of **crustacean**.

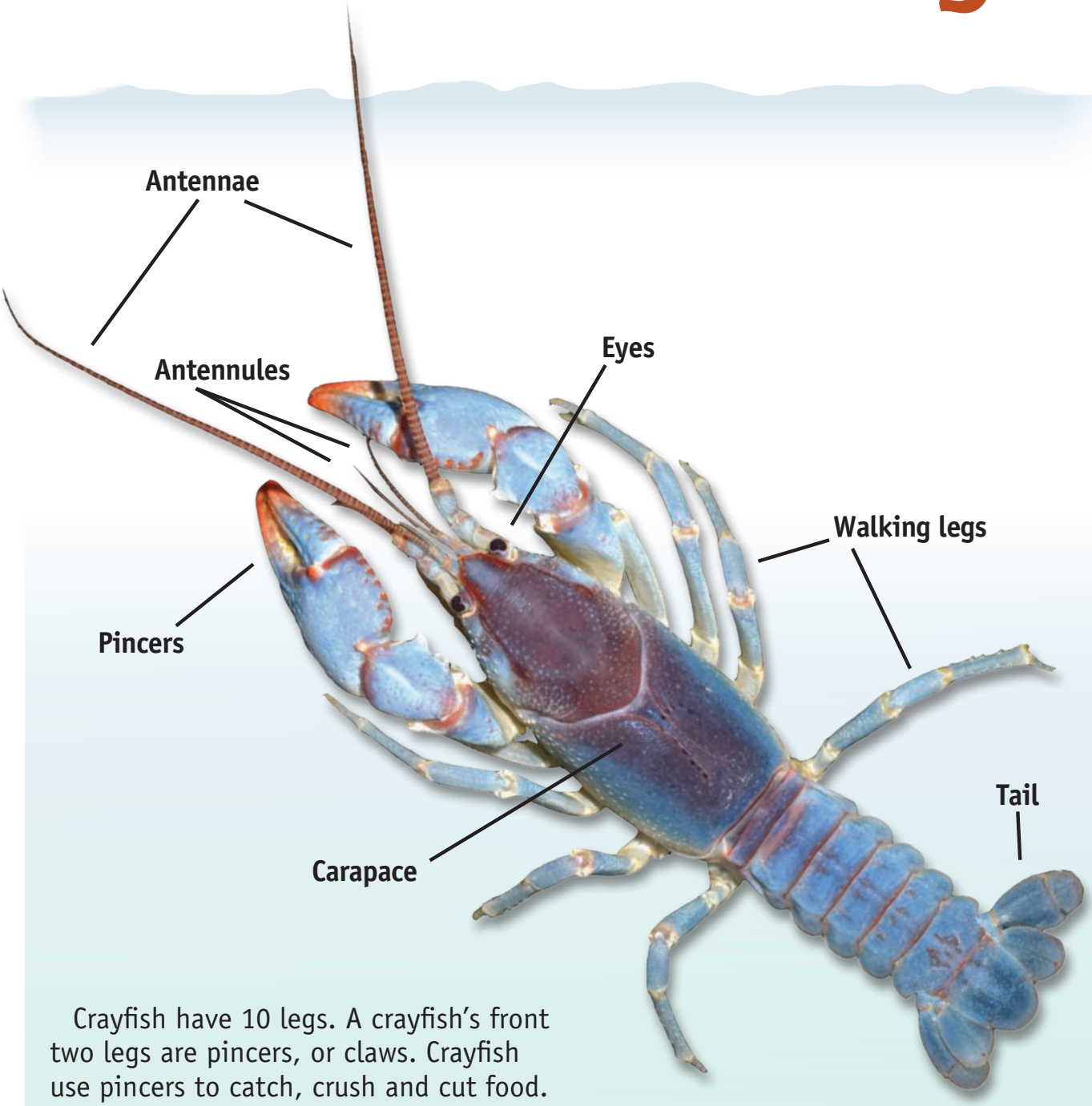
Do you know that there are 13 species of native crayfish living in Pennsylvania? Crayfish are usually earthy colors, such as brown or tan, but some are bright red, and some are blue. If you find an empty white crayfish body, you may think it's a dead crayfish. It is actually a shed **exoskeleton**. Crayfish exoskeletons don't grow with them. Instead, a new exoskeleton grows underneath the old one. Then, the crayfish crawls out of the old exoskeleton. Crayfish are very soft until their new exoskeleton hardens.

*Some crayfish are bright blue.*

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

- **Crustacean** - An animal that has an exoskeleton, segmented body, jointed legs and lives in or near water
- **Ecosystem** - A community of living organisms and their environment
- **Exoskeleton** - A hard, outer covering that supports and protects an animals body in place of an internal skeleton
- **Invasive crayfish** - Crayfish not native to an ecosystem that causes harm

# A Closer Look at Crayfish




Crayfish have 10 legs. A crayfish's front two legs are pincers, or claws. Crayfish use pincers to catch, crush and cut food. Pincers are also used to dig and defend.

The other eight legs are for walking. The first two pairs of walking legs are tipped with small pincers. These pincers are used to probe cracks and holes to find food. The first two pairs of legs are also used for eating and grooming.

Crayfish can move in any direction—forward, sideways or backwards. When startled, a crayfish quickly moves backwards by rapidly flicking its fan-shaped tail.

Crayfish have two pairs of antennae. The short pair are called antennules. Antennules are used to taste the water and food. The long antennae are used for the sense of touch and helps the crayfish find food and feel vibrations of predators swimming nearby.

Crayfish have many smaller "legs," called swimmerets, under the abdomen. Swimmerets help with swimming and balance. Female crayfish use swimmerets to carry eggs and babies. If a crayfish breaks a leg or swimmeret, it can grow a new one to take its place.

*Digger Crayfish with babies*

When faced with danger, crayfish will hide. When unable to hide, a crayfish will stand tall and raise its opened pincers high in the air to look as big as possible. Then, the crayfish may slowly retreat by walking backwards. If the threatening animal is persistent, it may get a strong pinch from the crayfish.

Like insects, crayfish have compound eyes made up of thousands of tiny eyes. A crayfish's eyes sit on short stalks instead of in its head. This gives crayfish the ability to look around without moving.

Crayfish breathe with gills located under the carapace. A crayfish needs water to breathe and live. Many crayfish species are sensitive to water pollution.

# Crayfish Habitats

When you think about a crayfish, you probably picture it in a stream or river, or maybe in a lake or pond. But, did you know that crayfish also live in lawns, wetlands and even roadside ditches?

There are two kinds of crayfish that live in Pennsylvania—surface-dwelling crayfish and burrowing crayfish.

Burrowing crayfish dig tunnels in wetlands, lawns or other areas with moist soils. Burrows usually have multiple entrances that meet underground and lead to a resting chamber that holds water. A network of tunnels may be dug in all directions from the resting chamber. A deep tunnel is almost always dug straight down from the resting chamber. This tunnel takes the crayfish deeper into the earth to find water when there is a drought.

*Crayfish chimney*

A burrowing crayfish is rarely seen above ground during the daytime, but you may see one of its chimneys. Crayfish chimneys are made of mud balls that the crayfish brings to the surface when it digs its burrow.

Surface-dwelling crayfish live in streams, creeks, rivers and lakes. It only digs shallow holes under rocks or water-filled tunnels along a streambank.

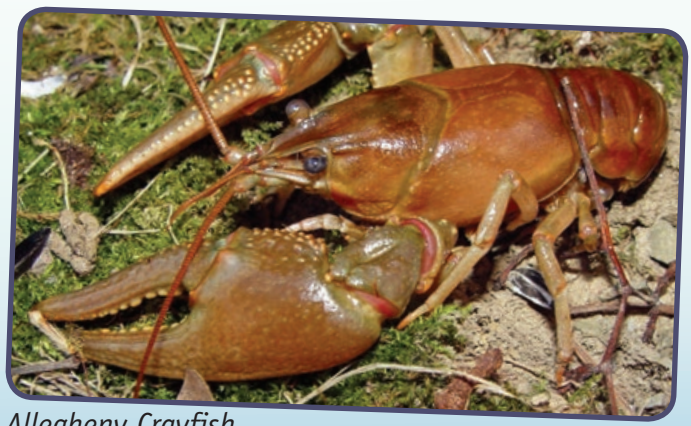
Burrowing Crayfish Found in Pennsylvania:

- Digger Crayfish
- Devil Crayfish
- Upland Burrowing Crayfish
- Blue Crayfish
- Little Brown Mudbug

*Little Brown Mudbug*

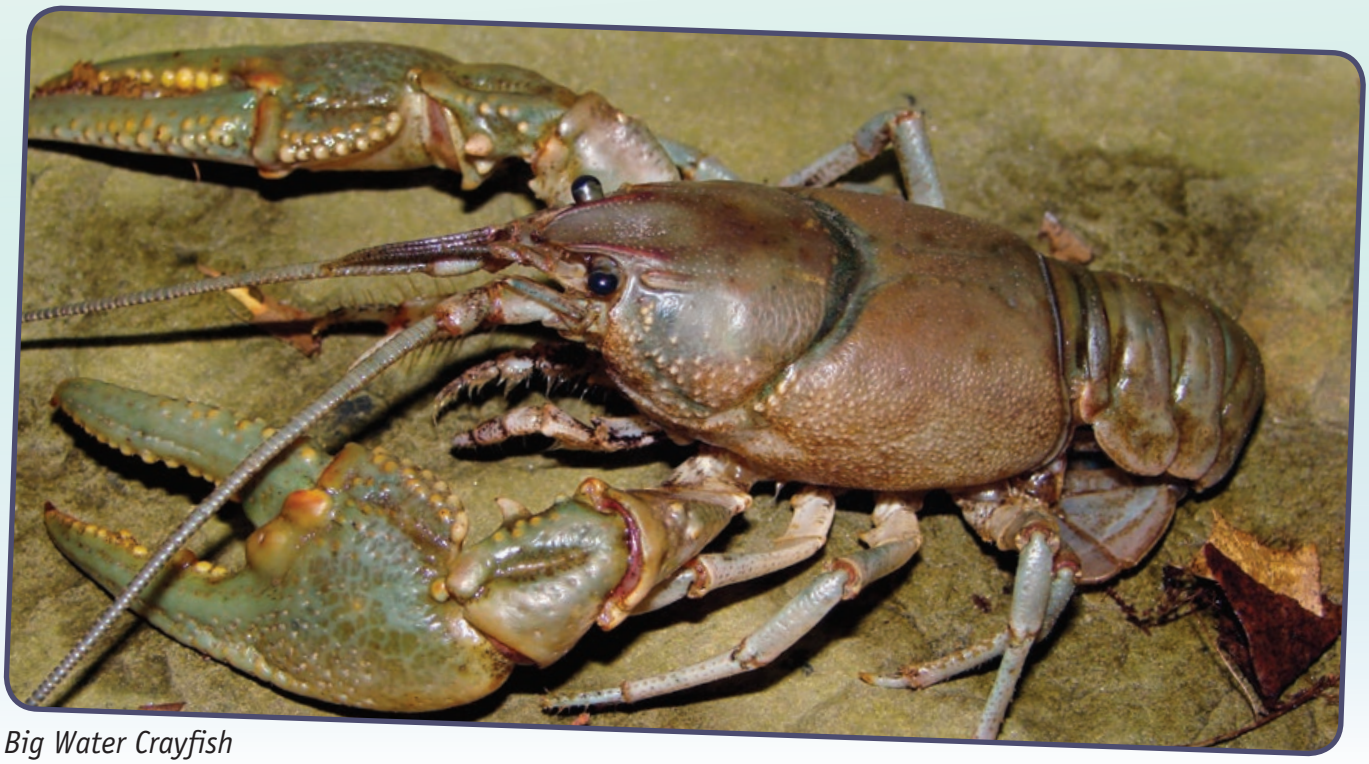
Surface-dwelling Crayfish Found in Pennsylvania:

- Common Crayfish
- Rock Crayfish
- Big Water Crayfish
- Acuminate Crayfish
- Allegheny Crayfish
- Spinycheek Crayfish
- Northern Clearwater Crayfish
- Papershell Crayfish



*Allegheny Crayfish*

# Counting on Crayfish



*Big Water Crayfish*

Crayfish are a vital link in the food chain of an aquatic **ecosystem** and serve as a main food item for many fish, birds, mammals, reptiles and amphibians. In fact, scientists have found that over 240 species of wild animals in North America eat crayfish.

Wild animals depend on crayfish in another way too—using the burrows dug by burrowing crayfish. The Eastern Massasauga and Kirtland's Snake are two endangered species that rely on crayfish burrows to hibernate. Over 500 other animals, such as leopard frogs, dragonflies and jumping mice, use crayfish burrows.

Crayfish eat plants and animals that are both dead and alive. By eating dead matter, crayfish help improve water quality.

*Queensnakes eat mostly crayfish, usually when the crayfish is soft during molting.*

# Crayfish in Trouble

Crayfish are one of the most endangered groups of animals in North America. Habitat loss and pollution are a threat to crayfish, but the biggest concern may be the introduction of **invasive crayfish** in our waterways. Invasive crayfish overtake habitat in large numbers and eat the food that native crayfish need. Many fish do not eat invasive crayfish, like the Rusty Crayfish, because it grows large and is aggressive.

Invasive Crayfish Found in Pennsylvania:

- Virile Crayfish
- Rusty Crayfish
- Red Swamp Crayfish
- White River Crayfish

*The Rusty Crayfish has invaded eastern Pennsylvania waterways.*

## TAKE ACTION!

You can help stop the spread of invasive crayfish by not using crayfish as fishing bait. Artificial crayfish lures work well. If you collect a crayfish to use as fishing bait, you must immediately remove its head behind its eyes, unless you are using it to fish in the same water you took it from. It is against the law to move a crayfish to another body of water. Live crayfish cannot be sold for fish bait in Pennsylvania. For more information, see the current *Pennsylvania Fishing Summary*.

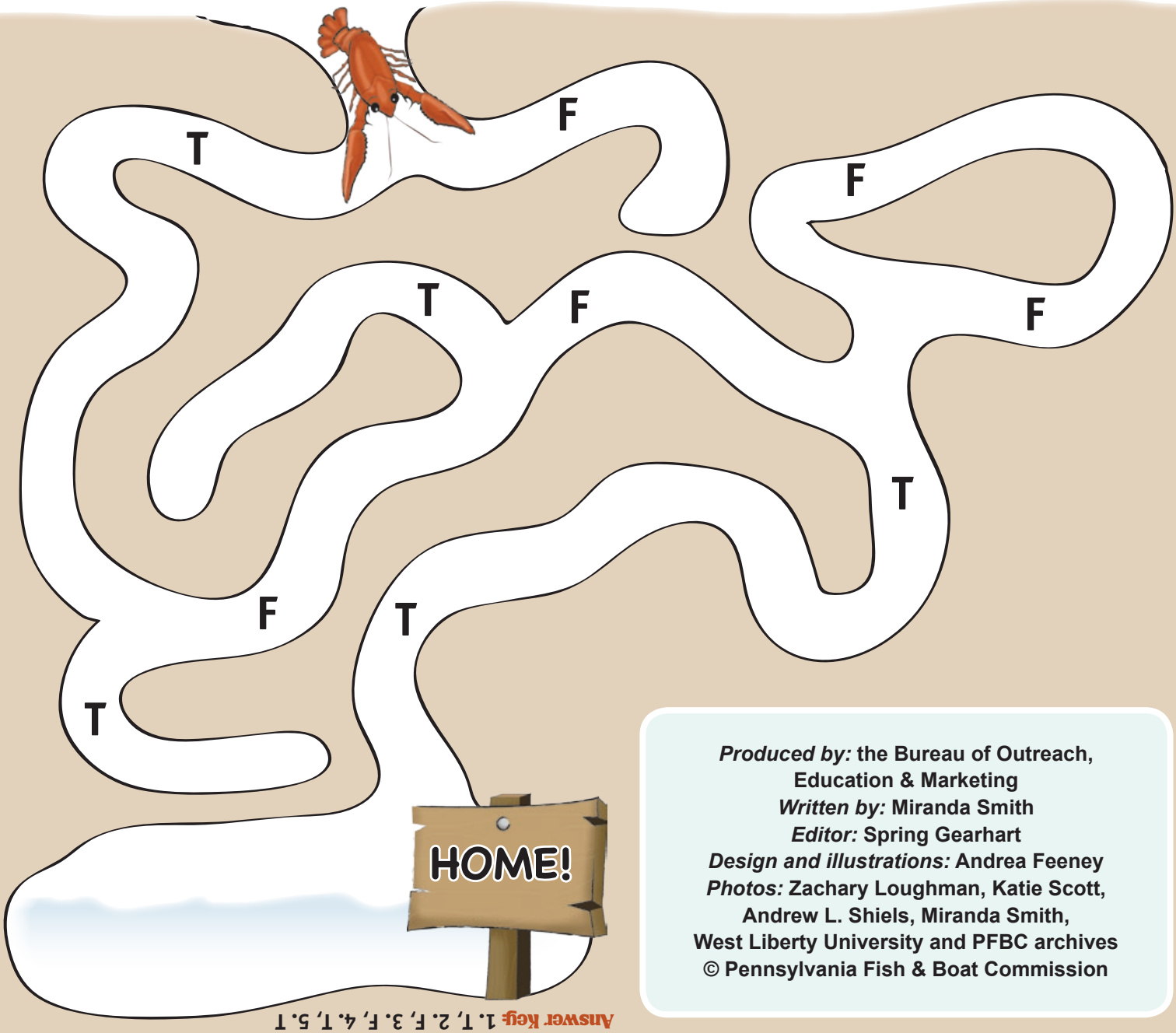
Crayfish have not been well-studied. We need to learn more about Pennsylvania crayfish to protect them. The Pennsylvania Fish & Boat Commission is partnering with Western Pennsylvania Conservancy and crayfish biologist Dr. Zachary Loughman to conduct crayfish surveys in western Pennsylvania.

If you find a crayfish chimney or burrow, record the GPS coordinates through a smartphone app and send it to Dr. Loughman at zloughman@westliberty.edu. Dr. Loughman is interested in crayfish data from across Pennsylvania, especially burrowing crayfish. You can also visit the West Liberty University Crayfish Conservation Laboratory Facebook page to ask questions and follow Dr. Loughman's work.

# Crayfish Maze

Help the crayfish dig a tunnel to its resting chamber by answering the questions below correctly. Circle **true** or **false**, then follow the path that matches your answers: **"T"** for **true** or **"F"** for **false**. If you hit a dead end, go back and try again.

1. Crayfish are one of the most endangered groups of animals in North America. **T** or **F**
2. The only place to find crayfish in Pennsylvania is in a stream, river or lake. **T** or **F**
3. Invasive crayfish do not cause a problem for native crayfish or other animals. **T** or **F**
4. Crayfish burrows provide important habitat for other animals. **T** or **F**
5. Crayfish need water, because crayfish breathe with gills. **T** or **F**




Answer Key: 1. T, 2. F, 3. F, 4. T, 5. T

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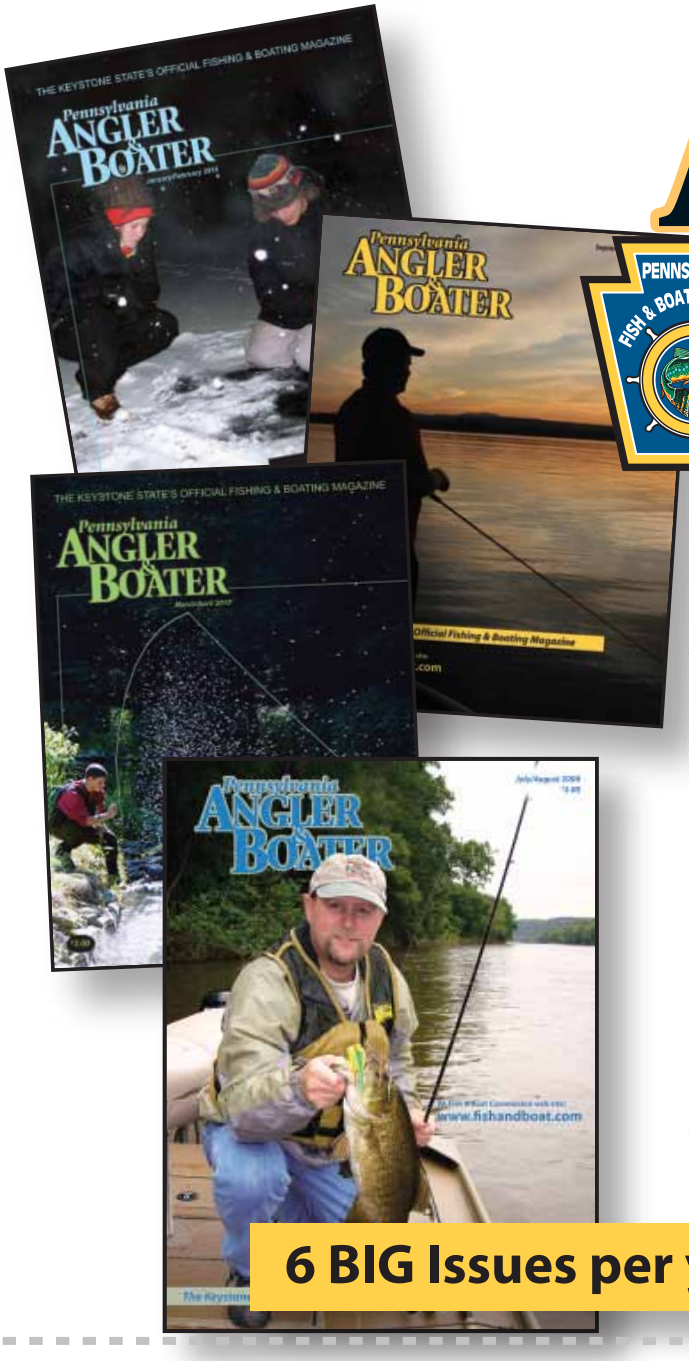


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