

FISH SENSE

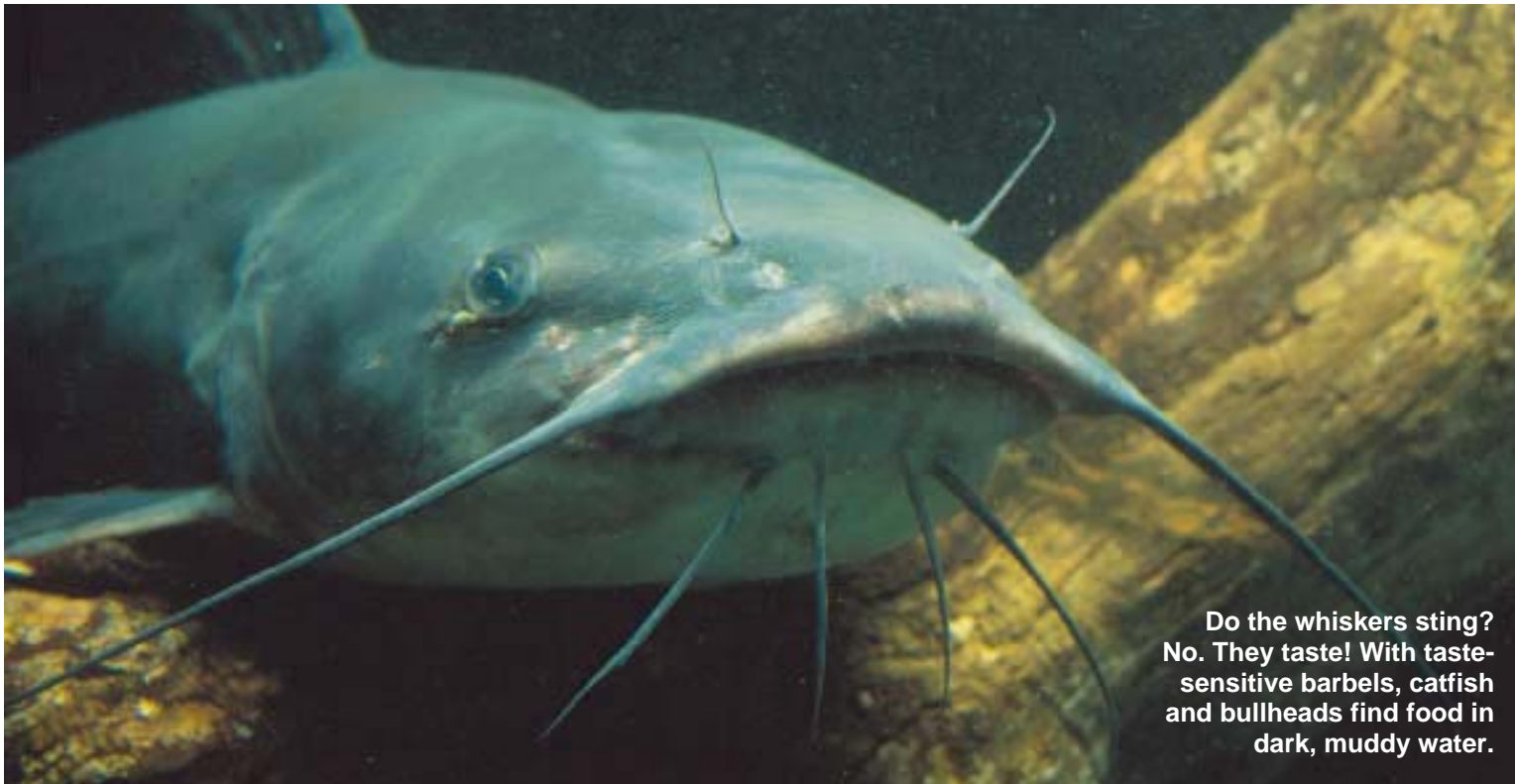
BY LINDA BRAUN AND C.B. BYLANDER

There it is. A big sunfish. Right at the end of the dock. An easy catch! You run and get your rod. You cast a big, juicy worm right in front of its nose.

The sunny swims closer. It stares at the wiggling worm. It appears ready to bite. But it doesn't. Instead, it slowly swims away. What happened? Why didn't

the fish bite? Did it hear you? Possibly. Did it see you? Probably. It might even have felt you and smelled you. Fish can smell, taste, feel, hear, and see much as you do.

Fish use their senses to find their way and survive. Whether they eat a meal or become a meal depends on their ability to detect sights, sounds, smells, and tastes.



Do the whiskers sting? No. They taste! With taste-sensitive barbels, catfish and bullheads find food in dark, muddy water.

PHOTO COURTESY OF THE IN-FISHERMAN

Good Taste

Fish use their sense of taste to find food. Like humans, fish have tongues with thousands of taste buds. Some, like the walleye, also have taste buds on their lips and face. A walleye can taste your lure without ever opening its mouth. Sometimes walleye anglers say they felt “a bump.” That might have been a finicky fish tasting the lure with its face rather than its tongue.

Imagine tasting a chocolate sundae with your whole body. If you were a catfish, you could.

That’s because catfish have taste buds from head to tail.

Catfish have whiskers, called barbels. The barbels look like stingers but aren’t. Instead, they are like tiny fingers packed with taste buds. Catfish, carp, and other whiskered fish drag their barbels along the lake or river bottom to find food. When the barbels touch a tasty object—perhaps a dough ball, chicken liver, or “stink” bait on the end of your line—the fish stops and bites it.

Nosy Fish

Using its nose—one or two tiny openings on each side of its snout—a fish can smell food from far away. It swims to the source of the smell, then uses its taste buds to find out if it is good to eat.

Fish use taste and smell to find their way around. Salmon, after they swim hundreds of miles out to sea and back, use their senses of taste and smell to find the stream where they were hatched. They swim up the stream to lay and fertilize eggs.

Fish can sniff out danger. And many fish can smell people. They will swim away from your bait if they smell hand lotion, perfume, deodorant, tobacco, or insect repellent.

Salmon use smell to recognize the rivers they were born in. They swim upstream to lay eggs, sometimes becoming a meal for a brown bear.



DANIEL J. COX



A special mirrorlike tissue in the eye of the walleye reflects light, improving vision at night and producing the “wall-eye” look.

Fish Eyes

When you play soccer, you turn your head right and left to look for opponents who are trying to steal the ball. If you were a fish, you could check both ways at once without moving your head.

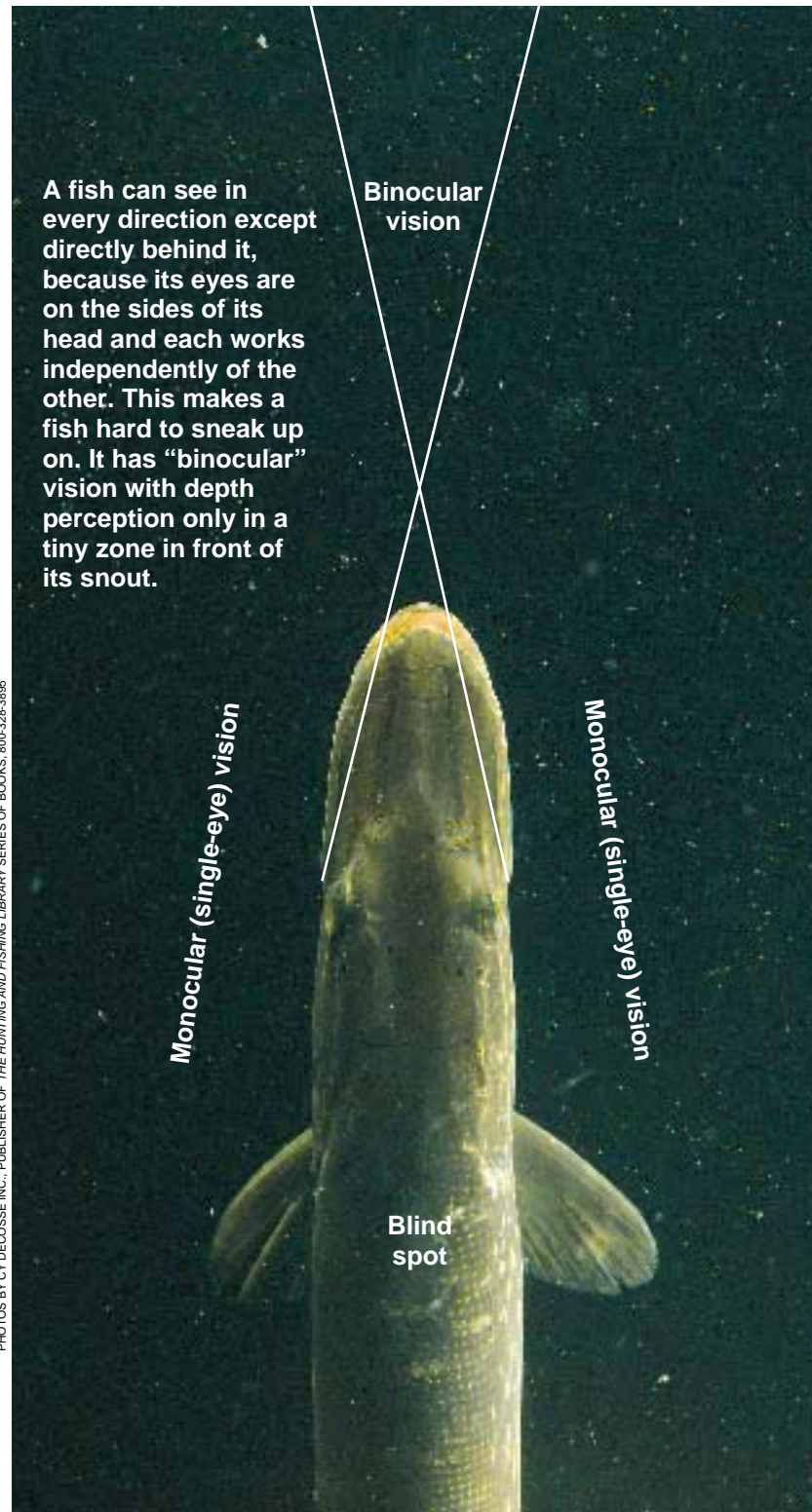
Although fish can easily look around, they can't see as clearly as we can. Even in clear water, fish usually can see no more

than 15 feet. They can see color.

Fish don't have eyelids, and their pupils stay the same size regardless of the amount of light. To protect their eyes from bright sunlight, they usually spend sunny days in deeper water or in the shade of lily pads, stumps, or trees. To find and catch fish during the middle of the day, you need to “cast for cover.”

Linda Braun is an aquatic education specialist for the DNR Section of Fisheries in St. Paul. C.B. Bylander, regional information officer in Brainerd, takes his kids fishing whenever he can.

Questions for Fish Jeopardy 1. What is directly behind it? 2. How do fish hear? 3. What is taste? 4. What is smelling? 5. What is the lateral line?

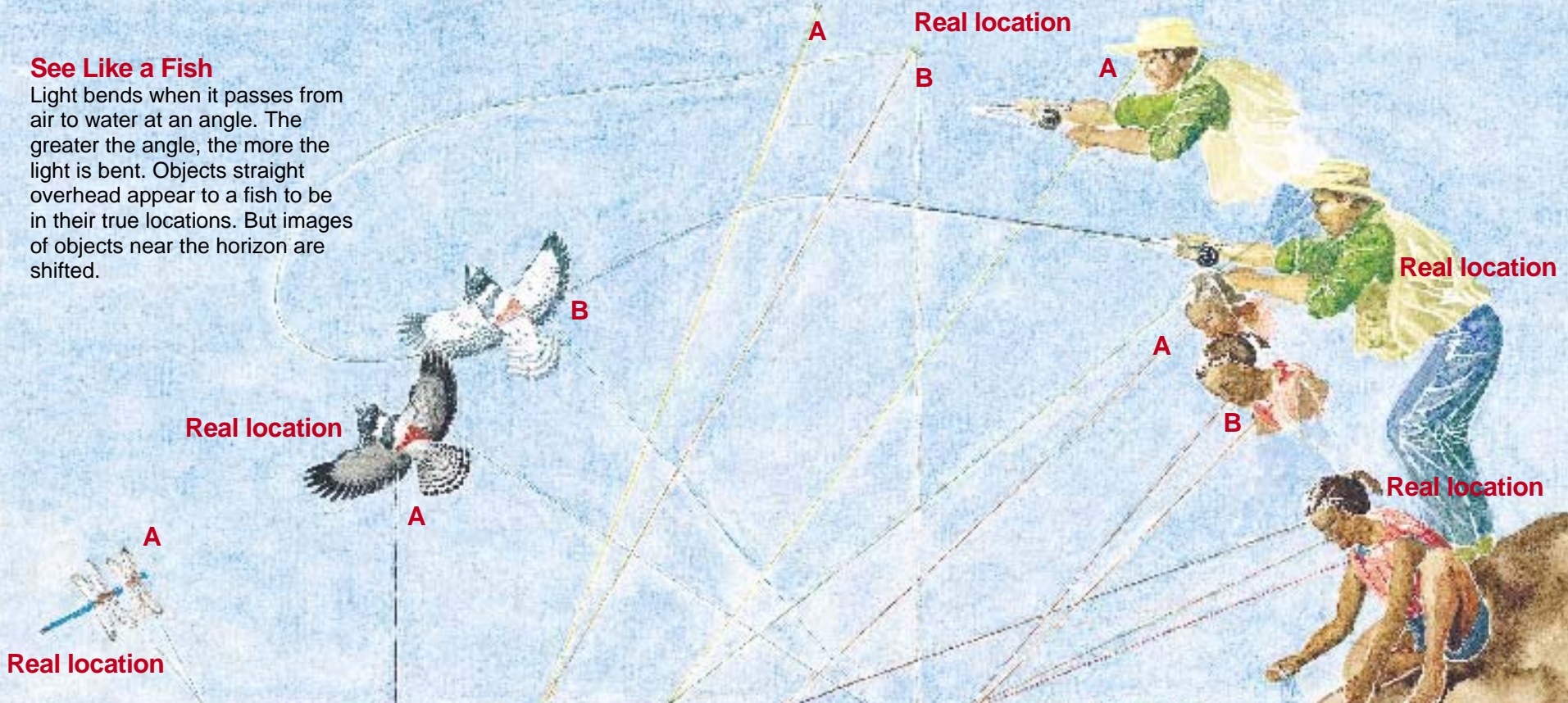


A fish can see in every direction except directly behind it, because its eyes are on the sides of its head and each works independently of the other. This makes a fish hard to sneak up on. It has “binocular” vision with depth perception only in a tiny zone in front of its snout.

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See Like a Fish

Light bends when it passes from air to water at an angle. The greater the angle, the more the light is bent. Objects straight overhead appear to a fish to be in their true locations. But images of objects near the horizon are shifted.



The brook trout on the left sees objects at position A. The small sculpin sees objects at position B. Light from an object very low to the horizon doesn't penetrate

the water at all. For that reason, you can stay out of a fish's "window" and avoid being seen by crouching or sitting at the water's edge.

Hidden Ears

Have you ever felt the rumble of thunder? You felt sound vibrations. Fish hear and feel vibrations moving through the water.

Fish don't have ear openings on the outside of their bodies, but they do have ears. In fact, their ears pick up sound so well fish can hear a worm wiggling at the bottom of a lake.

Because fish hear so well, even a little sound can spook them and keep them from biting your bait. That's why you need to be quiet when you fish. Talking is fine. But sounds transmitted directly to water, such as banging your feet on the bottom of the boat, can scare fish away.

PHOTOS BY CY DECOSSE INC.



The muskie feels the vibration of the twirling spinner blade with its lateral lines, hears it with its ears, and sees the flash.



The lateral line along its flank helps a fish detect motion in the water.

Motion Detectors

Fish have a unique sense of touch. A lateral line, a row of tiny holes, runs along each side of the body. Sensitive hairs inside each hole detect the location and direction of movement.

Fish usually detect your bait by sound and water movement. They hear and "feel" their way to your lure with their ears and lateral lines. Once they see the lure, they can tell if it looks like

something they usually eat. Then the fish might smell or taste the lure before inhaling it. As the fish inhales the lure for the final taste test, you're likely to feel a tug on the line. That's when you must set the hook quickly, before the fish spits out the lure. Timing can be the difference between going home with a fish or a story about the fish that got away.

Sensible Fishing Tips

- Stay low as you fish shallow, clear water. If you stand tall in the boat or at the water's edge, the fish will probably see you and be less likely to bite.

- Try various colors of lures. Some colors work better than others, depending on water clarity, depth, time of day, and the kind of prey in the lake or river. Most experts prefer dark lures at night because the lures show up well against the sky, which is usually lighter than the surrounding water.

- Keep your hands clean when handling lures. Bass are especially put off by the chemical DEET, which is in most insect repellents.

- Use small, slender bobbers that detect slight bites. A sunfish can inhale a bait, taste it, and exhale it in an instant. You will miss many light bites if your bobber is too big.

- Be fairly quiet when fishing. Don't run on the dock. Don't bang around in the boat. Don't unnecessarily disturb the water.

- Always wear a life jacket and fish with a buddy.



The eyes of walleyes glow with reflected light.

BY DECOSSE INC.

Get in the Habitat!

MinnAqua is a fun way to learn how to fish. This Department of Natural Resources program teaches everyone in the family how to fish. Learn what fish need, how to tell them apart, and how to follow the rules for fishing in Minnesota.

MinnAqua, sponsored by the DNR Section of Fisheries, is free to Minnesota residents. For more about MinnAqua, call 612-625-1291, or 218-828-6044 in northern Minnesota.

Fish Jeopardy

One person reads the answer, then teams try to come up with the correct question. A team earns 10 points for each correct question (see page 42).

1. A fish can't see in this direction.
2. Fish do this with bones (ears) beneath the skin.
3. Catfish barbels (whiskers) have this sense.
4. Salmon find their way back to spawning streams with this sense.
5. This row of tiny holes runs along each side of a fish to sense vibrations.