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## Dissecting bass behavior

### Understanding the ways of the largemouth is key to catching more fish.

By BRENT FRAZEE  
The Kansas City Star

For a creature with a brain about the size of a nickle, the largemouth bass certainly gets lavish praise for being a genius.

After a frustrating day on the water, many fishermen return to the dock and make the bass out to be the PhD of the fish world.

But here's some news for you. The largemouth isn't nearly as smart as it might seem.

"Some fishermen give the bass far too much credit," said Dr. Keith Jones, who is in charge of research at the Berkley Fish Research Station in Iowa. "The bass doesn't have the ability to reason. As soon as it hatches, it is genetically pre-programmed to follow certain behavior.

"It relies on its senses to guide its actions. Its vision, hearing, sense of smell and taste — that all plays a part. It's a sensory machine, and the sooner we as fishermen learn how those senses guide the bass' behavior, the more fish we will catch."

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When it's time to feed, that sensory machine is fully operational.

The bass relies on its vision as its No. 1 weapon. It has eyes that are specially adapted for underwater use, allowing for a wide range of vision. Jones said the bass has a maximum viewing distance of about 50 feet, But it has small binocular fields for close-up viewing to scrutinize its prey closely.

"We have seen many times in our research where a bass will rush across a tank at something, then stop to study it, then it will veer off," said Jones, who wrote the book "Knowing Bass: The Scientific Approach to Catching More Fish."

The bass' eyesight also determines how it sees colors. Light refraction plays an important part in how those colors are perceived. In clear water, for example, red is one of the first colors to disappear. It turns to shades of gray as it gets deeper. But in murky water, it remains one of the most visible colors.

Whatever the case, the bass' eyesight isn't nearly as sharp as that of a human.

"The sharpness of their vision is only 10 percent of ours," Jones said. "When they look at an object, they don't see nearly the detail we do."

That's why bass often rely on their unique hearing system to help. They have a lateral line that runs across the body to pick up vibrations.

"The bass uses its eyesight and lateral line in combination when it is feeding," Jones said. "The lateral line is very effective in feeling local disturbances one to two body lengths away."

The bass also uses its sense of smell and taste to determine whether something should be ingested. But its eyesight and hearing are the two primary senses that determine its menu.

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OK, here's where it gets tricky.

No, the bass isn't a natural brainiac. But it does have the ability to learn — from both positive and negative experiences.

"If a bass follows a spinnerbait, gets a good look at it and decides to hit it and then gets stung, he's going to learn to leave it alone because of that negative experience," Jones said. "That can even carry over to group dynamics. The less aggressive bass will hang back and see what happens to the more aggressive ones when they feed.

"If bad things happen to the aggressive ones, even the bass that weren't hooked will learn."

But not all bass behave the same way. Much the same as humans, bass are individuals, each displaying distinct behavior.

"Some individuals are programmed to be more aggressive," Jones said. "Other bass are just as dumb as a box of rocks. Those are the ones that are caught most frequently.

"But others are pre-programmed to be more wary and certainly less aggressive."

A 20-year study, led by University of Illinois research David Philipp, provided the first direct experimental proof that vulnerability to angling is an inherited trait.

Beginning in the 1970s, Philipp and his colleagues tagged and released largemouth bass in a pond in central Illinois. Some fish were caught up to 16 times a year. But when the pond was drained in the 1980s, they found that 200 of the 1,700 bass that were tagged had never been caught.

From that stock, the researchers bred groups of "high-vulnerability" and "low-vulnerability" bass. Then they stocked those fish in the same pond and repeated the experiment. Through three generations, the offspring stayed true to the parents' tendencies.

Another study in Illinois also documented a bass' learning ability.

A total of 1,027 bass were tagged and released, then fishermen were free to have at them. It took an average of only 24 minutes to catch the first 50 bass. But by the end of the day, it took over two hours to catch one of the marked fish. By the second day, it took five to six hours, and by the third day, 10 to 15 hours. Researchers deduced that the bass were able to learn by the negative experiences of being hooked but being able to escape or seeing a fellow fish caught.

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So, you and a buddy pull into a cove and work a stretch of bank for almost an hour without so much as a bite.

You mutter, "Nothing in here," and motor out.

Obviously, the bass weren't relating to that bank, right? Wrong.

On more than one occasion, electrofishing rigs with the Missouri Department of Conservation moved into those coves after the fishermen left, and began rolling all kinds of fish to the surface. Don't assume that the fishermen who failed to hook those bass didn't know what they were doing.

Sometimes, the timing just isn't right.

"We'll see all the times in our tanks where bass will be docile and laying in the bottom with minnows swimming right in front of their face, and they won't do a thing," Jones said. "Then, all of a sudden, they fly into action and grab a couple of those minnows, usually the ones that are struggling, then they'll go back to the bottom and not feed for a while."

What triggers those feeding sprees is difficult to determine. Some researchers theorize that barometric pressure and differences in light conditions may play a part. Others add that not only hunger, but also reflex actions, play a part.

Through his experiments, Jones thinks bass may even learn to get specific in their prey preferences. For example, they might hone in on certain prey fish with the type of body shape and size they desire.

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Don't get the idea that the lure has to perfectly imitate a bass' natural prey before the predator will eat it, though.

Several lure companies have come out with highly touted lures with intricate paint patterns designed to imitate baitfish.

But many of those baits proved to be a disappointment and never did sell the way manufacturers hoped they would.

The problem? They might have been too accurate.

“With natural prey like minnows, shiners and crayfish, one of their main objectives in life is not to be eaten by a fish,” Jones said. “They’re camouflaged, and that is one of their escape mechanisms.

“If you imitate that to a T, you might make it hard for a bass to even spot that lure.”

Conversely, even lures that look like nothing in a bass’ natural world can be effective. Jones cites the plastic worm.

“Bass don’t encounter many night crawlers in their environment,” he said. “Occasionally, they are washed in during a heavy rain, but they aren’t a common sight.

“Yet, the plastic worms is one of the most effective bass lures of all-time. We believe that is because of the motion they create.

“Bass will make a strike decision based on three factors: the size of the object, the shape of the object and motion.”

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So how can an understanding of the bass’ makeup help fishermen put more fish in the boat?

Kevin VanDam can answer that. A legend in the pro-fishing game, he credits much of his success to paying attention to what is going on in the bass’ world.

“One of the first things I will do when I practice for a tournament is that I will try to find what the bass are feeding on,” he said. “I’ll pay attention to the bait’s coloration, its size and how it is moving and I’ll try to imitate it.

“Sometimes just a little subtle difference in coloration of a crankbait will pay off.”

VanDam will also study the bass’ mood. If the fish seem to be sluggish and reluctant to hit, he will search for the type of bait that will trigger reaction strikes.

But even with an advanced knowledge of fish behavior, there are no absolutes.

“There isn’t a single lure out there that is so compelling that bass will hit it all the time,’ Jones said.

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To reach Brent Frazee, *The Star’s* outdoors editor, call 816-234-4319 or send email [t bfrazee@kcstar.com](mailto:bfrazee@kcstar.com).

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