

A recent article by Larry Bozka published in *Tide* magazine (July/August 2012) is enlightening. Entitled *Through the Fish Eye*, the piece describes and documents some of the current scientific knowledge related to how the eyes of fish work and what they see. Some of what I learned while reading the article was new to me; other facts were familiar and verified beliefs and principles by which I operate.

Fish don't see things the way we humans do; that much I knew. Their eyes are structured differently, and they perceive contrast and movement much better than they do color. In fact, most species of fish studied see color only within a limited range. "Speckled trout and redfish can discern a range of color from violet to orange, with a peak in the blue-range." Red and pink fall outside their range of discernible color.

Furthermore, color is much more visible to all types of eyes when the object carrying the hue is exposed to light. When something is submerged in water, less light reaches it, so its color becomes muted or altogether invisible. The deeper and/or more turbid the water, the greater its muting effect on color. Fish can't discern the colors of lures well in deep and/or murky water.

The fishes' eyes are somewhat like ours in one way. The physiology of their lenses adjusts to the amount of light entering them. In a human eye, this adjustment comes in the form of the quick expansion and contraction of the pupil. In the case of fish, the adjustment to more or less light is slightly different, and the process takes longer, up to an hour. Nevertheless, when night is coming or going, the eyes of fish adjust so they can see things better.

The eyes of predators like trout and redfish make the change faster than do the sight devices of their prey, giving them an added, temporary advantage around dawn and dusk. This explains why fishing in the low-light periods associated with the beginnings and ends of days is consistently productive.

I come to several important conclusions after reading this article. One is related to the importance of fishing during the transitional times of dawn and dusk. In almost all cases, one or the other should be included in a fishing excursion. Leaving the dock after the sun has risen and/or coming in before darkness settles fully in makes little or no sense.

Also, since fish perceive contrast and movement better than color, my belief about the relative importance of color compared to the selection of size and type of lure and *the presentation of the lure* has been further verified. In most fishing situations, the color of the lure is far less important than the specific lure chosen and the way in which it's made to move through the water.

This is one place where I feel the article failed to pick up on the relevance of the information it presented. Certainly, if fishes' eyes are super-sensitive to movement, this would explain why subtle differences in presentations (movement patterns) can produce such wildly different results in the number of strikes elicited. Tricking fish into striking a plug means convincing them they are seeing something real and vulnerable. Doing so primarily involves variations in movement patterns.

The article correctly stresses the importance of the fishes' other senses,

primarily their acute abilities to smell and hear. A "complex network of heightened sensory abilities...triggers every predator fish's propensity to strike an artificial lure." Only at the very end of the process does the sense of sight become paramount.

This further emphasizes the importance of attractive scents and noise-making attributes in lures. A moving lure displaces water, creating sounds which the fish either hone in on or react negatively to. Rattles, propellers and other aspects of the designs of plugs either aid or hamper the attempt to urge fish to follow a lure and strike. The way in which the plugs are moving affects the precise nature of these sounds, in the end playing a primary role in tricking the fish.

In the end, a fish does see the lure and makes a decision about whether or not to strike. During this brief time, color is important. The article points out an important fact; the specific color of a lure is less important than its ability to contrast against the backdrop. Speckled trout almost always feed looking up, so lures which create silhouettes against the backdrop of the sky make good sense.

This explains why black (and other dark) lures work best when it's dark, because they best present an accurate shape to the fishes' eyes. "Fluorescent colors are highly visible on cloudy days, when ultraviolet light is more prevalent." This verifies what I've always said about the effectiveness of dark lures with brightly-colored tails on cloudy days, especially in murky water. The fluorescent (primarily chartreuse) tails are easier for the fish to see.

Conversely, in clear water, fish don't need as much help in visually locating a plug, so less contrasting colors probably work better. This is why I like to use clear and other natural color patterns in extremely clear water. Colors which create greater contrast might convince fish not to strike. In most situations, selecting a color which stands out (contrasts) against the backdrop is more important than selecting one which has been carefully painted and made to look like the prey species it's trying to mimic.

Most people place far too much emphasis on color and too little on lure selection and precision in presentation. They are, in essence, searching for a magic bullet which doesn't exist. The color of a lure is most important in its ability to bolster an angler's (not a fish's) confidence. The best anglers choose colors confidently, based on sound principles, considering the color of the water and amount and type of light in the sky, then concentrate on presenting the proper lure in the optimal manner.