



a different point of smell

We humans have a natural, probably inescapable, tendency to assume that all creatures perceive the world the way we do. For us, seeing and hearing are so overwhelmingly important among the possible ways of detecting what is happening around us that it is very difficult to imagine any other way of operating.

Nevertheless, it is a fact that many animals use their eyes and ears very little — or even not at all — and instead rely on what we consider to be the "minor" senses of touch, taste, and smell.

Given our human limitations, we can never completely successfully get inside the skin of such animals to gain a convincing feel for how they monitor the world around them, but perhaps we can make a good try.

One creature that we could choose — although it might seem a surprising choice to some — is Algonquin's common brown bullhead or "catfish." We say surprising because, even if bullheads look a trifle strange with their big "whiskers," wide mouths, and smooth, scaleless skin, they do have eyes, they are still quite evidently fish, and there is no obvious feature about their appearance which would compel us to think they might operate in radically different ways from us.

Still, when you stop and consider their behavior, bullheads must possess some special abilities. They are chiefly active at night, they often inhabit quite muddy water (hence another common name — mudpout), and much of their food is somehow detected hidden in the ooze of lake and creek bottoms. Neither sight nor hearing can be of much use in these circumstances and, indeed, some local populations of bullheads are actually blind and still do very well.

The only really visible features about these fish that even hint at an ability to operate in dark, murky waters are the eight robust whiskers, more properly called "barbels," located under the chin, at the corners of the mouth, and beside the eyes. Most of the barbels are directed downwards and it does not require a great leap of imagination to think that they could be very useful in detecting by touch any prey animals buried in oozy bottom sediments. That is, in fact, the purpose of the barbels and when they make contact with suitable food the bullhead instantly engulfs the victim with its cavernous maw and swallows it, all in one incredibly rapid, convulsive movement.

Bullheads detect and approach food that is far beyond the reach of their barbels, however, and something other than the sense of touch must be involved. That something else is the bullhead's sense of taste operating in several hundred thousand (!) tastebuds all over the skin. It is almost as if each bullhead were a big swimming "tongue" capable of tasting all the subtle flavors diffusing through the water and even determining the direction of each flavor's source.

This is impressive enough but there is far more to bullhead life than feeling and tasting a path through dark water to the next meal. These fish have a complex social behavior which, depending on poorly understood circumstances, may range from possession and recognition of stable territories by individual neighboring fish to the opposite extreme of many fish living together in crowded but peaceful clans. Either way it is obvious that bullheads must have the ability to remember and recognize each other as individuals.

Theoretically, their sensitive tastebuds might permit bullheads to do this but, in fact, it is all done through their sense of smell. The exclusive function of a bullhead's nose is the identification of other fish and the reading of their moods and intentions. This has been dramatically shown by experiments involving two fish that have shared the same tank, fought with each other, and then have been separated and housed in different tanks. Even months later, if a bit of water is transferred from one of the tanks to the other, the bullhead in the receiving tank will "go crazy" in its attempt to attack, or flee from, the old enemy it apparently believes has invaded its tank. No comparable reaction is observed if water is transferred from a total stranger's tank, so it is apparent that bullheads have the ability to detect the presence of another bullhead from some chemical in the water and also to recognize the particular individual fish that gave off the offending "eau de bullhead."

We humans might be able to remember and recognize the scent of a rival after many months but we would never take any kind of action unless we could see the other person as well. With bullheads it's the other way round. In their world, vision is such a subtle and undependable sense that failure to actually see a nearby rival is of no consequence if that rival can be clearly and unequivocally smelled in the same tank. That is all the proof any reasonable bullhead could ever need! By the same token, a bullhead with a damaged, non-functioning nose is a social misfit, quite incapable of distinguishing one individual bullhead from another, and constantly getting into trouble.

We said at the outset that it is very hard to get inside another creature's skin. If we were inside that of a bullhead we would see and hear very dimly or not at all. Instead, we would taste faraway food with our skin, pinpoint it with our whiskers, and determine the identities and moods of our neighbors with our nose. This may not seem like a very appealing existence but that impression is just another reflection of how imprisoned we are by our own particular range of senses.

Or, to put it another way, beauty lies in the barbels of the beholder.

Reprinted from The Raven, courtesy of Ministry of Natural Resources.

white river



The White River surely is one of the more scenic rivers in Ontario. We know, because my five friends and I paddled this river from White Lake to Hattie's Cove. We thoroughly enjoyed spectacular waterfalls, canyons, exciting white-water, great fishing, various wildlife, and finally Lake Superior which was rough enough to make our sojourn "swell(s), aye!" We didn't see another human being from the start of the trip till the last day. This greatly added to the wilderness solitude. My friend summed up this river trip very well when at the end he said, "I wish we were just starting!"

Special thanks to Sandy Richardson and the WCA for all the help we received to turn our dream into reality.

Larry Flesch

