

AN ARCHER—THAT IS A *FISH*?!

Presented by

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As Blake pointed out in his sermon on “Bats—Animals that ‘See’ with Their Ears,” God created some extremely unusual animals. There are trap-door spiders that seem to be able to “come out of nowhere” to attack their prey. There are chameleons that can change the color of their skin anytime they want—almost in a heartbeat. And there are funny-shaped camels that can go for weeks on end without drinking a drop of water. Sometimes the thing that makes an animal unusual has to do with the way the animal looks. Consider, for example, the hammerhead shark, which has a rectangular head that can be **over three-feet long**, with one eye and one nostril on each end! Or, sometimes the thing that makes an animal unusual is its defense mechanism. As proof of that, picture the porcupine, which has hundreds and hundreds of various-sized extremely sharp quills all over its body.

But sometimes the thing that makes an animal unusual is the way it gathers its food. Perhaps one of the best examples of an animal that gathers its food in an extremely unusual way is the archer fish, which is famous for its ability to “shoot down” insects and other small creatures that are resting on tree branches or leaves hanging out over the water so that it can gobble them up. In fact, the scientific name of the archer fish is *Toxotes*, which means “bowman” or “archer.” Here is how the archer fish pulls off its amazing “shoot-and-swallow” meal-gathering trick.

The archer fish has a flat, vertically shaped body that is quite slender—which means that it can glide through the water without being seen, and thus sneak up on its prey quite easily. Plus, most archer fish have simple black-and-white markings on their skin, which serve to camouflage them in their dark, watery surroundings. When an archer fish spots an insect or lizard lounging on a leaf or branch above the water, it presses its tongue against a groove on the roof of its mouth to form a sort of makeshift “tube.” It then draws in a mouthful of water, closes its gills (so that the water cannot escape), and sticks its snout out of the water just a little bit. The archer fish uses the tip of its tongue to direct a rushing jet of water, which it shoots out of its mouth as if it were some sort of “submarine water pistol.” Because an archer fish has very large eyes located near its mouth, the accuracy of its aim is almost unbelievable!

However, that is not the end of this amazing story. Remember that while the fish’s snout extends out of the water, its eyes do not. As we all know, looking at something through water distorts the object that is being viewed outside the water. This is due to a process known as refraction. Incredibly, archer fish somehow “know” that they have to correct their aim to make up for this distortion. And, they also “know” that in order to allow for the refraction, they must shoot their “arrow” of water a little bit **underneath** their prey in order to actually hit it. That, of course, is exactly what they do! And they rarely miss! Equally amazing is the fact that if an archer fish needs to do so, it can shoot seven “arrows” in a row (in rapid succession), with each arrow going up to **six to nine feet** in distance. When the arrow of water hits the prey

and knocks it into the water beneath, the archer fish quickly gulps it down. And if the strike of the arrow itself does not immediately cause the prey to lose its balance and grip and fall into the water beneath, the sheer weight of the watery arrow on the insect accomplishes the same thing. Either way, the insect falls into the water—providing a tasty meal for the hungry archer fish.

However, that **still** is not the end of this fascinating story. Archer fish normally swim in “shooting groups” composed of several fish. If one archer fish hits an insect with its arrow, and the insect begins to plummet toward the water’s surface, another nearby archer fish may actually leap out of the water and grab the insect in mid-air! [Perhaps the archer fish who grabs the prey feels like a free meal is better than one he has to shoot himself!] Archerfish have been known to jump a whole foot out of the water in order to snag a meal.

Pretty impressive stuff, huh? But as you have listened to me present all of these facts, have you been tempted to ask yourself questions like these?

- Why does an archer fish have a horizontally thin, flat body so that it can sneak up on its prey?
- Why does an archer fish have dull black-and-white coloring instead of bright colors like many other fish?
- Why does an archer fish have a specially designed groove in the roof of its mouth that is “just right” for forming an “arrow of water”?
- How does an archer fish know how to aim its arrow with its tongue?
- How does an archer fish know to close its gills before it shoots the stream of water (so that the water cannot escape through its gills, but will be forced to exit through its mouth)?
- How does an archer fish know that it must correct for the distortion caused by the refraction of the water?
- How does an archer fish know exactly how much correction to apply to its arrow to ensure that it is directed slightly **underneath** its prey, thereby ensuring that it will actually hit the insect or lizard and knock it from its perch into the water below?

In short, **why is the archer fish so well designed? And how did it get so smart?** People who believe in evolution suggest that genetic mutations “somehow” caused the archer fish to “evolve” all of its design, intelligence, and instinct, and that natural selection then “somehow” fine tuned all of these traits. But could “nature” have produced the complicated, multi-step process needed by the archer fish to form its tongue into a special tube, draw in the correct amount of water, simultaneously close its gills, and then aim its “arrow” so accurately? Could “nature” alone have been responsible for the development of the neural pathways in the brain that are necessary for the archer fish to correct for the refraction caused by the water? Could “nature” have done all of this **in one fish, at one time**? Hardly! Mutations and natural selection cannot do such things. **But God can**, as Moses pointed out when he spoke of the God Who created “every living thing that moves, with which the waters abound, according to their kind...” (Genesis 1:21). God—the Great Designer—gave the amazing archer fish the ability and knowledge to do what it does. From ants to zebras—and everything in between (yes, including archer fish!)—God designed them all. As the Bible says, “He Who made all things is God” (Hebrews 3:4). Pretty impressive stuff, huh?