

Electrical Perception in Sharks

Sharks can locate their prey by following the minute electrical voltage that their prey generates. This ability to locate electrical charges in the water empowers the shark to hunt at night or in cloudy water and to find fish buried in sand. It also enables the shark to "see" the position of its prey so that it can orient its jaws.

The shark's electricity sensing organs are seen as groups of small black dots located primarily on the lower portion of its face and beside its jaws. These sense organs react when they absorb positive calcium ions in the presence of an electrical field. The cells then release neurotransmitters that cause nerves to fire and transmit data encoded in millions of electrical impulses describing the strength of the field. The brain receives and assembles this data, analyses it and comes to a conclusion as to the position of the source of the electrical field at any given moment. It is in this way that the shark can locate its prey in the dark.



What is most remarkable about this is that the sense is incomprehensibly sensitive. The shark's electrical sensing mechanism is so well designed that it can sense the presence of $1/1,000,000$ of a volt of electricity in a centimeter of water. Sensing $1/1,000,000$ of a volt in a centimeter of water is equivalent to sensing the presence of an electrical field produced by 1.5 volt AA battery with the poles 1342 km or 834 miles apart.

"One millionth of a volt across a centimeter of water can be distinguished by a shark. This is equivalent to a voltage gradient created by a 1.5-volt AA battery with one pole dipped in the Long Island Sound and the other pole in waters of Jacksonville, Fla."

Fields, Douglas, *The Shark's Electric Sense* (Scientific American, August 2007, Vol 297, Number 2), page 76.

That is similar to one pole on the coast of Southern Ireland and the other on the coast of Northern Spain, or one pole off the Philippine Islands and the other in Saigon.

What can possibly explain this incredible

ability?

Evolution has an explanation. Evolution explains that sharks accidentally developed the electric sense organs over a long period of time. A series of very fortunate accidental changes that were shaped by the survival of the fittest slowly changed the nerve endings in the shark's face and, by a series of other fortunate mutations, the nerve fibers grew and ultimately connected the sense organs to the right place in the shark's brain. At the same time, other accidental mutations conceived and implemented a code that is pure logic and has no physical existence of its own. The nerves accidentally changed so that they could transmit information relating to electricity to the shark's brain.

Somehow (no one knows how) the brain rearranged itself and created a neuronet that knows how to assemble and analyze the encoded messages from the electric sense organs and apply it to consciousness and reason. The neuronet computes at perhaps billions of cycles per second and comes to instantaneous conclusions relating to the position of the prey at any given moment. These same random mutations also devised a way to transmit billions of bits of data in code to another part of the brain for the purpose of creating awareness, thought patterns and conclusions.

Then, over the years and by a series of other random changes, the sense organs somehow got better and better until finally sharks could detect the presence of a pole of a 1.5 volt AA battery that is more than 800 miles away. All the sharks that could not detect the presence of 1/1,000,000 of a volt died out because the sharks who could detect 1/1,000,000 of a volt ate all the food. Generally, that is how evolution explains how the sharks of today can sense the presence of one pole of a 1.5 volt battery 1342 km or 834 miles away.

Unfortunately, this process has never been observed and cannot be repeated.

The explanation is ludicrous.

The shark is not the product of an unobserved series of extremely fortunate mutations. The shark is the product of a superior intellect. The shark is a created being that was created by a superior intelligence and designed to be a shark from the ground up.

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