

Elephantnose Fish Genetic Diversity

Research shows shocking reason behind elephantnose genetic diversity.

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Elephantnose fish by Tony Terceira. It is often said that sparks fly when people are attracted to one another. Now there is actual evidence of this type of situation occurring in elephantnose fish of the family Mormyridae. Research conducted by Dr. Philine Feulner, based at the UK's University of Sheffield, has revealed how these fish rely on electrical discharges to recognize potential mates.

Mormyrids generate voltage by means of an organ made up of specialized muscle cells in the tail. Their distribution is centered in the Congo basin of West Africa, where a number of species share the same rivers. This obviously increases the possibility of hybridization, as different elephantnose fish will come into contact with each other in such surroundings, and they tend to look rather similar in appearance.

Feulner's research has revealed that the wavelengths of their electrical outputs vary significantly between the different species. Recognizing such discharges therefore allows individuals to identify others of their own kind with certainty, even at night when these fish are most active.

Having recorded the exact electrical pattern from males that triggered spawning in females of the same species, Feulner was then able to induce similar females to lay their eggs by replicating these particular electrical fields artificially in the water. Up until this stage, it was thought that elephantnose fish only relied upon their electrical output to help them navigate in murky water and find prey, rather than to identify members of their own species.