

Electrogenic Fish

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In the grand evolutionary scheme, there have emerged a few disparate times where the capacity for fish to produce and use electric current has arisen.

Some fish families and their corresponding species are termed "strongly electrogenic." Such fish utilize specialized tissues to produce larger current and amperage of a higher magnitude to procure food and avoid predation by means of delivering an electrical shock. Other fish groups are "weakly electrogenic," including the mormyrids, many South American knifefish as well as others.

Mormyrids like elephantfish have muscle tissue in the near-tail portions of their bodies that through selective "leaking" and storing of charged particles can produce a magnetic or electric field about them. All living tissues contain charged particles called ions, but electrogenic fish can sense the movement of organisms passing through or about their relatively static magnetic fields. The head-to-tail stiffness of elephantfish helps them in this regard.

In addition, elephantfish can and do use the modulation of these fields for location information and communication. They are able to identifying other individuals and mates in this way.

Elephantnoses and Their Relatives - Article References