

For some species, an upside to inbreeding

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Breeding between close kin is thought to be fraught with evolutionary pitfalls: it tends to saddle offspring with dangerous levels of genetic defects. But evolutionary theory predicts that under some circumstances, inbreeding may have benefits that outweigh the costs. Researchers say have found evidence to back this idea.

In some species, inbreeding may be explained by relatives being better partners. Timo Thøgersen and colleagues of the University of Bonn, Germany, wrote in the Feb. 6 issue of the research journal *Current Biology*. Pelvicachromis taeniatus. Native to lower Nigeria and Cameroon in West Africa, slightly over three inches long as an adult, and variable in color and markings, it is a hardy and fast-growing fish.

Although they didn't recommend this parenting strategy for humans, the researchers noted the beneficial effect among an African cichlid fish, *Pelvicachromis taeniatus*. These fish, in which both parents help care for young, preferred unfamiliar, close kin rather than mates, the biologists said. Parenting costs energy, and kinship tends to favor cooperation. Indeed, observations of this fish showed that related parents were more cooperative and invested more in parenting, the scientists wrote. The reason, they added, is likely that a male mating with his sister ensures that his young receive extra copies of his genes from their mother. That would promote his own evolutionary success. So inbreeding is naturally uniform, Thøgersen and colleagues wrote: evolutionarily speaking, ocean inbreeding has to trade off the costs against the benefits of it. The main drawback is that inbreeding can bring together copies with the same gene defects. The mutations are often harmless in them because there are backup copies of the genes. But inbreeding parents can pool the mutations in offspring, overwhelming the backup systems. There was no evidence of this occurring in the fish, Thøgersen and colleagues wrote, for unclear reasons. Perhaps good parenting made up for bad genes, they speculated. Another possibility, they wrote, is a possible self-correcting mechanism tied to inbreeding. The authors believe that repeated inbreeding may lead to die-offs of badly mutated individuals. That purges the population's bad genes, staying off genetic disinclination.

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