

Females decide whether ambitious males float or flounder

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Aggression, testosterone and nepotism don't necessarily help one climb the social ladder, but the support of a good female can, according to new research on the social habits of an unusual African species of fish.

The study, published today in the journal *Proceedings of the Royal Society*, highlights the complex relationship between social status, reproductive physiology and group dynamics.

"We found that changes in social status were regulated by the most dominant female in a social group", says John Fitzpatrick, lead researcher and a graduate student in the department of Biology at McMaster University. "In fact, dominant females seemed to act as gatekeepers, allowing only males larger than themselves to move up in status and become dominant."

Males rising to a dominant social position, says Fitzpatrick, instantly altered their behaviour, becoming more aggressive. In addition, they dramatically ramped up their reproductive physiology, almost doubling the size of their testes in one week.

Working underwater off the Zambian shores of Lake Tanganyika in Africa, the researchers examined how males respond to changes in social position in the cichlid fish, *Neolamprologus pulcher*. This species lives in permanent social groups made up of a dominant male and female breeding pair and subordinate males and females that help this pair look after young and defend territory.

By removing the male breeders, researchers created vacancies and provided an opportunity for subordinate males to rise through the ranks.

"Hormones and genetic relationships didn't necessarily determine who gets to be top dog," says Sigal Balshine, the senior author on the study

and an associate professor in the department of Psychology, Neuroscience & Behaviour. "Most folks would have thought that how aggressive you are, how big and powerful you are or how much testosterone you have might be important in understanding status change and dominance rankings. Our study combined several approaches to show that simply isn't the case – instead, the female and the social landscape are key."

Source: McMaster University

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