

Fish have complex personalities, research shows

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A mock-up image showing a Trinidadian guppy (the small fish), a blue acara cichlid and a model of a heron. Credit: University of Exeter

Tiny fish called Trinidadian guppies have individual "personalities", new research shows.

Scientists from the University of Exeter studied how guppies behaved in various situations, and found complex differences between individuals.

The researchers tested whether differences could be measured on a "simple spectrum" of how risk-averse or risk-prone guppies were. But they found variations between [individuals](#) were too complicated to be described in this way.

"The idea of a simple spectrum is often put forward to explain the behaviour of individuals in species such as the Trinidadian guppy," said Dr Tom Houslay, of the Centre for Ecology and Conservation (CEC) on the University of Exeter's Penryn Campus in Cornwall.

"But our research shows that the reality is much more complex. "For example, when placed into an unfamiliar environment, we found guppies have various strategies for coping with this [stressful situation](#) - many attempt to hide, others try to escape, some explore cautiously, and so on.

"The differences between them were consistent over time and in different situations. So, while the behaviour of all the guppies changed depending on the situation—for example, all becoming more cautious in more stressful situations—the relative differences between individuals remained intact."

The study, published in the journal *Functional Ecology*, examined the "coping styles" of guppies in conditions designed to cause varying levels of [stress](#).

Mild stress was caused by transferring fish individually to an unfamiliar tank, and higher levels of stress were caused by adding models of predatory birds or fish.

The presence of predators had an effect on "average"

behaviour—making all of the [guppies](#) more cautious overall—but individuals still retained their distinct personalities.

Professor Alastair Wilson, also from the CEC at the University of Exeter, added: "We are interested in why these various personalities exist, and the next phase of our research will look at the genetics underlying [personality](#) and associated traits.

"We want to know how personality relates to other facets of life, and to what extent this is driven by genetic—rather than environmental—influences.

"The goal is really gaining insight into evolutionary processes, how different behavioural strategies might persist as species evolve."

The paper is entitled: "Testing the stability of behavioural coping style across stress contexts in the Trinidadian guppy."

More information: Houslay TM, Vierbuchen M, Grimmer AJ, Young AJ, Wilson AJ. Testing the stability of behavioural coping style across stress contexts in the Trinidadian guppy. *Funct Ecol.* 2017;00:1–15. [DOI: 10.1111/1365-2435.12981](https://doi.org/10.1111/1365-2435.12981)

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