

Survival of the shyest? Study identifies how personality influences rainbow trout's memory window

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A fish's personality can influence how it responds to, and learns from threats, according to a new study by Professor Grant Brown from Concordia University in Canada and his colleagues. Their work, looking at how personality influences a fish's memory of a predator threat, shows that bold trout forget predator odor, and hence potentially predator threat, quicker than shy trout. The research is published online in Springer's journal *Behavioral Ecology and Sociobiology*.

A prey's ability to balance the conflicting demands of avoiding predators and foraging, defending territories and/or mating depends on the availability of reliable information regarding predator threats. As predators can be present in different locations and at different times, learning and retaining information about a predator threat, and being able to recall it at a later stage, is key to better assess relevant threats in the future.

Brown and team studied how long juvenile [rainbow trout](#) retained information they had previously learned about a predator, and whether the duration of retention was influenced by the fish's personality i.e. whether they were 'shy' or 'bold'.

The trout were classified as either shy or bold depending on how quickly they escaped from test tanks once a movable [Plexiglas](#) barrier was removed. Those who moved quickly displayed risk-taking behavior - the

bold fish; those who moved more cautiously were avoiding risk - the shy fish.

The researchers conditioned the individual trout to recognize the odor of pumpkinseed, a [freshwater fish](#) and trout predator. They then tested whether they still recognised the odor, both 24 hours and eight days later.

They found that the fish's personality shaped how long the information was retained. Although there was no difference in the fish's [odor recognition](#) during the conditioning phase or after 24 hours, shy trout continued to demonstrate a learned response to pumpkinseed odor eight days later, while bold trout did not. These results suggest that the behavioral tactic employed at the time of conditioning i.e. risk-taking or risk-avoiding, influences the memory window of acquired information.

More information: Brown GE et al (2012). Retention of acquired predator recognition among shy versus bold juvenile rainbow trout. *Behavioral Ecology and Sociobiology*; [DOI 10.1007/s00265-012-1422-4](https://doi.org/10.1007/s00265-012-1422-4)

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