

Heritable variation discovered in trout behaviour

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Populations of endangered salmonids are supported by releasing large quantities of hatchery-reared fish, but the fisheries' catches have continued to decrease. Earlier research has shown that certain behavioural traits explain individual differences in how fish survive in the wild. A new Finnish study conducted on brown trout now shows that there are predictable individual differences in behavioural traits, like activity, tendency to explore new surroundings and stress tolerance. Furthermore, certain individual differences were observed to contain heritable components.

Researchers at the University of Eastern Finland, the Finnish Game and Fisheries Research Institute and MTT Agrifood Research Finland studied the consistency and heritability of key behavioural traits in brown trout by comparing half-sibling fish of known parentage. The study was carried out in the Finnish Game and Fisheries Institute's Kainuu Fisheries Research Station in Paltamo.

The research group discovered that the [behavioural traits](#) examined were individually repeatable, i.e., fish showed personality. Furthermore, certain behaviours related to [stress tolerance](#), such as freezing, showed statistical heritability at a level of 14%. This means that non-random mortality related to stress tolerance both in fish farms and in the wild can modify the heritable traits of fish populations and thus lead to changes that are difficult to reverse. At worst, these changes might weaken the ability of fish to avoid predators and decrease the [fisheries'](#) catches unless mitigated by acknowledging the potential selection acting on [fish](#)

personality.

More information: KORTET, R., VAINIKKA, A., JANHUNEN, M., PIIRONEN, J. & HYVÄRINEN, P. 2014: "Behavioral variation shows heritability in juvenile brown trout *Salmo trutta*." *Behavioral Ecology and Sociobiology*, in press.

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