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Effects of Pollution on Fish Behavior, Personality, and Cognition

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Abstract: *One of the most underappreciated causes of variance in wild populations' behaviour and cognition is pollution and other environmental stressors. We review the most recent fish literature and highlight four exciting lines of inquiry into how pollution affects fish behaviour, cognition, and fitness. To begin (1), we discuss the neurotoxic consequences of contaminants on fish psyches and brains.*
These changes in behaviour and cognition may influence the amount of pollution exposure, creating feedback loops that could magnify the negative impacts of pollution on fish fitness. Because some stressors may enhance the behavioural impacts of pollutants on fitness, we also recommend that (2) the effects of pollutants should be examined in a multistress context, i.e. in realistic environmental conditions in combination with other stressors. Thirdly (3), previous research has demonstrated that there is a strong correlation between the physiological, personality, cognitive, and fitness aspects of many disorders. The evolutionary paths of populations exposed to pollutants may be altered as a result of syndrome disruption. Thus, future research should concentrate on the intricate interrelationships between features in order to comprehend the effects of stresses on evolutionary trajectories. Fourth, (4) persistent pollution exposure might cause local adaptation or maladaptation, which can lead to wide ranges of sensitivity within the same species in the wild. The development of resistance to pollution may also constrain or be restricted by the evolution of resistance to other stresses.

Keywords: Temperament, contamination, stress response, multistress, evolutionary ecotoxicology

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