

# Impact of Environmental Pollution on Fish Personality and Cognitive Processes

**Dr. Anju Verma**

Assistant Professor, Department of Zoology

Kashi Naresh Government P. G. College Gyanpur, Bhadohi, U.P., , India

**Abstract:** *Pollution and environmental stressors are significant yet often underappreciated drivers of variability in fish behavior, cognition, and fitness in wild populations. This review examines recent research on the impact of pollution on fish and highlights four key areas of interest in understanding these effects. First, the neurotoxic effects of contaminants on the brain and psyche of fish are discussed, revealing how pollution-induced behavioral and cognitive changes may influence exposure levels. These feedback loops can amplify the adverse effects of pollution on fish fitness. Second, the effects of pollutants are explored within a multistress context, recognizing that realistic environmental conditions often involve the interaction of pollution with other stressors, potentially exacerbating behavioral impacts on fitness. Third, studies demonstrate a strong correlation between physiological, personality, cognitive, and fitness traits, indicating that pollutant-induced disruptions to these syndromes could alter evolutionary trajectories. Investigating the complex interplay of traits is essential to understanding how environmental stressors shape population dynamics. Finally, prolonged exposure to pollutants may lead to local adaptation or maladaptation, creating varying levels of sensitivity to pollution within the same species. Additionally, the evolution of resistance to pollution could constrain or conflict with the development of resistance to other environmental stressors. Future research should aim to unravel these intricate relationships to better predict and mitigate the impacts of pollution on fish populations and ecosystems.*

**Keywords:** Personality, cognitive, fitness traits, population dynamics, and environmental stressors etc