

Impact of Climate Change on Fish Reproduction and Early Developmental Stages

Dr. Anju Verma

Assistant Professor, Department of Zoology

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

Abstract: *The reproductive processes of fish and their early developmental stages are profoundly influenced by climate change, particularly through temperature variations and ocean acidification. Seasonal temperature shifts are essential for initiating spawning activities, with cooler temperatures stimulating reproduction in autumn-spawning species and warmer temperatures triggering spring spawners. However, rising global temperatures have been shown to disrupt these cycles, leading to shortened spring spawning periods and delayed autumn spawning. The extent and duration of temperature increases can cause significant reproductive challenges, from altered spawning schedules to complete reproductive failure, especially in species with narrow geographic distributions.*

Furthermore, temperature changes affect the endocrine system by reducing ovarian estrogen production, directly inhibiting reproductive success. Early life stages, such as eggs and larvae, are especially vulnerable to environmental changes, experiencing reduced survival rates, altered development, and disrupted growth patterns. Ocean acidification compounds these effects by impairing larval sensory functions and behavior, disrupting ecological interactions and hindering population replenishment. These combined effects highlight the critical need for understanding and mitigating the impacts of climate change on aquatic ecosystems to preserve biodiversity and maintain ecological balance.

Keywords: Ocean acidification, global temperatures, larval sensory functions, aquatic ecosystems etc