

EFFECT OF ECOSYSTEMS ON GUT ENZYMES IN AGE AND SEX-DEPENDENT OF ANADROMOUS HILSA, *TENUALOSA ILISHA* (HAM, 1822)

HENA CHAKRABORTY¹, BASANTA KUMAR DAS^{1*}, ARGHYA KUNUI¹,
AMIYA KUMAR SAHOO¹, JOYDEV MAITY², ABHILASH WODEYAR K.,
NABA KUMAR ACHARYA¹, MALA KUMARI¹

*This study investigated age- and sex-dependent variations in digestive enzymes of migratory Hilsa (*Tenualosa ilisha*) across freshwater, brackish, and marine habitats. Results showed significant sex-based variations in amylase and protease ($p < 0.05$), while lipase showed significant differences ($F = 4.745$, $p < 0.05$). Protease activity was significantly influenced by the ecosystem ($F = 109.6$, $p < 0.001$). Enzyme responses varied by habitat with dietary adaptations in different salinities. The observations led to optimizing the Hilsa feed based on age, sex, and habitat.*

Keywords: *Habitat, Salinity, Feeding Habit, Correlation, Hilsa, Migration*
