

FISH ASSEMBLAGE STRUCTURE AND ASSOCIATED ENVIRONMENTAL FACTORS OF RAWAN-OYA TRIBUTARY OF MAHAWELI RIVER

G.K. Kapukotuwa ^{1*}, **C.L. Abayasekara** ², **K.C. Weerakoon** ³ and **R.S. Rajakaruna** ^{1,4}

¹ Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka

² Department of Botany, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka

³ Department of Zoology, Faculty of Natural Sciences, The Open University of Sri Lanka, Nugegoda, Sri Lanka

⁴ Department of Zoology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka
*kapukotuwag@gmail.com

Local assemblages of organisms in aquatic ecosystems are associated with environmental factors that determine water quality. This study assessed the fish assemblage structure along the Rawan-Oya Tributary of the Mahaweli River and its association with physicochemical properties and faecal indicator bacteria (FIB) levels. Study sites represented forested, agricultural, rural, semi-urban and urban areas along the river. Within the sites, habitat types were defined as run, riffle, and pool. Fish species were sampled from February 2020 to May 2022, covering wet and dry seasons and identified *in situ*. Physicochemical parameters and FIB were assessed with standard protocols. Fish Species Richness (S) and the Shannon Diversity Index (H') were calculated using R statistical software. A canonical correlation analysis identified the relationship between fish assemblage structure and water quality parameters. Twenty fish species belonging to 17 genera and 11 families were recorded. The family Cyprinidae was the most dominant, followed by Poeciliidae and Danionidae. Fish species *Dawkinsia singhala*, *Garra ceylonensis* and *Schistura notostigma* are endemic to Sri Lanka. The characteristics of the habitat strongly influenced the fish assemblage structure. The species richness (S) and diversity (H') in pool, run, and riffle habitats were reported as 19, 19, and 5 and 2.5, 2.3 and 1.5, respectively. There was no difference in fish diversity and richness between dry and wet seasons (GLM; $p > 0.05$). *Schistura notostigma* was the most influential species at high altitudes (canonical coefficient = 3.7) and was associated with high dissolved-oxygen content, low levels of nutrients and FIB levels. *Poecilia reticulata*, and *Devario malabaricus* were common in sites with high biological oxygen demand, electrical conductivity, high faecal and nutrient pollution and demonstrated high tolerability towards the reduced water quality conditions. The fish assemblage structure of the tributary exhibited relationships with the habitat characteristics and the water quality parameters.

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