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Evaluation of habitat selectivity and species abundance of freshwater fish of the upper and lower reaches of the Kelani River Basin

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Kelani river is an important ecosystem complex for the freshwater fish biota of Sri Lanka and one of the most polluted rivers in the country. However, for Kelani River, the distribution of fish and their responses to fluctuations or stresses to water quality have not been investigated. Therefore, the study intends to analyze and compare the species composition, diversity and diversity indices of the fish fauna in the upper and lower reaches of the Kelani River. The study was conducted over one year period at upper and lower catchments of the Kelani river basin. Data were collected on species richness, abundance and diversity along with the most important diversity indices such as Shannon Wiener index (H'), Pielou's evenness and Simpson's index (Ds). Twenty-six predetermined sampling sites for both upper and lower catchments representing the main river with tributaries depending on the pollution status and fish availability were selected for the study. Fish diversity data were collected once in three months for all locations and all freshwater fish samples were collected using the cast net and after being identified they were released back to the site of capture. A total of 37 freshwater fish species belonging to 12 families were recorded and out of these, 22 species belonged to family Cyprinidae and 17 species were endemic to Sri Lanka. Furthermore, family Cyprinidae had the highest number of species in both catchments as 79.64% in the lower catchment and 94.45% in the upper catchment. Among the cyprinids species in both lower and upper basins, *Rabora daniconius* recorded the highest frequencies as 34.07% and 32.89%, respectively. Within the lower catchment, *Dawkinsia srilankensis* and *Garra ceylonensis* were present mostly in polluted locations and *Pethiya reval* was also evenly distributed forming these three species as a major component and the best-adapted species of the fish population. In the upper catchment *G. ceylonensis* and *Tor khudree* are present mostly in fast-flowing cold waters indicating their low tolerance for variation in temperature and dissolved oxygen. Within the lower and upper catchment, the highest H' index was recorded in Kaduwela (2.47) and Lahupana Ella (2.08) with comparatively high species richness with other locations respectively. Furthermore, the lowest value (0.69) recorded in Wellampitiya in lower reach relatively received low species richness as well. Within the upper catchment, the lowest H' index (1.09) was recorded for Bagawanthalawa located in the hilly area. Due to the proper conditions of the riverine habitats, fish species like *T. khudree* inhabit upstream whereas downstream has a higher species richness due to various available habitat properties in the river.

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