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Influence of water quality and substrate characteristics on the distribution of fish species in some selected tributaries of Nilwala river basin

River Nilwala located in the Southern part of Sri Lanka, with a catchment area of 960 Km2, consists of a complex tributary system draining through human settlements and natural forest areas. Considering the enormous natural and anthropogenic effects on these tributaries, the fish fauna of selected tributaries representing different altitudes and habitat types along the river course from Ahalakanda to Malimbada, was studied from September 1999 to May 2000 at eight selected sites.

Physicochemical parameters such as temperature, conductivity, DO, BOD, pH salinity, water depth, flow rate, No_3^- and Po_4^{3-} concentrations were determined. A checklist of the fish fauna was prepared. The relationships between the species distribution to water quality parameters and the substrate type have been established.

A total of 42 fish species were recorded from all sites. Out of these, 4 species namely *Amblyharyngodon melettinus*, *Esomus thermoicos*, *Eleotris fusca*, *Pseudosphromenus cupanus* were not recorded from Nilwala basin in previous studies. The sites located on upper tributaries were of high standard water quality and were associated with substrates consisted of boulders, pebbles, gravel (>60%) and both these criteria were highly correlated to the species composition. Changing water quality of intermediate sites did not show any significant correlation with species composition but associated with specific substrates. As river flows to lowland areas the substrate is replaced by silt. Immediate changes of the water quality from upper tributaries to lowland areas were reflected by the downstream species composition, which is different from that of upland tributaries.