

Catchment Characteristics and Water Quality of Three Reservoirs (Victoria, Minneriya and Udawalawe) in Sri Lanka

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Abstract

The structure, ecosystem processes and dynamics of Victoria, Minneriya and Udawalawe reservoirs in Sri Lanka, were studied over a period of two years (1998-2000) under the FISHSTRAT programme. As a component of the overall study, catchment characteristics and subsequent water quality of the three Sri Lankan reservoirs were examined. Catchment characteristics (viz., geochemistry, altitude, climate and weather, vegetation and soil, and the land use pattern) are the major determinants of the overall characteristics of the three reservoirs. Accordingly, water temperature, pH and electrical conductivity, important physical characteristics of Victoria showed marked differences from Minneriya and Udawalawe.

The annual surface temperature ranged between 25.5°C and 30.0°C in Victoria and it was 27.0°C - 29.5°C and 27.0°C - 31.5°C in Udawalawe and Minneriya reservoirs respectively. The open water was alkaline throughout 1999 in the two dry zone reservoirs, Minneriya and Udawalawe while it changed from more or less neutral to alkaline in Victoria. The maximum suspended solids transported by the Udawalawe inflow was 4 times than that of the Mahaweli trunk stream and 6.6 times of the inflow of the Minneriya reservoir. There is a similarity with slight exceptions in relative proportions of major cations and anions in open water and respective inflows mainly calcium, magnesium and sodium ions is balanced by bicarbonate and chloride.