E1-27: Studies on water exchange between Mundal Lake and Puttalam Lagoon

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Mundal lake is a shallow coastal body of water on the north-west coast of Sri Lanka. This is one of the highly productive eco- systems in Sri Lanka, covering an area of 29 sq.km.

Data was collected for 6 months from January 1993. Fourteen hydrographic stations were selected to cover the whole eco-system extensively. Water samples were taken, twice a month, during dry and wet seasons at 4 h after the high and low tides in the Puttalam Lagoon at Kalpitiya.

Salinity data during the period of study have wide variations. In Puttalam Basin, the salinity varied from 35-50 ppt and in Mundal Lake from 20-34 ppt. The mean salinity values in the Mundal Lake and Puttalam Basin were 27.59 ppt and 43.04 ppt. It was observed that the changing water level in the lake due to the tidal effect in the Puttalam Lagoon was only 1 cm.

The measurements of salinity fluctuations can be used to determine the mean volume flux and friction coefficient (k) between Mundal Lake and Puttalam Lagoon through the Hamilton Channel. According to these results, the salinity of the lake mainly depends on the evaporation and precipitation.

The exchange and flushing characteristics affected the salinity and pollutant level within the lake, which is turn affect the growth rates of prawns, fish etc.