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## Salinity variations in surface water systems in Delft Island Sri Lanka

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The present study was carried out to identify the locations and salinity variations of surface water systems in Delft Island. Regular field visits were made from January 2016 to January 2017, GPS locations for all water systems were taken using GARMIN GPS and plotted in the digital Delft Island map using ArcMap. Water depth (cm) and salinity (ppt) were measured using meter rod and hand held refractometer, respectively. A total of 37 ponds and 23 water holes were identified. Area of the waterholes ranged from 7.08 m<sup>2</sup> for Murugan kovil kerny to 194.94 m<sup>2</sup> for Makkikundu Kerny. The largest (647300 m<sup>2</sup> in area) and the deepest pond (150 cm in depth) were Periyakalikkulam and Sinnaveddukulam, respectively. All the ponds and water holes contain shallow water during rainy season except one pond namely Veddukalikulam. During the dry season, ten ponds and one water hole were not holding water; it is probably due to the bottom nature in the Delft Island. The average salinity of all surface water systems was 2.25 ppt during the wet season while it increased to 8 ppt during dry season. When considering the ponds, the highest salinity (15 ppt) was measured in Upputhannikulam during wet season and in Vannankalikulam (34.3 ppt) during dry season. Almost, zero value of salinity recorded in all the water holes during wet season, but an increased value of 15.2 ppt observed in Kuravady kerny in dry season. Higher value observed for the temporal scale of the salinity in most ponds could be due to the consequence of the saltwater intrusion into surface water systems in the Delft Island. The present study provides the status of salinity in ponds and water holes of Delft Island. The baseline data provide valuable information for local community, government officials, limnologists, researchers and policy makers in pond management.

**Keywords:** Delft Island, ponds, salinity, waterholes

**Acknowledgements:** Authors are grateful to Mangroves for the Future, Colombo (Grant No: FF/07) with Danida, Norad and Sida for the financial support.