



RELATIONSHIP BETWEEN COASTAL SALINITY AND PHYSICO-CHEMICAL PARAMETERS OF WATER RESOURCES IN BENTOTA RIVER BASIN

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ABSTRACT

Seawater intrusion and coastal salinity are major problems that affect the quality of inland water bodies and groundwater aquifers. This study analysed groundwater (GW) samples and surface water (SW) samples from the left bank of Bentota River Basin to determine the coastal salinity effect and physicochemical parameters (Temperature, pH, Electrical Conductivity (EC), Total Dissolve Solids (TDS) and Chloride (Cl-)). GW and SW samples were collected using systematic sampling method and the study was conducted during the period of July –September, 2016. Correlations of the above physicochemical parameters were identified using covariate and linear regression analyses. Positive correlations have been identified between GW EC, pH and Cl-as follows; $GWEC (\mu S/cm) = -1240.903 + 207.7GWpH$, $GWpH = -147.704 + 26.664 GWCl-(mg/L)$ and $GWCl-(mg/L) = 20.832 + 0.92GWEC (\mu S/cm)$. Moreover, positive Pearson coefficients between GWpH and SWTDS, GWEC and SWTDS and GWEC and SWCl-were 0.604, 0.739 and 0.823 respectively. It can be concluded that, the changes of SW salinity levels (defining from TDS and Cl-) have positively affected the changes of GW physicochemical parameters.

Keywords: Coastal salinity, electrical conductivity, linear regression, physicochemical parameters