

**Abstract No: BO-14**

**Assessment of water quality status in a tropical river mouth: Special reference to Kalu Ganga, Sri Lanka**

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Land-based pollutants are released into rivers and eventually reach coastal waters. As a result, these pollutants contaminate coastal waters in a non-point manner. Therefore, assessing river mouth water quality is crucial for managing coastal waters. Kalu Ganga is one of the major rivers in Sri Lanka, which starts from Adam's Peak and flows for about 129 km before being connected with the Indian Ocean at Kaluthara. The objective of the present study was to assess the current water quality status in the Kalu Ganga river mouth. Surface water sampling was carried out from August 2020 to October 2020 (Wet months) and January 2021 to February 2021 (dry months) every month. Six sampling locations were selected at the Kalu Ganga river mouth based on the random sampling technique, which included three locations along the right-side river mouth bank and three locations along the left-side river mouth bank. Altogether sixty water samples were subjected to the analysis of eleven water quality parameters, viz., temperature, pH, electrical conductivity (EC), total dissolved solids (TDS), salinity, dissolved oxygen (DO), biological oxygen demand (BOD<sub>5</sub>), and the concentrations of nitrate, orthophosphate (OP), total phosphate (TP), and chlorophyll-*a* (Chl-*a*) at each location using standard methods. Water temperature, EC, TDS, salinity, and pH were measured onsite using portable meters. In the laboratory, DO and BOD<sub>5</sub> were measured using standard titrimetric methods, while nitrate, OP, TP, and Chl-*a* concentrations were measured according to standard spectrophotometric methods. During the wet months, the average values for the temperature, pH, EC, TDS, and salinity were recorded as 30.1±0.2 °C, 7.42±0.39, 0.21±0.07 mScm<sup>-1</sup>, 0.24±0.08 ppt, 0.0±0.0 ppt respectively. DO and BOD<sub>5</sub> were recorded as 9.2±0.4 mgL<sup>-1</sup> and 0.4±0.3 mgL<sup>-1</sup>day<sup>-1</sup> respectively. The average nitrate, OP, TP and Chl-*a* concentrations were obtained as 0.15±0.01 mgL<sup>-1</sup>, 0.16±0.06 mgL<sup>-1</sup>, 0.31±0.06 mgL<sup>-1</sup> and 0.66±0.19 µgL<sup>-1</sup> respectively. During the dry months, the average values for the temperature, pH, EC, TDS, and salinity were recorded as 31.1±0.1 °C, 7.98±0.04, 25.34±7.33 mScm<sup>-1</sup>, 6.54±0.11 ppt, and 8.8±0.1 ppt respectively. DO and BOD<sub>5</sub> were recorded as 8.5±0.8 mgL<sup>-1</sup> and 0.4±0.2 mgL<sup>-1</sup>day<sup>-1</sup> respectively. The average nitrate, OP, TP and Chl-*a* concentrations were reported as 0.02±0.01 mgL<sup>-1</sup>, 0.13±0.01 mgL<sup>-1</sup>, 0.31±0.08 mgL<sup>-1</sup> and 0.56±0.25 µgL<sup>-1</sup> respectively. Except for BOD<sub>5</sub>, OP, TP, and Chl-*a*, all other parameter values were significantly different between wet and dry months (paired t-test, p<0.05). The elevations of EC, TDS, and salinity that have been noticed during the dry months indicate the saltwater intrusion into the Kalu Ganga river mouth. Studies including microbial contamination, bottom water quality analysis, etc., are recommended in the study area. Based on the findings, it can be concluded that the Kalu Ganga river mouth exhibits a low level of pollution in terms of the evaluated water quality parameters. At the same time, it is necessary to establish water quality standards for river mouths in Sri Lanka.

**Keywords:** Kalu Ganga, River mouth, Water quality