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**Impact on water quality arising from the introduction of a passenger boating service to the Wellawatte Canal**

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A passenger boating program has been introduced by the Sri Lanka Navy to the Wellawatte Canal, which is part of the Greater Colombo canal network, a heavily polluted urban canal system. The aim of this study was to assess any impacts on the quality of the water, both positive and negative, arising from this venture. The stretch of water flowing from the Diyawannawa Lake through the Kotte Canal, Kirulapane Canal, the Wellawatte Canal up to sea fall in Wellawatte was selected as the water body to be used in the study, and will be referred to as the Wellawatte Canal. The stretch of water which is popularly known as the Wellawatte Canal (after the Kirulapane Canal and up to sea fall) will be referred to as the 'Wellawatte section of the canal'. The Dehiwela canal which bifurcates from the Wellawatte Canal at Kirulapane to reach sea fall at Dehiwela (and which does not experience any boating activity) was selected as the water body to be used in comparison. This part of the system experiences the same hydrological dynamics as the Wellawatte section of the canal. Water samples were collected by boat from 15 sampling sites, throughout the course of 6 visits (performed weekly, from January to March), and standard methods were used in the analysis of selected physico-chemical parameters. The results revealed that many of the parameters had an increasing trend starting from the Diyawannawa Lake, up to the sea, along the two routes: the Wellawatte section of the canal, and the Dehiwela canal. However, despite the fact that the sampling locations were at a greater distance inland from the sea in comparison to the Wellawatte section of the canal, parameters influenced by the presence of the sea-total dissolved solids ( $2.74 \pm 0.69$  mg/l), salinity ( $1.11 \pm 0.23$  ppt), conductivity ( $2177 \pm 574$   $\mu$ S/cm), sulphate ( $40.97 \pm 9.95$  ppm) and chloride levels ( $253.5 \pm 48.5$  ppm) were recorded in the highest amounts in the Dehiwala Canal. Sulphate levels were high in the Diyawanna Oya ( $24.95 \pm 6.01$  ppm), and the three heavy metals (Cr, Zn and Mn) were also recorded in higher concentrations (Cr: 9.7 ppm, Cd: 1.9 ppm, and Pb: 3.74 ppm) from sediment samples obtained from this site (when compared to the water samples). Biological oxygen demand and total dissolved solids were recorded in lowered levels in the Wellawatte section of the canal ( $11.92 \pm 4.9$  mg/l and  $1.05 \pm 0.42$  mg/l respectively), when compared to the Dehiwala Canal ( $19.46 \pm 4.12$  mg/l and  $2.74 \pm 0.69$  mg/l respectively) and a possible reason could be the reduced amount of solid waste entering the water (influenced by awareness and maintenance programs conducted by the Navy as part of the operation of the boating service). The presence of oil and grease was recorded in equal concentrations from both water bodies and hence cannot be attributed solely to the passage of boats through the Wellawatte section of the canal. The boating service therefore does not impose a threat to the quality of the water of the Wellawatte canal, and has instead, through the



management practices adopted by the Navy (removal of the invasive weed *Eichhornia* and monitoring and removal of the amount of solid waste entering the canal) has served to improve the quality of water of this polluted water body.