

Present status of pollution based on water quality in Kudawella and Puranawella fishery harbours, Southern coast of Sri Lanka

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The impact of fishery harbours on food and economic security is significant and pollution of them can cause environmental damage and harm to public health. However, limited studies have been carried out to assess the pollution status of fishery harbours in Sri Lanka. Therefore, this study investigated the severity of pollution levels in Kudawella and Puranawella fishery harbours in relation to water quality and suggests possible pollution control measures to prevent water pollution in harbours. Physio-chemical parameters and biological parameters including microbial contamination and plankton composition were examined from seven sampling locations in each harbour from January 2020 to December 2021 and analysis was performed using standard methods prescribed for seawater analysis (Strickland and Parson, 1968) and APHA, 2012. Results revealed that the mean pH, Electrical Conductivity, and Salinity were within the standard limits for harbour waters. However, mean Biological Oxygen Demand (8.1 ± 4.5 ; 5.4 ± 1.1 mg/L), Chemical Oxygen Demand (926.8 ± 92.8 ; 720.1 ± 162.5 mg/L), and Oil & Grease (16.7 ± 4.8 ; 11.1 ± 0.9 mg/L) in two harbours were over the environmental quality standard values prescribed by Central Environmental Authority of Sri Lanka. Microbiological studies revealed that both harbours were contaminated with fecal coliform and *E-coli*. In addition, *Tropidoneis* sp, *Pleurosigma* sp, *Protoperidium* sp., *Chaetoceros* sp, *Thalassiosira* sp., *Actinopteryhus* sp., *Chaetoceros* sp., *Coscinodiscus* sp., *Fragilaria* sp. *Navicula* sp. were identified as the most abundant phytoplankton species within the two harbours. Kudawella fishery harbour subjected to higher chemical, oil, and microbial pollution than the Puranawella fishery harbour. PET bottles and poly sac bags pose a serious threat to Kudawella harbour and fibers from damaged boats may cause severe problems for both harbours. Therefore, long-term monitoring is essential to evaluate the pollution status of these fishery harbours and public awareness on wastewater treatment and improved sanitation facilities are essential to maintain the harbour environment properly.

Keywords: fishery harbour, Kudawella, pollution, Puranawella, water quality

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