

DISTRIBUTION OF HEAVY METALS SEDIMENTS OF HIKKADUWA, GALLE AND BERUWALA FISHERY HARBORS IN SRI LANKA

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Fishery harbors in Sri Lanka have been facing severe pollution problems during the recent past. However, a systematic monitoring of the level of pollution has not been done. Therefore, the objective of the present study is to determine the extent of pollution condition in selected fishery harbours of Sri Lanka, in order to identify possible sources for the contaminants.

The study was carried out on Galle, Beruwela and Hikkaduwa harbors, located in the South and South-west coastal regions of Sri Lanka. Harbors were selected considering operational capacity and visible contamination in the harbors due to various anthropogenic activities. Bottom sediment samples from each harbor were collected in November 2012 using Ekman grab sampler. Physico-chemical parameters such as temperature, pH and oxidation reduction potential (ORP) of the samples were measured in the field. Sediment samples were analyzed for selected elements Pb, Cu, Zn, Mn, Sr and Fe using Atomic Absorption Spectrometer (AAS).

Measured physical parameters of sediments are within the range given by European Union directives range (pH 6-9) for estuary and harbor basin criteria. This may reflect that contamination in the harbor has not adversely affected on water. In addition, sediments are characterized by negative ORP which reflect the anoxic condition at the bottom of the harbour even at the very shallow depths. Pb concentrations of Galle and Beruwela exceed the NYSDEC lowest effect level and CCME interim sediment quality guidelines that indicate moderate impact on aquatic organisms. Enrichment factor (EC) shows a significant enrichment for Pb in Galle and Beruwala sites. All selected elemental concentrations calculated Pollution Load Index (PLI) is less than one. This concluded that degree of the pollution in all those fishery harbours is significantly low.

Keywords: Fishery harbour, Pollution, Heavy metals