

**STUDYING THE PALEO - ENVIRONMENTAL
EVOLUTION OF KOGGALA LAGOON IN GALLE
DURING THE HOLOCENE.**

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Abstract

Due to the flooding of coastal areas, the coastal resources of Sri Lanka would be affected significantly by sea level rise. According to statistics the population is being increased in coastal areas especially, in the Wet zone, which has caused tremendous commercial and industrial growth and has put pressure on the coastal resources. Therefore, the impacts of sea level rise and sudden events of natural hazards are particularly significance in the Sothern and South-western coastal areas. Therefore, the protection of the coastal resources is absolutely necessary which was gratified through this research. This helps to understand the past environmental behavior of coastal ecosystem, which can also be expressed as “studying the paleo-coastal environmental evolution”. Indeed this evolutionary history can be used to interpret past and future environmental aspects in order to build a more strengthen present and a future for living beings.

Two continuous sediment cores KG 1 and KG 2 were extracted from the Koggala lagoon, situated on the southern coasts of Sri Lanka. Physical and chemical variations in sediments, caused by the coastal environmental changes occurred due to fluctuating eustatic sea level, were determined using X-ray fluorescence, gamma ray spectrometer, Organic matter content and dry sand percentage. The ages for the boundaries of mid Holocene sea level variations and recognized events were approximately calculated using the published regional age models equation (Ranasinghe et al., 2013.).

Results suggest there were three different Units were identified. Unit II shows evidence of Holocene marine transgression occurred between about ~5600 yrs BP and ~2200 yrs BP while Units I and Units III consist of terrigenous conditions. There are three tsunamis except 2004, were identified according to the results in the depth of 180 cm, 136 cm and 116 cm in both KG 1 and KG 2. The ages of the previous hazards were respectively ~5500 yrs BP, ~4500 yrs BP and ~4000 yrs BP.