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## Identification of historical changes and management of the Kalu river estuary (Calido beach)

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An estuary is a semi enclosed body of water, where a river meets the ocean. Fisheries, aquaculture, ecotourism, and port facilities rely on estuaries to contribute revenue to national, regional, and local economies. Estuarine shorelines are continuously dynamic and shaped by climate change induced by oceanic conditions, coastal erosion and river floods. Kalu river estuary is a beach, recently affected by estuarine dynamics in Sri Lanka. It was affected by floods in the short-term and coastal erosion in the long-term. The goal of this study was to identify the chronological causes and effects to manage the estuarine shoreline with the specific objectives of identifying the existing conditions of the site, estimating the accretion and erosion rates and areas, investigating the chronological causes and effects of management measures in river estuaries. The accretion rates and areas in Calido beach were estimated and aided in identifying the estuarine shoreline dynamic from 2004 to 2021. Reasons for the dynamic was identified as changes in the wave patterns, existing management structures, high discharge in the river in the main monsoons and unplanned widening of the estuary for the floods. The study was helpful to identify the underline issues with the estuarine dynamics. The fishing and the tourism sector of the residents will benefit through the identification of the most effective management measure. The study can be extended with bathymetric data and field surveys to estimate the sand volume in the future.

**Keywords:** Kalu River, estuary, management measures, historical changes, coastal erosion

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