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Spatial dynamics of water quality changes for monitoring the existence and migration of fish resources in the Estuary, Southeast Sulawesi, Indonesia

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This study was carried out with the aim of evaluating the spatial variation of the water quality in the Roraya and Lanowulu river estuary at RAWN Park coastal zone. Water quality in seven stations along the estuary was monitored including, temperature, salinity, turbidity, dissolved oxygen (DO), chlorofil-a and nutrients (NO2, NO3, NH4, PO4). This study was analyzed by surfer 11 software using the interpolation method and Principal Component Analysis (PCA) for an elucidation of the spatial dynamics of physicochemical qualities of two rivers estuary. The results showed that the spatial classification of water quality decline due to freshwater flow at low tide and input of sea water at high tide. The levels of DO, turbidity, chlorophyll-a, NO2, NO3 and NH4 of the Roraya river estuary were higher as compared with Lanowulu river estuary. The existence of natural mangrove in the Lanowulu river estuary plays an important role in maintaining of water quality. several types of fishery resources found in the estuary and survive with depressed environmental conditions such as fish, crabs, shrimp, and shellfish. Human activities around the Roraya River such as mining, agriculture, fishery and household waste activities are the main responsible factors for spatial variation of the monitored variables.

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