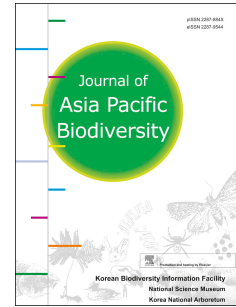


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Temporal and Spatial Variation of Nutrients, Suspended Solids, and Chlorophyll in Yeongsan Watershed

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in Yeongsan Watershed**

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Running Title- Physicochemical parameters in Yeongsan watershed

Abstract

The main theme of the study was to determine long-term temporal and spatial patterns of the nutrient regime (TP, TN), chlorophyll dynamics (CHL), suspended solids (TSS), biological oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC) and electrical conductivity (EC) in Yeongsan watershed, based on the dataset of ten years (2007-2016), and then to develop the empirical models of nutrient-chlorophyll. Summer monsoon is the key determinant which regulates the nutrient concentrations and algal growth of the watershed. The nutrient concentrations (TP, TN) were greater in headwater zone compared to mid and downwater zone due to high flushing rate during monsoon season. Total phosphorus ($R^2 = 0.23$, $p < 0.01$) is the key regulating factor for algal growth compared to TN ($R^2 = 0.03$, $p < 0.01$). The concentration of nutrients (TP, TN) were more influenced by the inflow and outflow in the headwater and downwater zone. Analysis of trophic state index deviation (TSID) indicated that phosphorus limitation was severe in headwater, midwater and downwater zone and biogenic turbidity was also observed in the watershed. The chemical health analysis of the Yeongsan watershed suggested that the overall chemical health was categorized as a Good-Excellent condition.

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