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Interseasonal hydrological characteristics and variabilities in surface water of tropical estuarine ecosystems within Niger Delta, Nigeria

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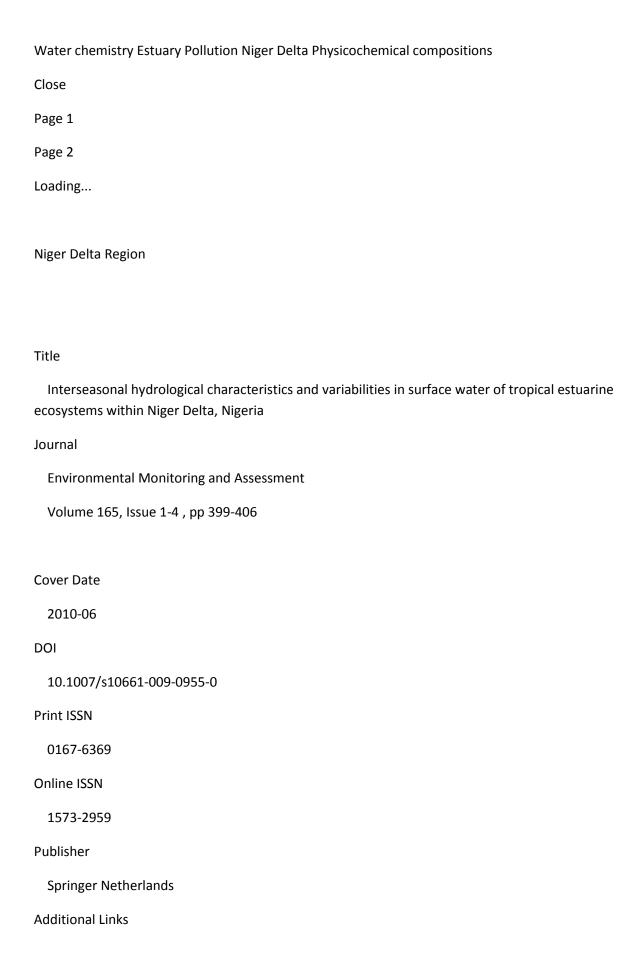
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## **Abstract**

We present a seasonal and baseline survey of selected physicochemical parameters in epipelagic samples from Qua Iboe (QIB) and Cross River (CRV) estuaries in Niger Delta region of Nigeria. The parameters analysed were temperature, pH, salinity, turbidity, total suspended solids (TSS), dissolved oxygen (DO), biochemical oxygen demand (BOD), total organic carbon (TOC), total nitrogen, available phosphorus, Ca2 + , Mg2 + , Na + , K + (exchangeable cations) and SO2-4, Cl - , NH+4 and NO-3. The results showed that the physicochemical parameters exhibited spatiotemporally explicit variabilities. The mean levels of the parameters were higher during the wet season (June–September) except salinity, DO, Cl - and NH+4 in CRV, whilst QIB recorded higher mean levels for temperature, pH, salinity, BOD, TOC, SO2-4, Cl - and NH+4 during the dry season (November–February). Significant seasonal variability was recorded for salinity, DO, turbidity, TSS, SO2-4 and NH+4 levels in CRV and for turbidity, DO, BOD, TSS, TOC, available P, Na, Cl - and NO-3 levels in QIB. This study confirmed that the degree of variability of the various physicochemical surface water quality indicators is dependent on the prevalent environmental estuarine factors.

**Keywords** 



## Water chemistry Estuary Pollution Niger Delta Physicochemical compositions Akan B. Williams (1) Nsikak U. Benson nubenson@wisc.edu (1) (2)

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