

An Assessment of Water Quality of Angaw River in South-eastern Coastal Plains of Ghana

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Abstract

Physico-chemical and bacteriological water quality of the Angaw river were investigated at three different locations on the river. A range of water quality variables were measured in the river over a period of 12 months. The river was characterized by high ionic content. Relatively higher levels of ionic constituents occurred at the upstream while lower concentrations were observed downstream due to the influence of River Volta, which has lower ionic content. There was a dominance of Na and Cl over the cationic and anionic components, respectively, due to the effect of atmospheric deposition of sea salt. Calcium and magnesium showed a strong linear correlation $r = 0.993$ significant at $p < 0.05$, indicating biogeochemical mineral weathering. The water was moderately hard (mean range of 89-133 mg l⁻¹ CaCO₃), salty and neutral with mean pH of 7.3±0.13. Conductivity, TDS and the major ions varied seasonally with elevated levels in the rainy season. However, nutrients levels were low during the study period and did not give any clear seasonal variation. The bacteriological quality of the water was poor, rendering it unsafe for domestic purposes without treatment. However, the water was suitable for primary and secondary contacts such as swimming and fishing. The poor bacteriological quality was due to direct contamination by animal and human wastes.