Water Quality Characteristics at the Estuary of Korle Lagoon in Ghana

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Abstract

The Korle lagoon is a major run-off water receptacle and outlet from the city of Accra into the Gulf of Guinea. Uncontrolled discharges of domestic wastes and industrial effluents as well as raw sewage (which are washed into the lagoon during high tides), have led to its environment being seriously degraded. Physico-chemical and bacteriological studies were conducted to measure the concentration of pollutants at the entrance of the Korle lagoon, from the offshore of the lagoon and from the raw sewage discharged onto the beach at neap and spring tides. Physical characteristics of the lagoon waters, such as *p*H and temperature, for the two tides did not show any large variations and were fairly comparable. Salinity, suspended solids and conductivity, however, varied significantly with tidal changes. Dissolved oxygen was extremely low at low tide as a result of large quantities of waste materials from domestic and industrial activities which reach the lagoon. This was also evidenced in high biochemical oxygen demand (BOD) as well as high faecal coliforms during neap tide. Changes in the concentrations of nutrients occurred with changes in tide; these being high, especially at high tide when sewage is back-washed into the lagoon. The study indicated that the entrance of the Korle lagoon to the sea and the adjacent sewage outfall area were polluted and not suitable for primary or secondary contact due to the occurrence of large numbers of coliform bacterial. However, the offshore area showed good water quality.