

Assessment of Marine Debris and Water Quality along the Accra-Tema Coastline of Ghana

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ABSTRACT

With an estimated population of 3 million people living along Accra's coast, Ghana is facing major challenges in managing its waste especially solid waste in metropolitan areas. A survey of marine debris was therefore carried out over a period of sixteen weeks at four beaches along the Accra - Tema coastline namely Sakumono, La Pleasure, Mensah Guinea and Korle Gonno beach. The main objective of the study was to determine the beach and water quality at the study locations. A 10 x 100 m belt transect was demarcated on each beach. Accumulated debris and one litre seawater samples were collected from the belt transects on all four beach sites on a weekly basis and analysed. A total of 18241 items of marine debris which weighed 297.59 kg were collected from the four beaches. Out of 51 individual marine debris items identified, 9 were found on the world's 'dirty dozen' list. Plastic materials dominated the debris collected accounting for 63.72% of total debris. Marine debris [rom land- based source formed the largest proportion of debris collected (93% of items/rrr' and 85% kg/m"). Water quality analysis revealed high mean levels of coliforms and *E.coli* above World Health Organisation (WHO) levels on all four beach locations. A social surve; that mainly targeted beach users was also conducted over the same period. Respondents were in the habit of littering and acknowledged marine debris as a problem. They also believed that Ghana's beaches are not clean and identified beach users as the main source of litter generation on the beaches. Intensive education remains key to combating the issue of debris on Ghana's coastlines. Water quality levels should be constantly monitored to avoid disease outbreaks. Where the levels are deemed life threatening, the beach should be closed off to the general public until such a time when it is safe. Ultimately, enforcement of

appropriate policy initiatives and continuous monitoring is vital to addressing marine debris along Ghana's coastlines.

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