

Distribution of harmful phytoplankton along the gradient of Ruvu Estuary of the Tanzanian coast

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Diversity and abundance of harmful phytoplankton as well as the environmental variables associated with their distribution were assessed on monthly basis along the gradient of Ruvu Estuary from August 2013 to July 2014. Sampling was done using plankton net of 20 μ m mesh size and a multiparameter probe (HORIBA U10) for phytoplankton and environmental variables, respectively. All samples were analysed following the appropriate oceanographic procedures. Twenty harmful phytoplankton species were identified being distributed in two dinoflagellates (*Dinophysis* and *Gonyaulax*) and three cyanobacteria (*Anabaena*, *Nostoc* and *Oscillatoria*) genera. The cyanobacteria *Oscillatoria* dominated the phytoplankton community in terms of number of species and abundance throughout the study except in May 2014 when the dinoflagellates predominated. The maximum density up to 352cells/l was observed in December 2013 following abundant nutrient concentration while the minimum was recorded in June 2014. The station located in marine environment recorded high number of harmful phytoplankton comparative to brackish and freshwater stations. The general linear model showed that the distribution of harmful phytoplankton was influenced by changes in environmental variables. However, different environmental parameters had varied effects on the occurrence and predominance of different species of harmful phytoplankton. The presence of harmful phytoplankton may pose health problems to coastal community who consume seafood which might have accumulated toxin producing species. Hence monitoring programmes of aquatic ecosystems to control harmful phytoplankton are recommended