AWATOX: Ecotoxicological survey around the peninsula of Dakar, combining sediment ecotoxicity, water column microbiological, trace metal, physico-chemical and microplastic analysis

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Abstract

A few decades ago, Senegal was a model for the sub-region with a drainage system connected to wastewater treatment plant. These infrastructures have been deteriorated and the country (especially the capital) is experiencing rapid population growth, urban planning and industrial development that are difficult to control. Industrial, fishing, agricultural activities and the massive discharge of domestic/industrial waste in nature are the major anthropogenic sources of marine pollution (sediment, water, flora and fauna). This pollution is likely to have negative effects on ecosystems by contaminating seawater, sediments, aquatic benthic species and pelagic species. Products derived from fishing activities for human consumption and animal feed may also present a health risk because of the presence of contaminants. This study aims to evaluate 10-15 areas around the peninsula of Dakar where waste waters are discharged. The proposal is to evaluate sediments ecotoxicity, microbiological contamination, physico-chemical water quality and to combine it with marine microplastics (> 200µm) analysis. For microbiological analysis, fecal contamination indicators and pathogenic bacteria (including Vibrio spp.) will be checked. Physico-chemical parameters will focused on trace metal elements and at final step the abundance of microplastic will be evaluated. The results of the study will be used for public awareness and for stimulating a regular monitoring at the national level for human health and marine ecosystem conservation.
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