

Study of the spatial variability of marine pollution around the peninsula of Cape Verde

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Abstract

Marine pollution, the scourge of modern times, is due to the runoff of domestic and industrial waters as well as to various anthropogenic activities, i.e. products and objects deliberately or accidentally discharged into the sea. The samples taken from 11 sites on the Cap-Vert peninsula in Senegal, indicate the presence of certain polluting substances in varying amounts. The objective of this work is to study the correlations between the physical, microbiological and chemical parameters in order to highlight the similarities between the sites and, if possible, to determine the most relevant parameter(s) to characterize the pollution. PCA results have shown that some sites appear to be less chemically polluted than others that are more polluted with eutrophication and chemicals (e.g., copper, mercury). From a physical point of view, for example, we observe that the characteristics of sediments (large silt, clays, fine silt) are related to certain chemical parameters. The AFC performed between the overall toxicity of the sediments and the microbiological quality of the water shows that the site of



Ouakam has a medium toxicity and a good microbiological quality while that of Cambérène and the Vivier are characterized respectively by bad and good quality but also by low toxicity at both sites. The two sites of Hann (Hann1 and Hann2), Soumbédioune, Ngor, Yoff Tonghor and Dakar Le Dantec are characterized by high toxicity and poor microbiological quality. Those in the Madeleine Islands and the Port of Dakar are characterized by high toxicity and bad microbiological quality. Moreover, as expected Soumbédioune appears as the most polluted sites in terms of microbiological load. The interest of the multivariate approach (ACP and AFC) is then discussed in this type of analysis.

Keywords: waste water, global sediment toxicity, trace metal, microbiology, Cap-Vert peninsula, Senegal.



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