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Pollution Status of Two River Estuaries in the Eastern Cape, South Africa, based on Benthic Meiofauna Analyses

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ABSTRACT

The benthic meiofauna of the two river systems, the Swartkops and Gamtoos, in the Eastern Cape of South Africa has been studied extensively. Various biological indices and statistical packages were used to assess the biological status of the nematode communities in the two rivers. Nematode identification was done to the genus level. Various environmental conditions, including, concentrations of Zn, Mn, Fe, Cu and Pb, organic carbon and chlorophyll-a in the sediments, were investigated in relation to the nematode density, diversity and community structure. The results of the studies indicate that higher concentrations of heavy metals had a negative impact on the nematode density, diversity and community structure. Nematode genera such as Rhabditis, Monhystera and Theristus were found to be tolerant to pollution or indicators of pollution. The Swartkops River estuary was found to be polluted more severely than the Gamtoos. It was realised that some nematode genera such as Viscosia can establish themselves along the river estuaries, irrespective of the salinity gradient. The quantitative effects of individual metals on the structure of meiobenthic communities could not be differentiated from one another. Similarly, the effects of metals and organic carbon on the structuring of the nematode communities could not be distinguished from one another. It is suggested that more studies of this kind be carried out along the coast of Africa to establish the potential indicator value of nematodes on the African continent.

KEYWORDS

Meiofauna, Nematodes, Heavy Metals, Pollution, Community Structure, Sediment

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