

Influence of trace metal and organic pollution on the community structure of intertidal gastropods at the coast of Cameroon

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Waste management problems coupled with industrialisation and urbanisation in developing countries have caused trace metal and organic pollution, especially of coastal environments (Rumisha *et al.*, 2012), since they are the boundaries between the open ocean and the terrestrial environment, where humans dwell. According to ADB/ADF (2009), Cameroon is facing a high rate of urbanisation, estimated at about 6% per annum over the past 5 years, when compared to the average annual population growth of about 2.9%. There is also a sprout of many new industries in urban areas. Cameroon's coastline, stretching from its equatorial Guinea border in the south to the Nigerian border in the north, is about 360km (FAO,1987).

We hypothesise that trace metal and organic pollution is high at Cameroon's coastline and that there is a gradient from the highly polluted Douala Estuary to neighbouring areas. Heavy metal and organic pollution will also have an influence on the community structure of the intertidal fauna, causing a decrease in diversity in areas with high pollution. The objectives of this study are: (1) to measure the level of pollution in sediment samples and gastropod fauna obtained from the intertidal and (2) to establish the relationships that may exist between these.

Sampling of sediments and gastropods was done in July and August 2012 at 13 stations along the coastline of Cameroon. Identification of the gastropod species is done, and the number of species and their abundance will be used to calculate the Shannon diversity index and to conduct a multivariate statistical analysis in order to compare the different stations. The chemical analysis of the sediments and organisms is ongoing. Digestion of the samples was done using a CEM **Mars 5 Microwave Accelerated Reaction System**. Afterwards, trace metals and organic pollutants will be measured with a *High Resolution Inductively Coupled Plasma Mass Spectrophotometer*.

Results obtained will provide information for the protection of coastal ecosystems and their management.

References

- ADB/ADF. 2009. Cameroon Diagnostic study for modernization of the lands and surveys sectors. Country Regional Department Centre. (ORCE). November 2009.
- FAO. 1987. Marine fishery resources of Cameroon: a review of exploited fish stocks. Fisheries and Aquaculture Department. ID 60062.
- Rumisha C., M. Elskens, M. Leemakers and M. Kochzius. 2012. Trace metal pollution and its influence on the community structure of soft bottom molluscs in the intertidal area of Dar es Salaam coast, Tanzania. *Marine Pollution Bulletin* 64:521-531.