

## **SPATIAL AND TEMPORAL VARIABILITY OF THE EPI-, HYPER- AND ENDOBENTHOS OF ECUADORIAN SANDY BEACHES**

Vandepitte Leen, Nancy Fockedeey, Thomas Vanagt and Magda Vincx

Marine Biology Section, Department of Biology, University of Ghent  
Krijgslaan 281 (S8), B-9000 Ghent, Belgium  
E-mail: nancy.fockedeey@ugent.be

Nine sandy beaches of different morphology along the Ecuadorian coast were sampled for surf zone epi-, hyper- and endobenthos on four occasions (August 1999, November 1999, February 2000 and May 2000). Spatial and temporal variation within and in between these three benthic groups were investigated, as well as a possible structural or functional link between the endo-, hyper- and epibenthos.

Within the endo- and hyperbenthos, five geographically distinct communities could be observed, which were different for both groups. Endobenthic communities were primarily structured by abiotic factors, with beach morphology being the major factor. Hyperbenthic communities on the other hand, were mainly subjected to seasonal fluctuations. Based on densities and species richness of the epibenthos, a preliminary distinction could be made between anthropogenically and non-anthropogenically influenced beaches. A combined analysis of epi-, hyper and endobenthos into 'macrobenthos' only showed a separation between exposed and sheltered beaches.

No clear structural nor functional link was found between the three benthic groups. This is probably due to the fact that only densities, species composition, richness and a limited number of environmental variables were considered in the analyses. The use of biomass data and combining these data with stomach analyses could give a more distinct pattern and may lead to an integrated food web.

When studying Ecuadorian surf zone systems more in detail, for example within the framework of the effect of climate changes on the benthos, one should bear in mind that (1) different benthic groups show different spatial and temporal responses, (2) temporal patterns are not necessarily the same between beaches and (3) the structuring function of environmental variables and the impact of human disturbance can differ considerably between the benthic subgroups.