



Impact of landslides on benthic biodiversity in the Gela Basin (Sicily Channel, Mediterranean Sea)

A. Pusceddu (1), A. Dell'Anno (1), C. Gambi (1), D. Zeppilli (1), L. Langone (2), S. Miserocchi (2), R. Danovaro (1)

(1) Local Research Unit CoNISMa, Polytechnic University of Marche, Dep. of Marine Sciences, Ancona, Italy, (2) ISMAR-CNR, Sede di Bologna - Geologia Marina, Italy, (a.pusceddu@univpm.it / Fax + 39 071-2204650 / Tel +39 071-2204335)

In the EU-funded Project HERMES, special attention is given to the factors/processes controlling biodiversity and ecosystem functioning in the deep seas. Landslides modify bottom topography and influence the structural properties of the sea floor. Therefore, it can be hypothesised that even many years after the mass failure event, both structural and functional features of benthic communities display significant differences when compared with adjacent (undisturbed) areas.

Although, the patchy distribution is a well-known feature of deep-sea benthic communities, information on spatial variability of deep-sea benthos is still extremely limited, and the knowledge of the effects of landslide events are practically non-existent.

In order to provide new insights on these peculiar systems and to assess the influence of historical mass failure events on benthic biodiversity, we investigated abundance and community structure of meio- and macrofauna and nematode diversity in open slopes and landslides located in the Central Mediterranean Sea. Furthermore, sediments were characterized in terms of grain-size, organic carbon contents and stable isotopes, organic matter biochemical compositions and sediment community oxygen demand.

Landslides in the Sicily Channel were characterised by meiofaunal abundance and diversity similar to those observed in the adjacent open slopes. Correlation analysis revealed that while in open slopes no relationships were observed between meio- and macrofaunal abundance and proxies of food availability (in terms of quantity and quality), meiofaunal abundance and diversity (even at the nematode species level) in

sediments affected by landslides were correlated with protein concentrations and protein/carbohydrate ratios.

These results suggest that systems characterised by the presence of historical mass failure events are characterised by very low food availability, which appears the main factor controlling abundance and diversity of meiofauna.