Multidisciplinary approach to evaluate the environmental health Flegrea coast

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Campania is the Italian region displaying the highest percentage of heavy polluted coastal areas: 80 kilometres of coastlines, on a total of 512, have been seriously degraded by pollution and water quality parameters are above the standard for waters suitable for bathing and other economic activities. A management and restoration policy in relation to polluted areas has to be based on analysis, either chemical or microbiological, which concern the environmental "health" from the ecological point of view, and particularly the rich biodiversity of the area at stake.

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The Domitio-Flegrea area, for its anthropic context, results to be highly significant for monitoring a marked environmental deterioration and change in the marine biotic communities structure.

A multidisciplinary approach is here used in order to evaluate the quality of Pozzuoli coastline waters by combining chemical and eco-toxicological analysis of the sediments to the systematic and ecological study to ostracod and benthic foraminifer assemblages. The analysis of both systematic groups provides data necessary to complete the water resources cognitive framework. The eco-toxicological analyses have been performed using organisms pertaining to different taxa, in order to allow a wide-ranging and more accurate evaluation of levels of pollution. The selected biomarkers are: *Vibrio fischeri* (bioluminescent Bacteria), *Dunaliella tertiolecta* (Clorophyta, unicellular green algae) and *Artemia salina* (Crustacea). Chemical analysis measured the concentration of PAHs (Polycyclic Aromatic Hydrocarbons) by SPE extraction and subsequent HPLC analysis.

The results allow to state that the evaluation of a marine ecosystem health has to consider the study on coastal sediments, and the different approaches here described provide more complete data on effects of human activities on natural systems.