

New field methodological approaches for the study of benthic boundary layer (BBL) biodiversity

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The benthic boundary layer (BBL) supports epibenthic, hyperbenthic and zooplanktonic, mostly macrofaunal, organisms with different degrees of mobility and bottom dependence. BBL species constitute a major link in marine food webs as consumers of detritus particles and associate microbes, meiobenthos and plankton and as prey for demersal fish and epibenthic crustaceans, many of which are commercially important. For the study of this particular fauna, specially designed sledges have been used over the last 30 years. However, there are still practical difficulties to sample efficiently at the sediment-water interface where many of these organisms are concentrated. As part of research into the development of new methods for the study of BBL biodiversity in the Cretan continental shelf, a modified hyperbenthic sledge (TTSS2) specifically designed to artificially resuspend the surface sediment and simultaneously to sample BBL macrofaunal organisms was tested. Comparison of species diversity patterns derived from samples collected by using this sledge, traditional benthic, hyperbenthic and pelagic gears combined with those from stomach content analysis of local demersal and benthic-pelagic fish indicates that the new sampling methodology could be effectively describe trophic interactions within the BBL habitat.