

## MACROFAUNA ORGANIZATION AND VARIABILITY IN INTERTIDAL BOULDER FIELDS

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### ABSTRACT

Boulder fields are between hard and soft sediments, and are consequently very heterogeneous habitats. Yet, they have received little attention and the ecology of their associated communities remains largely unknown. Although boulder fields are one amongst the most diversified habitats of the intertidal area, they are heavily exploited by amateur and tourist hand-fishing activities in western Europe.

Macrofaunal assemblages living in intertidal boulder fields were studied at different spatial scales in western Brittany in terms of distribution, abundance, biomass, species and functional diversities. Five different spatial scales were considered during the study: regional scale (western Brittany), island scale (1 km<sup>2</sup>), transect scale (500m<sup>2</sup>), sample scale (m<sup>2</sup>) and boulder scale (dm<sup>2</sup>). More than 300 macrobenthic species were identified. Results showed different patterns of spatial variability in the macrofaunal assemblages, that could be explained in part by the study at the finer scale. This latter allowed identification of three distinct biotopes in the boulder field, corresponding to i) an open rock community, ii) a sheltered rock community and iii) an infaunal sediment community. These three communities were, at a smaller scale, composed of different groups of species, each associated with a specific habitat that we termed microbiotopes.

The complex combination of these microbiotopes in the field, depending on the habitat structure (boulders/rock/sediment combinations), defines the observed faunal assemblages at higher spatial scales. Moreover, patterns of unvariability of communities parameters along the scale gradient were also observed, that could be useful in a conservation context of this habitat, for monitoring or assessment of disturbance.