

Living (stained) benthic foraminifera in the West-Gironde mud patch (Bay of Biscay, France): An ongoing survey for the European Community.

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During an environmental survey performed in summer 2017 (JERICObent-2 Cruise), living (stained) benthic foraminiferal faunas were investigated at 7 stations sampled within the West-Gironde mud patch, a mud belt located on the marine shelf in front of the Gironde River (Bay of Biscay, France). This study area is really strategic for local fisheries since substantial marine resources (demersal fishes, shrimps...) are easily accessible for coastal fishermen. Moreover, the mud belt is considered an important hotspot for marine biodiversity as far as food (i.e. sedimentary organic matter), which is naturally abundant there, could sustain an assumedly enhanced heterogeneity of benthic habitats for various taxon. In the framework of the European project JERICONext (ID 654410), we have been studying biological (prokaryotes, benthic meiofauna and macrofauna), sedimentary and geochemical patterns of mud-flat ecosystems in order to better understand how both spatial and temporal variability of riverine regime and coastal hydrodynamics impact the dynamics of the benthic life, especially foraminifera. Stations investigated in this presentation are located between 39 and 69 m water depth from the inner shelf to the mid-shelf. At most sites, surface sediment is characterized by clay-silt facies more or less enriched in organic matter. Oxygen penetration depth within the sediment is less than 7 ± 3 mm. Foraminiferal simple diversity (S) presents relatively moderate values ranging between 15 and 35 taxa. According to Shannon Index H' and Rarefaction Index ES(100), foraminiferal diversity tends to slightly increase with water depth. This trend is supported by *Eggerelloides scabrus*; its contribution decreases from the shallower stations (~50%) of the proximal mud patch (<55 m depth) to the deeper stations (<30%) of the distal mud patch (>55 m depth). This agglutinated species is generally considered a reliable bio-indicator of organic-matter enriched sediment in front of river mouths. It is noteworthy that the shallowest station (station 1, 39 m) is also characterised by the exclusive contribution of *Quinqueloculina lata/laevigata* and *Ammonia beccarii*, which are both typical of inner-shelf environments. There, surface sediment is made of fine sand. The deeper stations (>55 m depth) located in the distal mud patch are characterised by a remarkable contribution (~30%) of *Pseudoeponides falsobeccarii* and Buliminids (~30% respectively). They are accompanied by *Rectuvigerina phlegeri* and *Nonion fabum*, which are typical of mid- and outer-shelf ecosystems. The contribution of Buliminids underline the gradual increase of sedimentary organic content (>1.2% DW) with water depth.

Keywords: Living Benthic Foraminifera, Mud Belt, Environmental Spatial Variability, Sedimentary Organic Matter, Oxygenation Level