Diversity and biological trait analysis of soft-bottom macrobenthic communities in the Belgian part of the North Sea

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Soft-bottom macrobenthic communities are an essential part of the marine ecosystem for which a healthy status is aimed at. Therefore, insights in the structural and functional (trait based) characteristics of the soft-bottom benthic communities in the Southern part of the North Sea are obtained based on 18 years of data, with a large spatial coverage. The communities show clear differences in their structural properties. The fine sand *Abra alba* community and coarse sand *Hesionura elongata* community have the highest species richness and diversity values. The muddy *Limecola balthica* community and medium sand *Nephtys cirrosa* community the lowest. However, looking at biological trait characteristics, the communities show some functional redundancy. In the relative coarser, permeable sands, more free living, mobile species, were found causing diffusive mixing, whilst the finer sand and mud communities have more sessile, tube building and burrow dwelling species. With their contribution to bioturbation and bio-irrigation processes, the benthic fauna prove to be essential for the biogeochemical status of these finer sand sediments. Based on this integrated evaluation of biodiversity and functional related characteristics, we will demonstrate how this improve status assessments and an appropriate determination of the habitat sensitivity to different human induced pressures.

Key words: community, benthos, trait, sediment