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Feedback of benthic organisms to bedforms in the North Sea

Many studies in the North Sea show significant relationships between benthic macrofauna and their surrounding environment. In particular, they illustrate how specific groups of benthos effectively function as ecosystem engineers, modifying the seabed stability and landscape. Disturbances to the seabed, from anthropogenic activities such as sand mining, not only physically alter seabed morphology, but can also impact macrofauna community structure and densities. This could have cascading effects on local sediment dynamics, biodiversity or other ecosystem function and exchange processes. This project will study the interactions between the benthic organisms and seabed features, through processes such as ripple formation, erosion and incorporation of fines into the sediment. Benthic biodiversity and its relationship with geomorphology will be investigated through field campaigns as well as laboratory experiments using racetrack and annular flumes. The research aims to facilitate the development of design rules for smart and sustainable use of the sandy seabed.

Keywords: Geomorphology, benthos, ecosystem engineer, sand mining, benthic, North Sea