

PROSPECTIVE SAND EXTRACTION ON THE HINDERBANKEN: MONITORING STRATEGY FOR FUTURE IMPACT ASSESSMENT

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The exploitation of sand on the Belgian Continental Shelf (BCS) started in 1976 and increased rapidly from 29,000m³ to a current annual extraction of > 1,800,000m³. In 2004, three zones were (re)defined as sand extraction zones, while part of the Hinderbanken sandbank complex was assigned as exploration zone IV, mainly based on the assumption that gravel and coarse sand are present in high amounts in that area.

To describe the biological characteristics in exploration zone IV prior to extraction, a base line study was performed between 2005 and 2008 for three ecosystem components, namely macrobenthos, epibenthos and demersal fish. The Hinderbanken complex is a typical sandbank-gully system with a high variability in depth ranging from 10m to > 35m. This is reflected in the fact that the overall species community for the three ecosystem components in the Hinderbanken area is mainly structured by depth, i.e. the position of the samples in the gullies versus on top of the banks. Overall, gully samples were significantly more diverse and had significantly higher densities compared to bank samples. Therefore, it is recommended to avoid future extraction in the gullies. Furthermore, it would be ideal to allocate a reference zone within exploration zone IV, where extraction is prohibited, to allow for a sound impact assessment of potential sand and gravel extraction in the area.

The baseline study also showed that the sediment of exploration zone IV mainly consists of coarse sand (300-450µm), with the exception of some zones where a high percentage of mud or large cobbles and gravel are found. However, the zones with large cobbles and gravel are rather limited. Still, the coarse sand is of main interest to the Flemish Region for beach replenishment. Based on a seismic survey carried out by RCMG in 2009, several zones can be assigned as potential extraction zones with suitable coarse sand (300-420µm). Based on this geological study and the biological recommendations, two zones on top of the banks seem to have the largest potential for sand extraction. As there is a high need for this coarse sand, which is not found in other extraction zones, a Before-After Control-Impact (BACI) design for macrobenthos, epibenthos and demersal fish in the considered zones is set up, starting in Autumn 2009. This will enable us to accurately assess the potential future impact of sand extraction in these zones.