

How several pressures influence the benthic ecosystem status in the Southern Bight of the North Sea

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The marine ecosystem is influenced by several pressures, but at what pace do they impact it? An ongoing debate urging for uniform assessments. The Marine Strategy Framework provide a good base for scientifically sound assessments. The approach for evaluating the sea-floor integrity allows to objective compare and integrate the impact degree and the areal extent of degradation caused by human activities on the seafloor. In this study, we applied a harmonized and uniform set of indicators with respect to the benthic ecosystem in the Belgian North Sea. We assessed the impact of dredge disposal and aggregate extraction, two activities only allowed in dedicated zones, and compared this to the impact of the more widespread fishery activity. At certain pressure thresholds (e.g. volume disposed, volume and frequency of extraction, number of trawls), all activities caused a decrease in benthic habitat quality. However, for each activity the thresholds and the areal extent of degradation were quite different and dependent on the benthic habitat type in which the activity took place. Such detailed insights on pressure footprints are necessary, to allow for an integrated evaluation of the impact on the sea-floor status across multiple activities.

Keywords: benthic ecosystem; pressure footprint; indicators; harmonized assessment