

ENVIRONMENTAL IMPACTS RESULTING FROM THE DISPOSAL OF DREDGED MATERIAL AT THE S1 DUMPING SITE, BELGIAN CONTINENTAL SHELF

Du Four Isabelle¹, Steven Degraer² and Vera Van Lancker¹

¹ Ghent University, Renard Centre of Marine Geology (RCMG), Krijgslaan 281 – S8, 9000 Gent, Belgium
E-mail: isabelle.dufour@ugent.be

² Ghent University, Section Marine Biology, Krijgslaan 281 – S8, 9000 Gent, Belgium

To guarantee a safe access to harbours, dredging of the maritime access channels is needed. Moreover, shipping channels have to be adapted to the continuously increasing size of vessels. In some cases, the dredged material is reused for beach nourishments or infrastructure projects, but mostly, it is dumped on offshore dumping sites. The efficiency of a dumping place is determined by economic, physical and ecological criteria: (1) dumping places need to be situated close to the navigation channels; (2) a low recirculation of the dumped material towards the dredging places is aimed at; and (3) a negligible effect on the ecosystem should be ensured. The goal of this research is providing baseline information on the impact of dumping on the morphology, sedimentology and biology and the adaptation after cessation of dumping. Both the dumping site as its environment have been considered.

The investigated dumping site S1, the largest on the Belgian Continental Shelf, and its surroundings were surveyed with a multibeam echosounder (RV Belgica) providing bathymetrical and backscatter data. Additionally, seabed samples were taken for sedimentological/biological analyses with a box corer, a Reineck corer or Van Veen grab. Finally, chrono-sequential single-beam echosounding was used to investigate the morphodynamic evolution from 1995 until 2002.

Generally, the results reveal that on a short- and medium-term, the impact of the dumping of dredged material on the morphology, sedimentology and ecology is drastic, but localised. After the cessation of the disposal of dredged sediments, it seems that the site has restored a morphodynamic equilibrium, both from a morphological, sedimentological point of view, however this is hard to say for the biology (*cf.* nine stations are devoid of macrobenthos).