

Cross-border sediment relocation pilot to prevent sediment disbalance in the Scheldt estuary

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Introduction: The Scheldt estuary is of major ecological and economic importance. It forms the fairway to several harbors and has valued protected nature areas. However, at the moment, the sediment budget of the estuary is decreasing due to persistent sediment extraction, which is a major pressure.

Sandy material is dredged from the Lower Sea Scheldt (Flanders) to ensure maritime access to the harbor of Antwerp. This material is relocated to a sheltered location ‘Schaar van Ouden Doel’ where the sand is commercially extracted to maintain the capacity of this site for future sediment relocations. However, reducing the amount of sand in the estuary causes a sediment disbalance, resulting in an increase of water volume and an amplification of the tidal range. This creates less favorable hydrodynamic conditions and impacts estuary uses, safety and environmental conditions. Navigation conditions are impacted due to lower water levels at low water, flood risk is increased due to higher water at high water and the capacity for photosynthesis is decreased by high turbidity caused by higher current velocities.

For these reasons, (commercial) sand exploitation in the estuary is seen as a major pressure which should be eliminated. A pilot is set-up to study a possible cross-border solution to decrease the need for commercial sediment extraction.

Methods: The objective of this cross-border relocation pilot (GrensOverschrijdende ProefStorting – GOPS) is to find an alternative relocation site for the dredged sandy material. Several locations have been considered and evaluated, out of which two final locations were selected. The pilot aims to study the effects on the environment such as how estuary morphology may change and how ecosystems will be impacted, resulting from the relocation of dredged sandy material at these sites. The material will originate from maintenance dredging works in Flanders and will be relocated just across the border at two selected sites in the Netherlands. An extensive monitoring program is set-up to study influences on the morphology and ecosystems surrounding the relocation sites.

Results: The field pilot commenced in the fall of 2020 and will run for two years. Intensive monitoring at the

two relocation sites and their surroundings will be carried out and analyzed during the project period.

Discussion: The multiple aspects regarding the set-up of this project will be evaluated. This includes the exploration phase with definition of the aims of the pilot and the preparation and execution of a field pilot. Suitable sediment relocation sites for a field pilot were selected using a multi criteria analysis. In preparation of the field pilot with cross-border relocation sites, the environmental effects were assessed to assure compliance with applicable legislation, including the European regulation on shipments of waste. During the field pilot intensive monitoring allows to study the impact of this project on the morphology, ecosystems and the sediment disbalance.

Based on experiences of the permitting process as well as the results of the monitoring and the influence on the sediment disbalance, the pilot will be evaluated. As part of the Scheldt estuary’s long term vision, sediment disbalance in the estuary needs to be reduced. This initiative may provide a good measure which can be implemented permanently in the estuary.

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References: IMMERSE (Interreg North Sea Region program) <https://northsearegion.eu/immerse/>