

Verschoring van de Westerschelde

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The Western Scheldt has undergone a considerable transformation through centuries of embankment and more recent decades of dredging in its current role as a shipping lane to the port of Antwerp. As a consequence, it has experienced considerable tidal amplification, which the estuary has not yet fully adapted to. In this presentation, we discuss the consequences of those hydraulic changes on the future geomorphological and ecological character of the Western Scheldt. Over the last three decades, the intertidal flats in the Western Scheldt have been consistently rising and many new marshes have appeared. We explain how these changes are linked to the tidal amplification in the Western Scheldt using a conceptual model of bed level equilibria. The elevation of the tidal flats in the estuary is determined by the balancing rates of sediment deposition and erosion, which have both been re-balanced to a new equilibrium by the modified tidal range. Rising tidal flats experience more frequent inundation-free periods, increasing the likelihood of initiating a reinforcing feedback loop that leads to (1) drying, erosion-resistant sediment and (2) eventual marsh expansion. Using these findings, we discuss how the Western Scheldt is likely to develop in the next century as a consequence of its current management.



Figure 1: Marsh expansion on the tidal flat of Zuidgors, in the Western Scheldt, between the growing seasons of 2021 and 2022.

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