

# USING SEDIMENT AS A RESOURCE (USAR)

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## Abstract

The USAR project (Using Sediment As a Resource) aims to introduce technologies, methods, and tools for the use of dredged sediments in novel ways by water managers across the 2 seas region and beyond. This is challenging because sediment is generally regarded as a ‘waste’ rather than a ‘resource’ and legislation often hinders dredged sediment re-use. However, USAR makes recommendations to improve legislative possibilities for recycling sediment. This is achieved using evidence-based pilot projects which aim to develop a circular economy of sustainability by prioritising resource efficiency, and with sediment related tools; ‘Operational Sediment Management System’ and ‘WikiSed’.

Three pilots were commissioned, including developing a local product to counteract soil subsidence of a peat pasture in Rotterdam, NL, using 260,000m<sup>3</sup> of dredged sediment from the River Durme, BE, to create a flood-storage compartment supporting rare freshwater mud flats and marshes, and re-using 35,000m<sup>3</sup> of dredged marine sediment to restore 3 hectares of unique saltmarsh and mudflat habitats protecting the sea defences in Brightlingsea, Essex, UK.

The waste hierarchy, that prioritises prevention of sediment entering waterways can negate problems at an early stage, but this is not always feasible. These pilots helped generate nature-based solutions to problems such as sea level rise by building sediment levels. Surfaces colonised with halophytes (saltmarshes) absorbed wave energy, thus forming a natural barrier to coastal erosion and flooding.

Although innovative methods and unique breakthroughs were delivered, using sediment as a resource remains challenging due to legislative barriers. Efforts continue to change mindsets about re-use opportunities of sediment, with potential end-products that have monetary value.

The USAR outputs are publicly available for all water managers and engineers to adopt into their practices. Future solutions to sediment management problems can be developed with greater ease, thanks to pilots, OSMS and WikiSed Tools made available by the USAR project.

**Keywords:** Resource efficiency, Sediment, Saltmarsh, Circular Economy, Sea level rise.