

COASTAL NFM: BEACH NOURISHMENT

Natural Flood Management (NFM) in coastal areas is used to manage flood risk and erosion through using natural methods and measures. This can be done by improving the number of natural buffers which help to absorb tidal and wave energy. The NFM measures can be placed on the coast, in intertidal areas or both. Examples of NFM measures include dune regeneration, managed realignment and beach nourishment.

Beach nourishment is the replacement of material which has been lost from beaches by sea or wind erosion. Replenishing material lost to erosion rather than building large hard engineered defences will keep the beach looking natural whilst providing protection from flooding to the local community. Long term management plans are required for nourishment projects as the replenished material may erode in a relatively short space of time, resulting in the process needing to be repeated periodically, and at considerable cost.

Dredging

Material is dredged from the sea bed and pumped to shore along with large amounts of water. As the dredged material is pumped onto the beach the water drains away leaving the sand behind.

Reprofiling

This involves the reshaping of the beach by moving material by machine from areas of accretion to areas where erosion has taken place.

Transported

Dredged material from other areas or gravel/sand that has been quarried on shore can be transported to site by truck and placed where it is required.



Lincolnshire Beach Nourishment

The Lincolnshire coastline has experienced the effects of coastal erosion for thousands of years. The area is popular with tourists and holidaymakers and also contains valuable agricultural land. For the past 24 years the largest beach nourishment programme in the UK has been protecting 20 km of shoreline, alleviating flood risk for 30,000 homes and 19,000 static caravans. The annual cost of the work is approximately £6 million (Royal Haskoning).

High tides and storm surges constantly erode the beaches along the coast between Skegness and Mablethorpe, increasing the potential flood risk along the low lying coastal flood plain.

To replace the eroded material, Team Van Oord use a Trailing Suction Hopper Dredger to suck up sand 12 miles off shore. The material is then brought close to shore and pumped through large pipes onto the beach where it is reprofiled by bulldozer and excavator, this process is repeated twice per day at high tide.

Each year approximately 400,000m³ of material is replenished along the coast using GPS to achieve the required design level. The replacement material also provides a buffer to the hard engineered coastal defences reducing the possibility of them becoming undermined by the effects of scour.

