

COASTAL NFM: DUNE REGENERATION

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.

Sand dunes are natural barriers which can protect our coastal towns and villages from high tides and flooding. Dunes form above the level of high tide when the plants that live in these salty, damp conditions trap wind-blown sand, which over time accumulates and increases the height and width of the dunes. As the dunes increase in size, more habitat is created in which more plants and ecosystems can live.

Dunes are dynamic and constantly change due to varying wind speed and direction, rising sea levels or storm surges that cause waves to reach higher up the beach eroding the dunes. The recreational activity of visitors to the dunes can also disturb the natural process of their formation. To slow the erosion of these natural coastal flood defences, there are techniques which can help to stabilise the areas where there has been dune loss:

Dune Fencing

Built seaward of the dunes, fencing inhibits trampling from recreational beach users allowing sand to settle and increase dune size.

This can be used in combination with dune planting to encourage seaward dune growth.



Sand dunes at Formby Point by David Dixon
[CA BY-SA 2.0]

Dune Planting

Plants such as Lyme or Marram Grass help to stabilise the dunes by trapping sand, as their root systems are extensive and mat together.

Established plants also reduce wind speed over the dunes, slowing erosion. Plants may be self sustaining after initial period of establishment.



NJ9921 Dune stabilisation at Menie May 2010 by Peter Rombin [CA BY-SA 2.0]

Dune Thatching

Covering the face of dunes with bundles of straw, branches and even waste Christmas trees in some areas, increases sand accretion and protects dune vegetation.

A benefit of this technique is that there is no establishment time required.



KA / Sand Dune Restoration / CC BY-SA 2.0

Case Study: Fylde Sand Dunes

On the Fylde coast there are approximately 80 hectares of sand dunes. This reflects an 80% loss of these natural flood defences in the last 150 years as the coastal resort developed from the 19th century onwards.

In 2008, Fylde Borough Council and The Wildlife Trust commissioned a sand dunes management programme to look at how the dunes could be improved and enhanced. Working with natural processes, dune fencing was constructed to encourage sand accretion and also keep visitors out.

Waste trees were planted to speed up the process of accretion, and Marram Grass was then planted to stabilise the sand when the plants became established.

