

# COASTAL FLOODING AND MANAGEMENT

Coastal erosion and the threat of flooding will only increase as sea levels rise over time. As our shores and landscapes change naturally without intervention, more water will reach further inland putting more homes and communities at risk of flooding.

## The main causes of flooding are:

- Storm Surges:** These are changes in sea level due to high winds and low pressure conditions.
- Rising Sea Levels:** This gives a higher starting point for the storm surges and larger waves that can overtop the coastal defences putting more people at risk of coastal flooding.
- Reclaimed land:** Reclaimed land can be susceptible to flooding as it is low lying and flat.

## Coastal Flooding and Erosion Management Methods

Coastal erosion is the loss of coastal land through the removal of sediment and bedrock at the shoreline. There are four main erosion processes, known as attrition, hydraulic action, abrasion and corrosion. The various techniques and options below are used to slow down the effects.

### Hard Engineering

These methods involve using man-made structures to protect the shoreline against flooding and erosion.

#### Breakwaters



**Douglas breakwater**  
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#### Gabion Baskets



**Gabions, Solent Beach**  
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#### Groynes



**Dovercourt groynes**  
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#### Revetments



Image: The Flood Hub

#### Rock/concrete armour



**Rock armour**  
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#### Sea Walls



**Sea wall - below Highcliff Castle Golf Club**  
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### Soft Engineering

These methods use natural processes to protect the shoreline against flooding and erosion.

#### Cliff stabilisation



**South Coast cliffs**  
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#### Managed realignment



Image: The Environment Agency  
Hesketh Out Marsh West in the Ribble Estuary during the construction phase

#### Dune regeneration



Image: The Flood Hub

#### Beach Nourishment



**The Beach at Cley, Norfolk**  
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