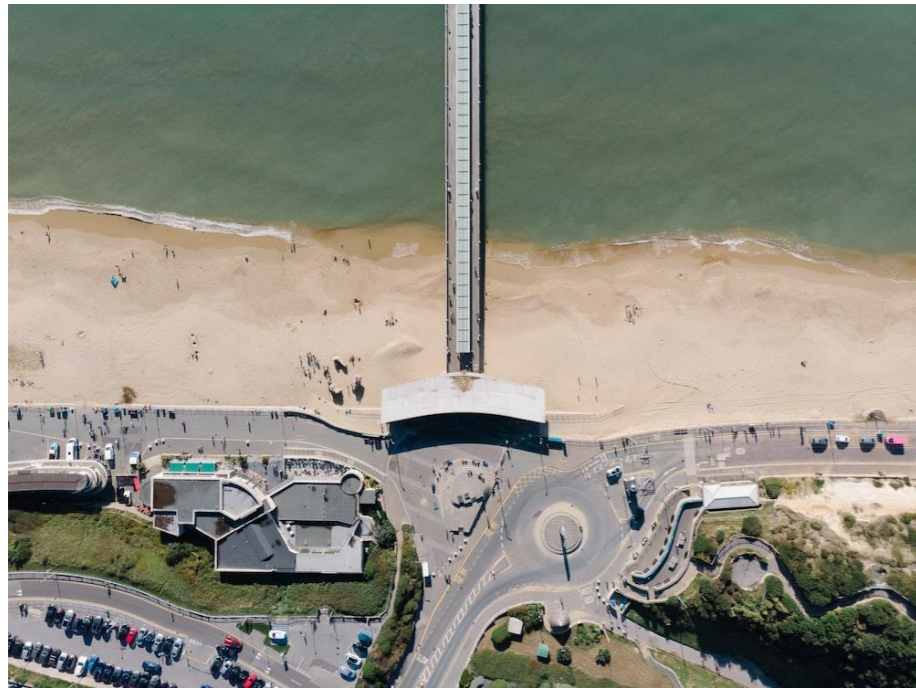


Dynamic Coasts

YEAR 5 | SPRING 2



OVERVIEW

Coastal regions and towns in the UK and around the world have unique features that set them apart. People use these areas for different reasons like living, trading, fishing, tourism and energy. The physical processes such as erosion and sedimentation that shape the coastlines are dynamic and constantly changing. So, to protect these coastlines, people use coastal management systems.

Islands are pieces of land surrounded by water. They are different from bigger land masses called continents. There are different types of islands like continental islands (UK, Greenland, Madagascar), oceanic islands (Hawaii), tidal islands (Mont St Michel, France), barrier islands (Fire Island, NY), coral islands (Bahamas) and artificial islands (Palm Islands, Dubai).

TYPES OF ISLAND



Continental

Much larger than other islands. Part of a bigger landmass called a continent, and is not formed by volcanic activity nor submerged landmass. E.g.: the UK



Oceanic

Formed by volcanic activity and is located in the middle of the ocean, far from any continental landmass. E.g. Hawaii



Tidal

Only visible during low tide and is under water during high tide, usually connected by a causeway to the mainland. E.g. Mont St Michel, France



Barrier

A long, narrow island near the coast, separated from the mainland by a body of water and made mostly of sand. E.g. New York



Coral

Formed by coral reefs, usually in tropical or subtropical waters; composed of coral rock, coral sand and other materials that have been accumulated by the coral organisms. E.g. Bahamas



Artificial/Man-made

An artificial island is one that is built by humans, it can be made of different materials and used for different purposes such as urban development, tourism or military. E.g Dubai

Greenland

Is the world's largest island

1/4

Approximately one quarter of countries are islands

80

In the UK, no-one lives further than 80 miles from the seashore.

Australia

Is the world's smallest continent

One sixth

of the global population live on an island

KEY VOCABULARY



TIDE

The alternate rising and falling of the sea



ARCHIPELAGO

An extensive group of islands/a sea or stretch of water having many islands



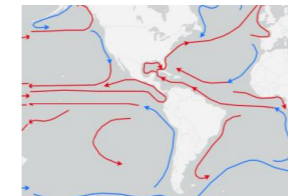
PENINSULA

A piece of land almost surrounded by water or projecting out into a body of water.



EROSION

The process of eroding or being eroded by wind, water, or other natural agents.



CURRENT

A body of water or air moving in a definite direction

TYPES OF UK COASTAL DEFENCES



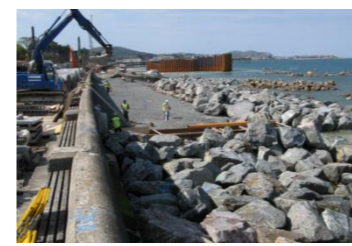
SEA WALLS

Sea walls are typically made of concrete or stone and are built to protect coastal areas from the impact of waves and storm surges.



GROYNES

Groynes are structures built perpendicular to the shoreline to trap sediment and prevent longshore drift. They help to stabilise beaches and dunes and protect coastal areas from erosion.



BEACH NOURISHMENT

Beach nourishment is a process of adding sand or other material to a beach to increase its size and protect it from erosion. Usually used together with other defences.

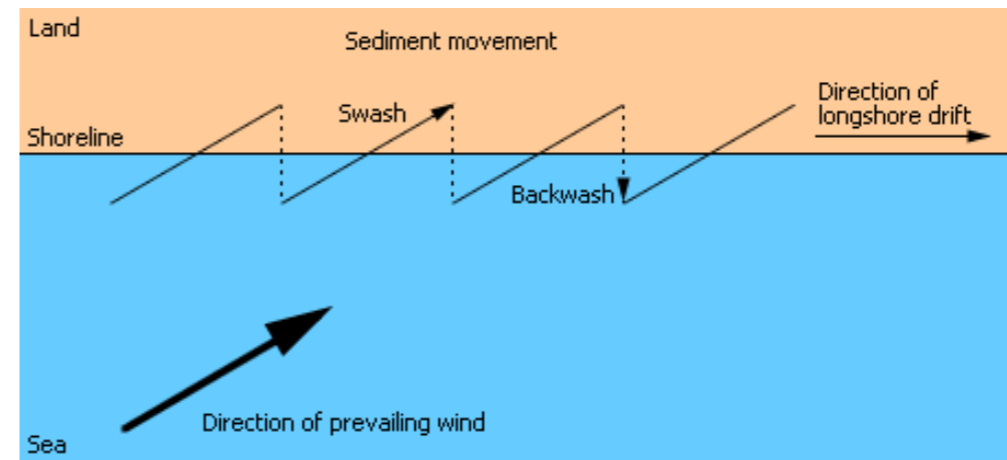
HUNSTANTON

Hunstanton is a seaside town on the coast of Norfolk, England. It is known for its distinctive red and white striped cliffs and its long sandy beach. The town has been a popular tourist destination for over 150 years.

- The town's coastal features include the red and white striped cliffs, which are made of different layers of rock that have been tilted and exposed by erosion.
- Coastal erosion is a significant concern in Hunstanton. The town is protected by a sea wall, but the cliffs are constantly being worn away by the sea.
- Tourism is a major industry in Hunstanton, with many visitors coming to enjoy the beach, the cliffs, and the town's Victorian architecture.
- The town has a number of sustainable initiatives in place, such as recycling and composting programs, and a commitment to reducing carbon emissions.
- There are also a number of nature reserves in the area, providing habitats for a wide variety of plants and animals.



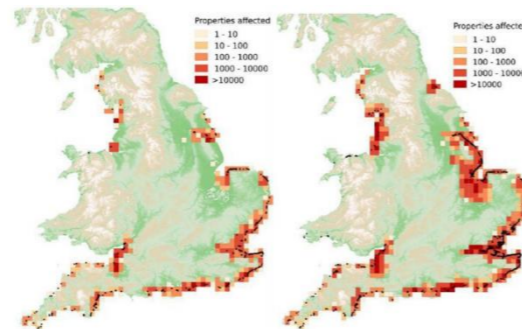
LONGSHORE DRIFT



Longshore drift is the process by which sediment is transported along a beach by wave action. It occurs when waves approach the shore at an angle and the swash (the water that runs up the beach) moves sediment in a zig-zag pattern along the beach.

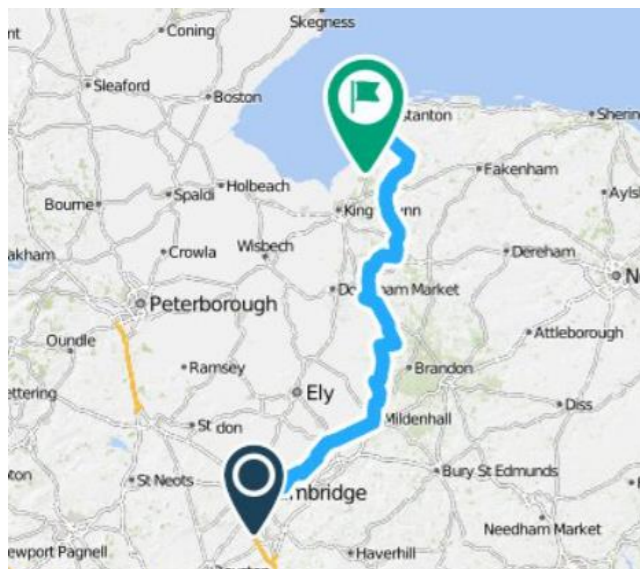
- Waves approach the shore at an angle, typically between 30 and 45 degrees.
- The swash, the water that runs up the beach, moves sediment in the direction of the wave's approach.
- The backwash, the water that flows back down the beach, flows in the opposite direction and can erode the beach.
- The net movement of sediment is parallel to the shoreline: this is the longshore drift.
- This process can cause sediment to build up on one part of the beach while eroding another part, leading to changes in the shape and size of the beach over time.

UK FLOOD RISK



Note: 10 x10 km squares (left) for 1m sea level rise (right) 4m sea level rise

As an island, the UK is at significant risk from the climate emergency. The above map shows two scenarios – one where sea levels rise by 1m and another where they rise by 4m. Virtually all of the coastline in the East of England is affected by these changes and consideration need to be taken not only towards what defences to put in place, but also how best to tackle climate change overall.



Geographical – The Rising Threat of Erosion

Article exploring the impact of erosion now and in the future



YouTube – Britain's collapsing coastline

Report showing that 17%+ of UK's coastline is affected by erosion



BBC Bitesize - Coasts

What is a coast? Comparing coasts of the UK.



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