

Coasts [4].

Knowledge Organiser

What is coastal deposition?

Deposition is when material that is being transported is dropped by constructive waves. It happens because waves have less energy.

Why does coastal deposition occur?

Deposition happens when the swash is stronger than the backwash and is associated with constructive waves.

So, where does deposition happen? Deposition is likely to occur when:

- waves enter an area of shallow water;
- waves enter a sheltered area, eg a cove or bay;
- there is little wind;
- a river or estuary flows into the sea reducing wave energy;
- there is a good supply of material and the amount of material being transported is greater than the wave energy can transport.

Beaches

The beach is the area between the lowest spring tide level and the point reached by the storm waves in the highest tides. Every beach is different but they are usually made up of material deposited on a wave-cut platform. Beaches are formed from sand, sand and shingle or pebbles. They can also be formed from mud and silt.

A sandy beach is usually formed in a sheltered bays, where low energy, constructive waves transport material onto the shore. The swash is stronger than the backwash so the material is moved up the beach.

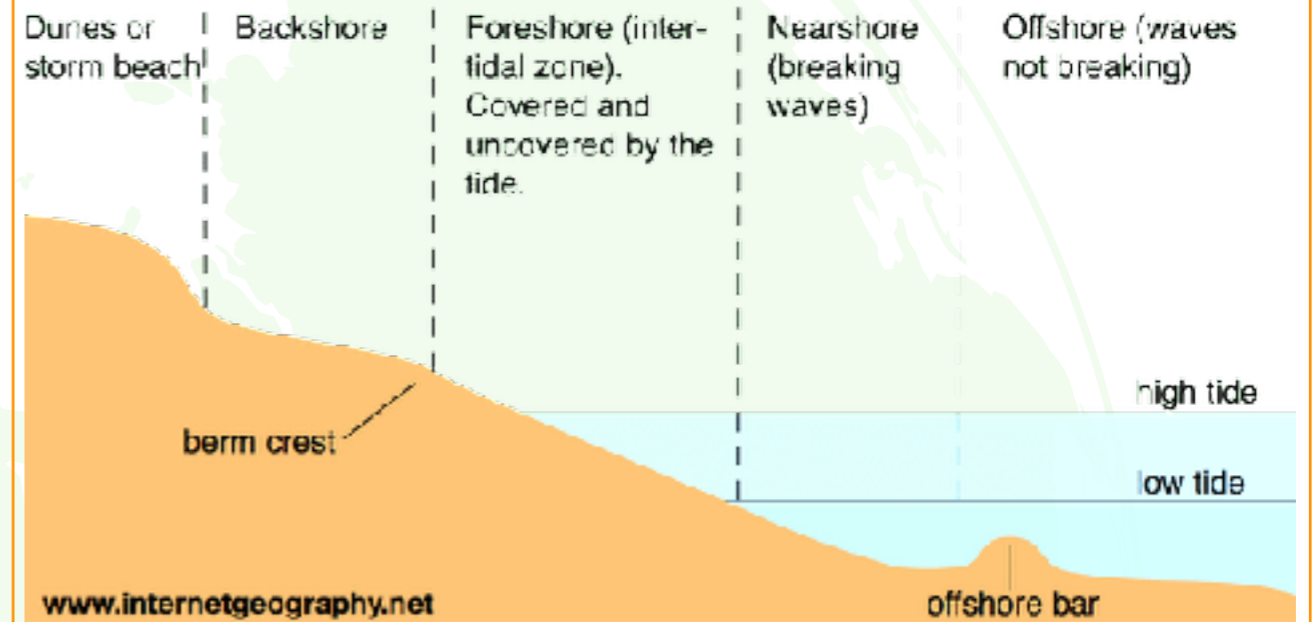


A sandy beach in a sheltered bay

Beach Profiles

A beach profile shows the gradient of a beach from the back of the beach to the sea. A sandy beach generally has a more gentle profile compared to a pebble beach which has a steep, stepped profile.

Summer beach profile



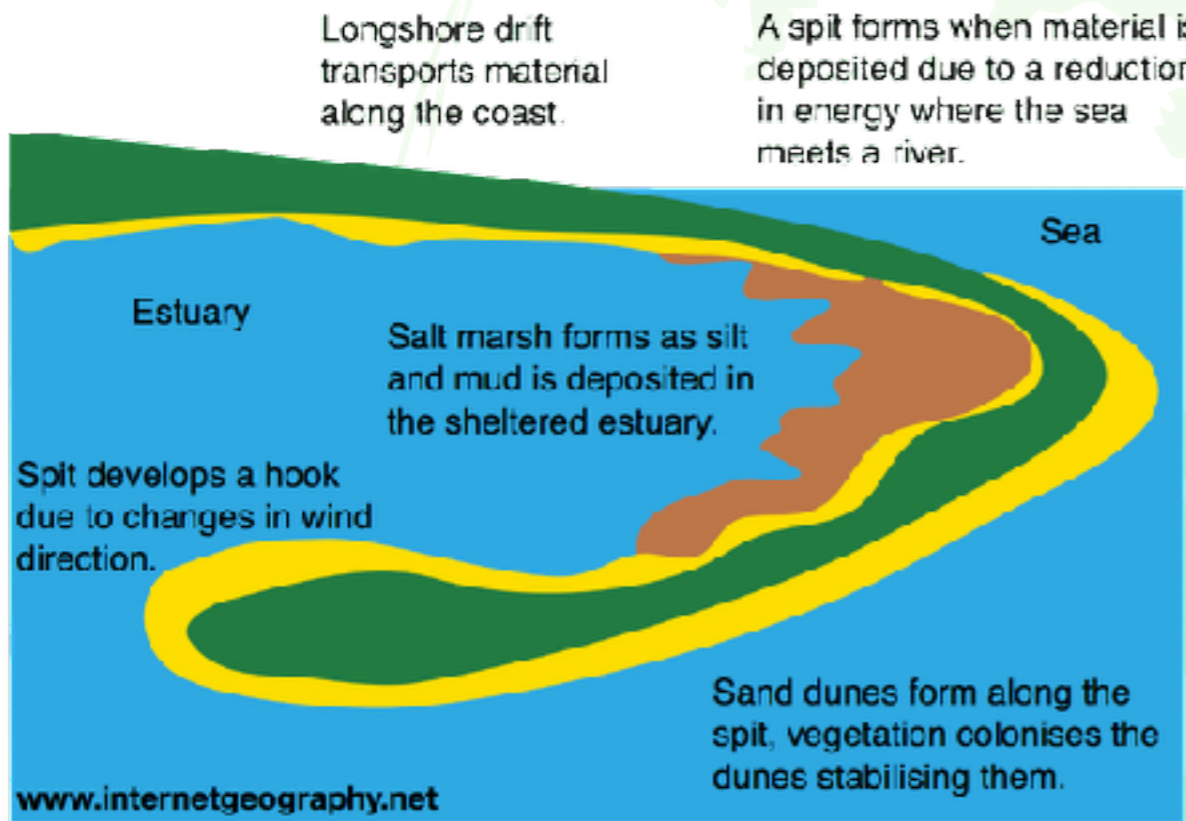
Ridge and Runnel

Ridge and runnels are common on wide sandy beaches with a large tidal range (big difference between high and low tide). Ridges are areas of the beach that are raised. The dips are water-filled troughs called runnels. The cross-section is similar to that of hills and valleys but at a much smaller scale.



Spits

A spit is a landform of coastal deposition. Longshore drift moves material along a coastline. Where the coastline changes direction or the power of the waves is reduced because it meets a river or estuary material being transported by the sea is deposited. Where rivers or estuaries meet the sea deposition often occurs. The sediment which is deposited usually builds up over the years to form a long ridge of material (usually sand or shingle). Such a ridge is called a spit. Spurn Point on the Holderness Coast is an example of a coastal spit as is Hurst Castle Spit.



Where a coastline changes shape, the waves begin to lose energy so deposition occurs and the spit begins to grow out to sea. The prevailing wind makes the swash approach the shore at an angle. Backwash is at a right angle because of gravity. Longshore drift moves material in a zig-zag manner along the beach. On a shingle or pebble spit the pebbles become smaller and more rounded towards the end of the spit due to attrition. They also become smaller as the longshore drift becomes weaker.

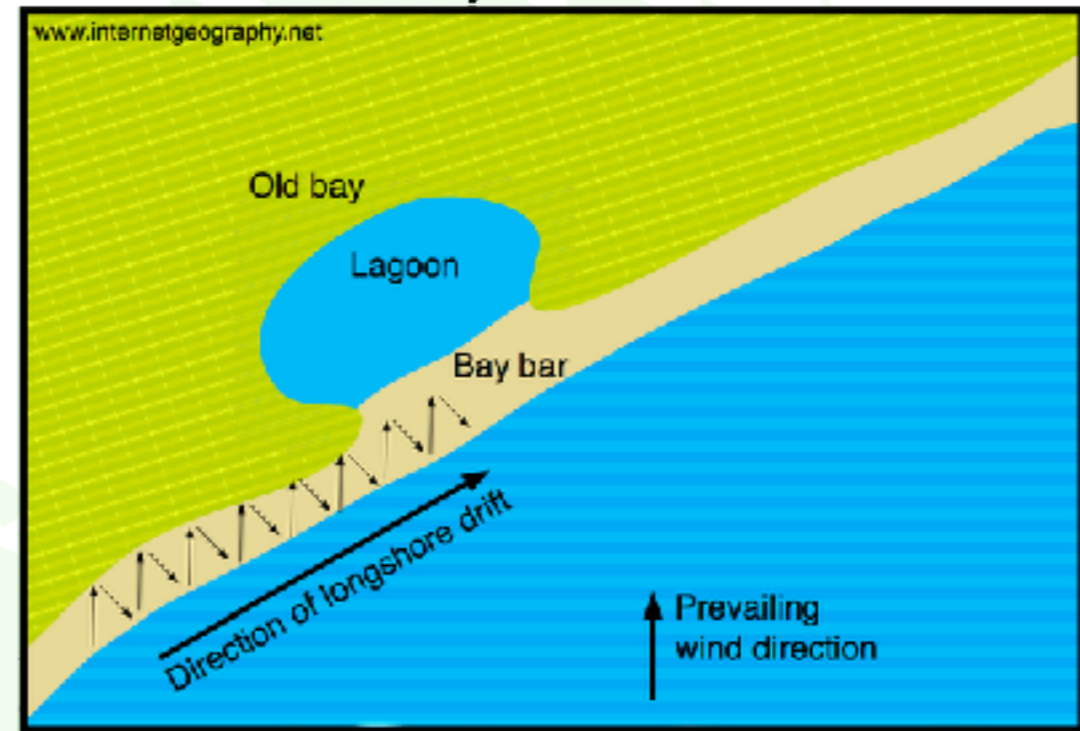
Check your knowledge.

Take a quiz.

Bar

A bay bar is very similar to a spit. It is a ridge of sand or shingle that joins two headlands either side of a bay. It is formed due to longshore drift transporting sediment along the coastline. Behind the bar, a lagoon is created, where water has been trapped and the lagoon may gradually be infilled as a salt marsh develops due to it being a low energy zone, which encourages deposition.

The formation of a bay bar



Off-shore bar

An offshore bar is a raised area of seabed that is found offshore. They usually form adjacent to the coastline. They are formed in areas with high levels of sediment on a beach and where the sea is shallow. They form when sediment is transported on and off a beach. Destructive waves remove sediment from the beach and form the offshore bar. Constructive waves transport material from the offshore bar back onto the beach.

Offshore bar

At high tide the off shore bar is below the sea. A line of breakers reveal its location as waves break on it.

At low tide a beach parallel to the coast can be seen. This is an offshore bar.

