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Perspective

A detailed insight on coastal geography and landforms

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ABOUT THE STUDY

Coastal geography is the study of the continually changing region between the water and the land, which includes both physical (coastal geomorphology, climatology, and oceanography) and human (sociology and history) geography. Understanding coastal weathering processes, particularly wave action, sediment movement, and weather, as well as human interactions with the coast, are all part of it. The principal movers and shapers of the coastline are the waves of various intensities that crash against the seashore on a regular basis. Despite how simple this process is, the variances between waves and the rocks they crash into result in a wide range of shapes.

The strength of waves determines their influence. Strong waves, sometimes known as damaging waves, are common in the winter on high-energy beaches. They reduce the amount of sediment on the shore by transporting it to underwater bars. Low-energy beaches are known for their constructive, mild waves, which are most common in the summer. They work in the opposite direction of destructive waves, enlarging the beach by depositing silt onto the berm. Wave refraction is one of the most important transport methods. The upward rush of water onto the beach (swash) happens at an oblique angle since waves rarely break at straight angles. The return of water (backwash) is, however, perpendicular to the beach, resulting in lateral movement of beach material. Beach drift is the term for this movement. On all beaches, the constant cycle of swash and backwash, as well as the accompanying beach drift, may be seen. This may vary depending on the coast.

Coastal landforms

Spits are likely to form if the coast abruptly shifts direction, Especially near an estuary. Long shore drift drives sediment along the beach, but when it reaches a turn, as shown in the diagram, it does not necessarily turn with it, especially in an estuary where outward flow from a river can push material away from the coast. It's also possible that the location will be protected from wave action, avoiding much long-shore drift. Shingle and other large sediments will build up under the water on the side of the headland receiving weaker waves since the waves are not strong enough to transport them along. This is an ideal location for tiny sediments to accumulate until they reach sea level. After passing through the headland, the silt will collect on the other side of the shingle and will not continue down the beach.

Slowly, sediment accumulates on this location, expanding the spit outwards and forming a sand barrier. The wind will occasionally shift direction and come from the opposite direction. The sediment will be moved in the opposite direction at this time. The spit will begin to grow rearward and create a 'hook'. After this period, the spit will grow in the same direction as before. The spit will eventually stop growing because it is no longer sufficiently protected from wave erosion or because the estuary current prevents silt from resting. Salt marsh usually forms in the saline but calm waters behind the spit. Spits frequently occur around the breakwater of man-made harbours, necessitating dredging.

In the absence of an estuary, the spit may expand across the bay and create a bar, or barrier. Barriers appear in a variety of shapes and sizes, but they all form in the same way that spits do. They usually form a lagoon by enclosing a bay. They can link two headlands together or connect one to the mainland. A tombolo is an island that is connected to the mainland by a bar or barrier. This is normally generated by wave refraction, but it can also be caused by isostatic shift, which is a change in ground level.

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