

Quadrant II – Transcript and Related Materials

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Notes

When water loses its energy, any sediment it is carrying is deposited. The build-up of deposited sediment can form different features along the coast.

Beaches are made up from eroded material that has been transported from elsewhere and then deposited by the sea. For this to occur, waves must have limited energy, so beaches often form in sheltered areas like bays. Constructive waves build up beaches as they have a strong swash and a weak backwash.

The ridges, embankments or mounds of sands formed by sedimentation through sea waves parallel to the shoreline are called bars. The larger forms of bars are called barriers. The formation of bars and barriers starts with the development of shoals due to deposition of sands.

Bars and barriers may be formed near the coast or away from the coast, parallel to the coastline or transverse to the coast. There are different forms of sand bars and barriers. If the bars are formed in such a way that they are parallel to the coast but are not attached to the land, they are called offshore or longshore bars.

If the sand bars are formed in such a way that their one end is attached to the land while the other end projects or opens out towards the sea, they are called

spits. A bar is termed as tombolo when it connects the mainland with an island or connects a headland with the island.

Coral reefs: Coral reefs are built by and made up of thousands of tiny animals—coral. They are shallow water organisms which have a soft body covered by a calcareous skeleton. Corals extract calcium salts from sea water to form these hard skeletons. When the coral polyps die, they shed their skeleton on which new organism grow. The cycle is repeated for over millions of years leading to accumulation of layers of corals [shallow rock created by these depositions is called reef]. These layers at different stages give rise to various marine landforms. One such important landform is called coral reef. Reefs are classified into three types:

1)Fringing reefs are reefs that grow directly from a shore. They are located very close to land, and often form a shallow lagoon between the beach and the main body of the reef. A fringing reef runs as a narrow belt [1-2 km wide]. This type of reef grows from the deep-sea bottom with the seaward side sloping steeply into the deep sea. Coral polyps do not extend outwards because of sudden and large increase in depth. The fringing reef is by far the most common of the three major types of coral reefs, with numerous examples in all major regions of coral reef development. Fringing reefs can be seen at the New Hebrides Society islands off Australia and off the southern coast of Florida.

2)Barrier reefs are extensive linear reef complexes that parallel a shore, and are separated from it by lagoon. This is the largest (in size, not distribution) of the three reefs, runs for hundreds of kilometres and is several kilometres wide. It extends as a broken, irregular ring around the coast or an island, running almost parallel to it. Barrier reefs are far less common than fringing reefs or atolls, although examples can be found in the tropical Atlantic as well as the Pacific. The 1200-mile long Great Barrier Reef off the NE coast of Australia is the world's largest example of this reef type

3)An atoll is a roughly circular (annular) oceanic reef system surrounding a large (and often deep) central lagoon. The lagoon has a depth 80-150 metres and may be joined with sea water through a number of channels cutting across the reef. Atolls are located at great distances from deep sea platforms, where the submarine features may help in formation of atolls, such as a submerged island or a volcanic cone which may reach a level suitable for coral growth.