

Bsc Part 1
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CORAL REEFS AND their Formation Pg-1

A coral reef is a ridge or mound of limestone, the upper surface of which is near the surface of sea and which is formed chiefly of CaCO_3 secreted by Coral polyps (Madréporaria), other important contributors are Hydrocorallines and alcyonarians. Coralline algae and foraminiferan Protozoa also take part in the formation of coral reefs.

Reef building corals require warm shallow waters (normally above 20°C) They are therefore limited to the Indo-Pacific the central - Western Pacific and the Caribbean regions north of Bermuda. About 50 species of corals contribute in the formation of reefs along the Florida Keys and in the West Indies.

Kind of Coral reefs -

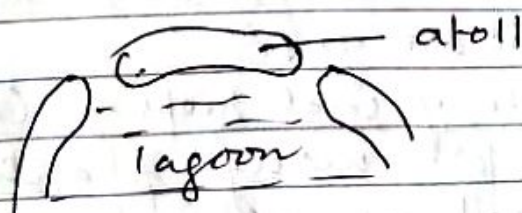
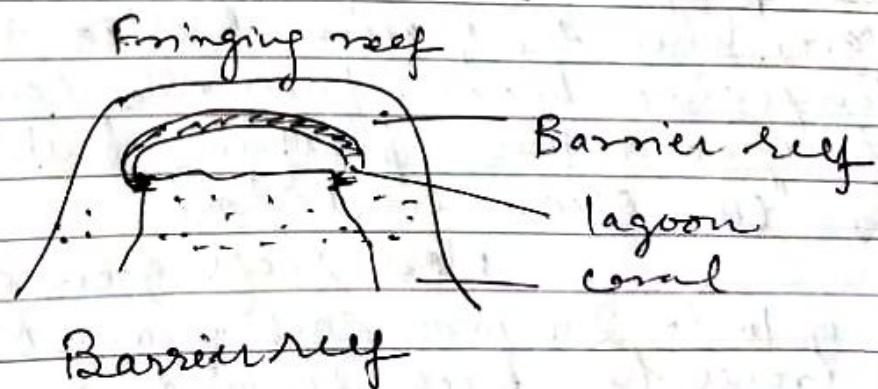
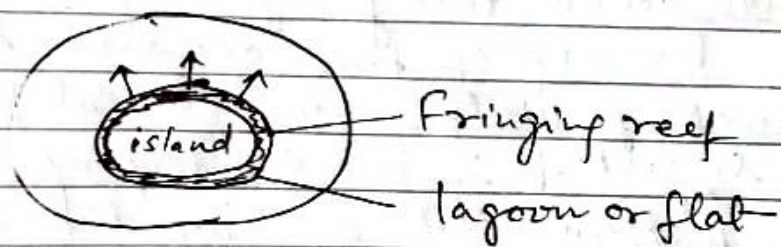
There are three kinds of coral reefs depending upon how they are formed -

1. Fringing reef - It is largely composed of coral sand, sand, mud, dead and living coral colonies. They lie close to the shores of some volcanic island and may extend upto a distance of quarter miles a thin zone of coral faces the sea known as edge or front.
2. Barrier reef - Barrier reefs are like fringing reefs but they are located some distance away from the shore. The stretch of water separating the barrier from land half to 16 km in length. It is

Called a lagoon. It is 20 meters to 100 meters deep and suitable for navigation. ①

The Great Barrier Reef of Australia is about 2000 km long and 150 km from shore.

3) Atoll - An Atoll is also termed as a coral island or lagoon island. It is a ring like or horse shoe shaped reef that encircles a lagoon but not an island. The lagoon varies from a few to about 40 km across. It may be complete or broken by a number of channels. outer side of the reef slopes off rather steeply into depth of ocean.



Atoll in a section.

fig - Diagram of coral reefs.

Formation of Coral reefs - coral reef formation can be explained by two theories -

1) Subsidence theory by Darwin - According to this theory fringing reef was first formed on the sloping shore of an island. Subsidence of sea floor then commenced in the region of reef followed by upward and outward growth of coral. Thus the fringing reef became the barrier reef. By gradual sinking of the island ultimately vanished and the barrier reef became a coral atoll with a central lagoon. At times it acquired a growth of vegetation.

2. Glacial control theory by Daly - According to Daly lowering of the ocean level by the withdrawal of water for glacial formation. This resulted in the exposing of several flat platforms cut out by the action of waves, when the glaciers melted and the temperatures became favourable corals began to grow on these platforms, building higher as the ocean level rose.

Most reefs grow at the rate of 10 to 200 mm each year. Most of the reefs has been formed in a period of 15,000 to 30,000 years.

Economic importance of coral reefs - Coral reef serves as a habitat for many plants and animals like sponges, molluscs, echinoderms and fishes etc. Some coral reefs are used as habitations by man as well. *Corallium rubrum* is considered to be a precious stone in India and China and treated as auspicious materials.

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The red coral and organ pipe coral are used in some indigenous system of medicine in S. India. Chunks of coral skeleton belonging to species porites are used as building materials. coral skeletons serve as sawdust material for the preparation of lime, mortar and cement because of their calcium carbonate and magnesium carbonate content. Coral skeletons are also helpful in making ridges that act as natural barriers against sea erosion and cyclonic storms. Coral reefs serve as good nursery grounds for commercially important fishes. Reef fish varieties are more colourful than others.

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