

CORAL REEFS - GEOGRAPHY NOTES

1. Introduction

Coral reefs are marine ecosystems formed by colonies of tiny animals called coral polyps. These polyps secrete calcium carbonate (CaCO_3), which builds up over time to form reef structures. Coral reefs are often referred to as the 'Rainforests of the Sea' due to their rich biodiversity.

2. Conditions for Coral Reef Formation

- Warm tropical waters ($20^\circ\text{C} - 30^\circ\text{C}$)
- Shallow water (generally less than 50 meters depth)
- Clear and clean water
- Salinity between 27‰ to 40‰
- Sunlight availability for photosynthesis (symbiotic algae – Zooxanthellae)
- Stable sea level conditions

3. Types of Coral Reefs (According to Darwin)

- Fringing Reef – Develops directly along the coastline.
- Barrier Reef – Located parallel to the coast but separated by a lagoon. (Example: Great Barrier Reef)
- Atoll – Ring-shaped reef enclosing a lagoon, usually formed around submerged volcanic islands.

4. Distribution of Coral Reefs

Coral reefs are mainly found between 30°N and 30°S latitudes. Major regions include Australia (Great Barrier Reef), Indonesia, Philippines, Maldives, Caribbean Sea, and Red Sea. In India, coral reefs are found in Lakshadweep, Andaman & Nicobar Islands, Gulf of Mannar, and Gulf of Kachchh.

5. Importance of Coral Reefs

- High biodiversity support
- Protection of coastlines from erosion and storm surges
- Support fisheries and livelihoods
- Tourism and economic value
- Source of medicinal resources

6. Threats to Coral Reefs

- Coral bleaching due to global warming
- Ocean acidification
- Overfishing and destructive fishing practices
- Pollution and sedimentation
- Coastal development

7. Conservation Measures

Conservation of coral reefs requires global efforts to reduce greenhouse gas emissions, establishment of Marine Protected Areas (MPAs), sustainable fishing practices, pollution control, and community awareness programs.