

# Coral reefs: description and features



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Coral reefs are elaborate networks of crevices, ledges, and holes made up of calcium carbonate; coral polyps are tiny animals that build coral reefs by secreting a crust of limestone around their bodies that accumulate once multiple polyps die.

Coral reefs help moderate atmospheric temperatures by removing CO<sub>2</sub> from the atmosphere, act as natural barriers that help protect the world's coastlines from erosion by battering waves and storms, provide habitats for a variety of marine organisms, produce about one-tenth of the global fish catch, one-fourth of the catch in developing countries, provide jobs and building materials for some of the world's poorest countries, and support fishing and tourism industries worth billions of dollars each year.

Coral bleaching is when a coral becomes stressed and the algae on which it depends for food and color die out, leaving an underlying white or bleached skeleton of calcium carbonate; this occurs because of increased water temperatures and runoff of silt from the land. 2. The two major aquatic life zones are saltwater (marine) and freshwater life zones. 3. Phytoplankton (plankton) are multiple types of algae; Zooplankton (animal plankton) are primary and secondary consumers which feed off phytoplankton (primary consumers) or other zooplankton (secondary consumers these range from protozoa to large invertebrates such as jellyfish). Algae are much smaller plankton that may be responsible for 70% of the primary productivity near the ocean surface. Nekton are strongly swimming consumers such as fish, turtles, and whales. Benthos are bottom dwellers that attach themselves to one spot (e. g. Barnacles, oysters, worms, lobsters, crabs). Decomposers are organisms (mainly bacteria) which break down the organic

compounds in the dead bodies and wastes of aquatic organisms into simple nutrient compounds for use by aquatic producers. 4. A major advantage of living in an aquatic life zone is the fact that there is high biodiversity.

A disadvantage is that it is constantly affected by human activities. 5. The four factors that determine the types and numbers of organisms found in these layers are temperature, access to sunlight for photosynthesis, dissolved O<sub>2</sub> content, and availability of nutrients. 6. The marine systems provide climate moderation, carbon dioxide absorption, nutrient cycling, waste treatment, reduced storm impact, habitats and nursery areas, genetic resources and biodiversity, scientific information, food, animal and pet feed, pharmaceuticals, harbors and transportation routes, recreation, employment, oil and natural gas, minerals, and building materials. . The coastal zone is the warm, nutrient-rich, shallow water that extends from the Estuaries are regions where rivers meet the ocean. Coastal wetlands are land areas covered with water all or part of the year. Mangroves are the tropical counterparts of salt marshes. Temperature and salinity vary greatly in estuaries and coastal wetlands because seawater and freshwater mix, because tidal and river flows vary, and cause of land runoff.

These have such a high NP because of high nutrient inputs from rivers and nearby land, rapid circulation of nutrients by tidal flows, presence of many producer plants, and ample sunlight penetrating the shallow waters. 8. The intertidal zone is the area between low and high tides. Rocky shores are beaches with a remarkable variety of species that occupy different niches in response to daily and seasonal changes in environmental conditions such as temperature, water flows, and salinity. Sandy shores are beaches with niches

for different marine organisms. . Barrier islands are low, narrow, sandy islands that form offshore from a coastline. These are sought for human development because they are beautiful; however, these are at risk because they can be damaged or destroyed by flooding, severe beach erosion, or storms. The dunes should be protected because they serve as the first line of defense against the ravages of the sea. 10. Coral reefs are vulnerable to damage because they grow slowly, are disrupted easily, and only thrive in clear, warm, and fairly shallow water of constant high salinity.

Humans impact coral reefs negatively by causing ocean warming, soil erosion, algae growth from fertilizer runoff, mangrove destruction, bleaching, rising sea levels, increased UP exposure, damage from anchors, and damage from fishing and diving. 11 . The open sea is the sharp increase in water depth at the edge of the continental shelf separated from the coastal zone. Its three main vertical zones are the epiphytic zone, the bathmat zone, and the abyssal zone. The NP per unit of area is so low because of its size. 2. Humans destroy coastal wetlands for agriculture and urban development, destroy mangroves for agriculture, development, and aquaculture, erode beaches because of coastal development and rising sea levels, degrade ocean bottom habitats by dredging and trawler fishing, and damage coral reefs. 13. Freshwater life zones are the freshwater bodies of water. The two main types are standing (lentic) bodies of freshwater and flowing (lotic) bodies of freshwater. 14.

Freshwater systems provide climate moderation, nutrient cycling, waste treatment, flood control, groundwater recharge, habitats for many species, genetic resources for biodiversity, scientific information, food, drinking

water, irrigation water, hydroelectricity, transportation corridors, recreation, and employment. Unify, and groundwater seepage fills the depressions in the earth's surface. The literal zone is the zone near the shore which consists of the shallow sunlit waters to the depths at which rooted plants stop growing.

The limnetic zone is the open, sunlit water surface layer away from the shore that extends to the depth penetrated by the sunlight. The profundic zone is the deep, open water where is too dark for photosynthesis. Then benthic zone is the lowest part of the lake where mostly decomposer and detritus feeders are located. 16. The three types of lakes are the oligotrophic (poorly nourished) lake, eutrophic (well nourished) lake, and the mesotrophic (middle) lake. 17. Surface water is the water which doesn't seep into the ground or evaporate.

Runoff is surface water once it flows into streams. A watershed is a land area that delivers runoff, sediment, and dissolved substances to a stream. The floodplain zone is generally populated by cold-water fish. The transition zone is inhabited by producers and cool- and warm-water fish species. The floodplain zone is populated by producers such as algae, contractile, and rooted aquatic plants along the shore. 18. Inland wetlands are lands covered with freshwater all or part of the time.

Marshes, swamps, prairie potholes, floodplains, and arctic tundra in the summer are examples of inland wetlands. Seasonal inland wetlands are wetlands that are only covered by water during certain times of the year. 19. Dams, diversions, and canals fragment 40% of the world's 237 large rivers.

Flood control methods built along rivers alter and destroy aquatic habitats. Cities and farmlands add pollutants and excess plant nutrients to nearby streams and rivers. Many inland wetlands have been drained or filled to grow crops or have been covered with concrete, asphalt, and buildings.