

Coral Reefs

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Outline

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- ❑ Types of Coral Reefs
- ❑ Coral reef communities.
- ❑ Importance of Coral reefs
- ❑ Coral reefs of Saudi Arabia
- ❑ Threats and protection



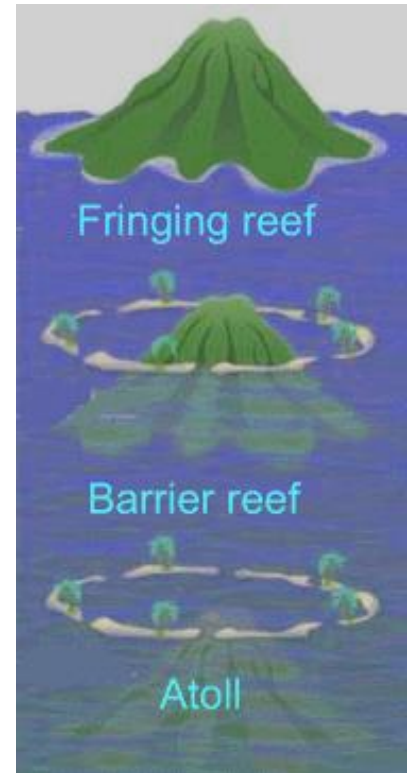
What is a coral reef ecosystem?

- Coral reefs are made up of colonies of hundreds to thousands of tiny individual corals, called polyps.
- These marine creatures have hard exoskeletons made of calcium carbonate, and are permanently fixed in one place.
- The colonies of coral grow in warm, tropical waters close to the surface and are usually found near areas with waves. The waves help bring in food, nutrients, and oxygen to support the plants and animals that live in the coral reefs.

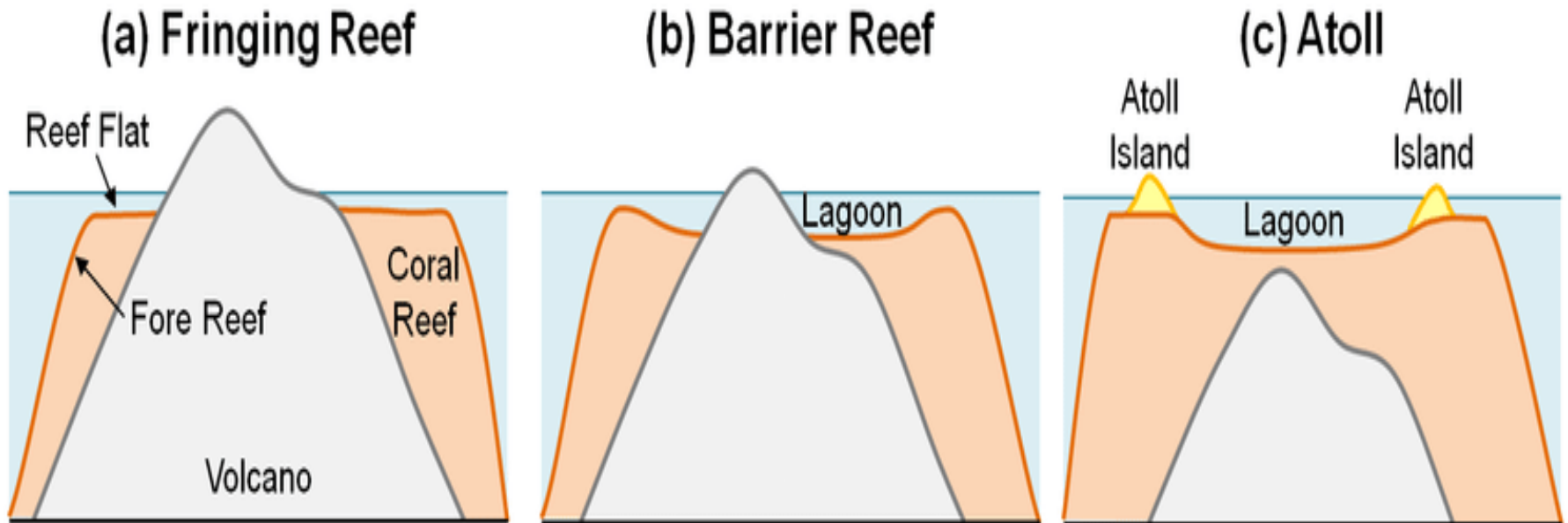


Types of Coral Reefs

- The most common type of reef is the fringing reef. This type of reef grows seaward directly from the shore. They form borders along the shoreline and surrounding islands.
- Barrier reefs are similar to fringing reefs in that they also border a shoreline; however, instead of growing directly out from the shore, they are separated from land by an expanse of water.
- An atoll is when a fringing reef continues to grow upward from a volcanic island that has sunk entirely below sea level.



Types of Coral Reefs



Coral Reef Communities.

Coral reef communities consist of stony corals, octocorals, sponges, algae, and gorgonians.

These reefs support incredible diversity, including endangered sea turtles, conchs and lobsters.



Importance of A Coral Reef



- Biodiversity
- Economic Resources
- Medicinal Properties
- Protection To Coastlines

Importance of A Coral Reef

Biodiversity

- Coral Reefs are home to a diverse 1/3 of the earth's species of fish, some not known to any other parts of the earth.
- It is habitat for tens of thousands of other animals
- The plants and coral also provide solid shelter housing and food to the ecosystem (all species).

Importance of A Coral Reef

Economic Resources

- ❑ Fisheries For Food: The fishing industry and the common income source for the fishermen in the coastal areas is heavily dependent on the coral reefs
- ❑ Fish caught in Coral Reefs feed billions of people worldwide.
- ❑ Coral Reefs Facilitate Tourism And Job Opportunities:
- ❑ Eco-tourism is a major part of many local economies.
- ❑ Coral Reefs draw a staggering amount of tourists yearly making it a billion dollar industry.
- ❑ Many hotels, guesthouses, restaurants, fisheries, diving shops and tour guides depend on tourist's attraction to marine life as a means of income.

Importance of A Coral Reef

Medicinal properties

- ❑ CORAL REEFS SAVE LIVES:
- ❑ Studies claim that coral calcium, extracted from coral can cure Cancer, Diabetes, Arthritis, Heart Disease, Osteoporosis, Eczema, Alzheimer's Disease, Fibromyalgia, High Cholesterol, Muscle Cramps, Kidney Stones, Gallstones, Gout, Indigestion, Chronic Fatigue Syndrome, Lupus, Hiatal Hernia, Hypertension, Headaches etc.
- ❑ It has been used in the fight against HIV and Tuberculosis .
- ❑ It can be used in bone grafts (facilitates bone growth).

Importance of A Coral Reef

COASTAL PROTECTION

- ❑ CORAL REEFS PROTECT LAND:
- ❑ Healthy coral reefs lessen the force of incoming waves; this buffers shorelines from currents, waves, and storms, helping to prevent loss of life, property damage, and erosion.
- ❑ Coastlines protected by reefs are more stable, in terms of erosion, than those without.
- ❑ Reefs are also a source of sand in natural beach replenishment.

Importance of A Coral Reef



Tourism & Recreation

Coral reefs attract millions of tourists every year, bringing important income to coral reef communities. Some countries derive more than half of their gross national product from coral reef industries.

Medicine

Coral reef species are providing new medical compounds and technology to treat serious diseases. More than half of all new cancer drug research is focusing on marine organisms.



Coral Reef Ecosystem Services

Coral reefs provide nearly \$400 billion a year to millions of people in economic goods and ecosystem services.

Food & Fishing

Coral reefs sustain the fish and shellfish populations that provide protein for 1 billion people. Reefs are nurseries for many commercially valuable species.



Coral reefs act as homes and nurseries for 25% of all marine life.

Though they cover less than 1% of the ocean floor, coral reefs provide habitat for 250,000 known species, including more than 4,000 species of fish and 700 species of coral.

Many coral reef species have yet to be discovered. Scientists believe that more than 1 million species are associated with coral reefs.



Coral Reefs

are created by many tiny animals called coral polyps.

The coral polyps' limestone skeletons build up over time, forming the base of the complex reef habitat that supports the world's highest level of marine biodiversity.

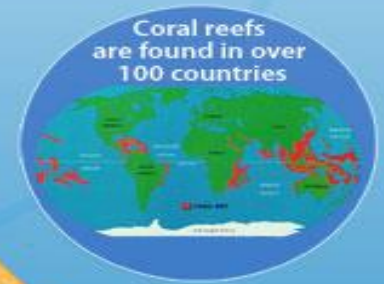


Coastal Protection

Coral reefs act as natural wave barriers that protect coastal communities and beaches from storm damage.



Coral reefs are found in over 100 countries



Coral reefs in Saudi Arabia

- Coral reefs fringe the entire Red Sea coastline and offshore islands, with several distinct areas of similar habitats and species composition:

The coral reefs in Saudi Arabia include

- the Gulf of Aqaba in the north;
- the northern-central section from south of the Gulf of Aqaba to Jeddah;
- the central-southern region from Jeddah to the Yemen border,
- The northern-central area has an almost continuous coral reef with many reef types: mainland and island fringing reefs; various forms of patch reef; coral pinnacles; and ribbon barrier reefs.

Coral reefs in Saudi Arabia

Five areas in particular have been noted for their coral reefs:

- the Tiran Islands,
- the Al Wajh Bank,
- the reefs north of Yanbu,
- between Obhur and Thuwal north of Jeddah,
- and the outer Farasan Bank.
- In the Arabian Gulf, the reefs mostly appear as small pinnacles or outcrops, and as patch reefs between Ras Al-Mishab Saffaniyah and Abu Ali, and between Abu Ali and Ras Tanura, and as fringing reefs around the offshore islands.

Map of Coral reefs in Saudi Arabia



Threats to coral Reefs



Physical damage or destruction from :

- coastal development,
- dredging,
- quarrying, destructive fishing practices
- and gear, boat anchors and groundings,
- recreational misuse (touching or removing corals).
- Pollution that originates on land but finds its way into coastal waters.

Protection of coral reefs

- Protecting water quality in watersheds and coastal zones of coral reef areas.
- Minimize use of fertilizers.
- Be conscious when buying aquarium fish. Avoid purchasing living coral.
- Prevent water pollution, reduce flooding, and protect our water resources.

10 ways to protect CORAL REEFS

Choose sustainable seafood.



Learn how to make smart seafood choices at www.FishWatch.gov.

CONSERVE WATER



The less water you use, the less runoff and wastewater that eventually find their ways back into the ocean.

Volunteer!

Volunteer in local beach or reef cleanups. If you don't live near the coast, get involved in protecting your watershed.



Corals are already a gift. Don't give them as presents.

It takes corals decades or longer to create reef structures, so leave them on the reef.

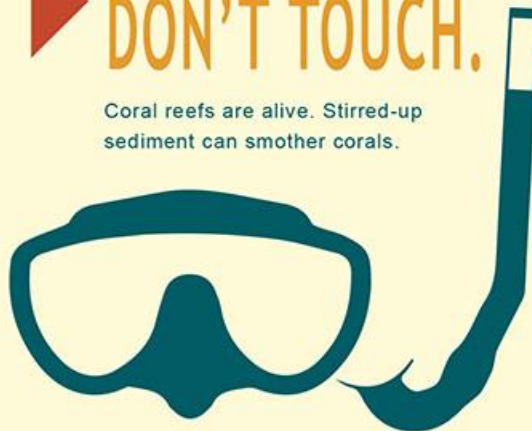
Long-lasting light bulbs - ARE A - BRIGHT IDEA

Energy efficient light bulbs reduce greenhouse gas emissions. Climate change is one of the leading threats to coral reef survival.



▶ IF YOU DIVE DON'T TOUCH.

Coral reefs are alive. Stirred-up sediment can smother corals.



CHECK SUNSCREEN ACTIVE INGREDIENTS.



Seek shade between 10 a.m. and 2 p.m., use Ultraviolet Protection Factor (UPF) sunscreen, and choose sunscreens with chemicals that don't harm marine life. For more information, visit oceanservice.noaa.gov/sunscreen.

BE A MARINE DEBRIS CRUSADER.

In addition to picking up your own trash, carry away the trash that others have left behind.

Don't send chemicals into our waterways.

Nutrients from excess fertilizer increases algae growth that blocks sunlight to corals.



Practice safe boating.

Anchor in sandy areas away from coral and sea grasses so that the anchor and chain do not drag on nearby corals.



oceanservice.noaa.gov

References

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