

Coral Reef Ecosystems and their Future



What are corals?

While corals are similar to plants in many ways and are often mistaken for rocks, they are actually animals! In fact, they are colonies of many hundreds or even thousands of individual “polyps.” A coral **polyp** begins its life as free-floating larvae, drifting through the ocean and searching for a suitable home. Polyps are related to sea anemones, and when they are young they have soft, simple bodies with a ring of tentacles. When it finds a good place to settle down, the polyp attaches itself to a hard surface, such as a rock, by secreting a substance called calcium carbonate, which is very similar to the compounds that make up our bones. This calcium “skeleton,” called a **theca**, surrounds the polyp, protecting it from predators and the environment, yet it remains open facing one side to allow the coral to catch free-floating food with its tiny tentacles.



As time passes, more polyps are added to the new colony, and their combined thecas form the beautiful structures that we recognize as corals. The largest coral reef is the Great Barrier Reef in Australia with a length of 1,553 miles or 2,500 km! When a polyp dies, its theca remains on the coral, and another polyp builds a new home over the empty space. Only a very thin layer on the surface of a coral is made up of living polyps.

Polyp - An individual coral organism, typically 1-3 mm across, which unites with other polyps to form the coral structures that make up a reef.

Theca - A sheath or shell made of calcium carbonate, which surrounds and protects a coral polyp.

Reading Sample



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Symbiotic Relationship - A mutually beneficial partnership between two species, often resulting in the dependency of one or both species on the other.

Coral Bleaching - A whitening of coral reefs caused by corals losing their symbiotic algae due to rising temperatures.

There are also many man-made threats to coral reefs. Climate change has increased the temperature of the oceans by 0.7°C, compounding the effects of natural coral bleaching. According to a recent study, “the evidence is overwhelming that the ability of corals and the reefs they build to keep pace with the current rate of climate change has been exceeded” (Hoegh-Guldberg 2010).

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Saving the Reefs

As dire as these threats are, there are measures we can take to prevent the destruction of coral reefs. As the nations of the world realize the importance of reefs and the threats facing them, they are creating **Marine Protected Areas** (MPAs), in which pollution, development, and unsustainable fishing are prohibited or heavily regulated. Global government coalitions are working together to reduce greenhouse gas emissions, which will have far-reaching effects, including reducing stress on coral reefs caused by warming temperatures and acidification.

Everyday people can help by only eating sustainably caught fish, which is usually labeled as such. If you live or vacation near coral reefs, never touch live corals or buy products made from coral. And of course, reducing day-to-day pollution by conserving energy and recycling will help not only coral reefs, but the Earth as a whole!

Ocean Acidification - An increase in acidity of the ocean caused by absorption of CO₂.

Trawling - A commercial fishing practice in which a weighted net is dragged across the bottom of the ocean, collecting fish that live on or near the sea floor.

Marine Protected Area - An area of the ocean that is regulated by local government in an attempt to preserve sensitive ecosystems.

Reading Comprehension Questions

1. Describe the life of a polyp which ends in the creation of coral.
2. What is a
3. Why do coral reefs attract all kinds of ocean life?
4. Name
5. How
6. What causes coral bleaching?
7. By how much has climate change increased the average temperature of the ocean?
8. What substance causes ocean acidification?

Extension Questions

9. Research the specific impacts scientists feel global warming has had on the World's coral reefs.
10. While
11. We've mentioned two ways that humans benefit from coral reefs - fishing and tourism.
Research other products and resources that corals provide.

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