CORAL REEF

What Is a Coral Reef?

Coral Reefs are what most people picture when they think of a marine ecosystem. These amazing habitats are home to more organisms than any other marine ecosystem. Some scientists think that as many as 25% of all ocean animals use coral reefs at some point in their lifecycle! Corals may look like plants, but they are actually animals, and without them, this beautiful marine ecosystem would not exist.

A Great Reef: The Great Barrier Reef, Australia

Australia's famous Great Barrier Reef is the largest living structure on Earth, stretching over 1,400 miles long. It's so big it can be seen from outer space. The reef is home to thousands of kinds of animals including corals, shellfish, worms, fish, sharks, sea turtles, jellyfish, and even whales and dolphins. The Great Barrier Reef is located about 18° south of the equator in clear, shallow water. This is an ideal place for corals to grow. The water temperature remains nice and warm between about 75° and 85° year round—any colder, and the corals wouldn't survive.

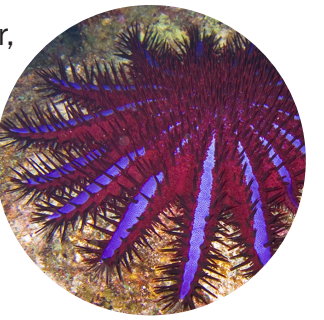
Reef Residents

There are so many organisms living in coral reefs, you could spend your entire life studying them and still not be an expert on them all. All these organisms rely on one important foundation: coral.

Cornerstone Corals: Corals are the foundation of the reef habitat. Baby corals are called polyps. Like many marine organisms, they begin life floating around in the ocean as tiny plankton. When the polyps settle on underwater rocks surrounding islands or shorelines, a reef is born. Some corals build hard skeletons that form the basis of reefs. Other corals are soft and look similar to anemones. There are over 6,000 kinds of corals, and a healthy reef has many kinds of corals growing together.

Shelled Swimmers: Sea turtles are one of the most popular animals to visit coral reefs. Loggerhead sea turtles rely on reefs to protect the sandy beaches where they lay their eggs. When the babies hatch, they scramble to the water and find plenty of shelter and food in the reef. Adult loggerheads like reefs because they are home to many of the shelled animals they eat like crabs, snails, and sea urchins.

Get to the Point: Some might call the crown of thorns sea star a prickly character, but he plays an important role in keeping coral reefs healthy. This venomous sea star is covered with long spines on as many as 21 arms and is one of the largest sea stars. Crown of thorns eat coral polyps. In a healthy reef, these sea stars eat the fast growing coral species, allowing the slower growing ones to build colonies. However, when there are too many crown of thorns stars dining on coral, they can slow or even stop the growth of a reef.



The Movie Star: You might recognize the blue tang from her starring role in a couple of famous movies. This fish is a grazer, eating algae that grow on the reef. Controlling the algae population is important because if too much grows on the corals, the zooxanthellae won't get enough light.

Sea Slitherer: The sea krait is a black and white snake that has adapted to life in the ocean. Like land snakes, the krait has to breath air, but it has a special lung nearly as long as its entire body that can help it hold its breath for hours at a time. The krait's tail is flattened like a paddle to help it swim. This snake has some of the deadliest venom in the world. Luckily, sea kraits are shy and only bite in self-defense.

Plant Pals

Once corals begin to grow, they become home to a kind of algae called zooxanthellae (zo-zan-thelee). Corals and zooxanthellae depend on each other for survival. The corals give the zooxanthellae a safe home, and the zooxanthellae help provide food for the coral. Because zooxanthellae are plants, corals need to live in shallow, clear water where sunlight is plentiful for photosynthesis. Corals produce carbon dioxide and nutrients in their waste that the zooxanthellae need to grow. The zooxanthellae, like all plants, produce oxygen and sugars. The corals use up to 90% of the products the zooxanthellae make and would die without their support. It is the zooxanthellae that give corals their bright, beautiful colors.

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Coral Bleaching

Corals can only grow in very specific places because of the needs of the zooxanthellae. The algae can only survive in warm, shallow, clear waters. If the water gets too cold, warm, or cloudy the

zooxanthellae will die. When corals lose their zooxanthellae, they also lose their color, leaving them bone white. This process is called coral bleaching. A coral without its algae partner can survive for a while by filtering food from the water, but too long without zooxanthellae and the coral gets weak and grows very slowly. Warming ocean water is one of the leading causes of coral bleaching today.

Life in a Coral Reef

Coral reefs are great places to live for many kinds of animals. Reefs are so full of life there is always something to eat. Algae and phytoplankton grow well in the warm, sunny waters where reefs grow, providing a good base for the food chain. Reefs provide lots of hiding places for many kinds of fish, crabs, shrimp, snails, sea stars, eels, and even sharks. Coral reefs are also useful to humans. They provide food for millions of people as well as protection to coastlines from hurricanes and tsunamis.

Coral Reef Challenges

Like any ecosystem, there are challenges to life on a coral reef. Because coral reefs can only grow in a very specific kind of environment, there is a lot of competition of space on the reef. Corals have to protect their space by stinging other corals to keep them away. The smaller animals that live on the reef have to constantly be on guard against the many predators that are hunting them. Warm water holds less oxygen and more salt than cold water, so the animals on the reef have to adapt to salty, low-oxygen water. The biggest challenge to the reef ecosystem is the changing climate. As temperature get warmer, coral bleaching becomes more common and other factors begin to stress the coral.

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