



Coral Reef Ecosystems



What is Coral?

Corals are composed of thin plates, or layers, of calcium carbonate secreted over time by hundreds of soft bodied animals called coral polyps. Polyps range in size from a pinhead to a foot in length. Each polyp lives in a symbiotic relationship with a host zooxanthellae that gives the coral its color. Zooxanthellae take in carbon dioxide, process it through photosynthesis, and give off oxygen and other important nutrients that are then used by the host polyp. As in all photosynthesizing organisms, this means that corals must be exposed to a sufficient amount of sunlight. This confines most corals to shallow waters that are clean and clear.

There are two kinds of corals: hard and soft. Hard corals (Scleractinia), such as brain, star, staghorn, elkhorn and pillar corals have rigid exoskeletons, or corallites, that protect their soft delicate bodies. Soft corals (Gorgonians), such as sea fans, sea whips, and sea rods, sway with the currents and lack an exoskeleton.

What is a coral reef?

Coral reefs are one of the most biologically diverse ecosystems on earth, rivaled only by tropical rain forests. They are made up not only of hard and soft corals, but also sponges, crustaceans, mollusks, fish, sea turtles, sharks, dolphins and much more. Competition for resources such as food, space and sunlight are some of the primary factors in determining the abundances and diversity of organisms on a reef. Each component of a coral reef is dependent upon and interconnected with countless other plants, animals and organisms. This means that fluctuations in the abundance of one species can drastically alter both the diversity and abundances of others. While natural causes such as hurricanes and other large storm events can be the stimulus for such alterations, it is more commonly anthropological forces that effect these types of shifts in the ecosystem.



For example, overfishing of herbivorous fish often results in increased growth of algae and sea grasses. This generally results in an increase in other herbivorous marine life, such as sea urchins. Over time all ecosystems will naturally establish these types of balances between predators and prey and organisms in competition for similar resources. The question is how long those balances take to establish and what other reef relationships they affect.

What is the coral reef ecosystem?

The health, abundance and diversity of the organisms that make up a coral reef is directly linked to the surrounding terrestrial and marine environments. Mangrove forests and seagrass beds are two of the most important facets of the greater coral reef ecosystem. Mangroves are salt-tolerant trees that grow along tropical and sub-tropical coasts. Their complex root systems help stabilize the shore line, while filtering pollutants and



producing nutrients. Their submerged roots and detritus provide nursery, breeding, and feeding grounds for invertebrates, fish, birds, and other marine life. Many of the animals raised in mangroves migrate to coral reefs for food, spawning and habitat.

Seagrasses are flowering plants that often form meadows between mangrove habitats and coral reefs. They form the foundation of many food webs, providing nutrients for everything from sea urchins and snails to sea turtles and manatees. Seagrass also provides protection and shelter for commercially valuable species such as stone crabs, snappers and lobsters. Additionally, they filter the water column, prevent seabed erosion, and release oxygen essential for most marine life. The ecosystem services of mangroves and seagrass are vital to the long term health of coral reefs.

There is another very important element of the reef ecosystem that is often overlooked: the land. Pollutants, nutrients and litter enter near shore waters through rivers, streams, underground seepage, waste water and storm water runoff. Even areas hundreds of miles from the coast can effect the clarity and quality of water flowing to the reef. It does not matter how far removed a pollutant may seem, it all flows down stream and it can all impact our marine environment and our reefs.

Vocabulary:

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Plates: placas

Shallow: poco profundo

Sway: mecerse

Mangrove: manglar

Spawning: desove

Meadows: praderas

Seepage: filtraciones