

Vocabulary: Coral Reefs 1 – Abiotic Factors



Vocabulary

- Consumer – an organism that obtains energy by feeding on organic materials.
 - Organic materials are carbon-based compounds produced by living things.
 - All animals, all fungi, and even some plants are consumers.
 - *Coral reef* consumers include fishes, sponges, and other animals.
- Coral – a class of marine animals in the phylum Cnidaria that are important reef builders in tropical oceans.
 - A coral colony consists of many tiny polyps. Each polyp contains a set of tentacles surrounding a central mouth.
 - Polyps of stony corals excrete exoskeletons of calcium carbonate. Over time, coral colonies can grow to large size.
 - Corals thrive in warm, shallow, clear, and nutrient-poor oceans.
- Coral bleaching – a process in which corals lose their *zooxanthellae*, usually as a result of abnormally high water temperatures.
 - Bleaching often results in the death of the host coral.
- Coral reef – a complex and diverse marine ecosystem formed on the exoskeletons secreted by stony corals.
 - Coral reefs are found in shallow, clear waters in tropical regions of the world.
 - Coral reefs occupy less than 1% of the world's ocean floor but contain over 25% of all marine species.
- Filter feeder – an organism that eats by straining food, such as plankton, from water.
 - Examples of filter feeders include sponges, manta rays, whale sharks, baleen whales, barnacles, clams, flamingos, and many others.
- Food chain – a sequence of organisms in which each organism feeds on the one below.
 - Example: Algae → Parrotfish → Grouper → Shark.
In this food chain, parrotfish eat algae, groupers eat parrotfish, and sharks eat groupers.
- Food web – a diagram that shows feeding relationships for a group of organisms.
- Grazer – an organism that feeds by eating plants, algae, and other immobile organisms.
 - Important reef grazers include parrotfish and long-spined sea urchins.

- Nutrients – substances used by an organism for energy, growth, or other processes essential to life.
 - Important nutrients in seawater include nitrates and phosphates.
 - Algae and plankton thrive in high-nutrient waters. Corals favor low-nutrient water.
- Ocean acidification – a decrease in the pH of the ocean, caused by increased absorption of carbon dioxide from Earth’s atmosphere.
 - In the past two centuries, average ocean pH has dropped from about 8.25 to 8.14. Many scientists predict ocean will become more acidic if atmospheric carbon dioxide concentrations continue to rise.
 - Many marine organisms, including corals, must spend more energy to excrete calcium carbonate when ocean pH is lower.
- pH – a measure of how many hydrogen ions there are in a solution. The greater the number of hydrogen ions is, the more acidic the solution and the lower the pH.
 - A solution with a pH of 7 is neutral. A solution with a pH below 7 is acidic, and a solution with a pH greater than 7 is basic.
 - Ocean water is slightly basic, with an average pH of 8.1.
- Plankton – small organisms that live suspended in ocean water.
 - *Photoplankton* are algae that produce energy from photosynthesis.
 - *Zooplankton* are small animals that that feed on other plankton.
- Predator – an animal that kills and eats other animals.
- Producer – an organism that converts simple inorganic matter (such as water and carbon dioxide) into organic matter (such as sugar and protein).
 - Most plants use the energy in sunlight to create organic matter from carbon dioxide and water. This process is called *photosynthesis*.
 - Important coral reef producers include phytoplankton, algae, and the zooxanthellae that live inside corals.
- Sediment – rock fragments that have been transported to a different location.
 - Examples of sediments include clay, silt, sand, and pebbles.
 - Smaller sediments (such as clay and silt) can remain suspended in the water for a long period of time, reducing the sunlight that reaches the ocean floor.
- Zooxanthellae – photosynthetic algae that live inside corals.
 - Zooxanthellae and corals have a mutualistic relationship that benefits both organisms.
 - Coral provide zooxanthellae with shelter and compounds needed for photosynthesis.
 - Zooxanthellae provide corals with oxygen and food.

