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Close Reading: Coral Reef Importance

Why Are Coral Reefs Important?

Web: www.nature.com/scitable/blog/saltwater-science/why_are_coral_reefs_important

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You may have heard that coral reefs are being threatened by human activity. For instance, the Fight for the Reef campaign aims to raise awareness about how proposed increases in shipping traffic and development of large ports near the Great Barrier Reef would negatively impact the largest coral reef system in the world.

Corals are related to jellyfish and anemones, and most species are colonial. Scleractinian corals, or "hard corals" secrete a calcium carbonate skeleton; the living animal is typically just a thin layer of tissue atop the stony skeleton, that can be shaped like a branching tree, a table, a boulder, or other forms, and can reach the size of car. Scleractinian corals host symbiotic algae in their tissues called zooxanthellae - the algae photosynthesize and provide the coral with most of its energy, but corals also possess a ring of stinging tentacles around each individual mouth in the colony, which are used to capture food such as zooplankton.

Scleractinian corals can only survive in the sunlit waters of the tropics - less than 1% of the ocean provides acceptable habitat. Corals are also sensitive to local environmental conditions - warmer water temperatures, sedimentation, nutrient runoff, and heavy metal pollution are just some of the factors leading to the destruction of coral reefs worldwide.

But why should we all be worried about coral reefs, particularly when many of us live very far from the tropical oceans?

Coral reefs contain staggering biodiversity. Estimates vary immensely, but coral reefs may be the most diverse ecosystem on earth; they likely at least rival terrestrial rainforests. Diversity is important for a variety of reasons. Biodiversity ensures that some life will continue to survive, even after major catastrophic events that wipe out many species. Biodiverse ecosystems also provide services, for example nursery habitat to edible fish species, which would be difficult and expensive to reproduce artificially.

Coral reefs provide food to millions of humans. Corals, like trees, provide three-dimensional structure and substrate to house and feed fish and other marine animals that humans eat. Some estimates say that over 1 billion people depend on food from coral reefs, and reefs as a whole might be worth around \$172 billion for every year they continue to provide essential services to humans, like food.

Coral reefs protect and create land. Coral reefs can dissipate wave energy from storms and tsunamis, reducing damage on adjacent land. Atoll islands continue to exist above the ocean's surface long after the



Close Reading: Coral Bleaching

volcanic island upon which they first grew has cooled and sunk below the waves, due exclusively to the growth of corals and other reef-associated organisms like large foraminifera.

Coral reefs might supply natural medicines. Compounds effective against disease-causing agents like bacteria and fungi already exist in nature - and could be developed into effective drugs for humans if they can be isolated. Coral reefs are a likely place to find these natural products, due to their tremendous biodiversity.

Coral reefs are beautiful and intrinsically full of wonder. Nothing much compares to diving below the surface of clear turquoise water and seeing a natural wonderland more intricate and complex than you could possibly dream up. For me, that's enough.



Questions:

1. What part do zooxanthellae play in corals?
2. List three reasons that we should care about coral reefs?
3. What impact could the loss of coral reefs have on food for people?