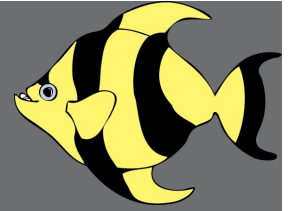


Grief Along the Reef

by Jennifer Buchet



BENEATH THE AZURE WATERS LIES A COLONY

What was once a community teeming with marine life is now a deserted ruin. Skeletal remains are all that's left where there once stood towering mountains filled with thousands of inhabitants. Dolphins, sea turtles, and a myriad of fish once called these underwater gardens home, but now the city has crumbled. There is no more shelter, no more food. These aren't the fabled ruins of Atlantis, but the remains of a once thriving coral city.

UNDERWATER WONDERS

Coral is not a plant, but rather an animal. Whole colonies make a cay, or a reef. These reefs provide food and shelter for marine life, from the smallest fish to the largest sharks. The Coral Triangle (an area between Indonesia, Papua New Guinea, and the Philippines) is home to more than 3,000 types of reef fish. Seventy-five percent of the world's coral species are found here — that's almost 600 different kinds!

These multi-colored metropolises also serve as natural protective barriers in coastal regions. Barrier reefs grow far from the coast while fringe reefs are close to the shoreline. Patch reefs form in shallow areas of the seabed and atolls are circular shaped, forming lagoons. Sturdy reef-building corals — staghorn, elkhorn, brain, and boulder — live along the reef's crest, able to withstand the battering surf. Closer to shore, the reef flat is sheltered from the waves. It's here that you'll find the more delicate, soft corals, like carnation, sea fans, and sea whips. Sadly, one-third of all coral species are at risk for extinction. In fact, Australia's Great Barrier Reef has lost more than half its coral since 1985! So what's going on?

Think About It:

Using context clues, determine the definition of metropolises.

REEFS IN PERIL

When a reef dies, nothing much remains — no shelter, no food, and no marine life. Today, 75 percent of all reefs are threatened by a combination of local and global threats. Hurricanes, boat groundings, and dragging anchors can all kill coral. Over the last 10 years, 25 percent of the world's corals have disappeared due to climate change, disease, pollution, and commercial harvesting.

Reefs can take thousands of years to form, growing just centimeters each year. They're created by mineral deposits from billions of small invertebrate animals

called coral polyps. The size of a pinhead, they live together in colonies. The polyps build "houses" similar to our own bones, made from calcium carbonate.

But acidification is threatening how fast coral can grow. Acidification is often caused by high carbon dioxide (CO₂) emissions, which comes from burning fossil fuels (coal, oil, natural gas). Carbon dioxide lowers the pH of the water creating higher acidity levels. If the acid levels are too high, a coral's skeletal system becomes brittle and weakens.

Coral wouldn't be coral without its partner, zooanthella (zo-uh-zan-THEL-a). This algae lives inside the coral. It not only provides the coral with its coloration, but also supplies the necessary minerals to build coral skeletons.

Think About It:

Summarize the relationship between the coral reef and zooanthella.

However, as global water temperatures continue to rise, coral become stressed and expel the algae. Some coral do recover, but more often than not, they turn white and die. This is known as coral bleaching. Furthermore, rising water temperatures increase the chances of contracting diseases such as black band and white pox.

Another danger to our reefs are highly destructive fishing habits. For example, people in the Coral Triangle often fish by using dynamite or cyanide poisoning! In addition, as the larger, predatory fish (i.e. tuna, grouper) are overhunted for human consumption, the populations of smaller, coral-eating fish are on the rise, including damselfish and crown-of-thorns starfish.

Coastal development and escalating water pollution from garbage and pesticidal runoffs also continue to pose great threats.

THE FUTURE OF THE REEFS

Around the world, people are working hard to protect and save coral communities. For instance, many organizations are teaching alternative and sustainable fishing methods. They're also planting mangrove forests because mangroves help keep the waters pristine. Their long, tangled roots prevent soil erosion and catch debris, such as fallen leaves or trash.

In the Florida Keys, scientists are not only growing coral in the lab, they're raising their own coral gardens. The farmed coral is released back into the wild to restock damaged or depleted reef sites. Aquariums, such as the Mote Marine Laboratory in Florida, even rescue corals. If a dock or seawall needs repairs, divers will remove the threatened corals and transplant them back once the repairs are completed.

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