What is Killing our Coral Reefs?

We have lost over a quarter of the world's coral reefs. If the present rate of destruction continues, 60% of the world's coral reefs will be destroyed in the next 30 years. The loss of healthy coral reefs would mean the elimination of a primary source of food, income and employment for millions of people around the world, as well as the extinction of many fascinating and beautiful marine species.

Coral reefs have always faced damage from natural causes such as cyclones, pest outbreaks, and disease. Coral is also broken by fish and other forms of marine life. Under normal conditions, reefs are resilient to such damage and recover over time. Additional human pressures, however, are weakening the reefs, reducing their ability to regenerate and recover from natural damage.

Sewage, Chemical Pollution and Marine Debris

Scientists have identified pollution as one of the leading causes of coral reef degradation. This threat comes from a variety of sources. For example, oil, gas, and pesticide contamination poisons coral and marine life. Pollution also reaches reefs when communities and industries dump human and animal waste and/or fertilizer into ocean and river systems. These pollutants increase the level of nitrogen around coral reefs, causing an overgrowth of algae, which smothers reefs by cutting off their sunlight.

Floating trash can also cover reefs, blocking off sunlight that polyps need to survive. Trash dumped into the water also kills reef animals. Turtles often mistake plastic bags for jellyfish and eat them. Plastic blocks the turtle's digestive tract, causing it to starve to death. Lost or discarded fishing nets - called "ghost nets" - can also snag on reefs and strangle thousands of fish, sea turtles and marine mammals.

Sedimentation

Construction along coasts; farming along coastal rivers; inshore construction, mining, and logging can all lead to soil erosion. As a result, particles rush downstream into the ocean and cover coral reefs. Dirt, silt, and sand make the water cloudy. This 'smothers' or shades coral by depriving it of the light it needs to survive.

Coastal Development

Coastal populations have risen, increasing the pressures on coastal resources. This has led to a multitude of problems for coral reefs. In many areas, developers have constructed piers and other structures directly on top of coral reefs. At one time, big cities such as Hong Kong, Singapore, Manila, and Honolulu had thriving coral reefs. Long ago these reefs were destroyed by humans. Now, reefs growing near other coastal communities are experiencing the same coral degradation.

Destructive Fishing Practices

Although cyanide fishing supplies live reef fish for the tropical aquarium market, most fish caught using cyanide are sold in restaurants, primarily in Asia, where live fish are prized for their freshness. To catch fish with cyanide, fishers dive down to the reef and squirt cyanide in coral crevices and on the fast-moving fish, to stun them and make them easy to catch. Although some large tropical fish can metabolize cyanide, smaller fish and other marine animals, such as coral polyps, are poisoned by the chemical cloud produced during this practice.

Overfishing is another leading cause of coral reef degradation. Often, too many fish are taken from one reef to sustain a population in that area. Poor fishing practices, such as using explosives (blast fishing), blow apart the surrounding coral reducing the reef to rubble. .In other instances, fishers bang on the reef with sticks (muro-ami), which destroys coral formations that normally function as fish habitat.

Coral Mining

Many reefs are being destroyed by coral mining. Coral is collected for coral curios and jewelry and often sold to tourists and exporters in markets of developing countries. Sand and limestone from coral reefs are made into cement for new buildings. Coral pieces are also sometimes removed for use as bricks and road-fill.

Careless Recreation

Corals suffer when tourist resorts empty their sewage directly into the water surrounding coral reefs. Wastes kept in poorly maintained septic tanks can leak into surrounding ground water, eventually seeping out to the reefs. Careless boating, diving, snorkeling, and fishing can also damage coral reefs. Dropping anchors onto reefs crushes and breaks coral. Whenever people grab, kick, walk on, stir up sediment or collect coral, they contribute to coral reef destruction.

Global Warming and Coral Bleaching

Global warming is caused by the accumulation of carbon dioxide and other heat-trapping gases in the atmosphere. This is primarily due to fossil fuel burning and deforestation. Increased water temperatures, which may be linked to global warming, are dangerous to coral since corals are very sensitive to changes in temperature. Higher temperatures in coral waters stress corals and can lead to mass coral bleaching. Coral bleaching occurs when coral polyps, stressed by heat or ultraviolet radiation, expel the algae that live within them. These algae, called zooxanthellae (zo-zan-THEL-ee), normally provide the coral with up to 80% of their energy, making zooxanthellae essential for coral survival. The algae are also normally responsible for the color of coral, so when it is expelled, the coral appears white or "bleached." Bleached coral can sometimes recover if conditions return to normal. However, in the face of other human-induced pressures, corals have become vulnerable and in many cases, bleached coral colonies die.

Carbon Dioxide

In the past few decades, the amount of carbon dioxide in the air has increased by one-third. This is harmful to corals because increased amounts of carbon dioxide are dissolving in the water, which appears to be dissolving the skeletons of corals. As a result, corals in waters with large amounts of carbon dioxide grow weaker skeletons, making them more vulnerable to damage from waves, careless tourists, and destructive fishers.

Ozone Depletion

The destruction of the ozone layer, which accompanies global warming, is caused by the presence of chlorofluorocarbons (CFCs) and other chemicals in the atmosphere. This presence causes the depletion of protective ozone in the atmosphere and increases the intensity and nature of ultraviolet radiation that reaches the earth's surface. Although corals have a natural sunscreen to protect themselves from the tropical sun, most scientists believe increased levels of ultraviolet radiation damages coral in shallow areas.

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