Coral Bleaching

What is coral bleaching?

Coral normally gets most of its oxygen and nutrients from tiny algae that live within it, called zooxanthellae (zo-zan-THEL-ee) and without this algae, corals would die. Zooxanthellae also contains pigments, which give coral colonies their beautiful colors. Sometimes, when coral is under extreme stress, it expels the zooxanthellae, causing the coral to turn white. Coral bleaching is a term used to describe this process.

Why does coral bleach?

Coral bleaching is caused by environmental stresses. Sometimes, small, localized bleaching events result from chemical spills, sedimentation, and decreases in ocean salinity from heavy rains or flooding. However, large global instances of bleaching, called mass bleaching, appear to be caused primarily by an increase in water temperature or ultraviolet radiation. Even small temperature increases, as little as a 1-degree Celsius above normal temperature range, over a period of a few days, can force exposed coral to expel its zooxanthellae. If conditions quickly return to normal, the coral may recover and regenerate over time. Unfortunately, in the face of other numerous or chronic threats, corals are often vulnerable and therefore can die from the bleaching process.

How serious is the coral bleaching problem?

Incidences of localized coral bleaching, from factors such as chemical spills and sedimentation, have been recorded since 1870. Since 1983, however, a new phenomenon has appeared, called mass coral bleaching. In such instances, elevated water temperature and increased amounts of UV light cause coral reefs in unrelated areas around the world to bleach during the warm season. Many mass bleachings are correlated with El Niño/La Niña events, which create unusual warm water currents. Many scientists are also concerned that global warming is leading to elevated water temperatures and consequently causing mass bleaching events.

What can I do about coral bleaching?

The best thing you can do to prevent mass coral bleaching is use "precautionary methods" when thinking about how you use energy. For instance, try using less energy (because most energy comes from burning fossil fuels) and support alternative energy sources, such as wind and solar power. You can also walk or ride a bike, instead of driving, buy energy-efficient appliances, recycle paper products, and plant trees. Ask your policy makers to support sustainable energy sources and efficient energy use. In addition, you can support conservation organizations that are working to prevent climate change and/or support coral reef conservation groups too.

If you scuba dive or snorkel, keep a lookout for bleached colonies. You can play an important role in alerting scientists as soon as coral bleaching begins, so that they can study the phenomenon and try to determine its causes. If you think you've found a section of bleached coral, report it to your dive operator and ask them to notify the nearest marine research station.

For more information, see the following websites:

* Buoy Sea Temperature Data - http://www.pmel.noaa.gov/toga-tao/realtime.html
* Maps of current coral bleaching areas - http://psbsgi1.nesdis.noaa.gov:8080/PSB/EPS/SST/climohot.html
* Bleaching and Global Warming - http://www.greenpeace.org/~climate/science/coralbleach.html
* Sea Surface Temperature Images - http://www.nodc.noaa.gov/dsdt/sst_ani.htm
* More Threats to Coral Reefs - http://www.coralreef.org
* Global Climate Change Campaign - http://www.worldwildlife.org/climate/climate.cfm

