

Sunscreen Ingredients Causing Environmental Damage

Coral Reefs in Jeopardy - Vanishing Faster than Rain Forests

By Carol and Rob Trow

Introduction

Environmental news and information has been getting a great deal of our attention. It began with the discovery in 1985 in Antarctica of the expanding holes in the ozone layer made by carbon emissions. This was followed shortly thereafter by the undisputable evidence of global warming and the potential dire consequences to future generations if the world's developed nations do not act to curtail this problem. Now, yet another potential threat to our environment has been discovered, not on land or in the atmosphere but in the world's oceans. And, that threat has to do with sunscreen ingredients!

We learned early in school that the earth's surface is covered more by water (over 70%) than land (29%). Only over the last decade have scientists begun to more fully understand the critical importance of the oceanic environment to maintain, enhance and ensure life itself on our planet earth.

Sunscreen Ingredients Damaging Coral Reefs

A team of internationally renowned marine researchers led by Roberto Danovaro of the Polytechnic University of Marche, Ancona, Italy, made a startling discovery (1). Their work has been published in a plethora of magazines and scientific journals including National Geographic and has been met with wide spread acceptance though there are critics who question their findings and methodology. Their research was based on findings from reefs in the Pacific, Atlantic, and Indian Oceans plus the Caribbean and Red Sea. They studied on site in Mexico, Thailand and Egypt, as well in laboratories.

Simply put, they discovered UV blocking chemicals, found in many popular sunscreens (parabens, cinnamare, benzophenone, camphor derivatives), can rapidly cause viral infections that promote coral bleaching which kills off coral even if present in small amounts. Twenty five percent of sunscreen applied to the skin is released in the water during the course of only twenty minutes. The presence of these chemicals produces high levels of viral infections that kill off algae necessary for coral reefs to survive. Those swimming, snorkeling and diving near coral reefs should not wear sunscreens with the above named ingredients as they are causing the coral to die. Reefs that are exposed to humans wearing sunscreens are in jeopardy.

Danovaro and his team demonstrated that some chemical components contained in most commercial sunscreens cause the rapid and complete bleaching of hard corals, even at very low concentrations. Accordingly, they observed that the corals' bleaching was more rapid and evident at higher temperatures, suggesting that the predicted warming of oceans' temperature could potentially augment the sunscreens' harmful effects on the corals' bleaching. Since they estimated that roughly 4000–6000 metric tons of sunscreen annually wash off swimmers into reef waters, sunscreens are

promoting viral infections of algae that play an important role in coral bleaching (killing of coral) in those areas more prone to high levels of recreational use by humans. This does not mean the complete banning of sunscreens - which are essential for protecting our skin from cancer - rather they have suggest the use of more eco-compatible filters such as kaolin, zinc oxide, titanium dioxide and the like. **Use of sunscreens that have physical, reflective filters and eco-friendly chemical ingredients will help our critically important coral environment survive.**

Importance of Coral Reefs

Coral reefs are important for many reasons. They provide protection and shelter for many different species of fish. Without coral reefs, these fish cannot live or reproduce. Reef fish and related species feed between 30 and 40 million people every year and provide life sustaining income to tens of thousands of individuals.

Coral reefs are some of the most diverse and valuable ecosystems on Earth. Coral reefs support more species per unit area than any other marine environment, including about 4,000 species of fish, 800 species of hard corals and hundreds of other species. Scientists estimate that there may be another 1 to 8 million undiscovered species of organisms living in and around reefs. This biodiversity is considered key to finding new medicines for the 21st century. Many drugs are now being developed from coral reef animals and plants as possible cures for cancer, arthritis, human bacterial infections, viruses, and other diseases according to a myriad of scientific researchers in the United States and worldwide.

Storehouses of immense biological wealth, reefs also provide economic and environmental services to millions of people. Coral reefs may provide goods and services worth \$375 billion each year. This is an amazing figure for an environment that covers less than 1 percent of the Earth's surface.

As important is the fact that coral is vital in controlling how much carbon dioxide is in the ocean water. Coral turns carbon dioxide in the water into a limestone shell. Without coral, the amount of carbon dioxide in the water would rise dramatically and that would affect all living things on Earth.

Antonio Pusceddu of Danovaro's team states "actions are therefore needed to stimulate the research and utilization of UV filters that do not threaten the survival of the endangered tropical ecosystems (coral reefs)".

Members of the skin care industry need to be ever mindful of the health and environmental impact of the products and ingredients we recommend research, develop, market to our clients.

1. Suncreens Cause Coral Bleaching by Promoting Viral Infections; Danovaro, Bongiorno, Corinaldesi, Giovannelli, Damiani, Astolfi, Greci and Pusceddu; Environmental Health Perspectives; volume 116, Number 3, March, 2008. (doi:10.1289/10966; <http://dx.doi.org>)