



PSA-092-Sunscreen and Coral

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For a Diver



Every day is Ocean Day

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SUNSCREEN AND CORAL

By William F. Precht

This dead tissue on a knobby brain coral (*Pseudodiploria clivosa*) in Bocas del Toro, Panama, is clear evidence of the careless touch of a diver with oxybenzone-containing sunscreen on his or her hand.



Scuba divers are unofficial guardians of the world's coral reefs. Early in our training we are taught to avoid touching the reef — that the potential harm caused by a careless fin kick or contact with the bottom may contribute to a reef's degradation and jeopardize the ecosystem services it provides. These vital services include protection of tropical shorelines from erosion, production of food for hundreds of millions of people, storage of a wealth of bioactive compounds with potential medical applications and provision of income from economically significant nonextractive activities such as diving and ecotourism.

Despite divers' training and love of coral ecosystems, however, some heavily visited reefs are degrading faster than ones visited less frequently. But rather than accidental contact, the major contributing factor to these declines is sunscreen pollution.

The first study to show a direct link between sunscreen and coral mortality, published in 2008, revealed that the active compounds in sunscreens can cause bleaching and eventual death of the coral animal by promoting viral infections.¹ In 2011 a study of Australia's Great Barrier Reef showed that coral diseases were 15 times more prevalent at reefs with offshore tourism infrastructure than at nearby reefs without such infrastructure.² In 2015 several published studies showed that sunscreens containing oxybenzone, a benzophenone, can cause direct harm to corals. (Benzophenones are also linked to health problems in humans, inducing allergic reactions and endocrine disorders.) These experimental studies found that when oxybenzone — even at extremely low concentrations and dosages — comes into direct contact with corals, the result is usually death of the coral.

REFERENCES

1. Danovaro R, Bongiorno L, Corinaldesi C, et al. Sunscreens cause coral bleaching by promoting viral infections. *Environ Health Perspect.* 2008 April; 116(4):441–447.
2. Lamb JB, Willis BL. Using coral disease prevalence to assess the

Researchers throughout the tropics are observing considerable levels of oxybenzone in water samples taken from heavily visited beaches and dive sites. Studies are ongoing to determine if corals at sites with measurable levels of oxybenzone in the water column are more prone to bleaching, disease, tumors, lesions and infection than those in areas where these compounds are below detectable levels.

While the risk to corals at heavily visited reef sites is disturbing, this mounting scientific research has not gone unrecognized. In January 2017, Hawaii state senator Will Espero introduced a bill (SB 1150) in the Hawaii state legislature to ban the sale of sunscreens that contain active ingredients known to harm corals and other reef animals. Although this bill did not come up for a vote in this year's legislative session, it helped to elevate this important issue in environmental policymaking — in Hawaii and beyond.

WHAT CAN DIVERS DO?

Ultraviolet solar radiation is a well-known health risk factor, and divers should use sunscreen to reduce their risk of skin cancer. Limit the amount of sunscreen you use by covering up and seeking shade when possible. Avoid using or buying sunscreens with ingredients that have been shown to harm coral.

Be aware that not all products that claim to be "reef safe" truly are. Carefully read labels and check ingredients before you buy. Especially avoid sunscreens that contain oxybenzone; instead choose mineral-based sunscreens such as zinc oxide and titanium dioxide.

Although these individual efforts may not save coral reefs from their current plight on a global scale, divers should do everything we can to protect the reefs we love, one coral at a time. **AD**

SHARE YOUR STORY

Do you have tips, advice, travel strategies, dive techniques, lessons learned or other words of wisdom to share with your fellow divers? *Alert Diver* wants your story! Email it to M2M@dan.org or mail it to "Member to Member," c/o

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