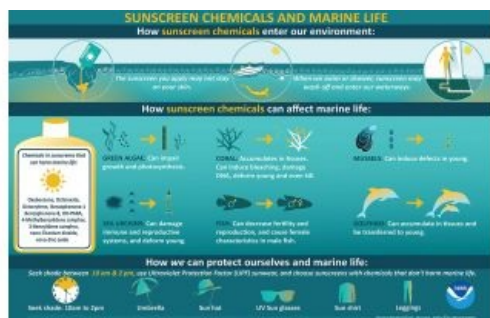


Skincare Chemicals Threaten Coral Reefs and Other Marine Life



Common chemicals used in thousands of products to protect against the harmful effects of ultraviolet light have found to threaten corals and other marine life. Healthy coral reefs are one of the most valuable ecosystems on Earth. They provide billions of dollars in economic and environmental services, such as food, coastal protection, and tourism.

Effects on Reef Ecosystems

However, coral ecosystems around the world face serious threats from a number of sources, including climate change, unsustainable fishing, land-based pollution, coastal development, disease, and invasive species. Recently, scientists have discovered that

some of the chemicals found in sunscreen and other personal health products also threaten the health of coral reefs. Two of those studies, led by NOAA researchers and partners, are detailed below. How these, and other compounds, affect reef ecosystems remains an active area of research among scientists.

Study 1 - Effects of the Sunscreen UV Filter

In a 2016 study, a team of international scientists found that a common chemical in many sunscreen lotions and cosmetics is highly toxic to juvenile corals and other marine life. Oxybenzone, or BP-3, is found in more than 3,500 skin care products worldwide for protection against the sun's harmful effects. The compound has been found entering the environment both through wastewater effluent and directly from swimmers wearing sunscreens.

The study, published in the journal [Archives of Environmental Contamination and Toxicology](#), showed four major toxic effects in early, developing coral: increased susceptibility to [bleaching](#); DNA damage (genotoxicity); abnormal skeleton growth (via endocrine disruption); and gross deformities of baby coral. The authors of the study conclude that nontoxic oxybenzone alternatives are critical for protecting reefs and the exacerbating effects posed by climate change and bleaching.

Study 2 - Effects of the Skincare UV filter

In a 2013 study, NOAA [National Centers for Coastal Ocean Science](#) researchers and their partners discovered that a sunscreen chemical commonly used in many soaps, cosmetics, and body fragrances is highly toxic to coral. The team's data show that even very low concentrations of benzophenone-2 (or BP-2) can quickly kill juvenile coral. BP-2 is an additive used in personal-care products since the 1960s to protect against the damaging effects of ultraviolet light.

Colourful Coral Bleaches

The team also found that BP-2 causes colourful corals to bleach, and can potentially induce or increase the frequency of mutation in corals by causing damage to their DNA. BP-2 is also not removed from most municipal wastewater treatment facilities. This discharge is often directly released in coastal waters of the Caribbean and the Indo-Pacific, threatening near-shore coral reefs.

Reef Degradation

Although pollution is a major cause of coral reef degradation and is the easiest factor to mitigate, BP-2 as a pollutant has largely been ignored. "In the case of BP-2 pollution, there is a range of options that can be considered for reducing its impact to reefs - from working with manufacturers and innovating more environmentally sustainable products, to educating consumers regarding product selection and product disposal," said C.A. Downs, lead author of the study.

The study was published in the [December 2013 issue of Ecotoxicology](#) and updated May 2019. (NOAA <https://bit.ly/2KTJhiH>)