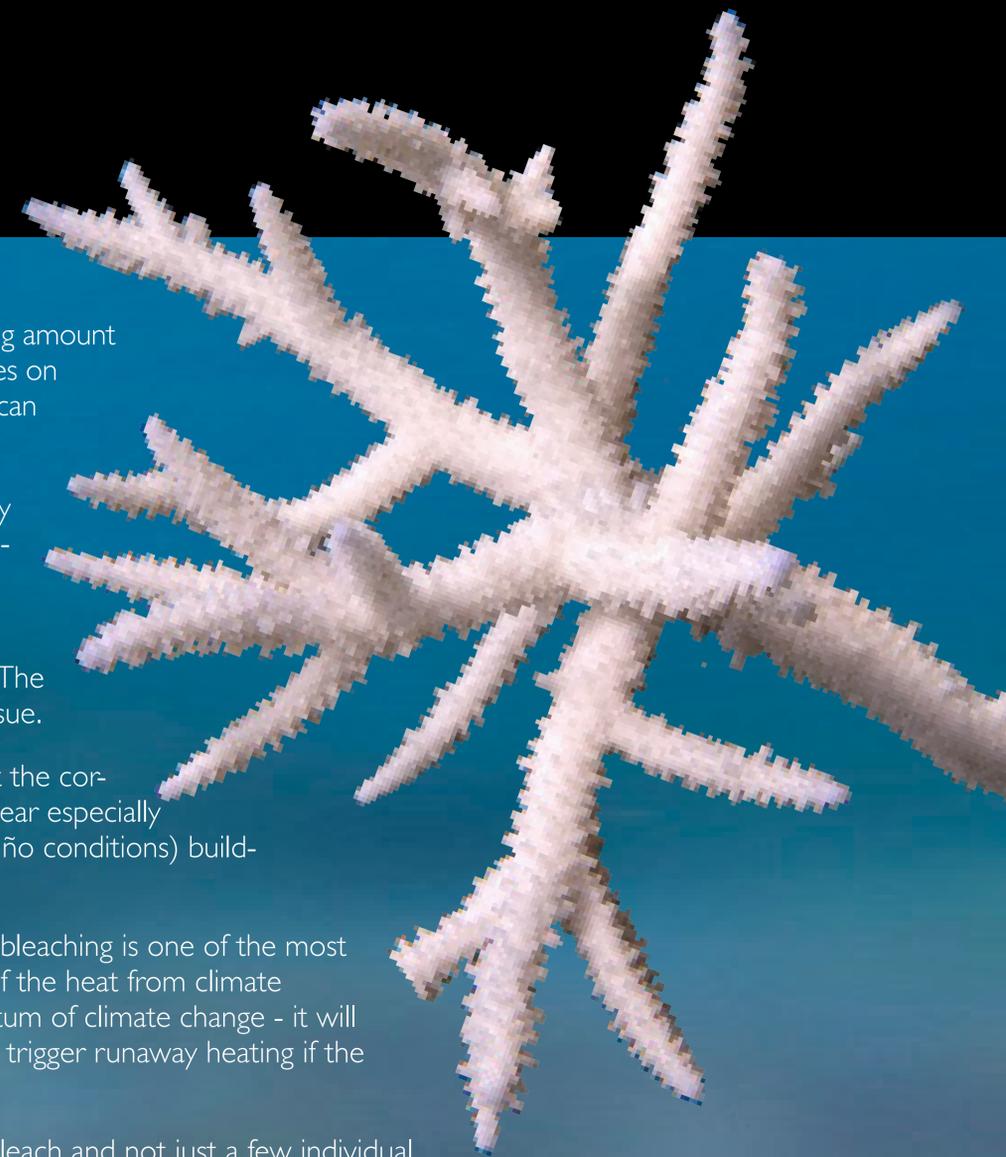


CORAL BLEACHING - Essential Facts



Why do corals matter? A coral reef is like an oasis in a desert. Corals provide both food and shelter for a staggering amount of marine life. Although coral reef ecosystems represent less than 0.1% of the area of the ocean, approximately 25% of all marine species relies on them. They are especially important as a nursery for juvenile fish until they are large enough to venture into open-ocean. Losing a coral reef can have a dramatic impact on local food, fisheries and livelihoods. About 500 million people globally depend on such fisheries.

What is coral bleaching? Coral bleaching is the process by which corals lose their colouration and turn a ghostly white. This happens when they become overly stressed especially when exposed to warmer than normal temperatures and excessive sunlight (normally over 4-6 weeks).

What happens when corals bleach? When corals bleach they are actually expelling the brown algae that they grow within their body tissues. Corals expel the algae because high temperatures cause the algae to produce toxic compounds. The expulsion of the algae makes the corals appear a brilliant white - which is due to skeletons being visible through their translucent coral tissue.

How often does coral bleaching occur? Bleaching is becoming increasingly common throughout the coral reef regions of the world as a direct result of warming oceans. Nowadays there is at least some limited coral bleaching reported each year especially during summer months, although the major, global events that span multiple oceans are usually associated with natural variability (e.g El Niño conditions) building on top of seas that are now warmer because of climate change.

What is the connection between bleaching and climate change? Coral bleaching is one of the most visual indicators of thermal stress due to climate change. It is a phenomenon caused by ocean warming. The oceans have absorbed 93% of the heat from climate change and are now significantly warmer than they were 50 years ago. The heat that is causing reefs to turn white represents the momentum of climate change - it will increasingly impact our weather, climate and rainfall for decades to come until a new equilibrium is reached. This hidden energy could also trigger runaway heating if the ocean's methane deposits are released. It is why coral reefs are often referred to as "the canary in the coalmine."

What is Mass or Global Coral Bleaching? Mass coral bleaching is where whole reef systems bleach and not just a few individual corals. This was first recorded in 1979. It is thought that a tipping point was reached around that time when the short-term temperatures that normally accompany El Niño events began to exceed the temperatures that corals could tolerate.

How damaging are mass bleaching events? Mass bleaching events can be extremely damaging. A reef can turn from a coral dominated reef to an algae dominated reef in the space of a few months - a process that can take decades or longer to reverse. The Galapagos Islands was one of the first places where mass bleaching and mortality was first documented. The reefs there lost over 95% of their coral during the 1982 event.

Why is coral bleaching associated with El Niño? El Niño events result in higher than normal ocean temperatures in large parts of the world. This causes higher levels of stress on coral reefs. During the warm season, the higher than normal ocean temperature, combined with additional seasonal heating and sunlight, is often enough to now cause corals to bleach.

Does bleaching only occur when there is an El Niño? Major global events have only happened in El Niño years to date, however the baseline temperature of the ocean is now high enough that we see some mass bleaching every year. It is now only a matter of time before we have a global event that is not triggered in an El Niño year.

Can anything be done to reduce the risk of corals bleaching? The coral's ability to recover often depends on how healthy it was before the event. Coral reefs can be 'prepared' for bleaching events by ensuring local stressors, such as overfishing and pollution, are minimised.

How does the XL Catlin Seaview Survey help? The XL Catlin Seaview Survey team is conducting the most extensive visual and scientific survey of the world's coral reefs. The Survey's images are available for expert insight and comment on corals, bleaching and ocean change.

The XL Catlin Seaview Survey team is conducting the most extensive visual and scientific survey of the world's coral reefs. Coral reefs worldwide are increasingly threatened by a combination of local and global impacts, including ocean warming and climate change. The prospect of many surviving beyond the middle of this century is not high. Our partners NOAA and others predict that coral bleaching will occur widely across the world's oceans during 2015. If their prediction is realised, this would make it the third global coral bleaching, following previous events in 1998 and 2010. This Essential Guide To Coral Bleaching has been prepared as useful background information for journalists by Professor Ove-Hoegh-Guldberg, XL Catlin Seaview Survey's Chief Scientist and Director of the Global Change Institute at the University of Queensland and colleagues working on our Survey. It is intended to be a desktop reference guide to keep to use when needed.