

# Abstract

## **Health and degradation of coral reefs: Time scale - Natural and anthropogenic perturbations at global, regional and local scales.**

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Coral reefs are in crisis. We wonder about their survival in the face of pressures and anthropogenic degradation as well as considering the predictions of climate change. In short, what will happen to coral reefs under the influence of global change?

Answering this question requires agreement on the time scale, on the distinction between natural and anthropogenic disturbances and on the spatial scales considered.

On the geological time scale, natural disturbances during the Quaternary did not affect the vitality of existing coral reefs. At this moment in the Holocene (or Anthropocene for some) we can rightly be worried about their future but it is only related to our human scale because the reef phenomenon survived after many other catastrophic events over 600 million years, and it is not finished...

Significant degradation due to human activities has occurred for less than a century as a result of human population growth, economic development and globalization. However we should note that it depends on oceanic regions and in some of them, the reefs are healthy and sometimes untouched by human influence.

Natural disturbances have adverse effects on the reefs of a magnitude much greater than those caused by man and can affect the reefs in the most vital parts of the ecosystem. But they are experienced by reefs that support them well. Nevertheless, the intensities and frequencies of these disturbances are worrying in the context of climate change.

In all these aspects/subjects we should avoid any generalization of local or regional observations and not transfer the findings to a global scale.