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Coral Bleaching

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Introduction

Coral Bleaching – When exposed to warmer temperatures, corals expel their algae (zooxanthellae), causing them to lose their energy and color.



Figure 1: Bleached Coral



Figure 2: Unbleached Coral

Coral bleaching events are becoming more frequent and more severe due to climate change.

So, what happens when coral bleaching occurs and how can coral reefs adapt?

Purpose/Aim

Increase awareness on climate change and the rising global average of sea surface temperatures.

Understand the relationship that thermal stress has on coral reef systems.

Determine how coral reefs systems can adapt to warmer ocean temperatures.

Results

Some coral can die immediately from extreme heat stress, other species die from repeated bleaching with not enough time to recover.

Bleaching Thresholds:

- <3°C → almost no coral loss
- 4°C → steep decline by 40%
- 8°C → 2/3 of coral cover lost
- 9°C → coral could not recover

As heat increases, the composition of reefs change, and the resilient coral species begin to dominate.

Conclusions/Future Research

Reduce greenhouse gas emission to slow global warming.

Marine biodiversity would suffer without coral reefs.

Cooling and Shading

Coral Breeding and Adaptation

Stabilization

Biocontrol

Field Treatments

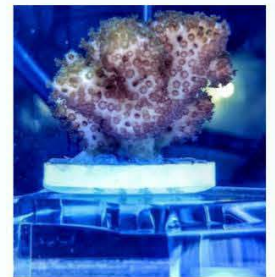
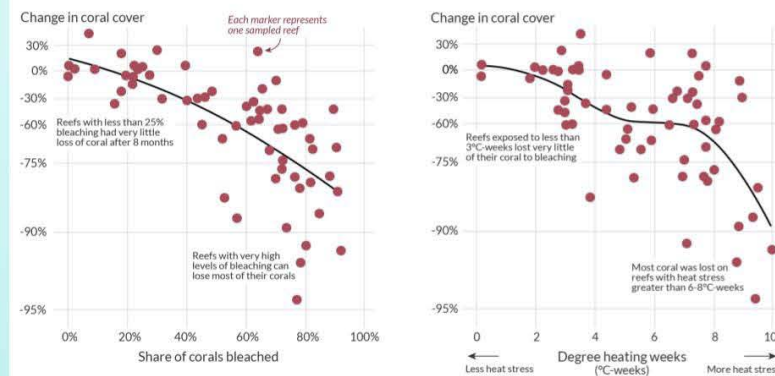


Figure 4: Coral being treated with probiotics

Changes in Coral Cover

Coral decline and bleaching on the Great Barrier Reef

Changes in coral cover and bleaching are shown relative to the extent of heat stress. This is shown across reefs on the Great Barrier Reef in 2016 – a period of intense warming.



Source: Terry Hughes et al. (2018). Global warming transforms coral reef assemblages. *Nature*. OurWorldInData.org – Research and data to make progress against the world's largest problems.

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Figure 3: More heat stress and coral bleaching lead to a decline in coral cover.

References

Ritchie, H., & Roser, M. (2021, April 15). *Coral reefs*. Our World in Data. Retrieved November 2, 2021, from <https://ourworldindata.org/coral-reefs#coral-bleaching-events-are-becoming-more-common-and-severe>.

Jamil, S. (2021, September 9). *Bleached and unbleached corals classification*. Kaggle. Retrieved November 2, 2021, from <https://www.kaggle.com/sonainjamil/bleached-corals-detection>.

Home. Great Barrier Reef Foundation. (n.d.). Retrieved November 4, 2021, from <https://www.barrierreef.org/>.

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