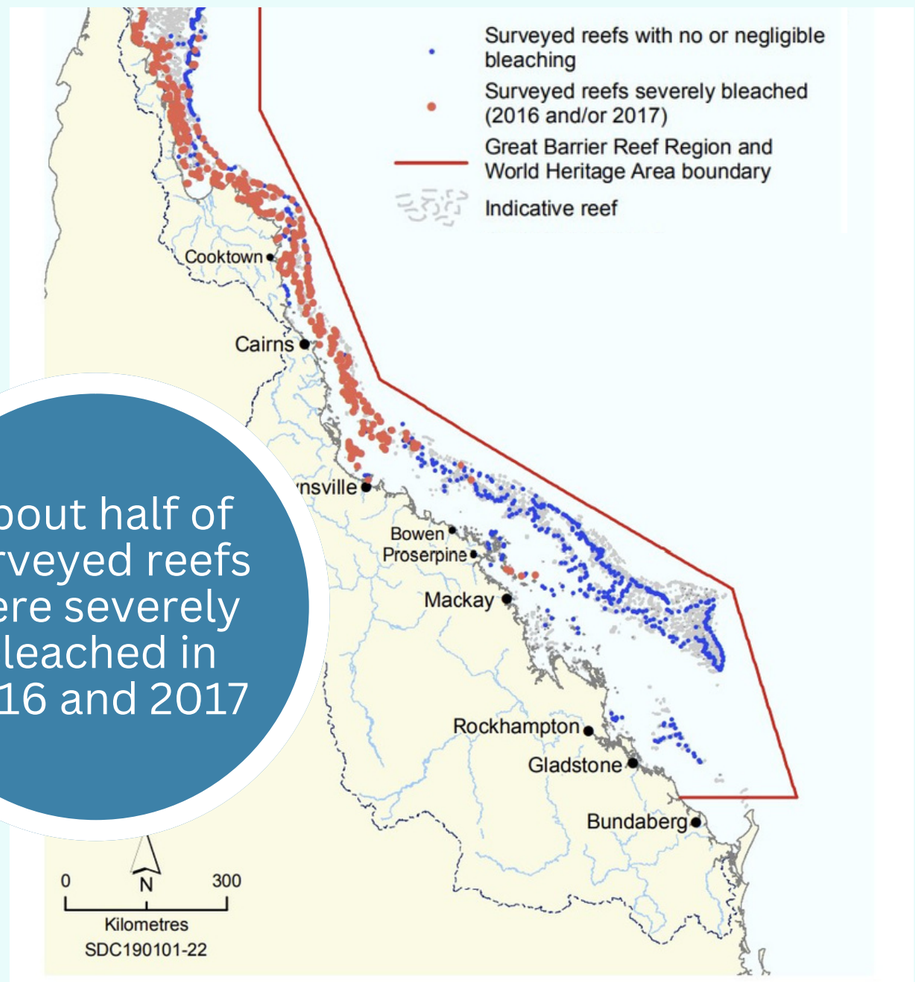
GREAT BARRIER REEF AND CORAL BLEACHING

Problem Statement

Climate change is causing an increase to sea surface temperature which increases the frequency of major bleaching events in the Great Barrier Reef. This has caused significant coral mortality throughout the reef.

The bleaching of coral has detrimental impacts on the biodiversity of the local marine ecosystems, as well as regional industry and infrastructure.



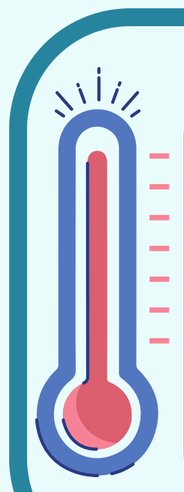
About half of surveyed reefs were severely bleached in 2016 and 2017

Coral Bleaching in the Great Barrier Reef, 2016-2017
Severe bleaching is defined as >60% of corals
Source: ARC Centre of Excellence for Coral Reef Studies

WHY IS CORAL IMPORTANT?

-Eco-environmental: provides habitat to support biodiversity and fishery production
- Absorbs storm surges and protects shoreline and coastal infrastructure
- Socio-economic: supports local economy and creates jobs through tourism

Bleaching Process



Climate change is causing rising ocean temperatures and more frequent marine heatwaves

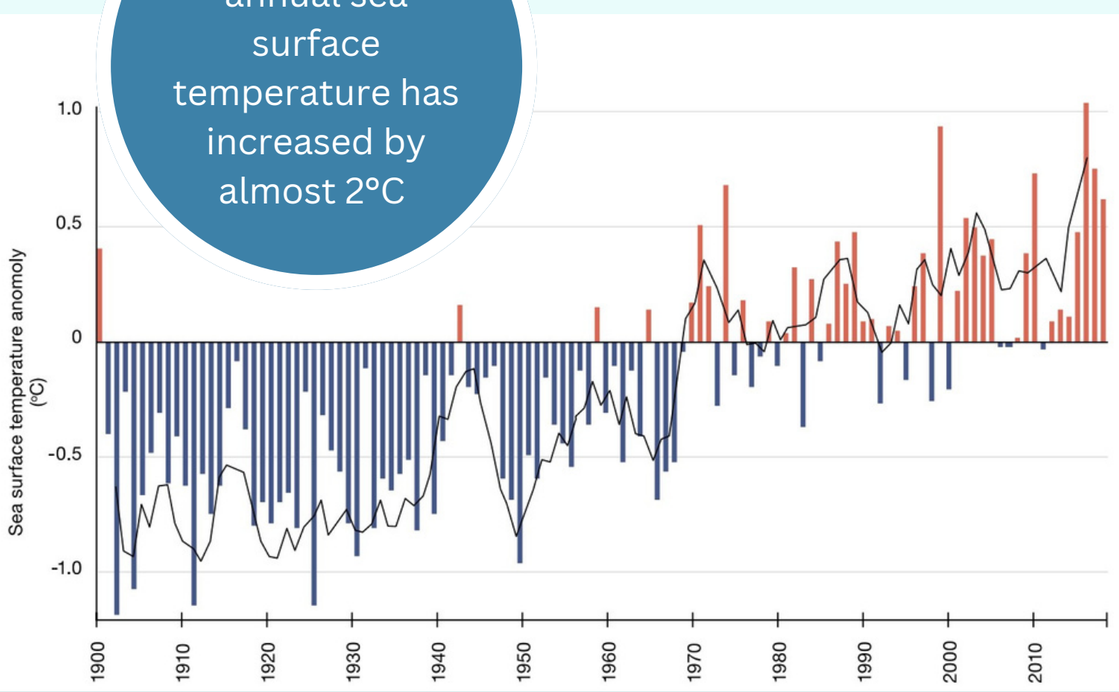
Corals become stressed under higher temperatures and expel the zooxanthellae (a type of algae) living in their structures. This causes the color loss seen in bleaching

Without zooxanthellae, the corals struggle to source food and become more vulnerable to threats

CONSEQUENCES OF CORAL BLEACHING

-Increased coral mortality and decreased resilience to other stressors
-30% of shallow water coral was lost in the 2016 mass bleaching event
-Corals rely on herbivorous fish species to support their health. When reef habitat is lost, fish populations decline, further increasing coral vulnerability.

Since 1900 the annual sea surface temperature has increased by almost 2°C



Annual Sea Surface Temperature Anomalies in the Great Barrier Reef, 1900-2018
Source: Australian Bureau of Meteorology

SOLUTIONS

- Reef reconstruction projects like NOAA's Community-Based Habitat Restoration add new coral structures to damaged reefs, increase community engagement with restoration, and support fisheries for food security and economic production
- Advocate for policies to reduce carbon emissions and mitigate marine heatwaves
- Be a responsible tourist: don't dive or anchor boats in vulnerable reef areas

FOR MORE INFORMATION VISIT coralreef.noaa.gov

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