

# Student Fact File

## Coral Bleaching

**Corals are animals** that are made up of a skeleton with layers of tissue over the top.

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**Tiny algae, called zooxanthellae,** live within the cells of corals and provide the energy that corals need to grow.

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**The colour of healthy corals** is because of the algae.

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**When the algae get stressed** they are kicked out of the coral so that the coral's tissue becomes transparent.

**The skeleton inside the coral is white** so the coral looks bleached without the algae.

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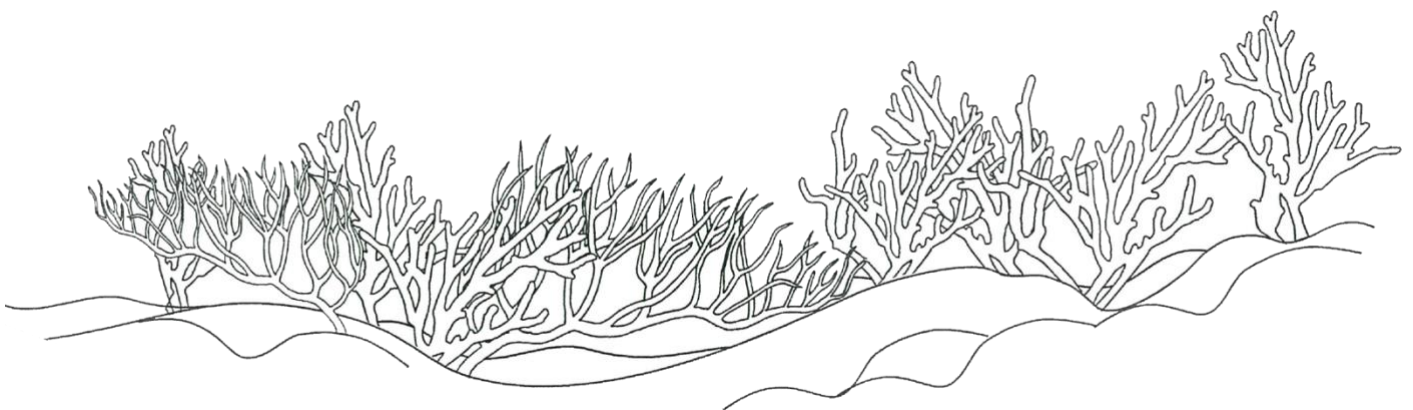
**The main cause of bleaching** is hot water temperature so bleaching is usually seen in summer.

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**Scientists predict** that water will become hotter in the future because of climate change.

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**Scientists also predict** that coral bleaching will become more common.



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## Algae provides the corals food

**Photosynthesis by the algae living in the coral** provides up to 90 per cent of the coral's energy. In return, the corals provide nutrients and a home for the algae. This is called a symbiotic relationship.

## Bleaching occurs when it's hot

**Corals bleach when the algae are expelled** from the coral. The coral then becomes almost transparent. The white of the coral's calcium carbonate skeleton can then be clearly seen through the coral tissue.

**The main cause of coral bleaching** is high water temperature. Temperatures that are only 1-2°C above average are enough to cause bleaching. Scientists predict that water temperature will continue to rise in the future. This is because of climate change and rising temperatures. Coral bleaching will therefore become more common in the future. Many other factors can also contribute to bleaching including high light, disease, sedimentation, pollutants and changes in salinity.

**Not all corals are equally prone to bleaching.** Fast growing branching and plate corals are more likely to bleach than slower growing boulder corals. The mix of coral types that make up a reef affects how much bleaching occurs at a site.

## Corals can recover after bleaching

**Bleached corals are still alive.** However, without the algae, the coral's energy level is low. This can make corals more vulnerable to other stress such as disease. The corals can also have difficulty cleaning off particles that settle on them.

**If the corals do survive,** algae can re-establish in the coral, which will then regain it's normal colour. With the symbiotic relationship restored, the corals can, with time, return to normal health.

## Corals can also die after bleaching

**Bleached corals will die** if the temperature stress remains. When corals die, new coral recruits must settle and grow on the reef in order for the reef to recover. This can take a long time (years or decades), even on healthy reefs. Importantly, the new reef may be different from what existed before bleaching. For example, the few types of corals that are more resistant to bleaching might become more dominant.

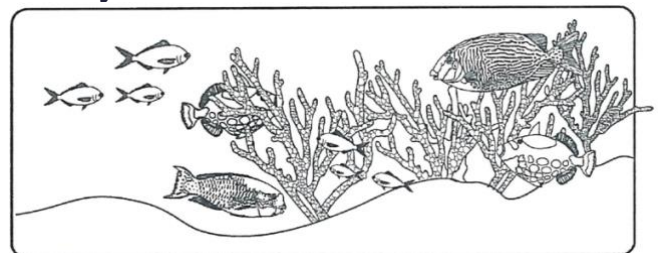
**In severe cases of stress,** recovery of coral reefs may take many decades. This can have serious impacts on the fish and other animals that depend on corals. People and industries that depend on healthy coral reefs for their livelihood can also be affected if coral recovery is delayed.

### How can we help corals?

Many things are already being done to protect the health and resilience of corals in the Great Barrier Reef.

You can also help by making simple changes to your everyday activities at school and in your home by going to [www.reefed.edu.au](http://www.reefed.edu.au) or [www.greenhouse.gov.au](http://www.greenhouse.gov.au).

Healthy coral



Bleached coral

