GREAT BARRIER REEF
FOUNDATION
Working to protect and preserve the Great Barrier Reef

Media Release

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In search of tougher zooxanthellae – the life and colour of the Great Barrier Reef

A little understood micro-organism is all that stands between a healthy and colourful coral reef ecosystem and a white, virtually lifeless reef.

Zooxanthellae may be drab brown microscopic creatures but without them the vibrant colours and teeming life forms of the Great Barrier Reef would cease to exist.

Until recently, scientists thought these single-celled organisms were a single species but it's now known that they are sufficiently different to belong to different Families or Orders of dinoflagellates – single celled algae with two whip-like tails.

"The wonderful thing about these creatures is that they live in a symbiotic relationship with the coral. They actually live inside the coral cells. Here they drop their tails and photosynthesize, passing 95 per cent of the resulting energy, in the form of fixed carbon, to the coral cells," said
Judy Stewart, the CEO of the Great Barrier Reef Foundation.

"In return they receive nitrogen and phosphorous which they would otherwise struggle to receive in nutrient poor subtropical waters."

The GBRF has launched the ZooX™ Fund to raise money for research to better understand how these creatures can be protected from rising sea temperatures, a consequence of climate change. When sea temperatures rise by as little as 1 degree C over normal summer temperatures, a coral bleaching event can be triggered.

"As the water become too warm, the delicate symbiotic relationship between the coral and zooxanthellae is disturbed. The coral reacts in a hostile fashion and expel the micro-organisms, or they disintegrate. This not only endangers the coral but all the life forms that coral reefs support," said Mrs Stewart.

"We now know that some of these tiny creatures are tougher than others. They can withstand greater temperature rises and recover faster. So, the outlook is not as bleak as we first thought.

"If we can understand where the different kinds of zooxanthellae live and which of them are more thermally resistant, we might be able to work out how to help the Reef recover after a bleaching event."
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