



# Mark Carwardine's **AT A GLANCE...**

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## CORAL BLEACHING

### WHAT IS CORAL?

It may look like a plant but it is an animal, related to sea anemones. A tiny, soft-bodied creature called a 'polyp', it lives with thousands of other polyps to form a colony. So-called hard coral polyps extract calcium carbonate from the seawater and use it to build exoskeletons to protect themselves. They build on the exoskeletons of their ancestors and, as the centuries pass, the coral reef slowly grows.

### WHAT ABOUT THE FAMOUS 'SPECIAL RELATIONSHIP'?

Reef-building corals would not survive without single-celled algae living inside their tissues. In this remarkable symbiotic relationship, the coral provides the algae with a home and nutrients for photosynthesis (from its own metabolic waste) and, in return, the algae provides the coral with food (to supplement the food it scoops out of the seawater). It is these extra nutrients that enable the coral to build reefs.

### WHAT IS SO SPECIAL ABOUT CORAL REEFS?

It would be hard to exaggerate their importance. Teeming with life, they support more species than any other marine environment and even rival rainforests in their biodiversity. They act as natural barriers, support fishing industries and communities, provide employment through tourism and much more. Yet all the coral reefs in the world

together cover an area no bigger than France.

### WHY ARE THEY UNDER THREAT?

Coral reefs are fragile ecosystems. Major threats include pollution, fishing with cyanide and dynamite, overfishing, coastal development, collection for the pet and curio trades, coral mining for building materials and sedimentation. According to WWF, roughly one-quarter of coral reefs worldwide are already considered damaged beyond repair, and most of the rest are under serious threat.

### WHAT ABOUT CORAL BLEACHING?

The symbiotic algae are highly susceptible to changes in their environment – it doesn't take much for them to stop producing food and die. Then they are ejected from the coral. If they go, so do their vibrant colours and all that's left is the coral's white skeleton. This is 'coral bleaching'. Many environmental issues cause it, but the single biggest factor is rising sea temperatures due to global warming. Coral reefs are already operating very near to their upper limit of heat tolerance, so small rises of just 1–2°C above the norm for a few weeks at a time is enough to cause bleaching.

### HOW BAD IS THE PROBLEM?

Very bad. Over the past 30 years bleaching has become



When corals expel the algae living in their tissues, they turn white.

more frequent, more intense and more widespread, leading to massive die-offs around the world. As well as a shocking amount of regional bleaching, there have been three Global Bleaching Events – in 1998, 2010 and, most recently June 2014 to May 2017. Experts predict that if greenhouse gas emissions are not drastically reduced, these events will become routine.

**“SMALL RISES IN TEMPERATURE FOR A FEW WEEKS AT A TIME IS ENOUGH TO CAUSE CORAL BLEACHING.”**

**MARK CARWARDINE** is a frustrated and frank conservationist.

Every month he demystifies some of the most important issues affecting the world's wildlife and assesses the organisations that protect it.

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### HOW IS THE GREAT BARRIER REEF DOING?

The Great Barrier Reef – the world's largest living structure – has experienced its worst ever mass bleaching events in the past two years, and these are believed to have killed at least half the coral.

### CAN CORAL REEFS RECOVER?

Yes and no. The polyps can catch their own food and survive for a short time without the algae, but they ultimately die themselves if they can't find replacements. The problem is that they need time – full recovery can take as long as a decade. If the temperature is too high for too long, or it peaks too often, the chances of survival are slim. And, if the reefs die, everything else dies with them. 🐠

### ➕ FIND OUT MORE

National Ocean Service  
website: <http://bit.ly/2zLZrDy>