

13 SEPTEMBER 2019

‘Ecological grief’ grips scientists witnessing Great Barrier Reef’s decline

Studying ecosystems affected by climate change takes an emotional toll on researchers.

Gemma Conroy



Marine biologist Emma Camp sampling coral. Credit: Rolex/Franck Gazzola

When Australia’s Great Barrier Reef, the world’s largest coral-reef system, was hit by record-breaking marine heat waves that [bleached two-thirds](#) of it in 2016 and 2017, many researchers were left in a state of shock.

Social scientist Michele Barnes witnessed this disaster first hand. She works at the Australian Research Council Centre of Excellence for Coral Reef Studies in Townsville, which is adjacent to the reef. Barnes decided to interview scientists and others working on the reef to investigate their response to this climate-change-driven catastrophe.

Barnes, who is still analysing her results, was surprised that many of the scientists whom she interviewed felt intense grief and sadness about the reef’s deterioration. *Nature* has also spoken to several coral-reef scientists not involved in Barnes’s study who echo those sentiments.

“I now feel much more hopeless, and there’s a deeper anxiety breaking through,” says John Pandolfi, a marine ecologist at the University of Queensland in Brisbane. Pandolfi has been studying ecosystem dynamics in the Great Barrier Reef for more than 30 years. The consecutive bleaching events that began in 2016 triggered mass death of the reef’s coral cover, which [caused a dramatic shift in its species composition](#). Pandolfi is now investigating new configurations of species that have arisen because of human impacts.

An emerging body of research shows that many people feel loss due to environmental degradation caused by global warming, a phenomenon called ‘ecological grief’. Although researchers are often on the front lines of ecosystem collapse, few studies have investigated the mental and emotional consequences of such work.

For Pandolfi, the consequences he worries about are those that his children — now 17 and 20 — will face as a result of climate change. “I don’t care that the world can go on without people, but I do care that I’m incurring debt on my children that I can

never repay," he laments.



In the Great Barrier Reef in Australia, corals that have lost all of their colour, like those pictured, are a common sight. Credit: Kyodo News/Getty

Witnessing the Great Barrier Reef "go into meltdown in the space of a week" in early 2016 was a major shock for David Suggett, a coral physiologist at the University of Technology Sydney. "Nothing can prepare you for seeing it play out in real time," he says.

Suggett says that he finds it difficult to set his emotions aside about the reef's condition when talking to the public. He worries that if he shows his feelings, then people will accuse him of being biased. "It's very challenging for researchers to maintain the appearance of being objective while showing that they care about the ecosystems they're working on," Suggett says. He thinks a lack of support networks for scientists struggling with the emotional effects of their work could also lead to feelings of isolation.

For Selina Ward, who studies coral reproduction at the University of Queensland, communicating her research findings to the public adds to her sense of despair. Her work on the reef during the past 30 years has shown that changes in ocean temperature have severely affected coral recruitment. "I try to be positive, but it's a really miserable story," she says.

Coping strategies

Recognizing how ecosystem decline and climate-related events can affect mental health is important, says Neville Ellis, a social scientist at the University of Western Australia in Perth. He and Ashlee Cunsolo, who studies environmental change and health at Memorial University of Newfoundland in St John's, Canada, wrote a commentary in *Nature Climate Change* last year that introduced the idea of ecological grief as an emotional side effect of environmental degradation.

They found that people could mourn the disappearance or degradation of a species or landscape and the future losses of an ecosystem.

Ellis notes that research such as Barnes's highlights the emotional vulnerability of scientists who work at the forefront of an ecological crisis. "By recognizing that such risks exist, research teams can be better prepared to help colleagues that may be suffering from distress," he says.

More people will be exposed to ecological loss as climate change intensifies, and researchers need a better understanding of how scientists and the public can maintain their well-being in the face of these challenges, says Ellis.

Some scientists have developed their own strategies to cope with the stress and anxiety of their work. Emma Camp, a coral biologist at the University of Technology Sydney, tries to channel her sadness about the diminishing coral reefs into action, such as restoring damaged reefs. "I can either give up when I feel upset, or use those emotions to motivate me and find better solutions."

Getting involved in side projects can also facilitate a healthier mindset, says Ward. She's started investigating the reproductive patterns of sea hares, a group of molluscs that are more resilient to increasing ocean temperatures than corals are. "It takes my mind off the bad news," she says.

References Cunsolo, A. & Ellis, N. R. *Nat. Clim. Change* **8**, 275–281 (2018).