



Tim Lamont deploys an underwater loudspeaker on a coral reef in central Indonesia.

HARRY HARDING

GREAT BARRIER GRIEF

Tim Lamont was surveying the coral reefs off Lizard Island in Far North Queensland as part of his PhD in coral reef ecology when he first felt his mood start to take a downhill slide.

Wild weather and successive mass bleaching events had taken their toll on the Great Barrier Reef. And painstakingly documenting its degradation, day after day, week after week, was a grim and demoralising task.

“A lot of us on that research station were finding it quite emotionally draining to be doing these surveys of reefs that were just battered,” says Lamont, who is now a research fellow in marine ecology and ecosystem restoration at the Lancaster Environment Centre in the UK.

“I was losing sleep over it, and even weeks and months later, I was still having flashbacks.”

It’s well recognised that climate change is causing a mental health crisis. How are scientists on the frontline coping?

Denise Cullen reports.

Lamont (then Gordon) and his colleagues wrote a short letter that was published in *Science* in 2019. They made the point that “environmental scientists must be allowed to cry”.

Lamont says they didn’t know if anyone would even read it, let alone reply. But the response was immediate and overwhelming – mostly from other scientists who expressed relief that they weren’t the only ones struggling to put on a game face as inwardly, their hearts were breaking.

The conversation continues, as others write books, host events and launch various projects designed to explore their own and others’ experiences with troubling climate-related emotions.

“We said our 300 words and we didn’t have much more to add,” says Lamont. “And then we watched in awe as all sorts of other people said brilliant stuff off the back of it.”

TIP NO.1 FROM SCIENTISTS ON COPING WITH CLIMATE DISTRESS

Hope can be both a noun and a verb, Tim Lamont points out. Using hope as a noun suggests reliance on external circumstances and a lack of control. But when used as a verb, hope becomes a conscious choice. "It's a way of life and a decision," he says.

The rising tide of climate distress

Many Australians have already faced the physical consequences of climate change.

A poll of more than 2,000 people undertaken by the Climate Council of Australia found that 4 in 5 respondents had experienced some form of extreme weather disaster, such as flood or bushfire, since 2019. Of these people, 1 in 5 say the event had a "major or moderate" impact on their mental health.

But the mental health effects of climate change aren't confined only to those who, say, watched their home burn to the ground or fill with floodwaters.

Research published in 2022 in the *Australian & New Zealand Journal of Psychiatry* indicated that 9.4% of respondents had significant eco-anxiety – a chronic



🔥 Bushfires rage in the Blue Mountains in 2019.

fear of environmental doom. Of those who had a direct experience with a climate-change event, 25.6% met the screening criteria for post-traumatic stress disorder. And of those did not have direct experience, or who were unsure, 15.7% met the criteria for pre-traumatic stress, a "before-the-fact version of classic PTSD ... [arising from] anticipations of a catastrophic future".

In 2022, for the first time, the Intergovernmental Panel on Climate Change also assessed that exposure to climate change, even vicariously, was imposing widespread and cumulative effects on mental health globally.

"Anxiety about the potential risks of climate change and awareness of climate change itself can affect mental health even in the absence of direct impacts," the panel noted.

TIP NO.2 FROM SCIENTISTS ON COPING WITH CLIMATE DISTRESS

Occasionally narrowing your focus can quell overwhelm, says Gretta Pecl. She's observed that young researchers tend to do better if they're working on a small, well-defined problem – such as physiology in lobsters. "The broader the problem they work on, as in big picture climate change (issues), the more quickly they get depressed, because they realise that we're not going to solve this problem anytime soon, or at all," she says.



🐟 A dead fish sits on the dried bed of Wivenhoe Dam near Brisbane in 2007.

Researchers in the trenches

It seems no-one is immune from the mental health effects of climate change. Yet a 2023 paper published in the *Yale Journal of Biology and Medicine* highlighted that researchers in climate-related careers represent one group of people who were more vulnerable than others. Others include young people, indigenous communities, and climate activists.

One factor underpinning scientists' vulnerability is their proximity to the problem.

When you're involved in tasks like monitoring the state of coral reefs amid rising sea temperatures and ocean acidification, or tracking populations of endangered species to identify extinction risks, or measuring the retreat of glaciers due to global warming, the evidence is in your face – every day.

As Lamont pointed out in his letter to Science, there's also the "dangerously misguided" belief that scientists must be dispassionate observers.

This resonates strongly with Olly Dove, Climate Research Officer within the National Environmental Science Program Climate Systems Hub. Olly participated in a climate distress panel as part of last year's Australian Marine Sciences Association Annual Meeting combined with the New Zealand Marine Sciences Society.

👤 German tourists wear masks due to bushfire smoke in 2019, during the 2011 floods.



TIP NO.3 FROM SCIENTISTS ON COPING WITH CLIMATE DISTRESS

Working on solutions can provide a balm. Many scientists deliver talks to raise awareness, while others provide media commentary. While not climate-change specific, Olly Dove hosts the *That's What I Call Science* podcast. David Karoly, Emeritus Professor at the University of Melbourne and Councillor on the Climate Council (of Australia), serves as a pro bono expert witness in climate change-related litigation. "The first case that I was involved in was back in 1996–1997," he says. "I have always thought that getting involved in court cases is a little bit like getting involved in public communication. It's just communication to judges, but it has much higher potential impact."

"The recurring themes that were coming [were] that people felt they'd had to repress their emotions in the past to be seen as objective and qualified and professional," she says.

And this repression could have serious consequences.

"It could cause burnout, or people being apathetic at work, or losing passion ... and leaving the climate change sector," she says. "But you need those passionate

people who do feel it to stay working in that field, because they're the ones who'll have the extra drive to make things better."

As an added pressure, the role of environmental scientists also puts them in regular conflict with climate change deniers. However, Neville Nicholls, an Emeritus Professor within Monash University's School of Earth Atmosphere and Environment, says this creates a lot less wear and tear than it used to.

Nicholls recalls that in the 1990s, scientists who sounded the alarm about global warming were often ridiculed, silenced, verbally abused and threatened.

He almost lost a colleague to suicide during 'Climategate' in 2009. This scandal involved the release of hacked emails belonging to climate change scientists, which wrongly suggested that they were fudging the data to bolster the case for human-caused global warming.

This "derailed" public trust and momentum in global climate change mitigation efforts. "That was both depressing for individual scientists and it was bad for the world," Nicholls adds.

While pockets of scepticism remain, Nicholls takes some heart from the fact that climate change is widely accepted today by governments, businesses and members of the public.

"It's been a big change from just a few scientists hitting their heads against brick walls," he says.

🏠 Brisbane homes underwater during the 2011 floods.



How climate change affects mental health

In 2008, psychiatrists diagnosed what they believed to be the first case of “climate change delusion”.

During Australia’s severe drought, a teenage boy had stopped drinking in the belief that his water consumption would deplete supplies and thus kill millions of others. It’s an extreme example, but it also raises the question: How do we maintain mental health on an ailing planet?

A flurry of research into the effects of climate change on mental health is now emerging.

The psychiatric bibles DSM-5 and ICD-10 offer no specific references to mental disorders related to climate change, meaning that new terms capturing different gradations of experiences have to be created.

Gretta Pecl is a professor in marine ecology at the University of Tasmania. She is “genuinely frightened about the future” and challenges the use of terms such as eco or climate-anxiety.

“Anxiety is a pathologised description of someone’s behaviour ... a reaction that is beyond what is considered normal,” she explains. “But feeling distressed about the world the way that it is at the moment and the challenges we’re facing is a completely rational, logical response.”

Amid the arguments about nomenclature, psychology is grappling with an increasing number of new validated psychometric tests to measure the different dimensions of eco-emotions.

These currently range from the 32-item Inventory of Climate Emotions, which



▲ Gretta Pecl is a professor in marine ecology at the University of Tasmania.

▼ Neville Nicholls (second from right) presents at the Tropical Ocean Global Atmosphere conference in 1995.

probes anger, enthusiasm, anxiety and sorrow, to the 81-item Environmental Distress Scale, which measures 6 environmental distress components, including the concept of solastalgia. Coined in 2007, this term describes the emotional distress caused by environmental change, particularly when it affects the place people call home.

Bringing coping skills to the forefront

Lamont says scientists can learn a lot from other professions in which distressing circumstances are part of the everyday, such as health care, disaster relief, law enforcement and the military.

“[People have learned] how not to take that home ... or allow it to cloud their judgment in moments where professional precision is important,” he says.

He suggests that improved psychosocial working environments for scientists might include systematic training, early intervention debriefing after disturbing events, formalised social support from colleagues and managers, and therapeutic counselling.

But coping with climate change concerns as an individual requires a different set of tools from what is usually prescribed for those with mood or anxiety disorders, Pecl adds.

“The standard advice often includes getting out into natural spaces – but a lot of the time, it’s a trigger,” she says.

Last year, for instance, members of Pecl’s ocean swimming group revelled in warmth of the water in April, whereas she felt nothing but dread.

Another reminder came when she took her children to visit the Great Barrier Reef.

“Everyone was saying, ‘Oh look at all the amazing coral’, and I was swimming around thinking, ‘My God, this has declined since the last time I was here’,” she says.

TIP NO.4 FROM SCIENTISTS ON COPING WITH CLIMATE DISTRESS

Though climate change issues feel urgent, it’s important to take breaks to avoid burnout. “When you’re personally drained and exhausted, you pull back, and you look after yourself,” says Pecl. “And when you’ve got energy, you push out into those spaces where you’re probably not going to make a difference, but you want to give it a go anyway.

NEVILLE NICHOLLS

TIP NO.5 FROM SCIENTISTS ON COPING WITH CLIMATE DISTRESS

Engaging in one-on-one treatment with a climate-aware therapist can help people address climate-related trauma, or process stress, fear and anxiety about the future. Group training sessions are also emerging. For example, Pecl organised Karen Grant Outdoor Counselling to run a 1-day workshop for people working at her Centre for Marine Socioecology. The ‘How do we live our best life, knowing what we know?’ workshop was targeted at researchers working on challenging issues like climate change and biodiversity loss.

▼ Gretta Pecl shares her knowledge with young scientists at Squidfest in 2022.



GRETTA PECL



▲ Tim Lamont is a marine biologist at Lancaster University.

Focus on feelings, rather than facts

For decades, by virtue of their training, climate scientists have focused on the facts. But the shift towards a greater emphasis on emotions may hold the keys both to maintaining personal mental health, and mobilising the masses towards greater climate change mitigation efforts.

A deep vein of psychological research suggests that identifying and naming so-called ‘negative’ emotions (also called affect labelling) can reduce subjective feelings of distress.

It also draws a distinction between psychological stress that leads to positive outcomes, such as pro-environmental behaviour – or that which leads to negative outcomes, like throwing in the towel.

Nicholls acknowledges many legitimate reasons to be angry and anxious about the future. “But your anxiety shouldn’t be so strong as to stop you working,” he says.

The changes he’s seen over the course of his career allow him to describe himself as “cautiously optimistic” about the future. “I’m probably more optimistic now than I’ve been at any time in the last 30 years,” he adds.

Pecl agrees that maintaining “active hope” is important.

“I actively choose hope,” she says. “Not the wistful, whimsical version of hope, but the ‘We’ve just got to roll up our sleeves and keep going anyway’ kind, because I’m not prepared to give up at this point.

“I remind myself ... that every fraction of a degree of warming that we avoid is pain and suffering averted, and it’s worth it.”

TIP NO.6 FROM SCIENTISTS ON COPING WITH CLIMATE DISTRESS

Start a personal project. Jonica Newby documented her own experiences by writing the book *Beyond Climate Grief* (NewSouth Publishing 2021). Joe Duggan, then a science communication student, launched the *Is This How You Feel?* Project – an exhibition of letters from climate scientists that encouraged honest and heartfelt reflection.

Denise Cullen is a freelance journalist and forensic psychologist based in Brisbane. Her last story for *Cosmos* looked at how research using organoids may one day help cure genetic diseases.