More than 20 years ago, you pioneered research into the effects of a rapidly changing climate on Australian species and ecosystems. How closely has reality matched the predictions made by you and others?

The scary thing is that many of the predictions about the impacts of climate change that were made just a few decades ago are now observations. This is especially true in the case of natural ecosystems, where we are seeing many plants and animals responding – in an extremely sensitive manner – to the relatively modest level of climate change experienced thus far. Observations of changes in species’ life cycles and distributions that are consistent with having a climate change ‘signal’ provide us with a window into the future, and show us how climate change will transform ecological communities and ecosystems.

As Pro Vice-Chancellor of Research (PVCR) Integrity and Development at Macquarie University, how do you facilitate research?

My current position as PVCR has provided me with the opportunity to focus on developing a strategy for supporting our early-career researchers, aiming to build the next generation of academic leadership.

Over the past decade, I have moved away from focusing on my own individual research projects to facilitating research more broadly. I have had various roles, including being a co-convenor of a national research network: the Terrestrial Biodiversity Adaptation Research Network; co-directing a university research centre: Climate Futures at Macquarie; and directing a node of a state government research initiative: Biodiversity Node of the New South Wales Adaptation Research Hub.

Why have you progressively shifted your attention to translating and communicating climate change research to the public and decision makers?

The more we all know about the impacts of climate change, the more dramatic the consequences appear – for natural systems and humanity. Over the past 10 years or so, I have gradually arrived at the viewpoint that, to really make a difference, I need to do more than just focus on standard academic activities, such as writing papers and supervising research students.

I feel that I have a moral obligation to leap from the ivory tower and try to bring what we know about climate change science to the people who have the power to change the direction of where we are collectively headed. I strongly believe that scientists should be prepared to directly engage with the community on important issues, even though this can be uncomfortable at times.

As a Commissioner, I was very privileged to travel across Australia, talking to thousands of people about how climate change could affect their lives. It became very clear to me during this time that there is no single best way to deliver these messages and that we need to embrace a broad range of communication strategies to widen understanding of these issues.

Your approach to communicating science combines logic with personal values, presenting issues in the context of possible solutions. What have been your experiences of tailored outreach?

Climate change presents some unique communication challenges. The scientific evidence is extremely clear that there are real dangers for our environment, economy and society. But we also know that constantly emphasising the risks that climate change poses can result in disengagement and denial. Thus, we walk a fine line between the need to build sufficient concern to promote action and the danger of losing our audience. Research in this area – as well as personal experience – indicates that appealing to personal values and emphasising the co-benefits of action is far more engaging than bombarding people with facts and graphs. Positive messages always resonate more than negative ones.
THE EVIDENCE THAT climate change is occurring as a result of human activities is overwhelming. Climate change is leading to higher temperatures, rising sea levels, more extreme weather events, economic losses, food and water shortages, displacement of peoples and transformed landscapes. Meeting the climate change challenge will depend on the actions of individuals, communities, businesses and governments – effective action at all levels needs to be underpinned with understanding of this complex topic.

The climate change issue is unique in terms of the complexity of the science, the breadth of the potential impacts, and the ethical, moral, economic and political dimensions posed by the solutions. Communicating this complexity to public audiences is extremely challenging because there is a need to be honest about a potential global catastrophe, while also giving people hope and encouragement to take effective action. Just presenting facts about science is not enough, it must be delivered by people who are credible and trustworthy, and in a way that motivates rather than leads to disengagement and despair.

AN INNOVATIVE ADVOCATE

During the first half of her research career, Professor Lesley Hughes worked to understand the potential range of impacts that climate change may have on species and ecosystems, especially in the Australian environment. She has authored over 100 publications in the area, addressing the issue through a range of methods, including computer modelling, and both field and laboratory experiments on many types of organisms, from plants and insects to reptiles and birds. As the issue of climate change began to receive greater attention from both policy makers in government – and from the community in general – opportunities to engage more widely than the academic scientific community began to arise.

Over the past decade, Hughes has spent an increasing amount of time contributing to national and international climate change-associated policy activities, as well as engaging in public communication. These opportunities have ranged from being a lead author for the Intergovernmental Panel on Climate Change (IPCC), to leading a national research network on promoting climate change adaptation in biodiversity, and being appointed as one of six Commissioners on the federal Climate Commission, a body tasked specifically with communication of climate science to the Australian public.

By becoming a public advocate of climate change action, Hughes has embarked on a journey of science communication that has taught her many lessons. These have included the need to focus on positive messages about opportunities, rather than continually engaging in debates over the science itself.

HOW? WHY? WHAT?

Hughes has also created a free online course on climate change that has had almost 10,000 enrolments. The course consists of 38 six-minute videos, spaced over four weeks, with straightforward multiple-choice assessments. The four modules are titled:

- Climate change: why should we care?
- What’s happening and why?
- Will we cope?
- Fixing it

On completion, participants receive a Certificate of Achievement that can be used to demonstrate interest in this field to potential employers or educational institutions.

It is free to enrol and can be visited here: http://bit.ly/studyclimatechange

Talking science to diverse audiences

An ecologist at Macquarie University, Australia, has devoted more than two decades to studying climate change impacts on species and ecosystems. More recently, she has taken to the road to engage with the public to communicate climate change science and the need for action.
PROMOTING UNDERSTANDING OF CLIMATE CHANGE RESEARCH

OBJECTIVE
To effectively communicate the science of climate change to the public and policy makers to promote understanding and motivate necessary action.

KEY COLLABORATORS
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Professor Tim Flannery, University of Melbourne, Australia
Professor Michelle Leishman, Macquarie University, Australia

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www.open2study.com/courses/climate-change

CHANNELLING EFFECTIVE COMMUNICATIONS

Hughes’ role as Commissioner for the Climate Commission came to an end when the Commission was abolished by a newly elected federal government in September 2013. Hughes and her fellow Commissioners decided they wanted to continue their communication work and established the Climate Council of Australia, an independent, non-profit organisation.

Seeking funding, they appealed to the Australian public and received an overwhelmingly positive response. Since its inception only two years ago, the Climate Council has published over 40 reports and generated 14,000 media articles, reaching a cumulative audience of over 200 million people. Furthermore, the team estimates that through all of their communication channels (website, Facebook page and other social media), they have reached a further 100 million people cumulatively.

www.climatecouncil.org.au
www.facebook.com/climatecouncil
www.twitter.com/climatecouncil

LOGIC AND VALUES
Another valuable lesson learnt is that the most effective communication involves more than laying out scientific facts – communication tools that work well for an academic audience, like tables and graphs, often do not resonate with other audiences. Finding ways to present facts so that they mean something in people’s own lives and appeal to their personal values is critical. One example Hughes has developed is a graphic of past, present and potential future global temperatures, overlain with a timeline spanning her own life, as well as those of her teenage children and of her unborn grandchildren, to illustrate how future generations might be affected.

POSITIVE REACTIONS
Clear, honest translation of science, and positive messages about the way forward have been well received. Indeed, between 85 and 100 per cent of attendees at Climate Commission presentations rated the quality of delivery and learning outcomes as high or very high. Hughes has also featured as one of 20 international ‘Women making waves in the climate change debate’, one of 42 scientists featured in the exhibition ‘Is this how you feel about climate change?’ and one of 40 women featured in ‘The league of remarkable women in Australian science’ exhibition. In 2014 she received the Eureka Prize for ‘Promoting Understanding of Australian Science Research’ from the Australian Museum.