

Capturing an octopus-eye view of the Great Barrier Reef

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A specialized camera that allows scientists to see as reef-dwelling animals do has been built by a team of researchers at the University of Bristol. The team will travel to Lizard Island off the coast of Queensland this year to capture images of the Great Barrier Reef which they hope will provide new insight into this underwater world.

The camera enables the researchers to see an aspect of light that humans are essentially blind to: polarized light. Though humans aren't sensitive to polarized light, many reef dwelling animals are but this has not always been taken into account in previous studies of reef communities.

Thanks to generous support provided by a Yulgilbar Foundation Fellowship, Dr Shelby Temple, and a team of researchers from the Ecology of Vision Laboratory in Bristol's School of [Biological Sciences](#), will take their camera to the Lizard Island Research Station to study how the coral reef environment looks to animals that can see polarized light.

Dr Temple said: "Many reef dwelling animals, like octopus, [crabs](#), shrimp and maybe even some fish, are sensitive to polarized light. It's hard for us to understand what that means because we really can't see the polarization of light without some kind of aid, like polarized glasses or specialized polarization converting cameras like this one."

The camera enables the researchers to measure the [polarization of light](#). It then converts these polarization images into false colour images, where different colours are used to represent different polarizations of light.

"It's a bit like using an [infrared camera](#) that turns the [infrared light](#) we can't see into colours that we can," said Dr Temple.

Preliminary results from Dr Temple's research suggest that the polarization dimension of the visual world under water is much more complex than previously thought.

He said: "There's evidence that all types of communication and camouflage are going on, which we've essentially been blind to – until now. Imagine how different our understanding of coral reefs would be if we only saw in black and white.

"Lizard Island is an ideal setting for our research because we can test an animal and when we return it to its home we can then measure the polarization signals in the very environment where we found it."

Provided by University of Bristol

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