



RRRC welcomes funding for Reef water-mixing technology as bleaching season approaches

Preparations for a world-first combination of Queensland's best science and engineering expertise to defend parts of the Great Barrier Reef from climate change will begin this summer, thanks to \$2.2 million in funding from the Australian Department of the Environment and Energy.

The Reef Havens proposal, an innovative technological intervention designed to reduce the stress that causes coral bleaching, is a cooperative effort between Australia's best science and engineering expertise and the Reef tourism industry. It is spearheaded by the Reef and Rainforest Research Centre (RRRC), a Cairns-based NGO.

RRRC managing director Sheriden Morris today welcomed Environment Minister Josh Frydenberg's announcement that the Australian government would support a pilot of Reef Havens proposal at Moore Reef, a popular dive tourism site near Cairns.

"The Great Barrier Reef is one of Australia's most important natural assets and the time is now to actively intervene for its health," said Sheriden.

"Reef Havens is both a current active technological intervention for coral health and also a foundational investment in developing a range of future science-based interventions that could help preserve reef biodiversity, and the 60,000 tourism jobs that depend upon that biodiversity.

"After a worldwide search for the right technology to mix and cool water on the Great Barrier Reef, we found it right here in Queensland. The technology had to be solar-powered, low energy use, not introduce contaminants into the water and be able to withstand ocean conditions. It also had to be compatible with the tourism industry.

"We are very excited that the Australian government is supporting the project and look forward to begin preparations for a three-year pilot of the proposal at Moore Reef in early 2018."

The Reef Havens pilot centres on the use of water-mixing or 'de-stratification' devices at high-value reef locations to restore natural water movement and counteract the hot, still weather conditions that would otherwise contribute to coral stress and lead to mass bleaching and mortality.

These solar-powered 'ReefMix' devices, will use large, slow-moving impellers mounted on floating pontoons to gradually draw cooler water from 10-30 metres deep and distribute it at surface level.

This process will re-introduce cooler, moving water over a limited area of high-value coral, such as a major dive tourism site, or a site of importance for biodiversity conservation.

Constant exposure to hot, still 'stratified' water is a major cause of mass coral bleaching events.

ReefMixes will disrupt these conditions and therefore reduce the stress that causes coral bleaching.

This will be combined with other intensive care efforts for coral (such as Crown of Thorns Starfish control) to create 'coral refuges' in which biodiversity and other values can be preserved in the face of globally increasing pressure on the rest of the Great Barrier Reef system.

The program will also serve as a world-first in-situ research platform for the study of coral ecosystem adaptation to climate stress.

The ReefMix devices will be assembled in Cairns by WEARS Australia, a Queensland-based company that provides water engineering services all over the world.

Preparations for a pilot of the Reef Havens proposal will begin at Moore Reef near Cairns in early 2018.

Sheriden Morris said the proposal was underpinned by both solid science and support from industry.

"The tourism industry has been behind this proposal from the beginning," said Sheriden.

"Visitors to the Great Barrier Reef can be confident that they are seeing, experiencing and actively contributing to the health of the best-managed reef in the world.

"We went into the literature and we found that corals exposed to consistent water movement – such as those located near upwellings from deeper water – are less likely to severely bleach. We also know that the breakdown of normal current action on the northern Great Barrier Reef during the summer months was a key driving factor in these mass bleaching events.

"Reef Havens represents our best bet of intervening to restore that water movement back to how it's meant to be with minimal negative disruption of the reef environment.

"Modelling indicates that we can cool up to a square kilometre of surface water by up to one degree Celsius which, combined with the effects of de-stratification, could prove the difference in this area avoiding severe coral bleaching, while also enabling adaptation.

"We will combine that with other methods of caring for coral and Great Barrier Reef species in that area. This includes intensive Crown of Thorns Starfish control, which RRRC has already been cooperating on with the Association of Marine Park Tour Operators.

"Importantly, what we learn through Reef Havens and the technology we develop will be exported to the rest of the world.

"We have to be clear: this is not an attempt to 'bleach-proof' the entire Great Barrier Reef. Doing that will require a concerted worldwide response to climate change. While that is happening, Reef

Havens will try to protect limited areas of high-value coral from increasing health pressures across the rest of the system.

“We absolutely have to reduce emissions and decarbonise economies, but as we’ve seen here in north Queensland over the past couple of summers, that’s not enough.

“We also need effective local interventions to help people and ecosystems adapt to rapid climate change.

“Both global and local approaches are imperative.

“It’s vital that governments, industry and the scientific community across Australia and the world continue to collaborate to reduce health impacts on the Great Barrier Reef to preserve its world-class biodiversity, cultural values and the 60,000 jobs it supports.

More information on the Reef Havens proposal [can be found on the RRRC website.](#)

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