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New portable system to aid coral reef restoration goes remote in the Maldives

A portable coral aquaculture system that can be packed away and moved in sea containers to remote areas to help with coral reef restoration is being put through its paces in the Maldives for the coral spawning season.

Called <u>ReefSeed</u>, the project is a collaboration between the Australian Institute of Marine Science (AIMS), the <u>Maldives Marine Research Institute</u> (MMRI) and Australia's national science agency, <u>CSIRO</u>.

The trial of the self-sufficient system is taking place at Maniyafushi Island, in the South Male Atoll, and is taking advantage of coral spawning, a period of time when many species of corals reproduce, helping coral reefs to repair and recover.

AIMS coral reproduction and aquaculture scientist and ReefSeed co-lead, Dr Muhammad Azmi Abdul Wahab, said AIMS is proud to be playing a role in helping to support restoration efforts in the Maldives and to develop local capacity in coral restoration.

"As the climate warms, coral loss from coral bleaching is a global issue, and unfortunately the coral reefs in the Maldives have not been immune," he said.

AIMS hosted several MMRI biologists and technicians during the coral spawning on the Great Barrier Reef in October last year. They were trained on the ReefSeed system and learned about restoration techniques developed and refined by AIMS.

Dr Abdul Wahab added: "It's exciting to see our colleagues putting this training into action and sharing their knowledge and experience on Maldivian corals with us."

Scientists and technicians from AIMS and MMRI collected corals to bring into the ReefSeed system in readiness for coral spawning, which happens in the Maldives over several months. Coral egg and sperm bundles will be fertilised and reared into coral larvae in the ReefSeed system before being settled and transferred to reefs on specially designed ceramic devices.

Khadeeja Ali, Director at MMRI, the body overseeing ReefSeed project activities in the Maldives, said: "ReefSeed has given us hope in restoring reefs that have faced tremendous stress due to bleaching and impacts of climate change. This initiative makes coral reef restoration scalable and supports restoration of coral reefs with genetically diverse corals.

"We are grateful for this initiative, which has significantly strengthened our capacity to implement and improve coral reef restoration programs. Our colleagues are now trained in advanced restoration techniques and the use of this innovative system.

"With extensive use of ReefSeed's technology, we are hopeful that a new era of effective and sustainable coral reef restoration can be achieved."

Dr Christopher Doropoulos, Senior Research Scientist from CSIRO, said: "We've been working with MMRI in the Maldives to train local communities on coral restoration techniques using sexually produced coral larvae since 2020.

"Some of the training includes collecting information on reef processes such as coral reproduction timing, other training involves hands-on application of restoration techniques, all published in freely available <u>standard operating procedures</u>. Working with AIMS and MMRI to further develop portable aquaculture systems through the ReefSeed system adds another approach to the restoration toolbox."

The ReefSeed project and collaboration was showcased at a special Open Day event in the Maldives on 16 March. It was attended by Maldives Government ministers, members of parliament, department officials, the Australian High Commissioner to the Maldives and representatives from local non-government organisations.

In his inaugural remarks, the Honourable Minister for Fisheries and Ocean Resources of the Maldives, Mr Ahmed Shiyam, acknowledged the importance of collaboration.

"As we move forward with the ReefSeed project, it is clear that the future of our coral reefs lies in our hands. The actions we take today will determine the health of our marine ecosystems tomorrow," he said.

"By working together, we can restore what has been lost, protect what remains, and ensure that future generations of Maldivians, as well as visitors, can continue to enjoy our stunning coral reefs."

ReefSeed was awarded US\$1.5m (AUD\$2.3m) over three years by the G20 <u>Coral Research and Development Accelerator Program</u> (CORDAP), the only international organisation fully dedicated to funding global research and development for tropical and cold water coral restoration and conservation.

ReefSeed uses science and technology developed under the Australian Government's <u>Reef Restoration and Adaptation</u> <u>Program</u> (RRAP).

RRAP is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation.

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