Reef Rescuers
A decade of coral reef restoration in Seychelles
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Watching, nurturing and documenting the growth and development of corals in a nursery – from a 5 cm fragment to a colony as big as a football – is truly rewarding for Nature Seychelles’ Reef Rescuers team. The nursery and all the work that goes into it is an essential part of the coral reef restoration process, helping prepare coral fragments for the reef. The nursery holds the team’s stock of precious coral fragments in mid-water on ropes, in perfect conditions for growth, until they are ready for transplanting to the reef. It takes between 10 and 12 months for corals to reach a suitable size for transplantation and so coral nursing is a continuous task.

“It is a job I am proud to do,” says Athina Antoine, a member of the Reef Rescuers team. “It is satisfying to see the little piece of coral I put on a rope grow to transplantation size. As a Seychellois, I feel happy to be part of this huge effort to restore corals damaged by coral bleaching in Seychelles.”

Athina is part of Nature Seychelles’ Reef Rescuers, a coral reef restoration project, which is celebrating exactly 10 years in 2020. It was started to combat climate change-induced coral bleaching around the Cousin Island Special Reserve, a 50+ year old nature reserve and marine protected area that is managed by Nature Seychelles.

Climate change has been identified as the single most profound threat to marine ecosystems and its impact on coral reefs has been devastating in Seychelles. Coral reef ecosystems are extremely important for the country because its primary economic pillars – tourism and fisheries – depend on healthy coral reefs, the most important habitats and spawning grounds for fish, which constitutes the daily diet for most people in the country. Reefs also provide coastal protection from rising sea levels, which have affected the islands in recent times and taken a toll on infrastructure such as roads. The loss of coral hinders the ability of reefs to provide coastal protection and sustain white sandy beaches that are a central part of the islands’ tourism attraction.

In order to ensure that coral reefs continue to provide local populations with vital biological, ecological and socio-economic goods and services, and to maintain resilience capacities, the Reef Rescuers project was conceived in 2010. Funded by the United States Agency for International Development for the last 10 years, with additional funding from the Global Environment Facility and the Indian Ocean Commission, the project’s aim is to use large-scale coral reef restoration to enhance natural recovery, biodiversity and ecosystem services within the Cousin Island Special Reserve.
An ambitious project, and well ahead of its time, the Reef Rescuers project used the “coral gardening” concept to attempt large-scale coral reef restoration.

First, teams of dedicated scientists cultivated corals collected from healthy sites in underwater nurseries. The project built and cultivated 12 midwater nurseries (nine rope nurseries and three net nurseries), filled initially with up to 400,000 coral fragments or nubbins (from donor corals and corals of opportunity) of 34 coral species (branching, massive and encrusting). Then, after approximately 10 to 12 months, the corals are transplanted onto degraded reefs. A total of 24,431 corals were transplanted in an area of 5,225 m² within the no-take marine reserve of Cousin Island Special Reserve in the initial phase of the project.

“We were the first in the world to attempt this at a scale that had never been seen before, using the coral gardening technique invented by scientists from Israel. The project was designed to investigate if direct intervention enhances natural recovery of coral reefs. Through this science-based restoration, Nature Seychelles significantly scaled up experimental technology and at the same time achieved the necessary research and development for the next phase of coral culture and restoration,” says Dr Nirmal Shah, chief executive of Nature Seychelles.
The project has received global attention but, most importantly, crucial buy-in from stakeholders in Seychelles.

Over 60 scientists and volunteer scientific divers from around the world have been involved in the Reef Rescuers project. Through two international training courses, including one for the Western Indian Ocean region, the project has equipped personnel to carry restoration methodologies and tools to areas across the globe which are likewise prone to reef degradation. A toolkit has been developed to provide information on challenges and lessons learnt to help others who might want to carry out similar work. The toolkit is free and available for download. The Centre for Ocean Restoration Awareness and Learning (CORAL), a physical facility on Praslin Island, was also launched under the project to serve as a national and regional hub for research, conservation and knowledge sharing on coral reef conservation and restoration.

Among those who have partnered with Nature Seychelles to restore reefs are two luxury hotels: the Constance Lemuria Resort on Praslin Island and Six Senses Zil Pasyon on Félicité Island. The partnerships ensure sustainability.

“We are now leapfrogging into the third and next level of our coral reef restoration program, called ‘Reef Rescuers 3.0,’” says Shah. “We started out in the first instance with methods from the scientific literature, secondly, improved on those with our own discoveries and techniques and now we are moving into an exciting and very large regional project with Mauritius so we can use the latest breakthrough science developed in the United States and Australia.”

The next phase will entail construction of large land-based nurseries to facilitate full-scale coral mariculture.

“We will need overseas expertise in the form of top scientists and practitioners who have been developing new techniques in coral genetics and reproduction and in growing corals and planting, so there is a very exciting component of international cooperation and knowledge sharing as well,” Shah explains.