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National Development Minister Desmond Lee speaking to a guest at the opening of the Asia-Pacific Coral Reef Symposium held at UTown, National University of Singapore, on Monday. ST PHOTOS: MARK CHEONG

Two marine climate projects awarded grants under $25m research programme

Anne Chan Min

A study taking stock of the carbon dioxide stored in Singapore's coastal and marine ecosystems, and another on building coral reef resilience, are the first projects to be awarded grants under a $25 million marine climate research programme.

This was announced by National Development Minister Desmond Lee on Monday at the opening of the fifth Asia-Pacific Coral Reef Symposium.

Supported under the Marine Climate Change Science (MCCS) programme launched by the National Parks Board (NParks) in 2021, these research projects "will enhance our capacity to safeguard critical marine habitats, and to tap nature-based solutions to adapt to climate change", said the minister.

The first project focuses on accounting for Singapore's blue carbon, which is the carbon dioxide captured by oceans and coastal ecosystems including mangroves, seagrass and salt marshes.

It will create a database of where the country's blue carbon ecosystems are, how much blue carbon can be stored, and how blue carbon ecosystems have changed over the years.

Assistant Professor Tang Hao of the National University of Singapore (NUS) hopes to use the data collected to show the potential of blue carbon in contributing to Singapore's greenhouse gas reporting and national targets for climate change mitigation.

Blue carbon sinks are able to remove large amounts of greenhouse gases from the atmosphere at a rate up to 10 times that of terrestrial forests – making them powerhouses in tackling global warming.

Furthermore, they provide protection for threatened coastal vegetation, thereby playing a critical role in biodiversity conservation.

Prof Tang noted that Singapore's blue carbon ecosystem holds latent potential in developing a carbon economy.

"We will be able to explore the possibility of seeing carbon credits creation," he said, adding that further discussions with government agencies and industry partners are required.

The second project given the MCCS grant aims to build the resilience of coral reefs to climate change.

Led by NUS Associate Professor Huang Danwei, the study involves developing more efficient coral-culturing methods to produce corals maximised for survival by increasing their tolerance to fluctuating environmental conditions.

These bioengineered corals hosting beneficial microbes will then be transplanted into native reefs to restore degraded marine habitats.

This is especially important given that Singapore's waters are home to around 250 – or 32 per cent – of the 800 species of corals worldwide.

Prof Huang's research will contribute to NParks' Species Recovery Programme, which aims to conserve threatened native species through habitat protection and enhancement.

chananne@sph.com.sg

Dead coral on display at the National Parks Board booth at the symposium. One of the projects given the Marine Climate Change Science grant aims to build the resilience of coral reefs to climate change.

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