

## **Coralku in Malaysia**

Coralku aim to change the way coral restoration practitioners select the corals to propagate in nurseries. Currently, restoration practitioners often use 'corals of opportunity', essentially broken fragments of corals from the seabed. This is at best a 'blind guess' and not the most efficient or effective way to identify the best corals to be propagated. Across the world, corals are being propagated for single issues, such as their aesthetic value or ability to grow and support the ecosystem. But in the wild, corals need to survive multiple stressors, such as disease, pollution, heat-driven bleaching events and increasingly severe storms. This project will test corals off Lang Tengah Island for a number of traits, such as thermal tolerance, and 'coral restoration performance', with the ultimate goal to identify specific traits that are predictive of long-term 'climate change' survival .

This is one of the first times scientists will test multiple coral species for climate resilience before developing ecosystem restoration plans. It's a complex pre-screening of corals and the results will be open source, as the major aim of this project is to empower other coral restoration groups with a smart selection framework, termed 'ASSIST'. The team seeks to reduce the trial and error that occurs in restoration programmes and allow colleagues worldwide to make evidence-based decisions with cost benefit analyses. This is a data driven model to identify the best corals to transplant. Just as surgeons will only transplant a healthy organ, these pre-screening tests will enable the scientific community to find the most resilient source material, when it comes to adapting, transplanting and restoring corals.

This screening could not be more urgent. As we've seen in Florida, with some of the most advanced coral restoration efforts, entire coral nurseries and restoration sites that have been growing for over 10 years, have been heavily impacted by the recent elevated water temperatures. Corals prefer temperatures between 27-30 degrees Celsius whereas the extreme heat wave off the Florida coast in July 2023 meant water temperatures soared to 38 degrees, creating devastating conditions for coral survival and jeopardizing the outcomes of existing coral restoration projects in the region. In a dystopian twist, many corals were brought to the safety of land-based aquariums as a refuge from the elevated temperatures. Research collaborators of Coralku also run research projects in Florida, and speak of the devastating losses for colleagues that have devoted their lives to coral restoration. These teams need the ASSIST model just as urgently as marine scientists in lower income countries like Malaysia. CORDAP was set up by the G20 to fast-track research and development (R&D) solutions to help save the world's corals and all research findings and toolkits will be open source.

**When and how:** Lang Tengah Island is a one hour flight from Kuala Lumpur and the season for diving to collect corals for rapid heat stress testing, and performing the pre-screening in the lab, is right now, until end of October.