AgroSpectrum ASIA
Envisaging Future | Updating Present

Taiwan's Delta CooperatesÂ to Breed Heat-tolerant Coral

20 April 2023 | News

Collaborates with National Museum of Marine Biology and Aquarium to adopt novel coral breeding technology for corals restoration



Collaborates with National Museum of Marine Biology and Aquarium to adopt novel coral breeding technology for corals restoration

Taiwan's Delta Electronics collaborated with country's National Museum of Marine Biology and Aquarium from to proactively protect biodiversity by restoring coral.

During the coral breeding season, volunteers and researchers collected coral sperm and eggs and conducted artificial insemination and incubation in the laboratory to increase coral colonization success. Leveraging its expertise in industrial automation, Delta has developed a customized coral incubator and vertical coral breeding system based on the Delta Plant Factory.

The breeding system adopts an LED light system with a special spectrum to accelerate coral growth with programmable logic controllers that regularly feed and change water. Delta is assisting the museum in breeding heat-tolerant coral to cope with increasingly frequent marine heatwaves, fulfilling its "Climate Change" and "Life Below Water" sustainable development goals.

"In the past, it was difficult to break through the traditional environment bottlenecks. With the assistance of Delta's technology and equipment, we expect to complete the collection and incubation of 10 types of coral in southern Taiwan in the first stage. We will build on the research on coral symbiosis and the breeding of heat-tolerant coral to conduct research on culturing heat-tolerant phycobionts to reduce coral bleaching", said the National Museum of Marine Biology and Aquarium Director Chii-Shiarng Chen.

Wim Chang, CEO of the Delta Electronics Foundation, said, "Climate models project increases in the frequency of marine heatwaves by 2081-2100 by approximately 50 times relative to the period of 1850-1900. This may result in severe coral bleaching. Delta's volunteers have received two years of training from the museum's researchers. In addition to obtaining CoralNet certification and with the guidance of researchers, they have marked spawning coral and set up collection nets for the first time this year, to contribute to the research of heat-tolerant coral. Delta's technology, along with microcomputer tomography equipment, will further accelerate the progress of breeding heat-tolerant coral in the lab. The foundation will also continue to work with research institutions and restoration groups to expand the restoration endeavours and move toward international biodiversity goals."

April is the coral breeding season in southern Taiwan. Besides attracting recreational divers, the spectacular mass coral spawning in the Kenting waters also offers a critical time of the year for coral research. The heat-tolerant coral currently selected by the museum for restoration is Pocillopora acuta. Delta's volunteers assist with the collection of sperm and eggs, participate in in-depth transplantation research, and regularly monitor the process in the sea. The coral vertical breeding system developed by Delta has research parameters that can be adjusted to simulate warming environments for different types of coral to explore their heat tolerance. Delta's microcomputer tomography equipment was also adopted to analyze factors such as coral bone density, soft tissue, and the composition of phycobionts to identify the optimal coral breeding conditions.

In addition, Delta is paying close attention to climate change, protect biodiversity, and assist domestic indicative research institutions in overcoming their existing laboratories' traditional breeding environment and technology challenges. These efforts are improving the institutions' research results and allowing them to catch up with their international counterparts, as they preserve coral species by making them resilient enough to withstand marine heatwaves and extreme climate change.