



Ocean Resilience in Focus: Developing Science-based Approaches for Coral & Biodiversity

Date and Time: October 23rd, 2024

Lead organization: Delta Environmental & Educational Foundation

Co-organizations: Mote Marine Laboratory & Aquarium, Society for Wildlife and Nature, Institute of Oceanography-National Taiwan University

Number of participants:

- In person: 22
- Online: 3

Topics:

- Restoration
- Monitoring and Evaluation
- Technology Transfer
- Citizen Science

Background on the event:

Coral reefs are home to 1/4 of marine species and support millions of people's livelihood. Yet, earlier this year, both NOAA and ICRI have confirmed the world is currently experiencing the Fourth Global Coral Bleaching Event. How can we race to conserve and restore the coral while the ocean water is boiling? How do we integrate biodiversity targets and actions from local to global scale?

Key issues discussed (5-8 bullet points):

- The mass global coral bleaching event
- Lack of the funding and coral reef experts
- How to ensure both tangible and intangible value of coral reefs could be considered while the ecosystem is quantified?
- The correlation between terrestrial and coral reef ecosystem which is easily ignored

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- Lack of the funding and research capacity in the coral study

If available, key recommendations for action (5-6 bullet points):

- Develop the innovation solutions for the coral reef ecosystem
- Fund the coral reef conservation projects
- Cultivate the coral reef experts
- Strengthen the collaboration on restoring coral reef ecosystem among multilateral jurisdictions
- To conserve and restore the coral reef ecosystem, the terrestrial environmental issues needed to be addressed too.

Take home messages:

- Dr. Jason Spadaro on the importance of AI for the future of coral restoration: “Applying AI and machine learning to predict coral production rates can increase efficiency of understanding the biotic environment where planning, monitoring, and future conservation efforts have endless potential.”
- Dr. Jason Spadaro: “Citizen science helps bridge the gap of recreational divers and marine research scientists to help with the monitoring and physical outplanting of restoration coral to depleted reefs.”
- Prof. Chang-feng Dai: “Most of the impact on coral reefs come from terrestrial sources: sewage, land use, and physical damage. Only when the impact from land can be reduced and mitigated, the impact on the marine systems can be reduced and, later, restored.”
- Dr. Jason Spadaro: “Hurricanes are an intermediate disturbance that helps regulate and create a highly diverse reef system. However, in a highly damaged reef system like Florida, we need to reduce thermal stress, marine disease, and damage from natural disasters while promoting growth rates. We are looking for unicorns while creating and fostering genetic diversity [among coral].”
- Mr. Wim: “DEF is not a coral expert but we [Delta Electronics] are leading experts on power supply, that’s why it’s important to merge our own core competencies in technology and with expert marine researchers to create synergies that have an impact.”

How will the outcomes of the event contribute to the vision and mission of the Kunming-Montreal Global Biodiversity Framework:

Earlier this year, the NOAA and ICRI confirmed the world has experienced the 4th mass bleaching. Starting from the mid of 2023 to 2024, the coral bleaching events have happened around the world from Asia all the way to Caribbean Ocean. While the ocean temperature is getting warmer and warmer, the living environment for coral reefs is getting worse too.

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The speaker, the professor Chang-feng, Dai from the National Taiwan University, with over 40-year studying coral reef shared his observation of the status of the coral reefs in Taiwan. In 1980s, the coral coverage in Southern Taiwan and Xiaoliuchiu is respectively 50% and 60%. Yet, in 2020, the coverage has dropped to 30% and 13%. The number showed the alarming living status of the coral reef ecosystem.

Not only in Taiwan, the bleaching event could be seen in Florida too. Dr. Jason Spadaro from Mote Marine Laboratory & Aquarium shared the coral reefs in Florida Keys reaching over 563 km have been facing the most severe degradation due to temperature, water pollution, development, overfishing and disease. According to the scientists, it is estimated only 2% of original coral remains.

The examples demonstrated around the world is the alarm to call for the immediate and urgent action on climate action, conserve and restore the coral reef ecosystem. The marine institutions, academic research institutes and the practitioners of conservation NGOs has been contributed for years. With the uprising awareness of the dire outlook, the private sectors have been joining in the action.

To ensure the action could be most effective, it requires the knowledge sharing, learning, capacity building and international collaboration among multiple jurisdiction which is the aims of the session. The session has facilitated exchanging experiences, lessons-learned, highlighted the need for strengthening capacity-building, technology transfer and create the opportunity to partner and collaborate in the international and national level.

Which Kunming-Montreal Global Biodiversity Framework Targets did your event cover:

The session titled “Ocean Resilience in Focus: Developing Science-based Approaches for Coral & Biodiversity” focused on the solutions to restore the coral reef ecosystem and the implementation of KMGBF. Technology transfer and citizen science has been highlighted, making the session has covered the Target 2, 3, 4, 20 and 21 of KMGBF.

Delta Environmental & Educational Foundation (DEEF), the foundation of the Delta Electronics—the electronics company, utilized the technology and innovation to develop the LED lighting products with the LED light spectrum most suited to breed the coral reefs. Another example is that DEEF is utilizing the technology to develop the Micro-CT, helping the scientist to scan the skeleton of coral reef and learn about the growth of the coral reef without destroy the structure. Through the international collaboration, currently the equipment has been deployed in other South-east Asia country. The technology transfer helps to build up the capacity and ensure the implementation of the KMGBF.

Another example focused during the session is the citizen science program. DEEF has shared their experience to introduce the corporate volunteer in coral restoration, bringing the family to the Chaojing Coral Restoration Center and teaching the children the importance of the coral reef ecosystem. Citizen scientist could not only alleviate the shortage of

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scientific capacity, but also the opportunity to enhance the understanding of the ecosystem. Yet, the citizen science could do more than that.

Dr. Jason Spadaro shared “Wounded – not Conquered” project established Mote Marine Laboratory & Aquarium, which brings the veteran to the restore the coral. The project not only helps the soldier to regain their confidence but also help them to recover from PTSD. Even through the soldiers may lose a leg or arm because of the battle, within the 1 day, they helped to outplant more than 2,000 micro-fragments. So far, they have outplanted more than 5,000 corals and over 60% of the corals survived through the heatwaves.

What this session brought the audiences were more than achieving KMGBF. It also includes how the people could find their bonding to the nature and their own lives again.

Links:

- Photos:
 - Link to photos taken during your event: already provided during COP16. Please let me know if there is any more needed.
- Presentations:
 - Are you happy for this to be shared in .pdf format? Yes
 - Please share a link to download the updated PowerPoints if changes are made: The powerpoint has stayed the same as provided before.