



UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

Nature-based solutions and the blue economy for sustainable development

Ministry of Climate Change and Environment
Biodiversity & Marine Life Sector

Blue Economy Aquaculture Forum- 18 April 2024





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“ On land and in the sea, our forefathers lived and survived in this environment. They were able to do so because they recognised the need to conserve it, to take from it only what they needed to live, and to preserve it for succeeding generations. ”

*Our late Shaikh
Zayed Bin Sultan Al Nahyan,
The UAE's Founding President*





Ministry of Climate Change and Environment:

Vision, Mission, and Strategic Goals



Sustainable environmental and food security



Adopting a climate-neutral approach, protecting and developing ecosystems, and strengthening food and water security to ensure sustainable development



01

Developing agricultural business and responsible investment in agriculture and sustainable food systems



02

Boosting economic value of environmental health programs



03

Reducing & sequestering GHG emissions to achieve net zero



04

Preserving biodiversity to enhance the use of ecosystems' services in sustainable development





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Preserving biodiversity to enhance the use of ecosystems' services in sustainable development

Mangroves, Coral reefs, and artificial reefs play crucial roles in **boosting the blue economy**:

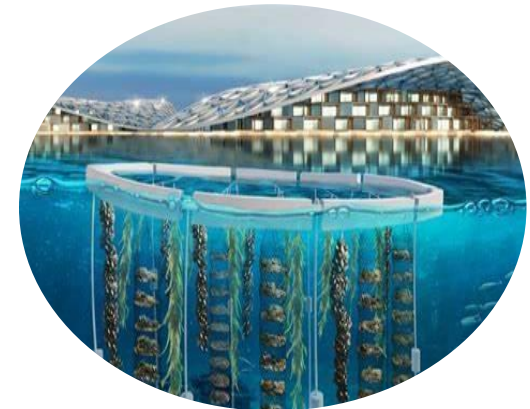
Fisheries
Support



Tourism and
Recreation



Biodiversity Hotspots Coastal Protection Aquaculture

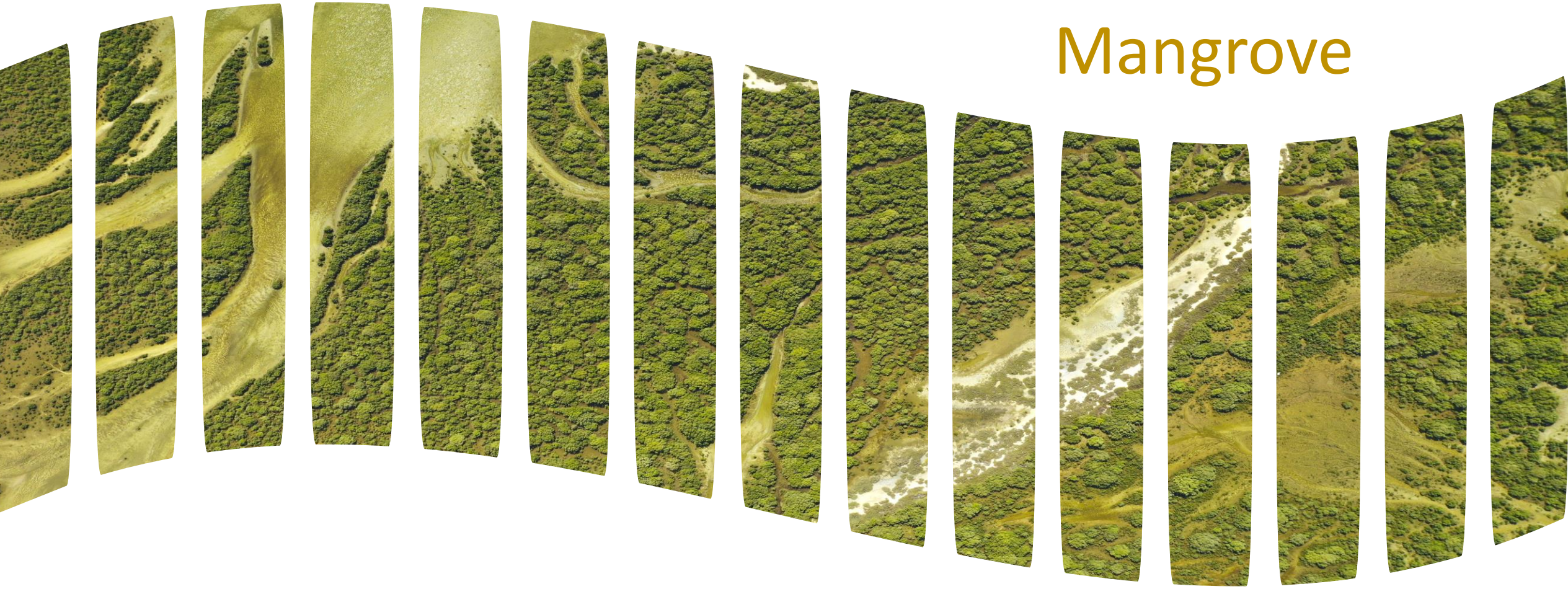


By leveraging **ecological services**, countries can **enhance their blue economies** while **promoting sustainability and resilience** in coastal communities



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Mangrove





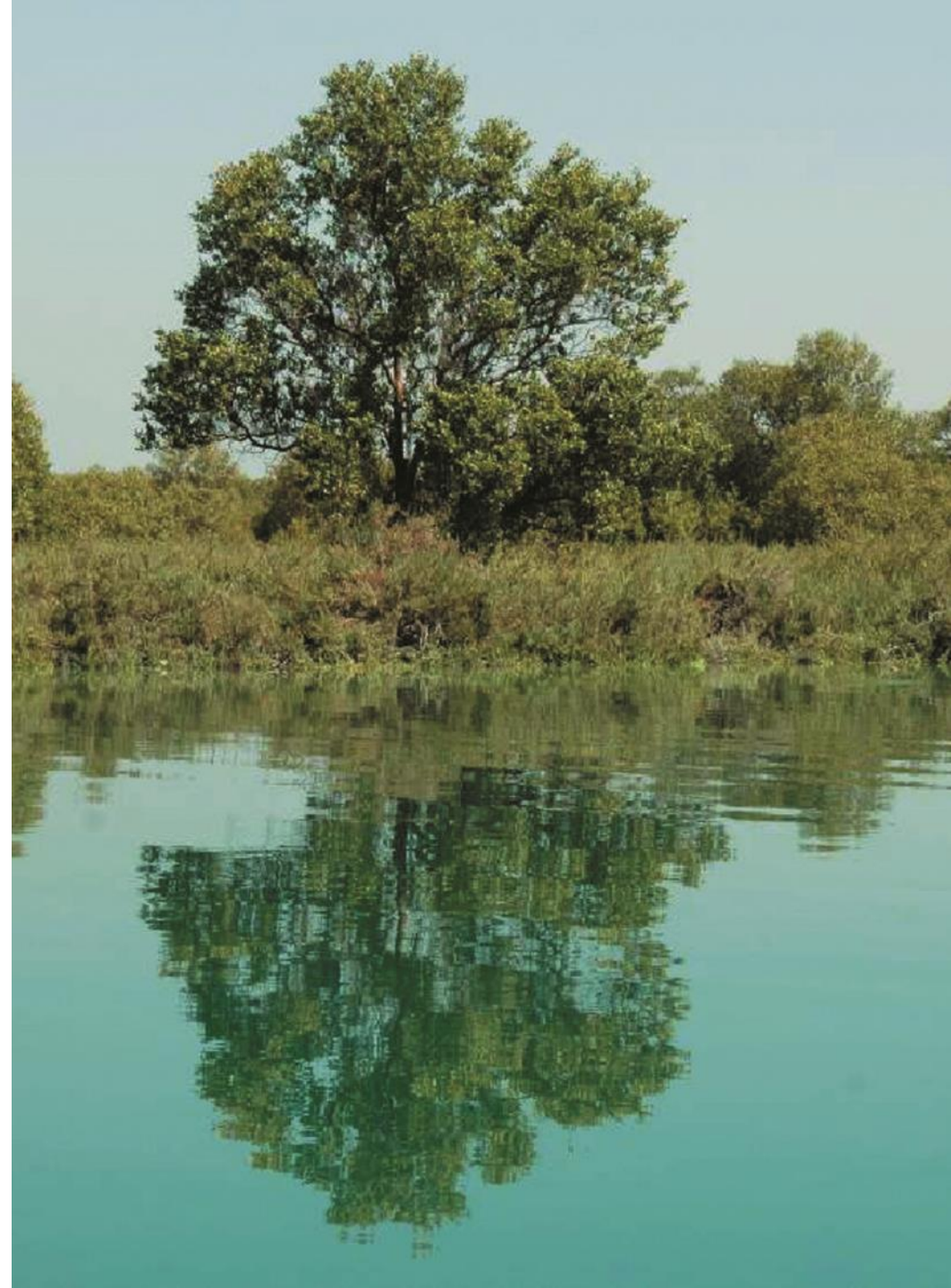
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Mangrove Ecosystems

- *Avicennia marina* is currently the only species of mangrove that occurs naturally in the UAE.



- ✓ Protect existing mangrove ecosystems and their associated coastal habitats;
- ✓ Adopt a holistic integrated seascape approach;
- ✓ Enhance nature-based solutions, and ensure that environmental impacts due to human activities are avoided; minimised, and adequately mitigated
- ✓ Implement evidence-based restoration of key coastal ecosystems when required.





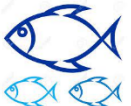
Mangrove Ecosystems Services



Mangroves are one of the most productive coastal systems, providing ecosystem services for both terrestrial and marine species



Globally, each hectare of mangrove forest provides ecosystem services worth an estimated **US \$33,000-\$57,000** annually (UNEP 2021).



Fisheries

More than **3000 fish species** are found in mangrove ecosystems



Water filtration

2-5 hectares of mangroves may **treat the effluents of 1 hectare of aquaculture**



Climate regulation

The carbon storage potential of mangroves is **3-5x higher** than that of tropical upland forest

The mangroves of the UAE sequester carbon at a rate of **0.5 t ha⁻¹ y⁻¹**, in addition to the carbon stocks stored within mangrove tree biomass



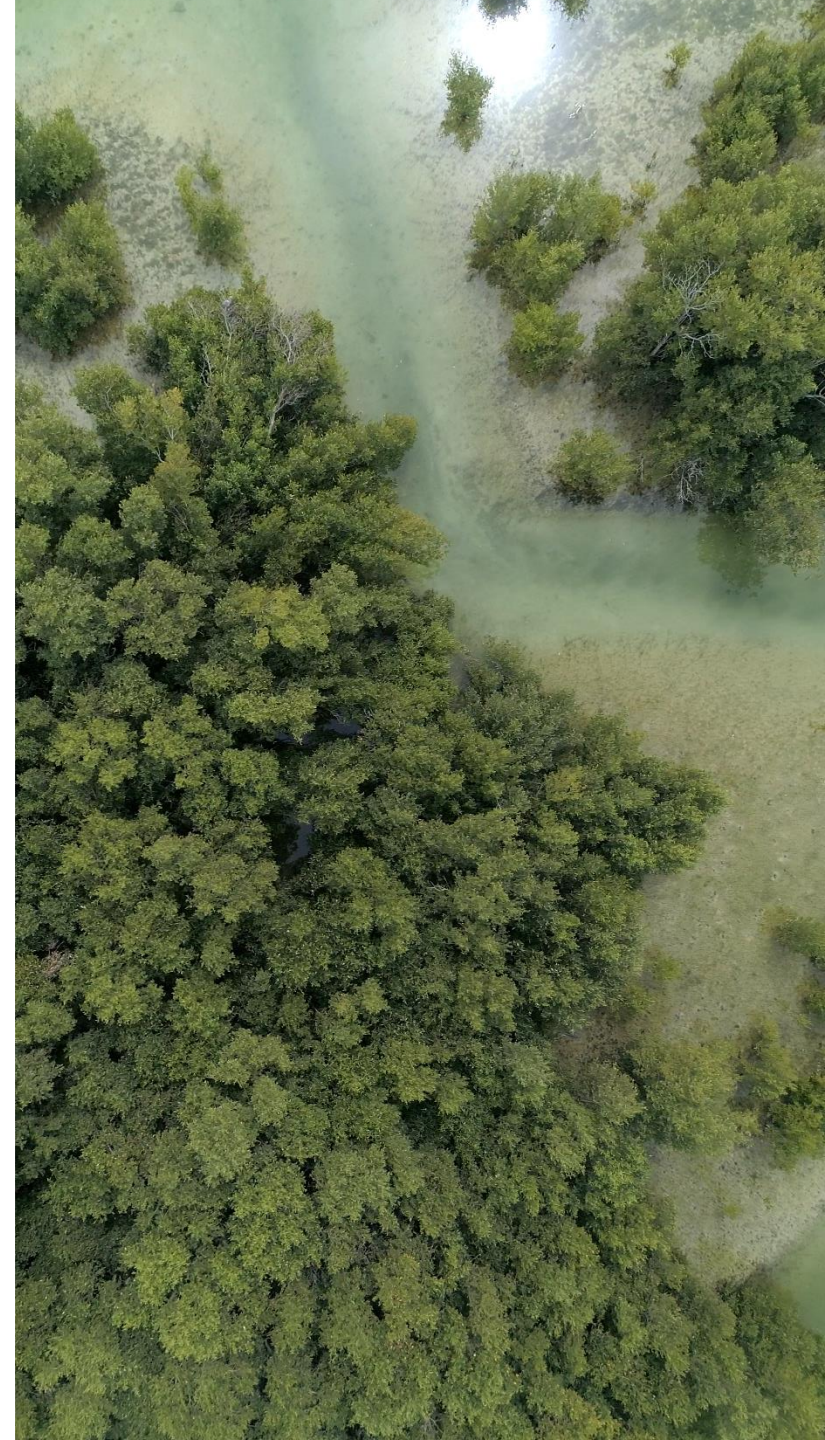


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Important mangrove areas in the UAE

- Saadiyat Island, Abu Dhabi
- Jubail Island, Abu Dhabi
- Marawah Marine Biosphere Reserve (which includes the Bu Tinah Island), Abu Dhabi
- Bu Syayef Protected Area, Abu Dhabi
- Ras Gharab, Abu Dhabi
- Abu Al Abyad Island, Abu Dhabi
- Mangrove National Park, Abu Dhabi
- Ras Ghanada, Abu Dhabi
- Sir Bani Yas Island, Abu Dhabi
- Ras Al Khor, Dubai*
- Jebel Ali Wildlife Sanctuary, Dubai
- Mangrove and Al Hafiya Protected Area in Khor Kalba, Sharjah*
- Sir Bu Nair, Sharjah*
- Al Hamriyah Mangroves Reserve, Sharjah
- Al Zora Wetland, Ajman
- Khor Al Beidah Wetlands, Umm Al Quwain

* indicates a Ramsar site: an internationally important wetland (or Wetlands of International Importance)





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UAE's efforts in Mangrove Conservation & Restoration:

- The UAE has undertaken significant **efforts in mangrove conservation and restoration**, which have resulted in the expansion and growth of mangrove forests along its coastline
- The UAE has stepped up its ambition to expand its mangrove cover by increasing the mangrove-planting target to **100 million by 2030**.
- Currently, the UAE has around **60 million mangroves in 183 square Km**. The additional 100 million mangroves planted will expand the UAE's mangrove forests to an area of **483 square Km**





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National Blue Carbon Sequestration Project: Planting 100 million mangroves by 2030

The UAE has completed **45 per cent** of its programme to plant 100 million mangrove trees by the year 2030.

Mangrove Nursery at MERC: The capacity production of **1.2 million mangrove seedlings annually**. The nursery has started to ensure the fulfillment of the annual need for Mangrove tree seedlings required to achieve the National project's targets within the annual plan, designated locations, and project timeframe.





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Coral Reefs





- Coral reefs are some of the **most diverse and valuable ecosystems on Earth**. Coral reefs support more species per unit area than any other marine environment, including about **4,000** species of fish.
- The structures of corals provide **shelter** for many organisms such as fish, marine worms, clams and many other animals and plants that all play a vital role in the coral reef ecosystem.
- Coral reefs also play an important role in **protecting in-shore habitats** like seagrass meadows and mangroves.





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Efforts of the Ministry of Climate Change and environment in preserving coral reefs

- Super corals experiment

Aims to help to **rehabilitate areas** affected by climate change and human activities, and **conduct research and studies** to find out the **best and most adaptable coral species** and reduce the negative impact of climate change on coral reefs, as well as increase the total coral reef area in the country.

The main objective of the project is to find and develop '**super corals**' from common species inhabiting Arabian Gulf for coral reef restoration. Propagating with individuals exposed to repeated long-term stress conditions of predicted climate change scenario, mainly of temperature, pH and salinity in natural environment to be implemented.



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Super corals experiment

The studies conducted during 2016-2023, the corals types were chosen depending on the types that are spread in UAE water:

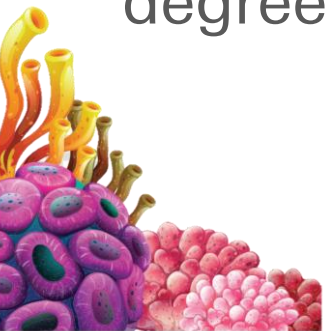
- Acropora, Syphastraea, Favites, Platygyra, Porities, Stylophora, Galaxea fascicularis were chosen for the experiment.





Super corals experiment “results”

- The results indicated that the **survival percentage** of genus **Porites** was significantly better compared to other species and even bleaches more slowly despite being exposed to longer time under the different stressors.
- The **recovery rate** of **Porites** was the highest (**83.3%**), and the temperature reach to 35 degrees.



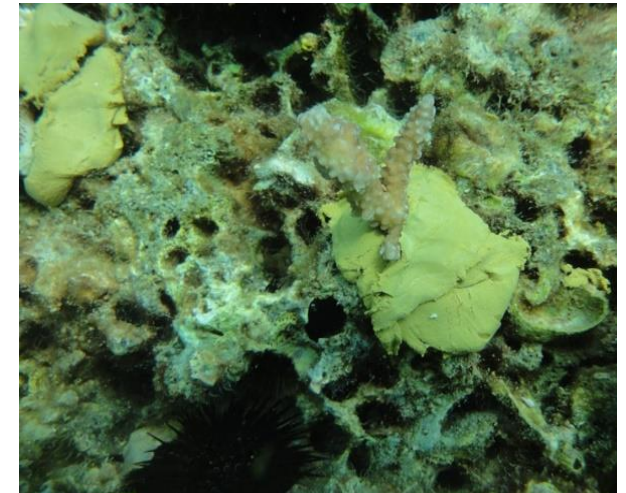


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Restoration of Coral Reefs in United Arab Emirates

Project goals:

- Development and rehabilitation of coastal areas
- Increase coral reef area
- Support of living aquatic resources
- Promoting eco-tourism





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Restoration of Coral Reefs in United Arab Emirates

Aquaculture and Marine Studies
Center (AMSC).

Abu Alabyad



emec
EMIRATES MARINE ENVIRONMENTAL GROUP
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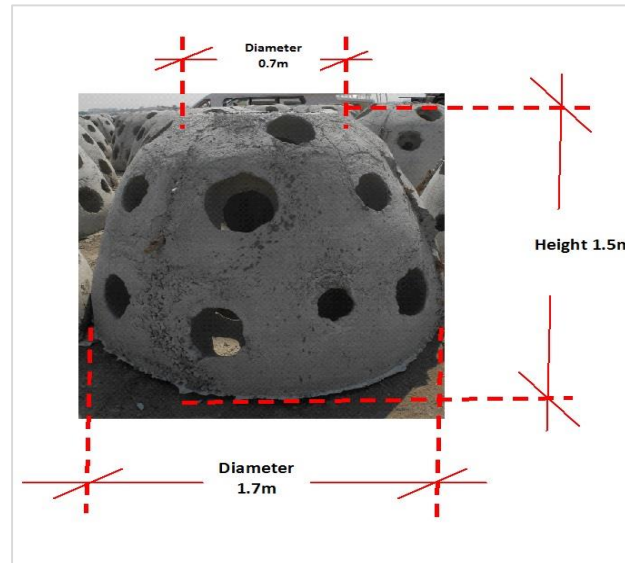
Artificial Reefs





Restoration and Rehabilitation of Marine Habitat Through Artificial Reef Deployment

- Artificial reef balls are pre-fabricated designed to **Enhance, Restoration and Rehabilitation of marine habitat**.
- Deployment of reef balls in the waters of the UAE both in the Arabian Gulf and the Sea of Oman **promotes natural marine habitat** to colonize the modules to form a reef system.





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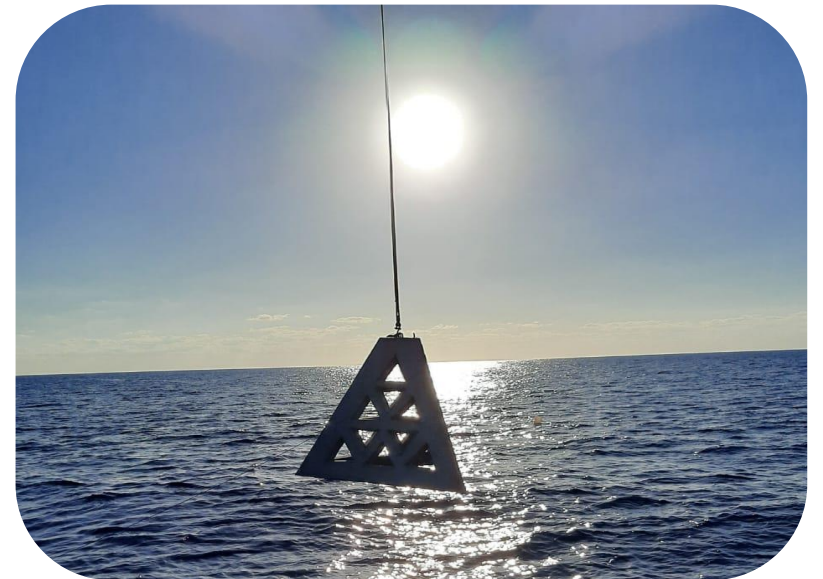
Artificial Reef Deployment

Project goals:

- Development and rehabilitation of marine habitat
- Increase area of marine habitat area
- Enhance aquatic resources and fish stock
- Promoting eco-tourism

Progress Achieved:

4281 artificial reefs deployed.





Thank you!

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