



## BUMIARMADA

### Marine Conservation

#### A Lunch & Learn talk on Coral Reefs by Yves De Leneer, Biosphere Foundation

With increased global warming, oceans are slowly absorbing heat and becoming warmer, thereby upsetting the delicate balance in the ecosystem in which corals and other life forms exist. To make matters worse, increased fishing and tourism around pristine coral islands damage the delicate corals and cause extensive pollution.

An example of one of such island is Menjangan, which lies in the northwest of Bali. It is also 150 kms from Bumi Armada's to-be-commissioned Armada Karapan Sterling III FPSO which is stationed off the island of Madura, Indonesia.

Bumi Armada is doing its part to ensure that we help in minimising the damage to this beautiful island by partnering with the Biosphere Foundation to help conserve coral reefs around the Menjangan island.

On 30th March 2017, Bumi Armada's Sustainability Committee and the Human Resources department jointly organised a Lunch & Learn ("L&L") Programme where Mr Yves De Leneer from the Biosphere Foundation talked about the adverse impact of the oil & gas industry's vessel operations on coral reef environments and presented an update on the Reef Conservation Program on Menjangan Island.



The L&L was attended by over 40 BAB staff from various departments and officiated by Jim Ellis, SVP FPSO Operations.

Mr Leneer's presentation, included a general overview of the type of activities that cause damage to coral reefs. These activities consist of vessel grounding, salvage efforts, anchoring, dredging, and pollution. He highlighted the many instances where human error and carelessness contributed to the damaging of marine ecosystems and the importance of spreading awareness amongst vessel crew and staff on how right decisions on their part will go a long way in keeping the seas and coral reefs safe from harm.

Coral reefs support marine ecosystems more than any other type of marine environment, including over 4,000 species of fish, 800 species of hard corals and hundreds of other species. It is crucial that we understand the importance of coral reefs to the marine ecosystem and how activities by the offshore oil & gas industry impacts their sustainability and life.



Educating the Locals



Removing Crown of Thorns

### NW Bali Marine Conservation & Education Program

In 2016, the Biosphere Foundation worked closely with local stakeholders to support its community-movement called 'Friends of Menjangan' and established new effort called 'Putri Menjagan' to clean up the coastline adjacent to Menjangan Island.

Through this programme, the treatment of waste that runs onto the reefs from a nearby shrimp farm is now being addressed. Possible solutions such as mangrove re-plantation, seaweed farming, wastewater treatment, and composting of waste material are being implemented.

A repeat study of the Menjangan coral reef and surrounding reefs in the bioregion was carried out from May - June 2016. Geospatial mapping which uses local knowledge in conjunction with the reef study, aerial photography and use of high resolution imaging has contributed greatly to the understanding of local pollution sources and their impacts. The findings of this study will help drive policy decisions as well as future conservation efforts.

The foundation's efforts through support from Bumi Armada, have helped to mitigate the negative effects of pollution and human activity on the local coral reefs.

### Update on the Menjangan Program:

- 22 new buoys installed and repairs made to 9 existing buoys at Menjangan Island
- 8 buoys installed at Putri Menjangan
- 7,221 "crown of thorns" – a type of starfish and a known coral predator - removed
- Provided 2 sets of vinegar injection systems to kill the crown of thorns and know-how and funds to support their removal from the reef
- Over 100 bags of trash collected from Menjangan Island and at an Earth Day event
- 5 school visits for education on trash removal
- 2 community events held on-board the Mir
- Created a music video called Menjangan ~ A Music Video (<http://biospherefoundation.org/project/menjangan-music-video/>)