

WONDER REEF
GOLD COAST

PIANC APAC 2022

ENGINEERING WONDER
DELIVERING WONDER REEF ON THE GOLD COAST

MMA OFFSHORE

This slide features a large background image of a diver next to a massive, circular, green artificial reef structure. The reef is covered in marine life. The text is arranged in a clean, professional layout with logos for PIANC APAC 2022 and MMA OFFSHORE.

1

LOCATION

- 2km Offshore
- 30m Water Depth

Map labels include: South Stradbroke Island, Wavebreak Island, Gold Coast Seaway, Gold Jennings Park, Sand Pumping Jetty, The Southport Spit, and The Southport Harbour.

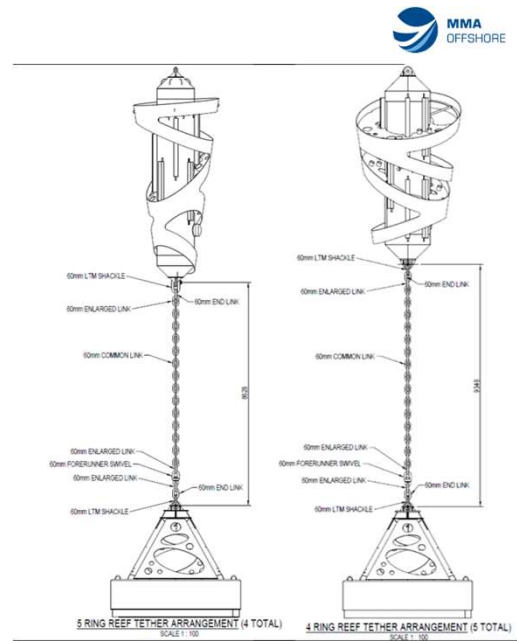
Map annotations include: 2.5km approx, 0.5km approx, Navigational markers, Proposed location for purpose-built Artificial Reef and 6 Mooring Buoys, and Gold Coast DWE Precinct approximate boundary.

This slide provides a detailed location map. On the left, a map of Australia shows the location of the reef off the Queensland coast. The main map is an aerial view of the Gold Coast area, showing the coastline, the Southport Harbour, and the proposed reef location. A red dashed box highlights the reef's location, with arrows indicating its distance from the shore (2.5km approx) and its depth (30m approx). Other labels include 'Gold Coast Seaway', 'Sand Pumping Jetty', and 'The Southport Spit'.

2

A GLANCE AT WONDER

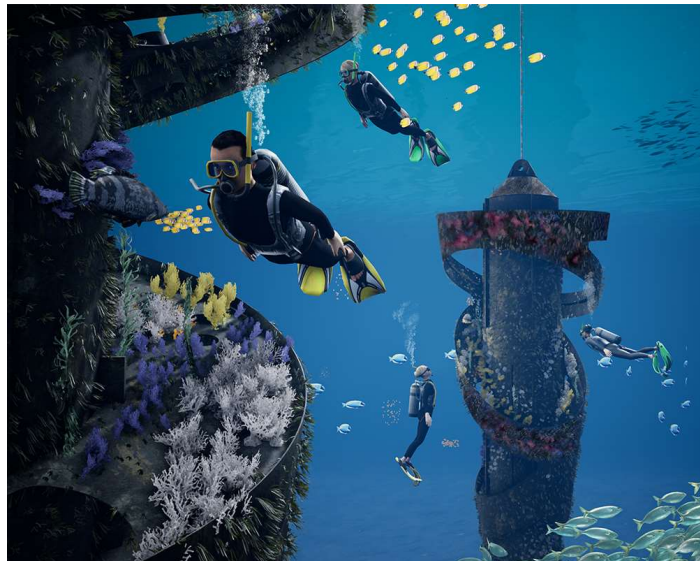
- World first buoyant reef design
- Fusion of Art, Science & Engineering
- Nine buoyant sculptural reef flutes
 - ~ 8te Each
 - ~ 20m above the sea floor
- Nine 72Te Reef foundations – 4m x 4m x 5m (H)
- Reef purposely designed to provide habitat for a diverse range of marine life
- Swim-throughs and landing platforms for divers
- Four moorings including one public mooring



3

BUSINESS CASE

- \$5M Blended Finance Model:
 - \$2.5M Queensland Government's Growing Tourism Infrastructure Fund
 - \$2.5M City of Gold Coast
- \$32.8 million local economic benefit over 10 years
- 16,600 visitors annually
- 80 operational jobs
- 32,000 cubic metres of new reef habitat



4



PERMITTING, TENURE, PROTECTIONS



QUEENSLAND GOVERNMENT
Department of Resources

50-year lease for the Wonder Reef precinct;



Australian Government
Department of Agriculture
Water and the Environment

30 Year Artificial Reef Permit under Sea Dumping Act;




QUEENSLAND GOVERNMENT
Department of Agriculture and Fisheries

No Take Zone Incl: Fishing, Spear Fishing




CITY OF GOLDCOAST.

Restricted Site Access: Subordinate Local Law No. 7.5 (Public dive precincts) 2021.





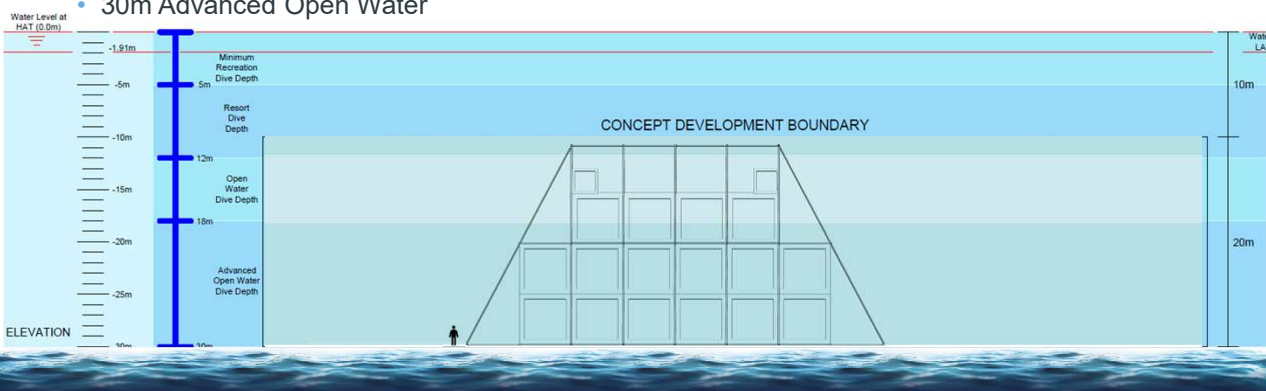
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REFERENCE DESIGN & SPECIFICATION

CLIENT DRIVERS

- **ICONIC DESTINATION** 
 - Over-night Stays & Tourism Spend
- **CATER TO:** 
 - 12m Resort Diver
 - 18m Open Water
 - 30m Advanced Open Water

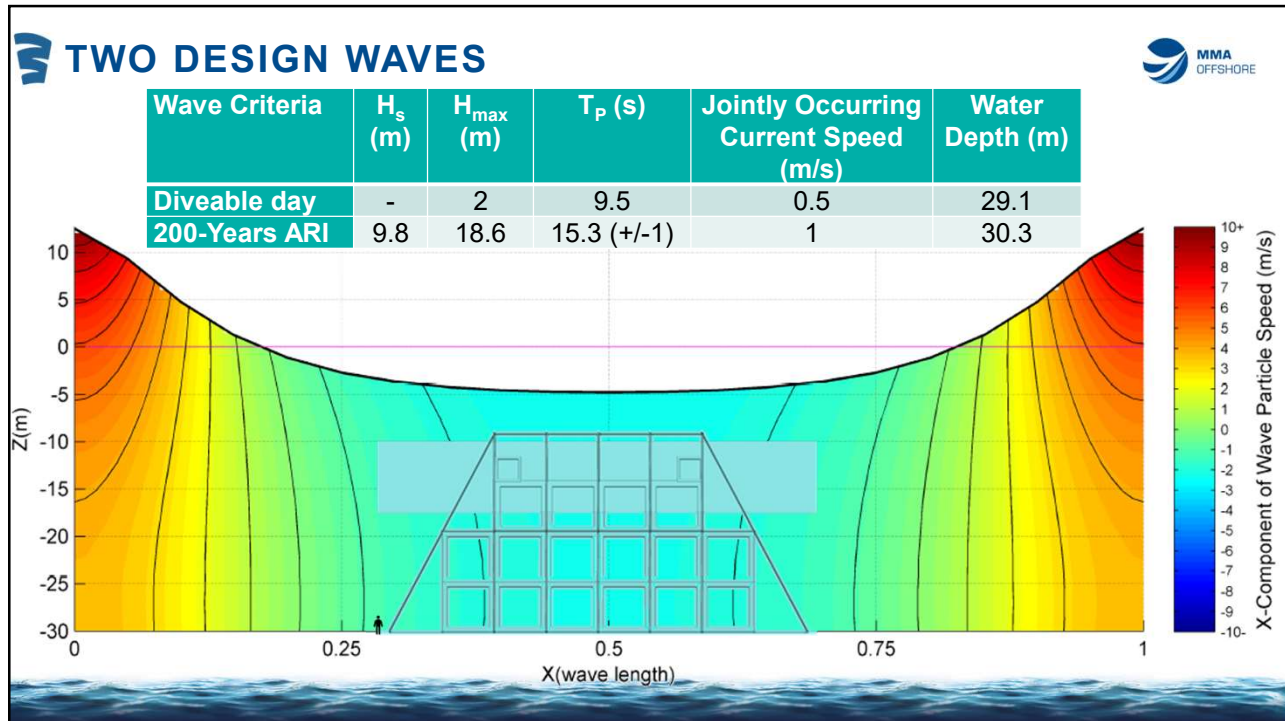


The diagram shows a cross-section of a reef structure. On the left, a vertical scale indicates elevation from 0.0m (Water Level at HAT) down to -30m. Key depth markers include:

- 1.81m: Minimum Recreation Dive Depth
- 5m: Resort Dive Depth
- 12m: Open Water Dive Depth
- 18m: Advanced Open Water Dive Depth

 A 'CONCEPT DEVELOPMENT BOUNDARY' is shown as a trapezoidal structure extending from approximately -12m to -30m depth. A small human figure is shown at the bottom for scale. On the right, a vertical scale indicates a 10m and 20m depth range.

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DANIEL TEMPLEMAN

Three Rings, 2018

Missing Corners, 2016

Hyphen, 2008

9

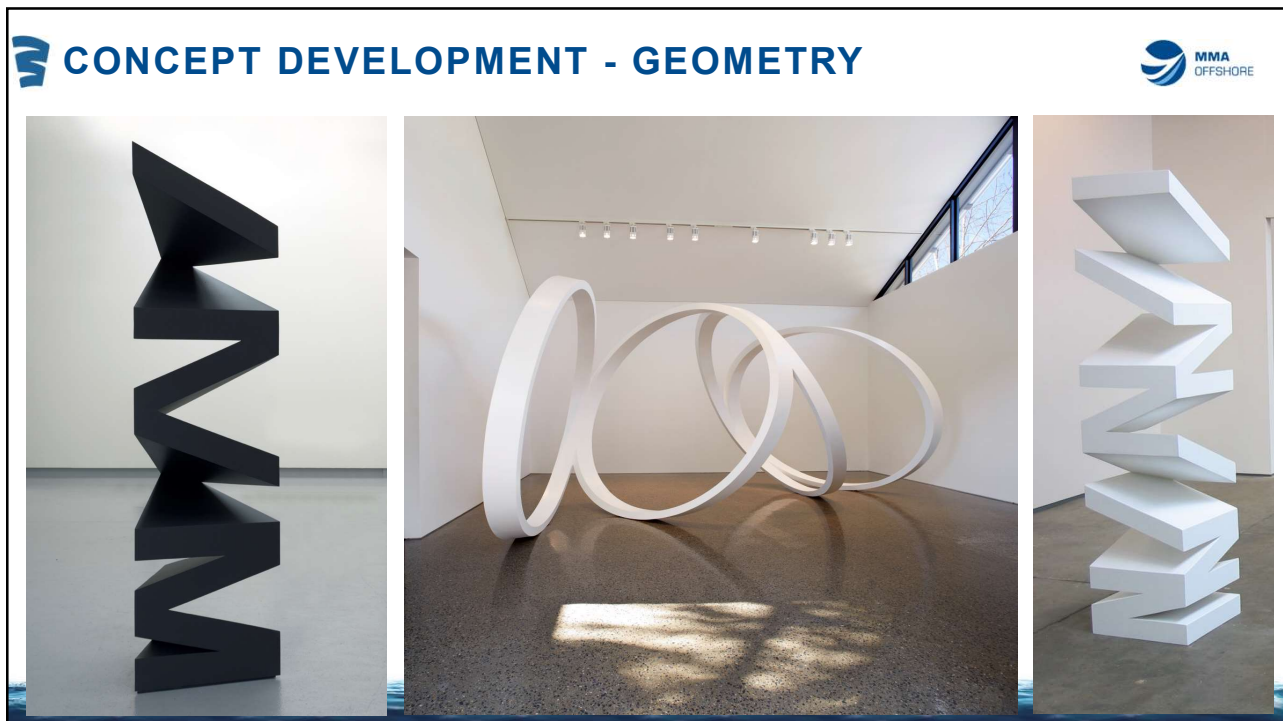
CONCEPT DEVELOPMENT – EXPLORING BUOYANCY

MMA OFFSHORE

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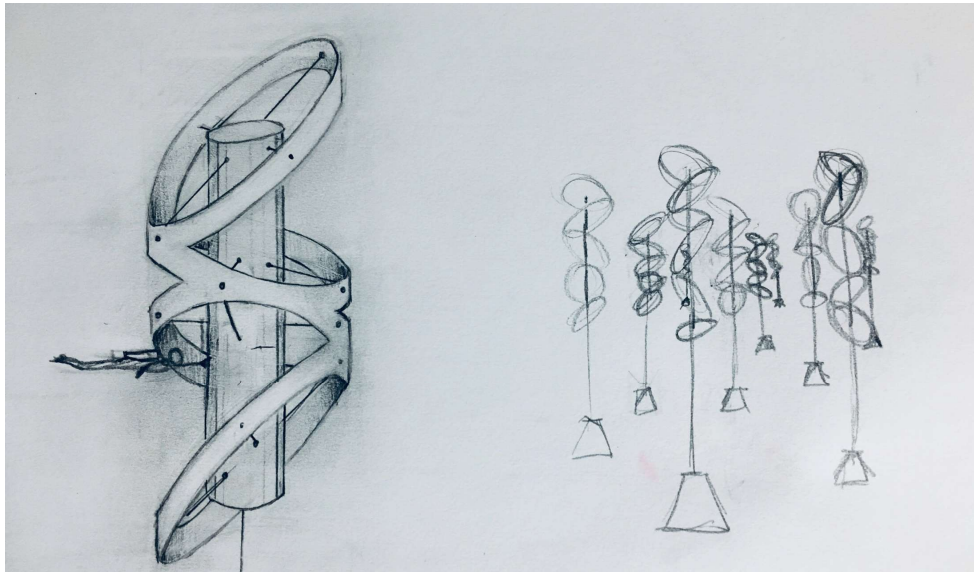


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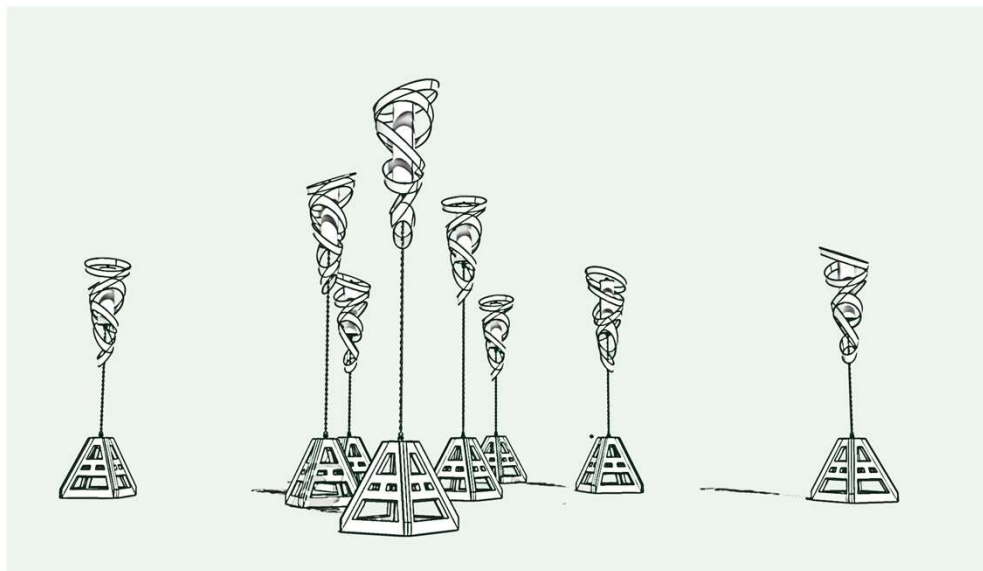
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BRINGING THE CONCEPTS TOGETHER

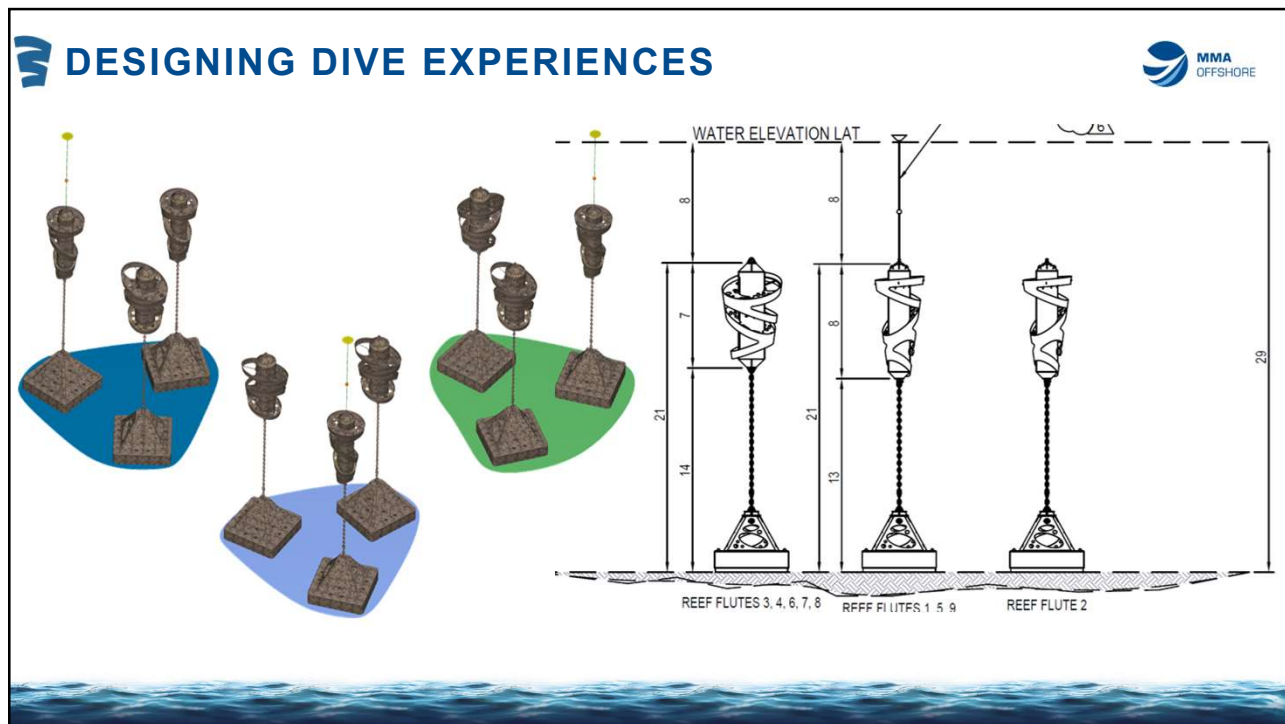


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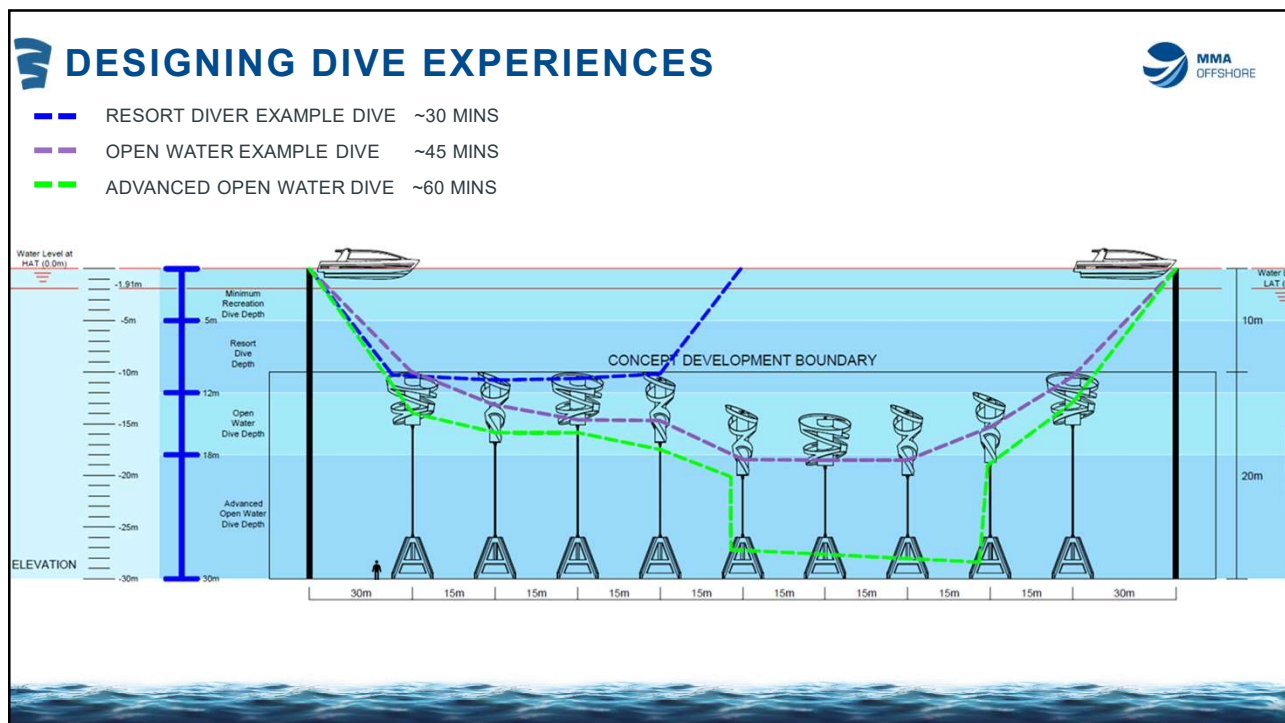
BRINGING THE CONCEPTS TOGETHER



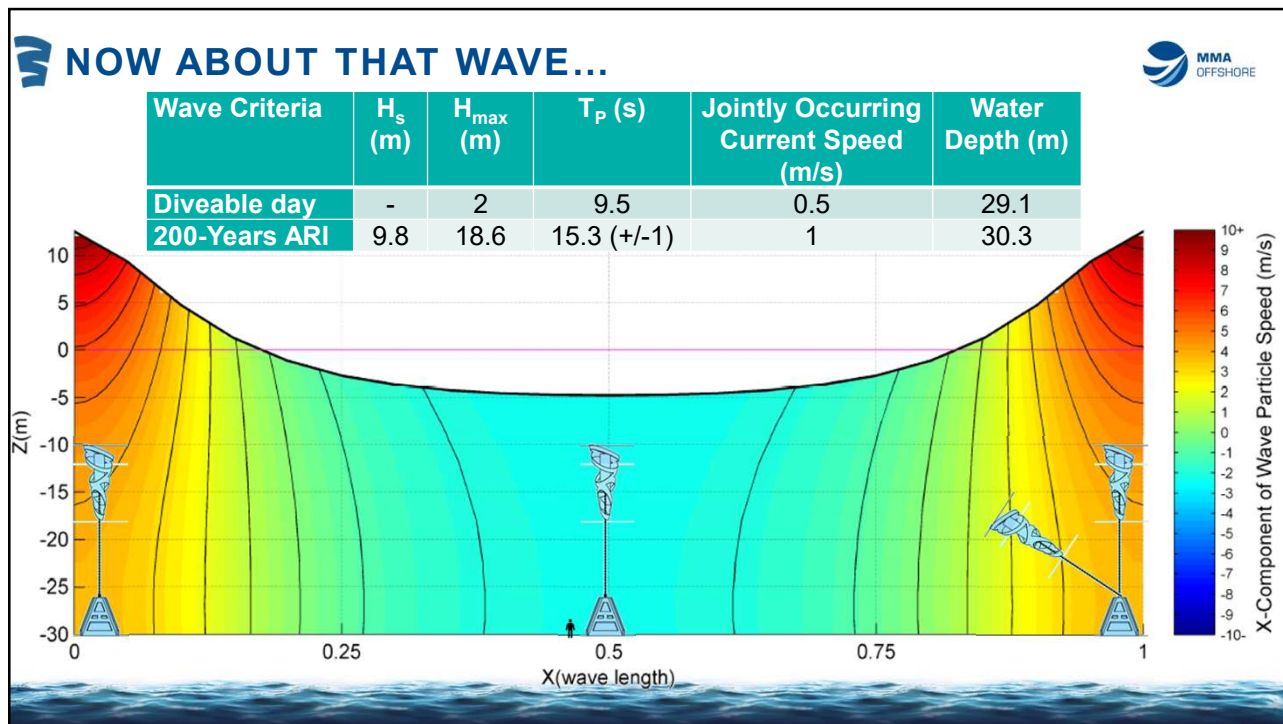
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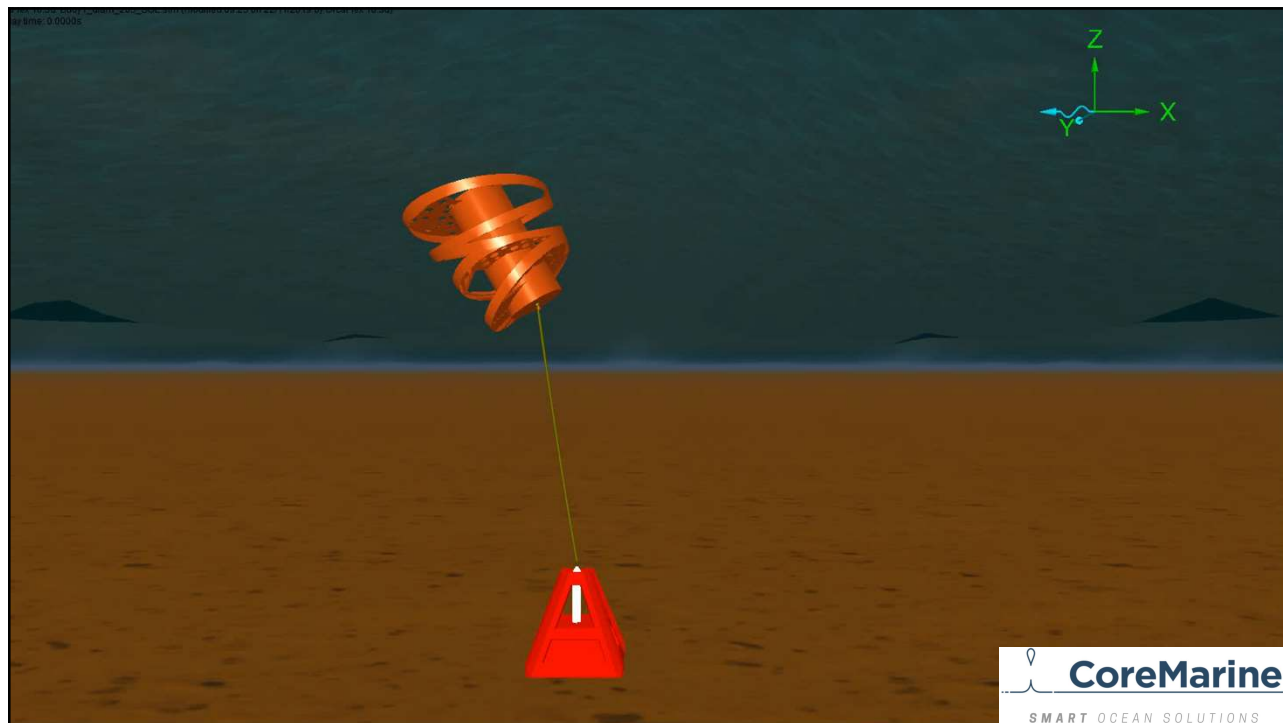
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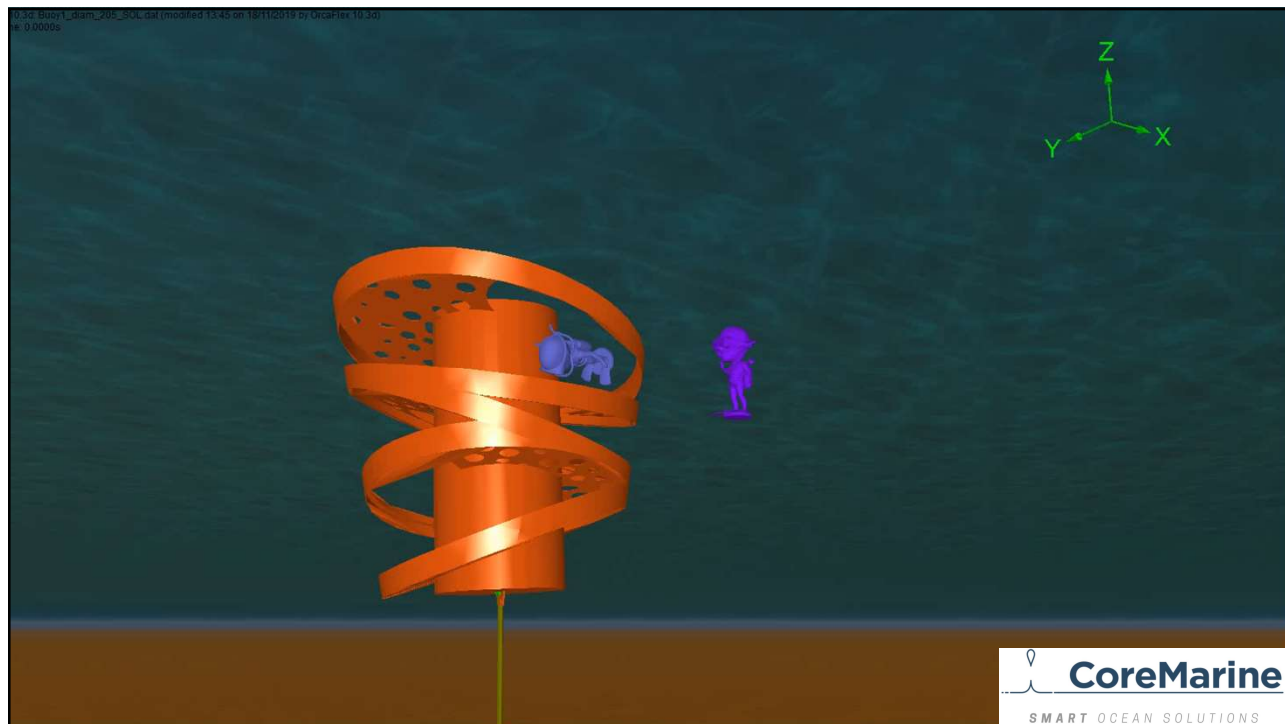
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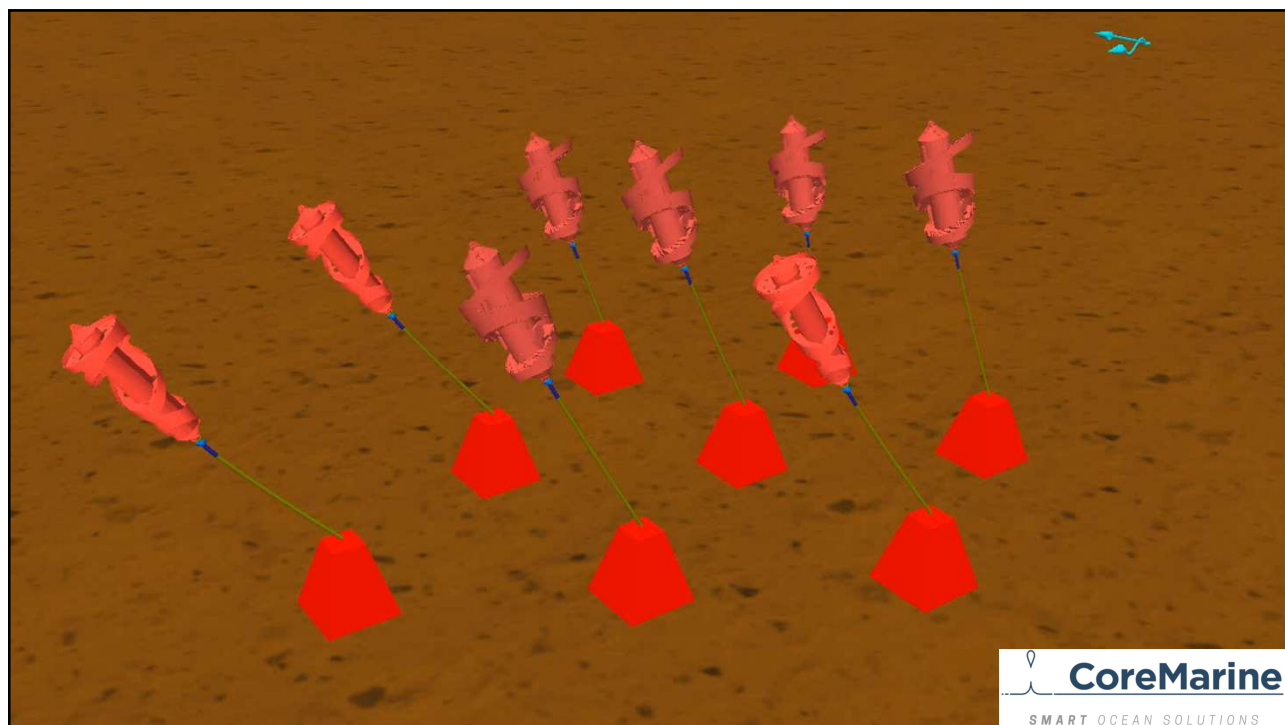
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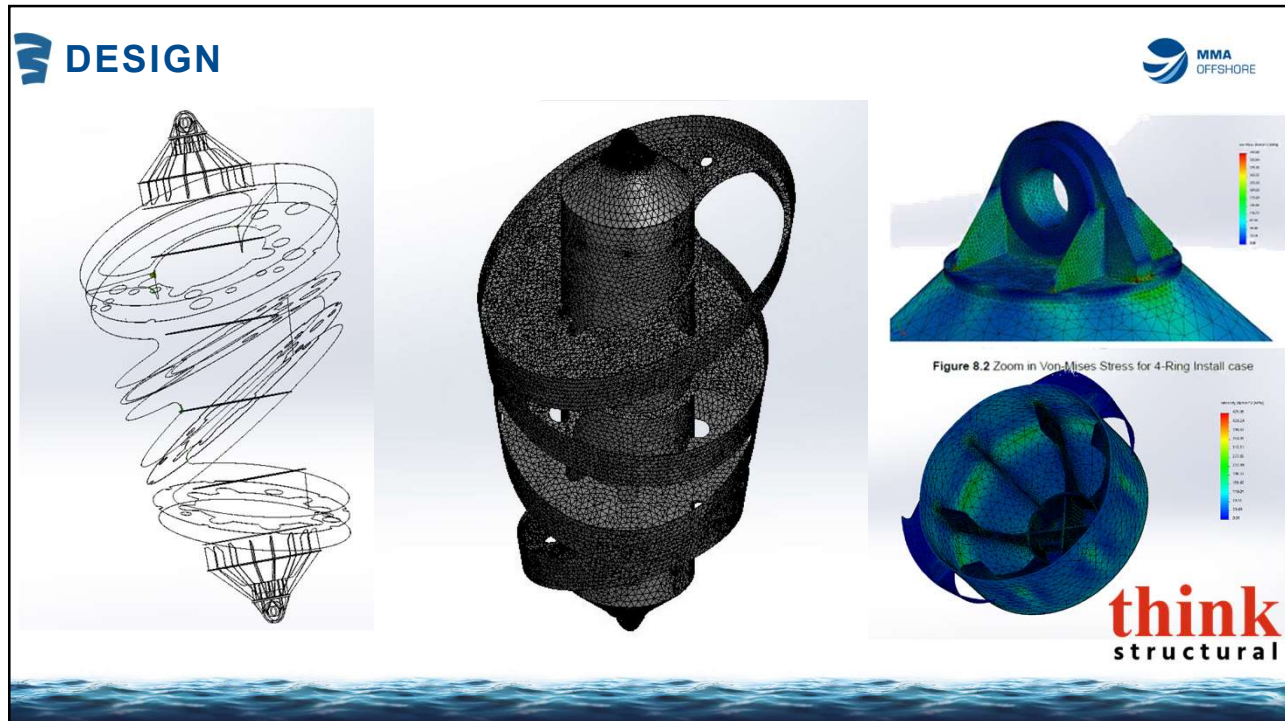
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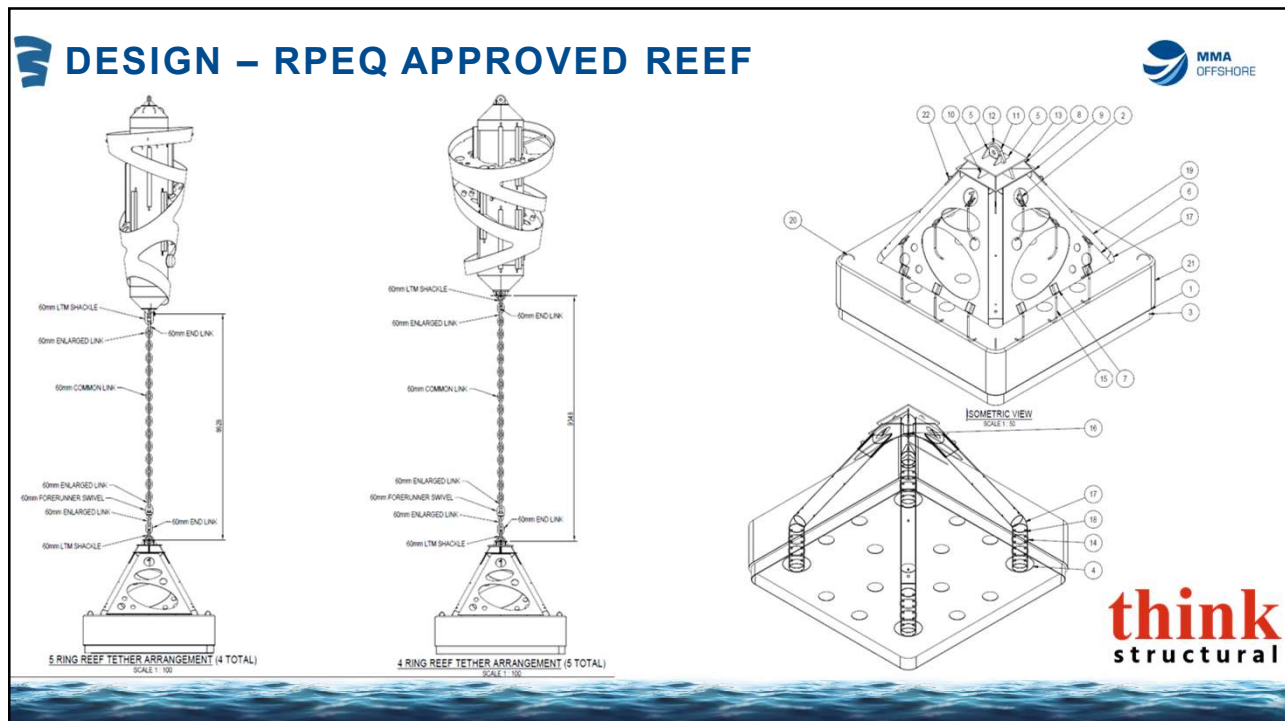
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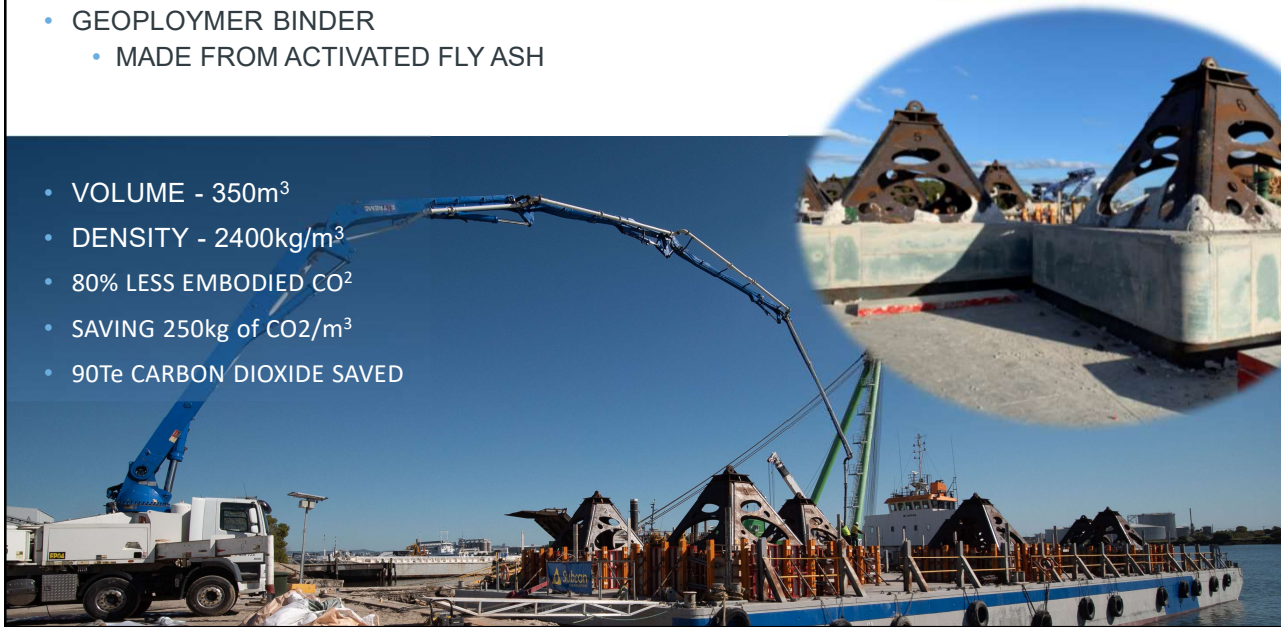
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BALLAST - EARTH FRIENDLY CONCRETE



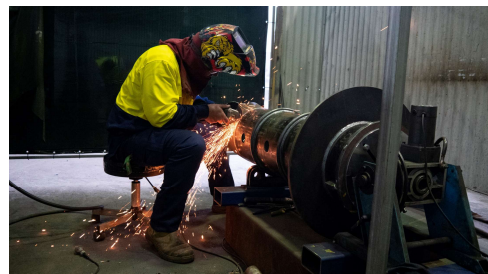
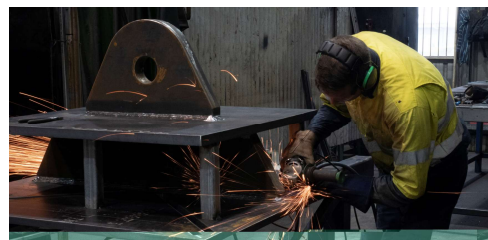
- GEOPLOYMER BINDER
 - MADE FROM ACTIVATED FLY ASH

- VOLUME - 350m³
- DENSITY - 2400kg/m³
- 80% LESS EMBODIED CO²
- SAVING 250kg of CO₂/m³
- 90Te CARBON DIOXIDE SAVED



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FABRICATION



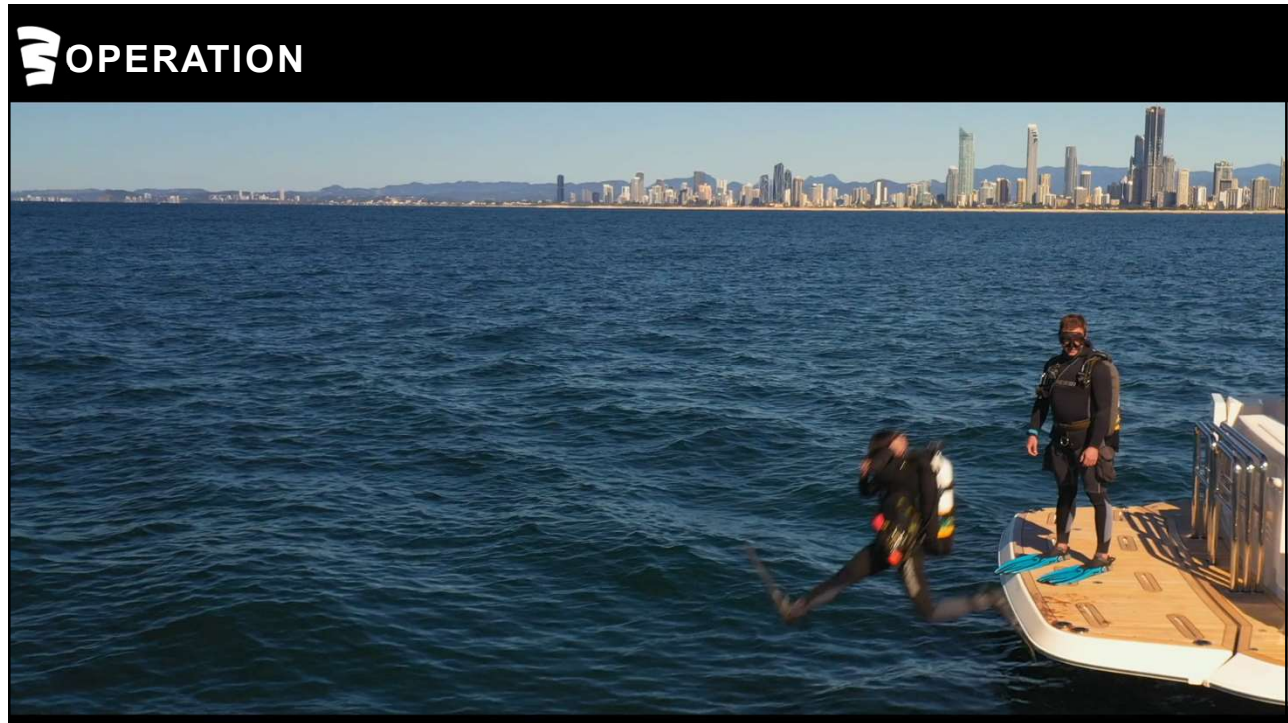
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