PACIFIC MARINE GROUP PTY LTD
AUSTRALIA

Case Study

North Stradbroke Artificial Reef

Client:
Department of Environment & Science

Project Brief:
Pacific Marine Group were tasked with designing and constructing concrete artificial reef modules to be placed in a 30-hectare area North of Adder Rock on North Stradbroke Island, Brisbane. The project was undertaken in partnership with the traditional owners of the island, Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC) who were employed on the project to provide vessel transfer services as well as utilising local rangers for fauna spotters.

Design and Fabrication:
Pacific Marine Group designed the modules with various aspects considered such as having a structure that deflects horizontal currents into vertical lift that is often favoured by bait fish. Further to this the design is omnidirectional, thus stable no matter the direction of waves and currents. The module has smaller void spaces in the 'blades' for smaller fish and organisms to shelter in and the interior of the module is hollow allowing divers and larger species to pass through.
The steel moulds for the modules were fabricated at PMG's marine precinct facility in Townsville with the concrete being poured at PMG's pre-cast facility.

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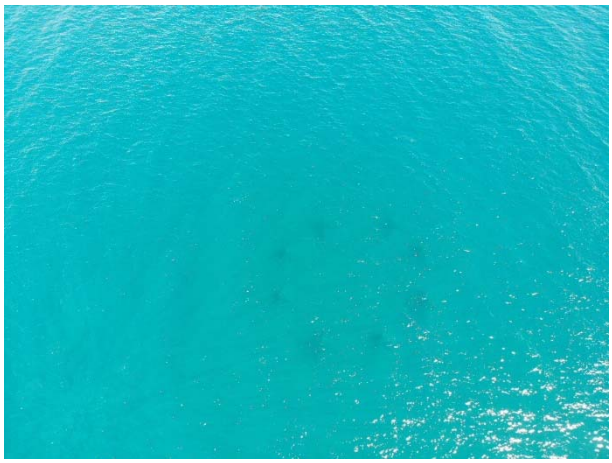
Project Execution:
The PMG 183W was mobilised to site with a 150Te Sany crawler crane and 38off modules which were installed over the space of two days.
The crane was fitted with Trimble GPS for positioning of modules with accuracy of <1m in a sea state of 1m.



The modules were installed in a Southern Cross arrangement which was decided through community engagement meetings with QYAC

Statistics:

- 38off modules in total;
- Each 4m x 4m x 5m module weighed 17Te;
- Fibrecon 100% recycled fibres were used to provide omnidirectional strength with minimal steel reinforcing used;
- 95% reduction in carbon footprint using plastic fibres in place of steel reinforcing.
- 50MPa concrete was cured for 28 days prior to submersion;
- Current mould configuration allows voids to be changed for every subsequent project.

Project duration: April – November 2018
Contract Value: $793k
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