| CASE STUDY

PROTECTING THE GREAT BARRIER REEF THROUGH BEST PRACTICE PORT OPERATIONS

JAMES COOK UNIVERSITY, NORTH QUEENSLAND BULK PORTS

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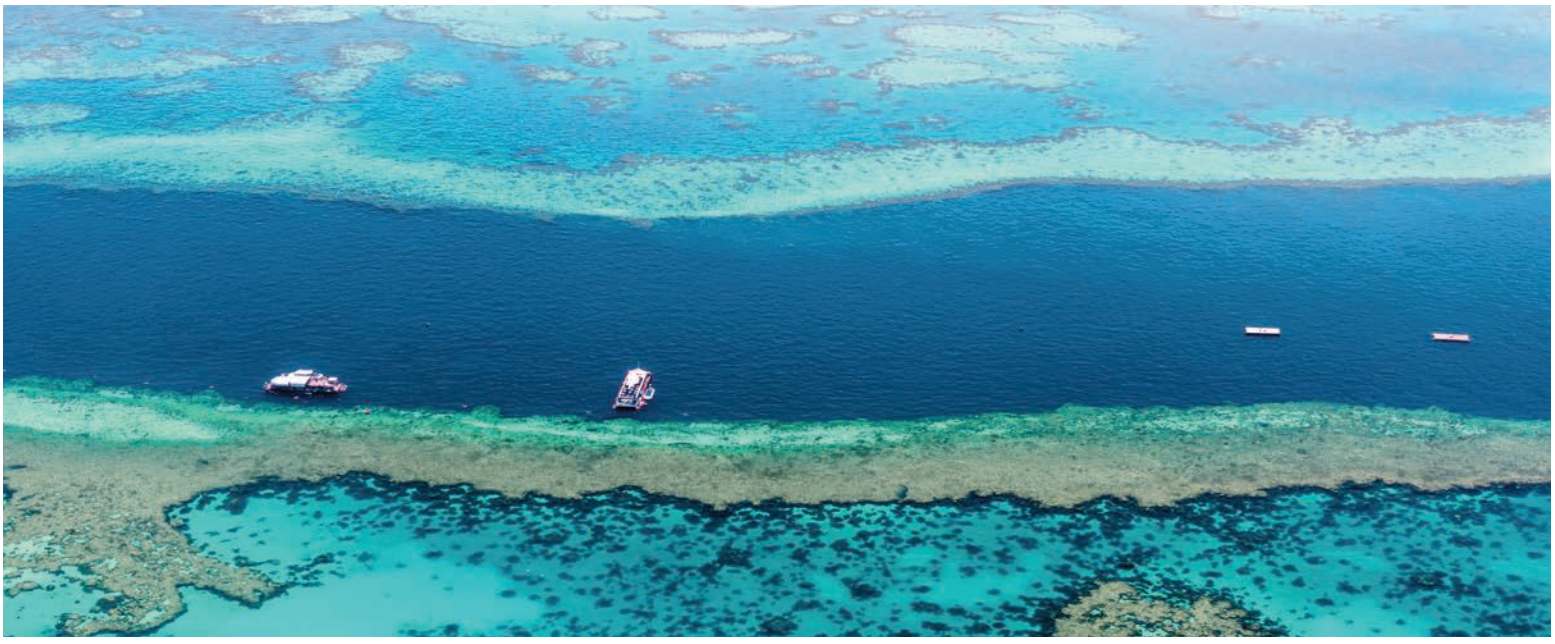
A collaboration between James Cook University (JCU) and North Queensland Bulk Ports (NQBP) is helping protect the Great Barrier Reef World Heritage Area.

JCU has long been at the forefront of scientific knowledge of sensitive marine habitats such as seagrass and coral, as well as water quality science and management in the Great Barrier Reef.

The University's world-leading team of researchers and specialists in marine water quality and coastal habitat ecology have long provided services to ports in Queensland, including one of the longest continuously running seagrass monitoring programs (25 years) in the world, which has been instrumental in ensuring the protection and management of seagrasses that occur within the Great Barrier Reef Marine Protection Area.

NQBP is the port authority for four major port facilities in Queensland – three (Mackay, Hay Point and Abbot Point) of which are located adjacent to the Great Barrier Reef Marine Protection Area. In fact, NQBP is the only port authority in the world to manage three priority ports located on the shores of a World Heritage Area.

Signed in 2017, the partnership between JCU and NQBP has brought together



the University's outstanding marine environmental research expertise with NQBP's environmental management team to implement, monitor and promote best practice environmental management of ports along the Great Barrier Reef.

Balancing the essential requirement for ports to facilitate economic trade with the need to preserve and protect the Great Barrier Reef, the partnership is capitalising on a highly integrated and scientifically rigorous marine water quality and sensitive marine habitat program, which builds on decades of marine and coral research and knowledge within the university's Centre for Tropical Water & Aquatic Ecosystem Research (TropWATER).

The data generated is seen as a long-term investment in assisting port operations, providing assurance for compliance reporting and strategic planning of projects, as well as expectations of community environmental stewardship and management.

In addition to credible port management informed by rigorous academic research, the JCU/NQBP collaboration has enabled key environmental thresholds to be defined to influence regulation.

For example, data from the program has been used to set specific environmental thresholds for maintenance dredging in the port of Hay Point, which commenced in April 2019. This has helped NQBP to work more effectively with regulators to set allowable activities that are adaptively managed during the dredging campaign in real time.

The partnership has also led to major breakthroughs in understanding how coastal marine systems function, including new insights into tolerance and resilience of marine habitats, leading to the development of innovative management tools that have been directly applied to benefit the outstanding universal values of the Great Barrier Reef.

Many undergraduate and postgraduate students have also been given opportunities through an industry placement program as part of the partnership, including working with scientists and industry leaders to help implement real world applied outcomes.

A citizen science program has also been established this year on the back of the JCU/NQBP partnership to look at marine water quality monitoring around the Whitsundays region in northern Queensland. This new program includes formal training of tourism operators in water quality data collection, and will become an important blueprint for a new wave of citizen science to continue efforts to protect the Great Barrier Reef in years to come.