PACIFIC MARINE GROUP PTY LTD
AUSTRALIA

CASE STUDY

Crown of Thorns Starfish Control Program

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Client: GBRMPA
Project duration: 2021 – Current Date
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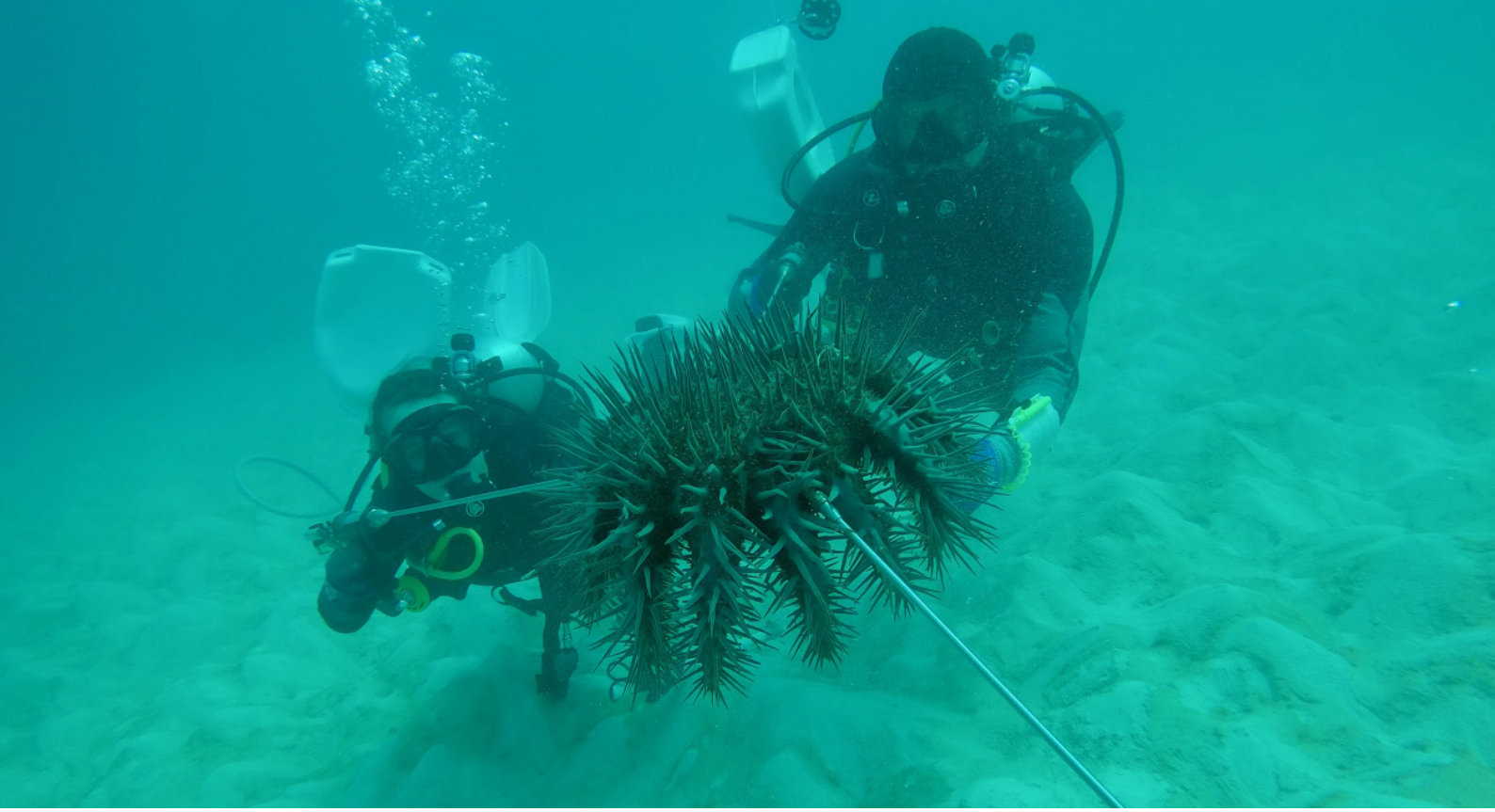
Summary

PMG has maintained a contract with the Great Barrier Reef Marine Park Authority (GBRMPA) for over five years to manage the Crown of Thorns Starfish (COTS), a significant threat to the Great Barrier Reef.

COTS endanger coral reefs by preying on coral polyps, leading to extensive damage during population outbreaks. These outbreaks can cause rapid coral mortality, reducing reef health and biodiversity. Healthy coral reefs are vital for coastal community resilience, supporting fisheries, tourism, and coastal protection.

However, controlling COTS outbreaks is challenging and resource-intensive, requiring dedicated culling and monitoring efforts. PMG conducts 10-day trips on the vessel PMG Odyssey, where 12 divers perform up to four daily dives to assess and cull COTS.

The program has been highly successful, improving COTS management and reducing outbreak statuses across the reefs.



The Crown of Thorns Starfish (COTS) is considered a threat primarily due to its significant impact on coral reef ecosystems, particularly the Great Barrier Reef. Key reasons why COTS is seen as a threat are:

1. Predation on Coral

COTS feeds on coral polyps by extruding its stomach over the coral and releasing digestive enzymes. This feeding behaviour can lead to extensive damage to coral reefs over time, especially during outbreaks when population numbers are high.

2. Population Outbreaks

COTS populations can undergo outbreaks, where large numbers of starfish congregate and feed on coral. These outbreaks can result in rapid and widespread coral mortality, leading to declines in coral cover and overall reef health.

3. Impact on Biodiversity

Coral reefs are highly diverse ecosystems that support numerous species of fish and other marine life. Damage to coral reefs by COTS can disrupt these ecosystems and reduce biodiversity.

4. Reef Resilience

Healthy coral reefs are crucial for the resilience of coastal communities and economies that depend on them for fisheries, tourism, and coastal protection. COTS outbreaks threaten the ability of reefs to recover from other stressors such as climate change and pollution.

5. Challenges in Control

Controlling COTS outbreaks can be challenging and resource-intensive. Effective methods such as culling and monitoring require dedicated efforts and resources, often involving coordinated programs by organizations like GBRMPA (Great Barrier Reef Marine Park Authority).

Trips aboard our vessel, PMG Odyssey, last around 10 days. We operate two 5m rigid inflatable vessels designed to be easily lifted onto the Odyssey for transit.

During each trip, 12 divers conduct up to 4 dives daily, each lasting a maximum of 50 minutes at depths of up to 20m. The crew stays at sea, visiting various locations across the Great Barrier Reef, primarily in the Townsville and Whitsunday regions.

Typical activities during these trips include:

- Manta towing to assess COTS numbers and coral cover, aiding in prioritizing efforts.
- Reef Health Impact Surveys.
- Research activities such as triton collection, plankton tows, tissue sampling, and regular COTS collection for AIMS.
- COTS culling which involves injecting COTS with vinegar.

GBRMPA considers the program highly successful, noting significant improvements in COTS management across reefs managed by PMG, transitioning from ‘Severe Outbreak’ to ‘Potential’ and ‘No Outbreak’ statuses.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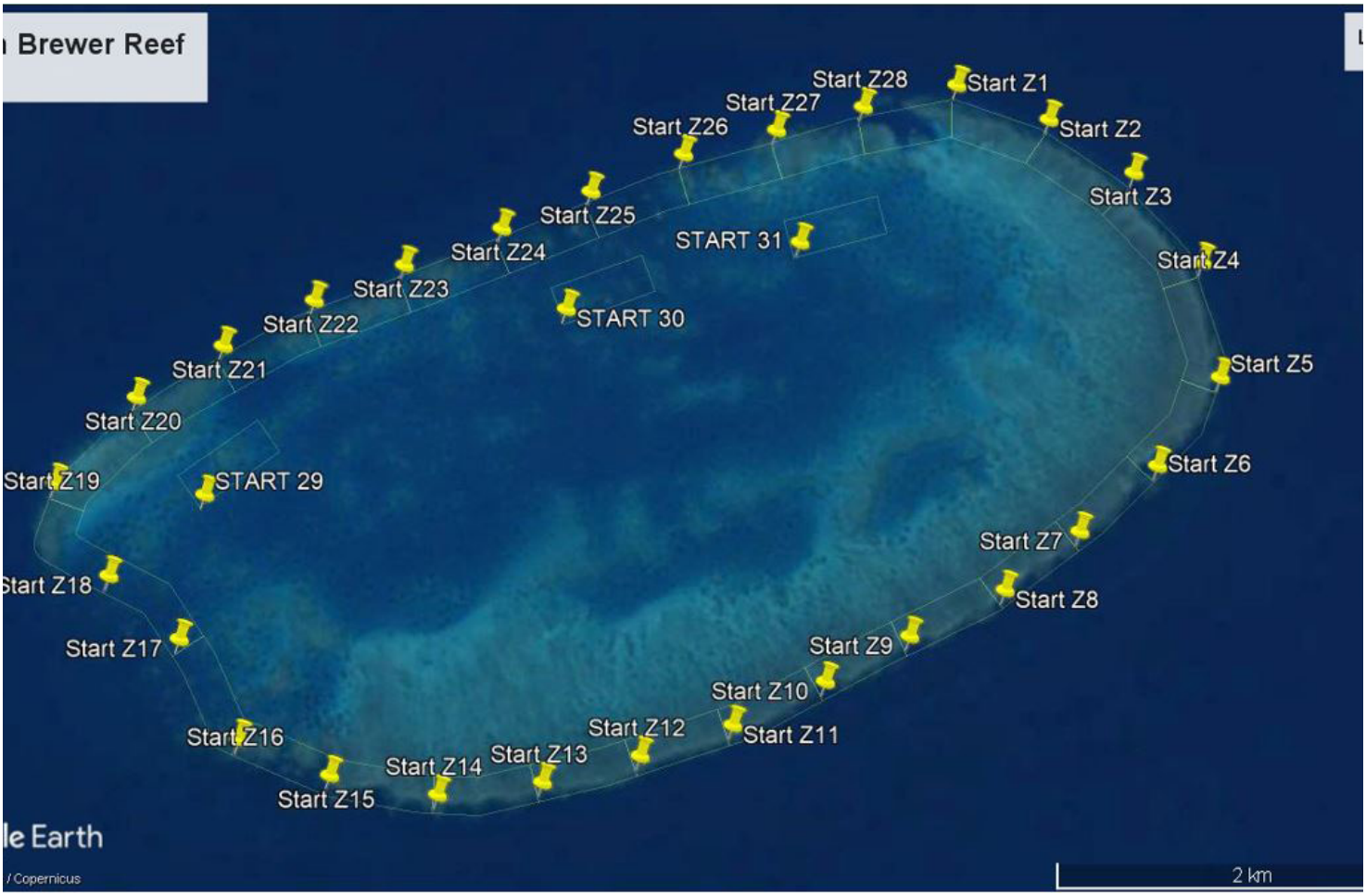

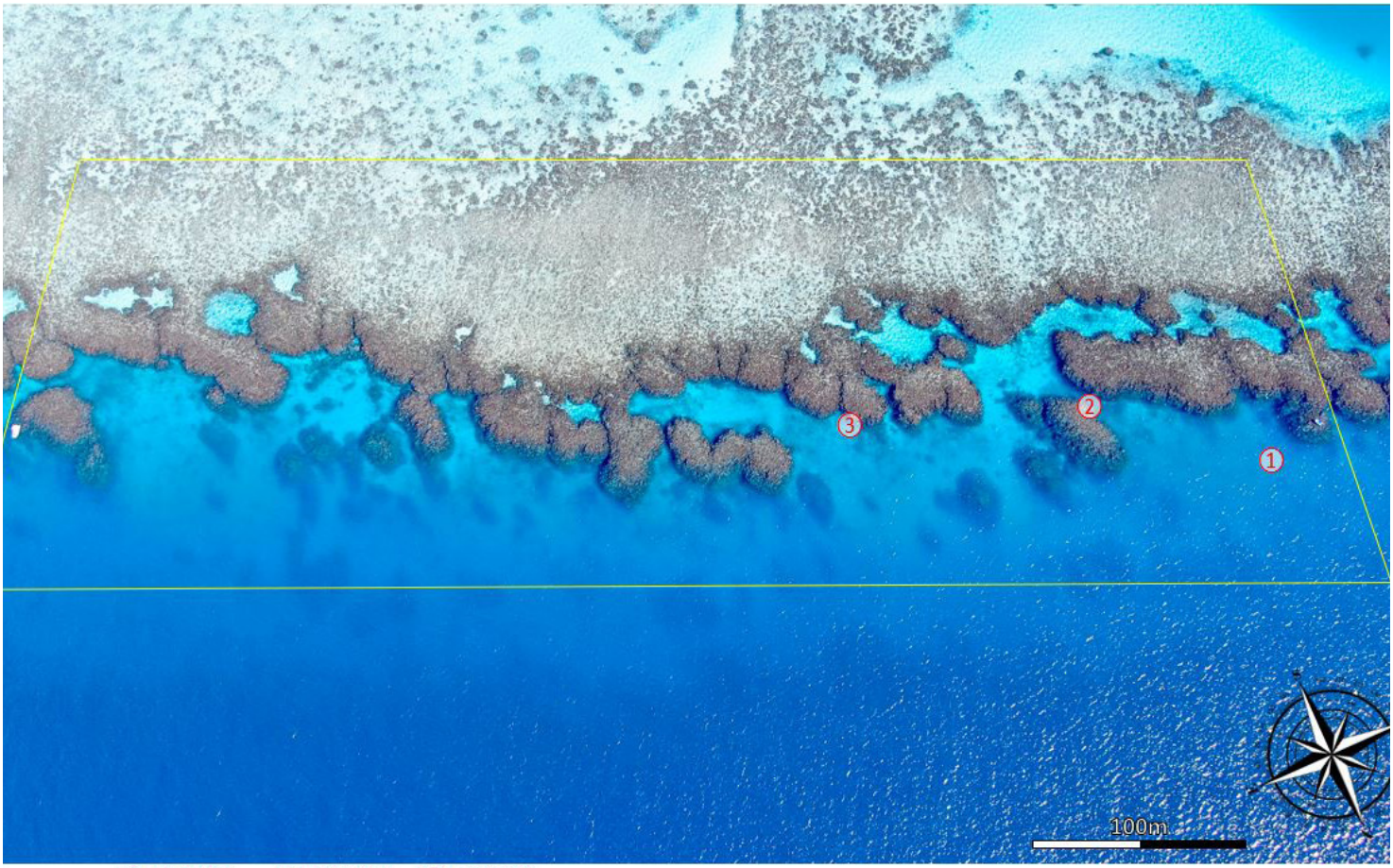

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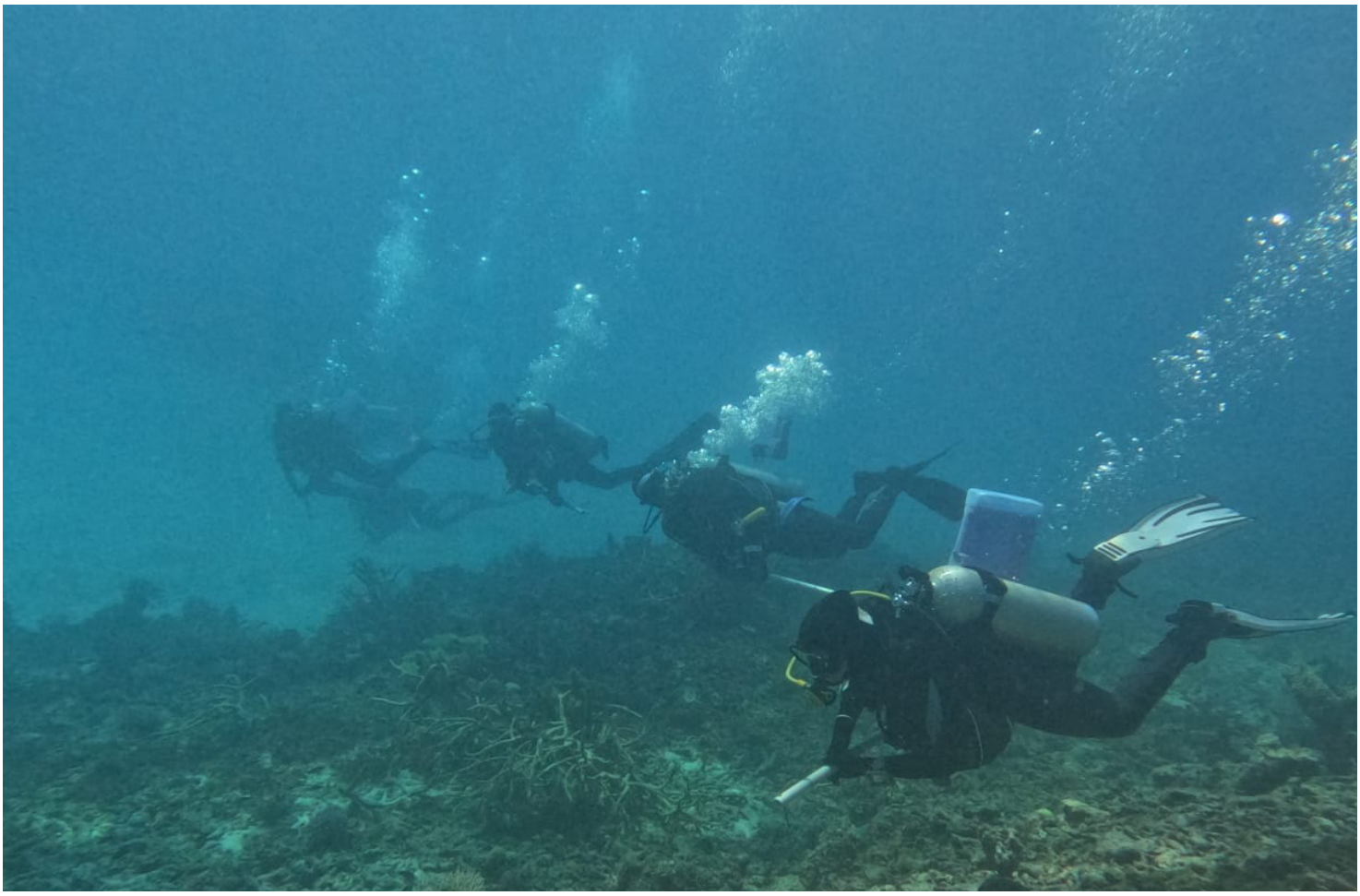


Team 2 Plan:
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