

Ningaloo

WAMSI Node 3

Are sanctuary zones at Ningaloo Marine Park assisting in the protection and recovery of rock lobster?

Researchers are investigating whether evidence exists for recovery of rock lobster populations in sanctuary zones of the Ningaloo Marine Park as a result of protection from fishing.

Background

Ningaloo Marine Park is a multiple-use marine protected area (MPA) with several different types of management zones, including sanctuary zones or 'no take areas'. The primary purpose of sanctuary zones in Western Australian MPAs is to conserve marine biodiversity in a relatively undisturbed environment free of destructive human activities. Secondary purposes include providing 'natural' study areas for non-destructive research, as reference areas to assess the impacts of human use in other parts of the MPA, for passive recreational and commercial uses and as refuges (or sanctuaries) to assist the management and recovery of exploited populations. As such, commercial and recreational fishing are prohibited in the sanctuary zones of the Ningaloo Marine Park.

Intensive recreational fishing for tropical and temperate species of rock lobster has occurred for the past fifty years along the length of the Ningaloo Reef. The Western Rock Lobster, *Panulirus cygnus*, a Western Australian temperate endemic lobster, was sufficiently abundant in the southern part of the Ningaloo Reef to support a single commercial fisher for approximately 30 years. The fishery ceased operations in the late 1980s citing a gradual decline in abundance over the previous decade.

This research project surveyed the abundance of temperate and tropical rock lobsters along the entire length of Ningaloo Marine Park to determine their current species distributions and abundances. The survey included sites inside and outside of both 'old' (established in



1991) and 'new' (established in 2005) sanctuary zones to assess whether the zoning has led to increased lobster abundances in these areas.

Field surveys

Field surveys were undertaken between 2006 and 2009 to examine the distribution and abundance of rock lobster species throughout the Park. This study found that:

- five species of rock lobster; four tropical and one temperate, are found in the Park however the geographic regions and habitat types varied for each species
- overall the number of lobsters for all species was low, however some areas in the Park had higher abundances
- the Western Rock Lobster, a temperate species, was most abundant in the southern half of Ningaloo Marine Park while several tropical species such as *P. versicolor* and *P. ornatus* were only found in the northern end of the Park. All lobster species were found in similar, coastal reef habitat
- relatively high abundances of Western Rock Lobster were found between Winderabandi and Coral Bay, including in the sanctuary zones that were established in 1991.

Outcomes

The spatial distribution of lobster species through Ningaloo Marine Park is further evidence of the combination of tropical influences from the north and temperate influences from the south which supports the unique species assemblages and distributions found within this reef system.

Overall, this project provides some evidence that marine reserve protection has benefitted these populations and has provided a vital baseline dataset that can be used for future comparisons in the long term monitoring program. However, the low numbers and restricted distributions of lobster in Ningaloo Marine Park suggest populations are not recovering from the historic depletions and may be at risk from further fishing. Further, populations such as the Western Rock Lobster are at the northern limit of their geographic range, placing them at further risk due to climate change.

Ongoing monitoring, specifically targeting suitable habitats within a select group of the more recently declared sanctuary zones, is required to determine the degree to which lobster populations will respond positively to protection by sanctuary zones.

Contact

Dr Russ Babcock

CSIRO Wealth from Oceans Flagship

Phone: +61 8 9333 6535 or +61 7 3833 5904

Email: russ.babcock@csiro.au



western australian
marine science institution

National Research
FLAGSHIPS
Wealth from Oceans



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