

Ningaloo

Sharks, rays and scientists

Researchers are working to document the composition of sharks and rays in the Ningaloo Marine Park (NMP) and examine the movement patterns, activity space and habitat use of selected species.

Background

Most sharks and rays are top-order predators and, as they have life-history characteristics that make them particularly vulnerable to human induced effects, they may be indicator species of a healthy ecosystem.

Managers of NMP are interested in knowing which species inhabit the marine park, whether the existing sanctuary zones effectively protect these species, and where and why certain species tend to aggregate.

Study techniques have incorporated:

- dive surveys (snorkel and scuba) carried out in the lagoon and at the reef edge during February, April and July, covering all major habitat types
- a network of acoustic listening stations moored on the seafloor to monitor the movements of selected shark and ray species tagged with acoustic transmitters
- satellite tags to track large predatory tiger and hammerhead sharks to find out whether they are resident or transitory visitors to the park
- longline fishing surveys conducted outside the reef to identify shark species that use the deeper waters.

Initial findings

- 47 species were found in the study, but it is expected that approximately 118 use the NMP
- the shark and ray fauna in the NMP is reasonably healthy and current zoning is protecting representative populations
- a new species of ray was identified that is probably endemic (found nowhere else) to Ningaloo Reef
- sanctuary zones appear to have higher abundances of common sharks and rays than the non-sanctuary zones
- some tiger sharks are only present in the NMP for brief periods and move as far away as Indonesia and Esperance
- shark aggregation sites were found for three species, all located within sanctuary zones
- the movement of some key species is relatively restricted, with little exchange between different regions within the NMP
- capture and post-capture mortality of sharks and rays from recreational fishing can be reduced through promoting correct handling and release procedures among recreational fishers



- some recreational fishers are still unaware of protective legislation covering species such as the green sawfish which has been documented in the park.

Continuing the study

Surveying sharks and rays can be problematic and time consuming. While this study provides advice on protocols, more work is needed to refine survey protocols and to improve the information on species diversity and abundance.

The acoustic array established in the NMP provides a valuable resource that can continue to be used to improve our understanding of species movement patterns and habitat use in the lagoons. However it will require ongoing support to take advantage of this resource and build upon the findings here.

Contact

Dr John Stevens

CSIRO Wealth from Oceans Flagship

Phone: (03) 6232 5353

Email: John.D.Stevens@csiro.au

Dr William White

CSIRO Wealth from Oceans Flagship

Phone: (03) 6232 5144

Email: William.White@csiro.au



western australian
marine science institution



Department of
Environment and
Conservation
Our environment, our future



Department of
Fisheries



Australian Government



AUSTRALIAN INSTITUTE
OF MARINE SCIENCE

National Research
FLAGSHIPS
Wealth from Oceans



Ningaloo research is an initiative of the Western Australian Marine Science Institution, CSIRO's Ningaloo Collaboration Cluster and the Australian Institute of Marine Science, working in partnership with government, local communities and enterprises.