A project to conserve dugongs in the Kimberley combines traditional knowledge and emerging technology.

by Dave Holley and Richard Meister

Although the dugong (*Dugong dugon*) is rarely seen, research has shown it is one of the most abundant marine mammals in the coastal waters of northern Australia. The notoriously shy mammal is seldom observed because it feeds almost exclusively on seagrasses, spending little time at the surface. Its grey-brown colouring also enables it to easily camouflage against the sandy ocean floor.

The dugong can be found in Western Australia's Shark Bay, across the coastal waters of the Kimberley, into the Northern Territory and Queensland. The Kimberley is thought to be home to a large population of dugongs but there is little scientific knowledge of the mammal or information on population sizes, distribution patterns and migratory corridors. A satellite tagging project in the waters off the Dampier Peninsula aims to unlock some of the secrets of this elusive animal.

The Department of Environment and Conservation (DEC) and the Bardi Jawi Rangers from the Dampier Peninsula are working together on the satellite tagging project. The partnership combines thousands of years of traditional knowledge with conventional science and emerging technology. The Kimberley dugong tagging project was born out of the success of previous satellite research work with DEC and the traditional owners of Shark Bay, the Yadgalah Corporation (see 'Tracking dugongs', *LANDSCOPE*, Spring 2002).

Improved technology

Studying the movements and behaviour of marine mammals such as the dugong can be a difficult task. However, advances in technology in the past decade have led to significant improvements in information collection and accuracy. Technology is constantly evolving and since the last major round of dugong tagging in Shark Bay, satellite tracking devices have been improved.

The new satellite trackers can more accurately record a dugong's position,

Working together for dugong conservation

Above Dugong with batfish.
Photo – Karen Willshaw/Oceanwide Images

Opposite page
Inset Dugong with calf.
Photo – Bob Halstead/Oceanwide Images
Left Grazing tracks in a seagrass bed.
Photo – Kelvin Aitken/Marine Themes

diving patterns and time spent in waters deeper than five metres when moving around. This level of accuracy is critical for understanding which areas dugongs are feeding in and their travelling routes between areas. Improvements in technology have also played a significant role in conducting successful research in the Kimberley where water depth is generally greater than around Shark Bay and where animals travel longer distances because of seasonal influences such as monsoonal conditions.

Pilot project provides confidence

A pilot research project was started in the Kimberley in 2007 to learn more about the dugong's travel and feeding patterns and to see if it was indeed possible to catch dugongs in deeper waters. The first round of tagging was a success with two dugongs caught and fitted with older-style transmitting devices, which were used to capture useful data on dugong distribution. This achievement led to a grant being awarded by the Australian Marine Mammal Centre in 2008 with financial support from oil and gas company Woodside.

In July 2009, the Bardi Jawi Rangers expanded the project south to Beagle Bay on the Dampier Peninsula, with assistance from the neighbouring Nyul Nyul traditional owners. This time, four animals were tagged with the new satellite devices and the results revealed more about travel patterns of the dugong. Three of the animals remained near Beagle Bay while the fourth ventured south towards Port Hedland, a journey of more than 500 kilometres.

Indigenous knowledge

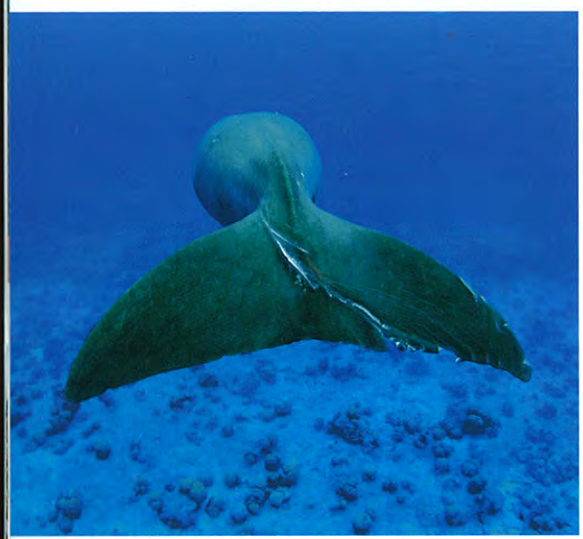
Using new technology, although important, forms only one component of dugong conservation research. The knowledge of the Bardi Jawi people provides another important element in the quest for information, as they have a strong cultural and traditional connection to the dugong as well as marine turtle species, such as the green turtle (*Chelonia mydas*).

Above Dugong grazing.
Photo – Kelvin Aitken/Marine Themes

Centre left Dugongs often carry scars from boat strikes or shark attacks.
Photo – Karen Willshaw/Oceanwide Images

Bottom Left Seagrass meadows near the Dampier Peninsula.
Photo – Glen Cowans

The Bardi Jawi Rangers are a local ranger group with the Kimberley Land Council (KLC). The KLC works as part of the North Australian Indigenous Land and Sea Management Alliance (NAILSMA), with the support of the Australian Government's *Working on Country* program, on projects which focus on practical Indigenous land and sea management to care for country. Expertise brought to the overarching NAILSMA Dugong and Marine Turtle Project by the Bardi Jawi Rangers has been vital to its success.



Data collected from ongoing research into the movements and behavioural patterns of dugongs and turtles will be used to establish management plans to ensure the long-term survival of these marine species. With good management and planning the rangers hope it will be possible to achieve a balance between sustaining dugong and turtle populations and meeting the cultural needs of their people.

The success of the collaborative partnership between the Bardi Jawi Rangers, KLC and DEC means the future of the dugong looks promising. The collection of data and improved understanding about this marine mammal will be used in the establishment of local community management practices as well as providing the knowledge necessary for ongoing conservation of this elusive species.

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For more information see Always part of us: The socioeconomics of Indigenous customary use and management of dugong and marine turtles—a view from Bardi and Jawi sea country, Western Australia.

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