Healthy sharks sustain healthy oceans

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Credit: University of Western Australia

A team from The University of Western Australia has completed a four month research expedition looking for signs of healthy coral reefs in the remote Kimberley. They observed an unexpectedly high number of sharks in the region, suggesting sharks play a key role in regulating the health of coral reefs.

The study also aimed to assess how marine reserves contributed to the protection of healthy shark populations and reefs.

Based onboard the motor yacht Pangaea, the researchers from the School of Biological Sciences and the UWA Oceans Institute used baited cameras to create video-based observations of reef sharks and fish to assess their abundance and behaviour.

They also took used catch-and-release fly fishing methods to sample fish, measuring their condition (fat/skinny) and taking tissue samples to determine their diet.

Over the duration of the expedition from Cairns to Broome, the team non-destructively collected biological data from over 600 fish from more than 60 species. The science team also deployed and coiled 63 kilometres of rope, lifted 12 tonnes worth of camera rigs and captured 29 terabytes of video imagery from more than 1000 sampling stations.

The team is excited by the discovery of a potential oceanic shark nursery off the Kimberley coast, where high numbers of individuals under 50 cm were observed and sampled.

The team will now commence processing the samples to understand how the presence of sharks contributes to the health of coral reefs. They also intend to assess how marine reserves contribute to the protection of healthy shark populations and reefs.

Program leader Professor Jessica Meeuwig said at a time when coral reefs were under significant pressure from overfishing and bleaching, determining how sharks contribute to reef resilience was critical.

"We are very grateful for the opportunity to conduct research in remote areas of Australia on Pangaea, which was part of a significant philanthropic gift to UWA in support of ocean conservation," Dr Meeuwig said.

The team has also extended its camera work to the 'big blue', using modified video systems to document the status of oceanic sharks and fishes, which are amongst some of the most threatened globally.

"With the governments of Western Australia and Australia expanding

protection from reefs into the open ocean, it is important to understand the status of these animals so that their response to the new protection can be determined," Professor Meeuwig said.

Expedition leader Dr Shanta Barley said the patchwork of protected and unprotected zones that comprised the Great Barrier Reef and other reef systems in Australia offered a unique natural experiment to answer questions around the role of these important and declining animals.

"The expedition builds on previous work with Pangaea in the British Indian Ocean Territory and Cocos (Keeling) Islands," Dr Barley said.

"By using the same methods across these regions we can understand Australia's reefs in the broader context of the Indian and western Pacific oceans."

Provided by University of Western Australia