Rear-guard action for the innocent grey nurse

The Grey Nurse Shark (photographed at Oceanworld, Manly) is dwindling on the eastern seaboard. Rob Harcourt.

Grey nurse sharks have been killed in their thousands over the past two centuries. Originally hunted for their liver oil and later mistakenly blamed for shark attacks at Sydney beaches, fewer than 500 now remain on the east coast of Australia. With numbers continuing to decline by an estimated 18 sharks per year, these critically endangered and slow-breeding animals face local extinction. Researchers at the Macquarie University have joined an escalating race to help save them.

Dr Adam Stow and Associate Professor Rob Harcourt have been working with grey nurse sharks for over five years. 'Finding out that we might lose these animals from the east coast really inspired me to start work in this area,' said Dr Stow. 'With a background in conservation and ecological genetics, when I found out that no work had been done to understand the dispersal patterns of these animals it seemed like a major knowledge gap.'

Dr Stow and Associate Professor Harcourt have been trying to understand the impacts that the small size of the grey nurse shark population will have on their recovery.

'Grey nurse sharks are apex predators that play a vital role in maintaining ecosystem balance by eating weaker and sick animals. It helps to prevent the spread of disease,' said Dr Stow. 'The impacts of losing this species would be quite far reaching.'

'When Dr Stow got involved we were already developing a population model that would help us predict the sharks' ability to survive,' added Harcourt. 'Adam's work helped to confirm a number of assumptions we were making and further refine its development.'

With help from South African colleague Victor Peddemors, Dr Stow developed a unique set of molecular markers that allowed the researchers to look at population dispersal patterns between the Australian east coast, west coast and South African populations. As a state-of-the-art forensic technique it yielded some interesting results. While the work is ongoing, it is already becoming apparent that there is limited, if any, migration between populations.

Armed with the information that the east coast population was essentially genetically isolated, Harcourt and his colleagues have been able to show that without significant intervention, the east coast grey nurse sharks may no longer have an effective breeding population in as little as 10 years.

'This timeframe presents major challenges for, the conservation of the species,' said Harcourt. 'We essentially have to eliminate mortality caused by humans now if the population is to recover. The protection currently provided for sharks isn't enough. We must address the fact that sharks continue to be killed, even if unintentionally, by fishing and beach netting.'

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The next step for the researchers is to compare Australian populations with those from the Americas, and then investigate individual dispersal and mating patterns within the east coast population. When combined with mark-recapture work and a possible visual identification system, this should give a much clearer picture of how individual sharks behave.

'We can then use this information to make further conservation recommendations,' Harcourt said.

'Grey nurse sharks really are the labradors of the sea, but you still come across people who see them as man-eaters,' said Dr Stow. 'We urgently need greater public awareness of the plight of these animals and the need to protect them. And of course we need more research to ensure that the recovery actions we do take are the correct ones. I look forward to the day when grey nurse sharks can be taken off the threatened species list and people recognise them for the harmless sharks that they are.'

● **Megan Kessler**

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