World-first discovery of hybrid sharks off Australia's east coast

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Hybrid black tip shark containing both Common and Australian black tip DNA.

(PhysOrg.com) -- Hybrid black tip shark containing both Common and Australian black tip DNA.

A group of leading marine scientists has discovered that sharks on Australia's east coast display a mysterious tendency to interbreed, challenging several accepted scientific theories regarding shark behaviour.

In a joint-UQ research project, scientists have discovered widespread

hybridisation in the wild between two shark species commonly caught in Australia's east coast shark fisheries.

The Australian black tip shark (*Carcharhinus tilstoni*) and the common black tip shark (*C. limbatus*) have overlapping distributions along the northern and eastern Australian coastline.

Using both genetic testing and body measurements, 57 hybrid animals were identified from five locations, spanning 2000km from northern NSW to far northern Queensland. Although closely related, the two species grow to different maximum sizes and are genetically distinct.

Dr Jennifer Ovenden, an expert in genetics of fisheries species and a member of the scientific team said this was the first discovery of sharks hybridising and it flagged a warning that other closely related shark and ray species around the world may be doing the same thing.

"Wild hybrids are usually hard to find, so detecting hybrids and their offspring is extraordinary," Dr Ovenden said.

"To find 57 hybrids along 2000km of coastline is unprecedented.

"Hybridisation could enable the sharks to adapt to environmental change as the smaller Australian black tip currently favours tropical waters in the north.

"While the larger common black tip is more abundant in sub-tropical and temperate waters along the south-eastern Australian coastline."

Scientists from The University of Queensland, James Cook University's Fishing and Fisheries Research Centre, the Queensland Department of Employment, Economic Development and Innovation and the New South Wales Department of Primary Industries are now investigating the

full extent of the hybrid zone and are attempting to measure hybrid fitness.

The research, co-funded by the Fisheries Research and Development Corporation, identified a mismatch between species identification using mitochondrial DNA sequence and species identification using morphological characters (length at sexual maturity, length at birth and number of vertebrae).

A nuclear DNA marker (inherited from both parents) was sequenced to confirm the hybrid status.

Dr Colin Simpfendorfer from James Cook University's Fishing and Fisheries Research Centre said black tip sharks were one of the most studied species in tropical Australia.

"The results of this research show that we still have a lot to learn about these important ocean predators," he said.

Provided by University of Queensland