Genetic study reveals vulnerability of northwest dolphins

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New study estimating population genetic structure of little-known dolphins inhabiting Western Australia's north coast highlights vulnerability, according to a study published in the open-access journal *PLOS ONE* by Alex Brown from Murdoch University and colleagues.

Australian snubfin and humpback dolphins occur throughout tropical coastal waters of northern Australia, but little is known of their abundance or life history characteristics because of their remote range. "Both snubfin and humpback dolphins are listed as 'near threatened' by the IUCN, but the lack of information about them has prevented a comprehensive assessment of their conservation status," Alex said. "The few studies conducted to date suggest that they occur in small populations that are dependent on the coastal environment and are, therefore, sensitive to coastal habitat modification." Large-scale industrial development is occurring across north-western Australia, resulting in modification to coastal habitats through dredging, construction and increased shipping. With so little data on coastal dolphins in this region, the potential impact of these developments remains unknown.

Using small tissue samples collected with a dart, the researchers compared the genetic characteristics of two populations of each species - snubfin dolphins from Roebuck Bay and Cygnet Bay in the Kimberley region and humpback dolphins from the North West Cape and the Dampier Archipelago in the Pilbara.

"Results showed that there wasn't much mixing between the populations," Alex said. "They are fairly isolated, with low levels of gene flow between populations separated by about 300 km of coastline".

"Existing as a series of small populations with limited gene flow, they are more vulnerable to environmental change and localised extinctions compared to a single, larger population," explained senior author Dr. Celine Frère of the University of the Sunshine Coast.

The researchers are urging management agencies to treat the dolphin populations as small, discrete fragments and to preserve corridors for individuals to travel between populations.

In another first, Alex documented the first recorded hybrid between a humpback and snubfin dolphin. "We were at first puzzled by this unusual looking dolphin," said Alex. Genetic analysis revealed it to be the offspring of a snubfin dolphin mother and humpback dolphin father. "It really highlights how little we know about these animals," he added.

More information: Brown AM, Kopps AM, Allen SJ, Bejder L, Littleford-Colquhoun B, et al. (2014) Population Differentiation and Hybridisation of Australian Snubfin (Orcaella heinsohni) and Indo-Pacific Humpback (Sousa chinensis) Dolphins in North-Western Australia. PLoS ONE 9(7): e101427. DOI: 10.1371/journal.pone.0101427

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