

Title: Recalcitrant behaviour of visiting Australian sea lions to Shark Bay

Authors: Abby Leyendekkers, Laetitia Wear-Jones, Jay Hayes, Tony Tucker, Holly Raudino, Kelly Waples, Emily Gosden, Simon Allen, Bob Prince, Sabrina Fossette, Simone Strydom,

Abstract (300 word limit): The protected waters of the Shark Bay World Heritage Area have been a safe-haven for abundant populations of threatened green turtles and the largest nesting site for loggerhead turtles in Western Australia, until recently. Reports from local fishermen, tour operators and residents of masses of turtle carcasses have become frequent, with concentrated groups of carcasses along Dirk Hartog Island. Upon investigation the carcasses all exhibited ventral throat lacerations and many with missing flippers, leading to predation theories from the obvious endemic species. The death count is over 40 and increasing.

Simultaneously, there has been observations of Australian sea lions (*Nephoca cinerea*) across the same spatial range as the carcasses, 250 km from the nearest colony at Houtman Abrolhos Islands. Sea lions make rare appearances in Shark Bay as it is separated from the nearest colony by a sheer cliff coastline of 150 km with few haul-out places for pinnipeds. Reports of vagrant sub-adult males increased speculation of their predation on turtles, which has seldom been observed worldwide.

With the hypothesis of sea lion predation unsubstantiated for over a year, finally some recorded observations of sea lions attacking turtles has been captured and attributed to more than one individual, however the motive for predation remains unknown. Turtle carcasses remain largely undigested and predation appears to be for amusement over nutritional value. Other reports from Greece, Hawaii, Chile and Turkey of pinniped predation on turtles appear to be in circumstances of reduced food resources. Is there a shortage of ordinary food resources further south? It is possible that with range expansion into Shark Bay, the occurrence of turtle predation events may increase. The need to understand the movement north and the motive of sea lions attacking green and loggerhead turtles will be necessary in managing all three threatened species into the future.