

A statement for the purposes of approved conservation advice  
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

### **Approved Conservation Advice for**

#### ***Dermochelys coriacea* (Leatherback Turtle)**

This Conservation Advice has been developed based on the best available information at the time this conservation advice was approved.

#### **Description**

*Dermochelys coriacea*, also known as the Leatherback Turtle, Leathery Turtle or Luth is the largest species of marine turtle, reaching on average around 1.6 m in length and 500 kg in weight. It is easily differentiated from other sea turtles by its leathery carapace and long front flippers. The species has a black dorsal surface, with longitudinal rows of small, fine dots and usually white or pale pink spots on its sides, and pinkish white colouring on its belly. The large limbs are without webbed or clawed feet and it moves across the beach by pushing all four flippers together. The Leatherback Turtle is unique amongst marine turtles in that it can use changes in blood flow to regulate its body temperature, maintaining its temperature in cold water and avoiding overheating in warm water.

#### **Conservation Status**

The Leatherback Turtle is eligible for listing as **endangered** under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The estimated total number of adult female Leatherback Turtles in the western Pacific region is limited (approximately 2800 nesting animals) and evidence suggests that the number will continue to decline. Given that the species is characterised by a life history that is long lived and slow breeding, and because of the ongoing threats to its survival operating in the region, this rate of population decline is considered to be high.

The conservation status of the Leatherback Turtle in Australian States and Territories is as follows:

<b>Jurisdiction</b>	<b>Status</b>	<b>Legislation</b>
Tasmania	vulnerable	<i>Threatened Species Protection Act 1995</i>
Victoria	critically endangered	<i>Advisory List of Threatened Vertebrate Fauna in Victoria 2003</i>
New South Wales	vulnerable	<i>Threatened Species Conservation Act 1995</i>
Queensland	endangered	<i>Nature Conservation Act 1992</i>
Western Australia	rare or likely to become extinct	<i>Wildlife Conservation Act 1950</i>
Northern Territory	vulnerable	<i>Territory Parks and Wildlife Conservation Act 2000</i>
South Australia	vulnerable	<i>National Parks and Wildlife Act 1972</i>

The Leatherback Turtle is included in the list of migratory species (s209) and the list of marine species (s248), under the EPBC Act. It is also included in Appendix I and II of the Convention on Migratory Species (CMS) and Appendix I of the Convention on International Trade in Endangered Species (CITES).

## **Distribution and Habitat**

This species has the widest distribution of any marine turtle. It is found in tropical to sub-polar oceans, from the North Sea and the Gulf of Alaska, to the southern Pacific and Atlantic Oceans. In Australia, the Leatherback Turtle has been recorded feeding in coastal waters offshore of all Australian States. There is no historical evidence of a large nesting population of Leatherback Turtles in Australia. Small numbers have been reported to nest occasionally along a short stretch of coast in central Queensland, northern New South Wales and the Northern Territory. No nests have been recorded in eastern Australia since 1996, and sightings of nests in Arnhem Land are irregular (Limpus & Chatto, 2004; Hamann et al. 2006). The majority of Leatherback Turtles in Australian waters are likely to be foraging migrants, from breeding populations in neighbouring countries (Limpus & McLachlan, 1990). Within the Australia-Pacific region, Leatherback Turtles nest in Indonesia, Papua New Guinea, the Solomon Islands, and Vanuatu; this is known as the western Pacific population of Leatherback Turtle (Dutton et al., 1999).

The habitat of the Leatherback Turtle is pelagic marine foraging areas, in tropical and in cool temperate waters, with some individuals reaching sub-polar oceans. Foraging occurs throughout the water column, from the surface layer to depths of several hundred metres. Nesting beaches are comprised of soft sand and have a shallow approach angle from the sea.

## **Threats**

The main identified threats to the Leatherback Turtle include incidental capture in commercial fisheries, harvest of eggs and meat, ingestion of marine debris, boat strike, predation on eggs by wild dogs (*Canis familiaris*), pigs (*Sus scrofa*) and monitor lizards (*Varanus salvator*), degradation of foraging areas and changes to breeding sites.

Possible impacts from climate change are likely to exacerbate current threats (Hamann et al., 2007). This includes increased air temperatures (above 30°C) which are likely to affect embryo development through alterations to sex ratios (in favour of females), phenotype, or through direct mortality. Sea level rise will impact nesting beach stability and foraging ground distribution and Leatherback Turtles may have to seek new nesting and foraging locations (Hamann et al., 2007).

## **Research Priorities**

Research priorities that would inform future priority actions include:

- International collaboration on sea turtle conservation.
- Improve the understanding of species biology, ecology and threats.
- Long-term monitoring at key index sites in Papua New Guinea, Indonesia, Solomon Islands and Vanuatu, in order to understand demographics, status and trends of the western Pacific Leatherback Turtle population.
- Investigate options for improving reporting of Leatherback Turtle interactions with commercial, recreational and indigenous fishes.
- Cooperative research activities between government agencies, scientific researchers and fishermen, including undertaking morphological measurements, satellite tagging and tracking of released post-capture turtles to help identify migration routes and origins of Leatherback Turtles within and outside Australian waters, genetic sampling for stock identification, and trialling fishing gear modifications that may reduce sea turtle take or mortality.

The following actions can be done to stop the decline or support the recovery of the *Dermochelys coriacea* (Leatherback Turtle).

### **Priority Actions**

The priority recovery and threat abatement actions required for the Leatherback Turtle are identified below:

#### Existing Plans/ Management Prescriptions that are Relevant to the Species

A *Recovery Plan for Marine Turtles in Australia (2003)* has been prepared by the Commonwealth Department of Environment, Heritage, Water and the Arts.

The Western and Central Pacific Fisheries Commission (WCPFC) is developing a database system to manage and facilitate access to information covering bycatch and bycatch mitigation. This initiative is at the early stages of development and aims to provide a relative estimate of the frequency of encounters in each of the WCPFC Fisheries (Williams, 2007).

The Indian Ocean – South-East Asian (IOSEA) Marine Turtle Memorandum of Understanding ([www.ioseaturtles.org](http://www.ioseaturtles.org)) puts in place a framework through which States of the Indian Ocean and South-East Asia region, as well as other concerned States, can work together to conserve and replenish depleted marine turtle populations for which they share responsibility. Australia has been a signatory of the IOSEA MoU since 2001. The Leatherback Turtle was recently the subject of a report by the IOSEA (Hamann, 2006).

Key management actions identified in the *Recovery Plan for Marine Turtles in Australia (2003)* relevant to the Leatherback Turtle include:

#### Habitat Loss, Disturbance and Modification

- Identify and protect migratory corridors between nesting beaches and common foraging areas to facilitate colonization.
- Investigate formal conservation arrangements, such as the development of conservation agreements and covenants with the fishing community.

#### Animal Predation

- Investigate options for working with communities in Indonesia, Papua New Guinea, the Solomon Islands and Vanuatu, to help control feral pig and feral dog populations near nesting sites.

#### Conservation Information

- Investigate options for raising awareness of the Leatherback Turtle within the local, Indigenous and fishing communities, and within communities living near nesting sites in Indonesia, Papua New Guinea, Solomon Islands and Vanuatu.
- Investigate options for community-based initiatives in local communities near nesting beaches, to increase hatchling production.
- Investigate options for community-based initiatives in local communities to address harvest issues in the western-Pacific region.
- Improve the quality and usefulness of sea turtle bycatch information by Australian fishermen, with additional training in the completion of specialist sea turtle log books.

- Consider the need for a fact sheet, information brochures, posters and/or videos to educate fishermen in turtle conservation awareness, appropriate release techniques, and procedures for recording sightings, in conjunction with known industry or community interest groups, such as:
  - The Australian Fisheries Management Authority
  - Department of Agriculture, Fisheries and Forestry
  - The Great Barrier Reef Marine Park Authority,
  - State Government Environment Agencies
  - Western and Central Pacific Fisheries Commission
  - Conservation groups, including WWF
  - Coastal indigenous people in the Northern Territory
  - Commercial and recreational fishers
  - Researchers
- Investigate options for increased observer programs on board commercial fishing vessels.

This list does not necessarily encompass all actions that may be of benefit to the Leatherback Turtle, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

#### **Information Sources:**

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Hamann M, Limpus C, and Read M. (2007). Vulnerability of Marine Reptiles in the Great Barrier Reef to Climate Change. In: Climate Change and the Great Barrier Reef: A Vulnerability Assessment.

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