

# Action Statement

Flora and Fauna Guarantee Act 1988

No. 250

## Leathery Turtle *Dermochelys coriacea*

### Description and distribution

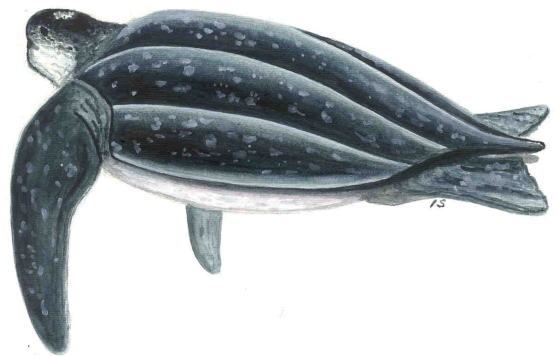
The Leathery Turtle (*Dermochelys coriacea*) is also known as the Leatherback, Luth or Trunkback. Its scientific name is an apt description of its unique black leathery/rubber-like carapace, being derived from the Greek *dermos* - 'skin' and *chelys* - 'turtle', and the Latin *corium* (*coriacea*) - 'leather'. The curved carapace is comprised of oil-saturated connective tissue which covers an almost continuous layer of small bones. The carapace has seven prominent longitudinal ridges tapering to a point at the rear.

The Leathery Turtle is the sole member in the family Dermochelyidae and does not have the familiar bony plate structure common to other marine turtles in the family Cheloniidae. It is the largest of marine turtles: most adults grow to 1.2 - 1.7 m (curved carapace length) and weigh 300 - 600 kg. The front flippers are long in proportion to the body (at least half the length of the carapace) and the limbs are clawless.

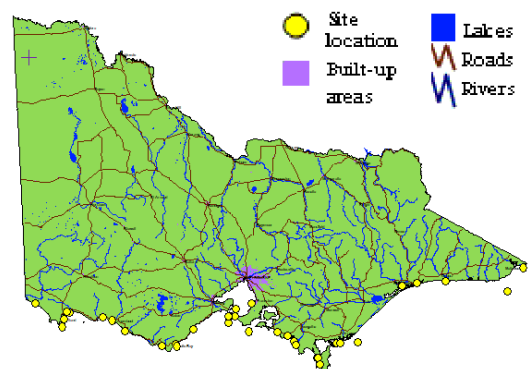
The Leathery Turtle has a worldwide distribution, and is found in tropical, temperate and sub-polar waters of sixty-five countries. In Australia, most sightings are from temperate waters (Cogger 2000). Sightings of adults have been recorded along most of the Victorian coastline, including Port Phillip Bay and Gippsland Lakes (DSE 2003, QPWS 2003), and generally occur during late summer and autumn (until May).

### Habitat

Adult Leathery Turtles are oceanic and are rarely found close to the shore in Australia. They follow warm water currents while migrating vast distances between their tropical nesting sites to the north of Australia and their temperate water feeding grounds to the south (where they are capable of inhabiting waters of 10 °C or possibly less). Their movement to temperate waters is



Leathery Turtle (*Dermochelys coriacea*)



Distribution in Victoria  
(Victorian Fauna Database DSE 2007)

A Victorian  
Government  
Project



generally associated with seasonal increases in sea surface temperatures (SSTs). In Victoria, most sightings occur between January and May when SSTs are 15 °C - 21 °C in northern Bass Strait. Nearly 50 % of Victorian records are from April and May.

Bass Strait is now considered to have one of the three largest concentrations of feeding Leatherly Turtles in Australia (the others being central and southern New South Wales and across the Great Australian Bight) (C. Limpus pers. comm.). Small juveniles (< 100 cm) are confined to tropical waters warmer than 26 °C and remain near the coastline (IUCN 2003). Although adult males never leave the water, females return to tropical nesting areas where they lay eggs on sandy beaches with open access to deep water.

### **Life history and ecology**

Leathery Turtles have inhabited the earth's oceans for more than 100 million years, and evolved more than 65 million years before the six extant species of marine turtles in the family Cheloniidae. On a global scale, Leathery Turtles have low genetic diversity. Within ocean basins, however, there are genetically discrete nesting populations (Dutton 1999).

Leathery Turtles have a life span of approximately 30 + years; age at reproductive maturity is estimated as 5 - 15 years. It is generally accepted that Leathery Turtles reproduce for approximately 22 years (IUCN 2003). Females return to the same tropical areas every 3 - 4 years to lay and bury eggs but, unlike many other marine turtle species, they do not necessarily return to exactly the same beach on each occasion (Dutton 1999). They lay 60 - 120 eggs in a batch, and may lay up to ten batches each nesting season. Uniquely, many of the eggs laid on top are yolkless, which may prevent the viable eggs from being smothered by sand. Egg mortality is high: they are lost to wave action, high sand temperatures and harvesting for food by humans. Hatchlings are vulnerable to predation from birds, crabs and fish while on the beach and in the water.

Leathery Turtles mainly feed on pelagic invertebrates: jellyfish are the most widely recorded food item. Leathery Turtles are capable of undertaking long migratory journeys, and may follow a straight course for hundreds or thousands of kilometres over open ocean. Slower wandering over a limited area is associated with feeding. For example, a leatherback tracked by satellite travelled 7000 km in 114 days off the east coast of Africa, swimming at an average speed of 3.2 km/hr and up to 6.0 km/hr. Dive duration was 4 - 10 min (Hughes *et al.* 1998).

Within the wider Pacific basin, major nesting areas are Mexico and the Central American coast of Costa Rica and Panama (Spotila *et al.* 1996). Most

Leathery Turtles visiting Australian waters are likely to originate from the island chain to the north of the Coral Sea (Limpus & McLachlan 1990). This island chain includes Java, the north coast of Papua New Guinea and Irian Jaya, where there can be hundreds of nests or more. Other low-density nest sites are scattered through the Solomon Islands, Fiji and in Australia along the coast of Arnhem Land.

The migratory movements of Leathery Turtles to and from Bass Strait are unknown. It is possible that they migrate south on the East Australian Current or east across the Great Australian Bight on the Leeuwin Current. Relatively large numbers of Leathery Turtles are known to pass through southern Queensland waters, particularly in December (Limpus & McLachlan 1979).

### **Conservation status**

#### **International conservation status**

The Leathery Turtle (*Dermochelys coriacea*) is listed as critically endangered under the World Conservation Union (2006) *IUCN Red List of Threatened Species* (IUCN 2006)

#### **National conservation status**

The Leathery Turtle (*Dermochelys coriacea*) is listed as vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

#### **Victorian conservation status**

The Leathery Turtle (*Dermochelys coriacea*) is listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2002).

The Leathery Turtle (*Dermochelys coriacea*) is considered critically endangered in Victoria according to the Department of Sustainability and Environment's *Advisory List of Threatened Vertebrate Fauna in Victoria - 2007* (DSE 2007).

### **Decline and threats**

Worldwide population estimates are based on the number of females nesting on 28 beaches throughout the world where Leathery Turtles are known to nest repeatedly. There has been a dramatic decline in population size, from 115 000 nesting females in 1980 to 34 500 in 1995 (Spotila *et al.* 1996, 2000). The most severe decline has been within the Pacific, where the nesting population has plummeted from 91 000 in 1980 to less than 5000 in 2002. The Pacific Leathery Turtle has shown a 95 % decline throughout its range in the last 22 years, and a number of leading research scientists consider Leathery Turtles to be in imminent danger of extinction (International Leatherback Survival Conference 2002). Within the last 25 years, there has been an extinction of nesting Leathery Turtles in eastern Australia; former nesting sites such as the Bundaberg area of

southern Queensland are no longer considered viable (C. Limpus pers. comm.).

According to the 2006 *IUCN Red List of Threatened Species* (IUCN 2006), the major threats to the Leathery Turtle across its range are harvesting, accidental destruction as by-catch and habitat pollution.

Major threats to the species in Australia are broadly associated with:

#### Nesting success in neighbouring countries

A number of large overseas nesting aggregations have declined due to egg harvesting for food and coastal developments that increase disturbance on nesting beaches and so threaten the viability of nesting populations.

#### By-catch from fishing

Threats to adult and sub-adult Leathery Turtles from entanglement and fisheries by-catch are reported throughout the world. The vast majority of records involve monofilament long-lines, lost pots, ropes, trawls and/or gillnet mesh (Laist 1997). The greatest risk for Leathery Turtles in Bass Strait appears to be entanglement in crayfish pot float lines. There are 42 recorded cases of this type of entanglement in Australia (Limpus & McLachlan 1979, Bone 1998, DSE 2003, QPWS 2003). There are 14 records of dead beach-washed specimens along the Victorian coastline. These were discovered in varying states of condition and it is possible that some deaths were human-related. With the species in such sharp decline, any loss is concerning. Estimates for population survival in the Western Pacific indicate that anthropogenic mortality from all causes should not exceed 18 adult females per year (Spotila *et al.* 2000).

#### Impacts from marine debris

Ocean currents and wind can accumulate floating litter along drift lines where turtles tend to feed. This is a threat to Leathery Turtles as they may ingest debris, particularly plastic bags which could be mistaken for jellyfish or other prey. Plastics account for a high proportion of marine litter, and the proportion and relative abundance of debris clearly attributable to shipping and off-shore fishing increases as the distance from population centres increases. The highest density of litter in Victoria occurs in waters west of Wilsons Promontory (Gregory & Ryan 1997).

#### Marine noise

Precise impacts from marine noise are unknown, but an alarm response (increased swimming behaviour) in marine turtles has been recorded in response to marine seismic surveys using air gun pulses at least two kilometres away (McCauley *et al.* 2000).

## **Existing conservation measures**

### **International Arrangements**

- **United Nations Convention on the Law of the Sea** is an international treaty signed in 1982. Its objectives include protecting and preserving of the marine environment. This Convention is principally related to fisheries, and the United Nations General Assembly Resolution 49/118 called upon States (sovereign nations) to consider the effects on associated or dependent species when establishing conservation and management measures for target fisheries. As a result of this resolution, the United Nations Food and Agriculture Organisation developed a *Code of Conduct for Responsible Fisheries* to address fisheries by-catch in 1995.
- **Convention on International Trade in Endangered Species (CITES)** is an international agreement established in 1975 between member governments the World Conservation Union (IUCN). CITES now has 167 member countries and controls the global trade in endangered species. The Leathery Turtle is listed in *Appendix I - Species threatened with extinction*.
- **Convention for the Conservation of Migratory Species of Wild Animals (CMS)** was established in 1979 under the United Nations Environment Program to protect migratory species. Eighty-eight member member-countries are party to the convention. Leathery Turtles are listed in *Appendix I - Endangered migratory species*.
- **International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)** was established in 1973 and has 119 signatory countries accounting for 95 % of the world's shipping tonnage. Annex V regulates pollution by dumping of garbage from ships. The annex was extended in 1988 to include banning the dumping of plastic products.
- **Convention on Biological Diversity** was established in 1992 under the United Nations Environment Program at the Rio Earth Summit and has been signed by 150 government leaders aiming to conserve biological diversity, ensure sustainable use of its components, and have fair and equitable sharing of benefits from commercial and other utilisation.

### **National Arrangements**

- *Recovery Plan for Marine Turtles in Australia* (EA 2003) was prepared by the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999* with recovery team membership from states and territories. The overall objective is to reduce detrimental impacts on Australian populations of marine turtles by implementing of prescribed actions in state, territory and Commonwealth waters.

- *National Policy on Fisheries By-Catch* (AFFA 1999) was released after agreement by all Australian governments to develop by-catch policy to address by-catch in all fisheries. By-catch arrangements are being incorporated into Fishery Management Plans for each Victorian managed fishery. The Commonwealth Government subsequently released the *Commonwealth Policy on Fisheries By-Catch* which applies to and requires the development of By-Catch Action Plans for all Commonwealth managed fisheries.

#### Victorian Arrangements

- Sightings and strandings are recorded in the Atlas of Victorian Wildlife.
- DSE participates in national approaches to conserve the Leathery Turtle, such as the National Turtle Recovery Group (NTRG).
- The *National Policy on Fisheries By-Catch* is being implemented.

## Conservation objectives

### Long term objective

To ensure that the Leathery Turtle can survive, flourish and retain its potential for evolutionary development in the wild.

### Objectives of this Action Statement

1. Minimise human impacts on the Leathery Turtle.
2. Support national and international approaches to recover the Leathery Turtle.

### Intended management actions

*The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation (ABC) system. Detailed information about the actions and locations, including priorities, is held in this system and will be provided annually to land managers and other authorities.*

#### Objective I Minimise human impacts on the Leathery Turtle.

Action	Targets	Responsible
1. Prepare a response protocol for field use in entanglements within the broader emergency management framework applied by DSE.	<ul style="list-style-type: none"> <li>▪ Protocol prepared and circulated to relevant agencies.</li> </ul>	DSE
2. Prepare guidelines to assist monitoring and field recording of live or dead specimens in relation to strandings and entanglements.	<ul style="list-style-type: none"> <li>▪ Guidelines prepared and circulated to relevant agencies.</li> </ul>	DSE
3. Determine extent of, and circumstances surrounding, interactions between commercial fishers and Leathery Turtles in Victorian territorial waters.	<ul style="list-style-type: none"> <li>▪ Improved understanding of interactions with commercial fishers.</li> </ul>	Department of Primary Industries (DPI), DSE
4. Review and modify fishing practices to reduce by-catch if significant levels of by-catch are reliably detected.	<ul style="list-style-type: none"> <li>▪ Modified practices implemented where required.</li> <li>▪ Rates of by-catch reduced.</li> </ul>	DPI, DSE
5. Prepare and disseminate community education material regarding conservation of the Leathery Turtle to marine anglers and encourage them to report sightings.	<ul style="list-style-type: none"> <li>▪ Material prepared and disseminated to marine anglers.</li> </ul>	DSE, DPI

#### Objective II Support national and international approaches to recover the Leathery Turtle.

Action	Targets	Responsible
6. Participate in national approaches to	<ul style="list-style-type: none"> <li>▪ Participation in NTRG and contribution to</li> </ul>	DSE

conserve the Leathery Turtle, such as the National Turtle Recovery Group (NTRG).

implementation and review of National Recovery Plan for Marine Turtles.

7. Support the Australian Government's participation in international forums in pursuit of global recovery and sustainable use of the Leathery Turtle. ■ Timely and effective support provided as required. DSE

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