Australia

GENERAL INFORMATION

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Australian Government Department of Sustainability, Environment, Water, Population and Communities

Other agencies, institutions, or NGOs that have provided input:

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Department of Conservation and Land Management - Western Australia
Department of Fisheries - Western Australia
Great Barrier Reef Marine Park Authority
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OBJECTIVE I. REDUCE DIRECT AND INDIRECT CAUSES OF MARINE TURTLE MORTALITY

1.1 Introduction to marine turtle populations and habitats, challenges and conservation efforts. [INF]

Australia has a federal system of government made up of the Australian government, six States - Western Australia, South Australia, Victoria, Tasmania, New South Wales, Queensland and three Territories - the Australian Capital Territory, the Northern Territory, and Norfolk Island.

Australian non-coastal Waters

Coral Sea Reserves, including all land above sea level in the Coringa-Herald National Nature Reserve (and all waters within a 20km radius of that land) and all land above sea level in the Lihou Reef National Nature Reserve (and all

waters within a 20km radius of that land); Ashmore Reef National Nature Reserve and Cartier Island Marine Protected Area (including West Island); Field Island, Kakadu National Park (and all water within a 20km radius); Cocos (Keeling) Islands (including North Keeling Island/Pulu Keeling National Park).

Western Australia (WA)

Waters from the Northern Territory (NT) border to lower west coast of WA; waters of Shark Bay Marine Park/World Heritage Area; Steep Point; Dirk Hartog Island; Gnarloo Station coastline; Ningaloo Station coastline; Ningaloo Marine Park; Jurabi Coastal Park; Muiron Islands; Muiron Islands Marine Management Area; Exmouth Gulf (outside Ningaloo Marine Park and Muiron Islands Marine Management Area), including islands; Barrow Island; Barrow Island Marine Park; Barrow Island Marine Management Area; Montebello Islands; Montebello Islands Marine Park; Lowendal Islands including Varanus Island; Serrurier Island; Thevenard Island; Islands between Dampier and Exmouth Gulf, Dampier Archipelago including Rosemary Island, and surrounding waters (proposed marine conservation reserve); Bell's Beach, near Wickham, Mundabullangana Station coastline; Cemetery Beach & Pretty Pool Beach, Port Hedland; Eighty-mile Beach; Lacepede Islands; Kimberley Islands including Troughton, Helpman, Browse and Cassini Islands; Cape Domett.

Queensland (Outside the Great Barrier Reef World Heritage Area)

Wellesley Group of Islands (Bountiful Island, Pisonia Island); Murray Islands, Darnley Island and Bramble Cay; Sassie Island; Deliverance Island; Crab Island; Moreton Bay; Hawksbury Island; Northwestern Cape York Peninsula; Red Wallis and Woody Wallis; Johnson Islet and Prince of Wales Island Wongai Beach. Mon Repos; Wonngarra Coast Beaches; Hervey Bay.

Great Barrier Reef World Heritage Area

Raine Island Nature Refuge, (Raine Island, Moulter Cay, Maclennan Cay); Sandbanks No7 and 8; Milman Islet and Boydong Island; Rabbit and Newry Islands, Outer Newry Island; Farmer Island; Sinclair Island; Russell Island; Douglas Island; Bell Cay; Avoid Island; Wild Duck Island; Shoalwater Bay; Curtis and Facing Islands; Peak Island; Capricorn and Bunker Group of Islands (Northwest Island, Hoskyn Island, Heron Island, Tryon Island, Wreck Island, Erskine Island, Lady Elliott Islands); Wreck Rock; Coastal beaches from the Elliot River to Wreck Rock and all waters within a 20km radius; Swains Reef Cays; Bird Island; Howick Group North to Corbett Reef; Crocodile Cay; Hydrographers Passage to Swains Reef; Coastal waters from Tully to Gladstone; (which includes but is not limited to Cleveland Bay; Edgecumbe Bay; Upstart Bay; Lucinda).

Northern Territory

Groote Eylandt; Vernon Islands; Tiwi Islands; Sir Edward Pellew Islands; East Arnhem Coast (Nhulunbuy to northern Blue Mud Bay); Wessel & English Company Islands; Coburg Peninsula; Fog Bay; Western Top End Coastline WA border to Fog Bay.

1.2.1 Describe any protocol or approaches practiced in your country, which you consider exemplary, for minimising threats to marine turtle populations and their habitats, which may be suitable for adaptation and adoption elsewhere. [BPR]

National

All six marine turtle species in Australia are listed as threatened and migratory under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and are therefore protected. It is an offence to recklessly kill, injure, take, trade, keep or move these species in a Commonwealth area, unless the person taking the action holds a permit under the EPBC Act or the activity is carried out in accordance with a State/Territory or Australian Government fishery plan of management accredited by the Minister for the Environment and Water Resources or under the Native Title Act (1993).

The Recovery Plan for Marine Turtles in Australia outlines the protocols and approaches used to conserve and manage marine turtle populations in Australia and may be suitable for adaptation and adoption elsewhere in the region. It focuses on assessing the causes of mortality and identifying ways to address it. The Plan seeks to engage Aboriginal and Torres Strait Islander people in the national recovery and management of marine turtles and to restore and maintain marine turtle populations at levels that ensure the conservation and protection of turtles, as well as facilitating sustainable Indigenous subsistence harvest of turtles and eggs. For a copy of the Recovery Plan see: http://www.environment.gov.au/coasts/publications/turtle-recovery/pubs/marine-turtles.pdf.

The Recovery Plan is currently being revised and is expected to be completed in 2008. The National Turtle Recovery Group advises and assists the Australian Government on the implementation and evaluation of the Recovery Plan. The Group also identifies priority actions for funding.

The National Partnership Approach for the Sustainable Harvest of Turtle and Dugong (the Partnership) is an initiative of

the Natural Resource Management Ministerial Council (NRMMC) to form a partnership between the Australian, Western Australian, Northern Territory and Queensland Governments, the Torres Strait Regional Authority and relevant Aboriginal and Torres Strait Islander communities. The key objective of the Partnership is to inform policy and programme development and implementation by Australian governments based on an understanding of the experiences and aspirations of Indigenous communities in relation to management of the sustainable harvest of turtle and dugong. The Partnership operates though a series of meetings that are held in Indigenous communities or regions. Key Government and Indigenous stakeholders are invited to discuss the issues of sustainable harvest.

Marine debris has been identified as a key threat to marine turtles. A Threat Abatement Plan for the Key Threatening Process of harmful marine debris is expected to be completed in 2007 following release for public comment. The Plan will identify ways to address the issue of marine debris in Australia. The Plan is

The majority of projects for marine turtle conservation and management are funded by the Australian Government through the Natural Heritage Trust (NHT), which was set up in 1997 to help restore and conserve Australia's environment and natural resources. The NHT provides funding for environmental activities at a community level (through the Australian Government Envirofund), regional level or National/State level.

The Australian Government is currently funding a number of projects that involve Traditional Owners in on-ground works for turtle recovery. Projects include:
* A$4.6 million to assist Traditional Owners in Northern Australia develop community-driven approaches to turtle and dugong management, which is based on Indigenous customary values. The Dugong and Marine Turtle Management Project is administered by the North Australian Indigenous Land and Sea Management Alliance (NAILSMA) and involves five regions in Northern Australia. The project seeks to gain an understanding of Indigenous harvest as well as providing information on other causes of mortality such as boat strikes, gill nets, marine debris, poaching, and pollution. The project will also improve wider community's understanding of the rights, roles, responsibilities and achievements of Indigenous people in managing turtles and their habitats. The 4-year project runs from 2004-2008.
* A$2.0 million (with matched in-kind State/Northern Territory Government and industry support) to develop a community based clean-up and monitoring programme aimed at finding solutions to the ghost net problem on the western coast of Cape York, Gulf of Carpentaria and Arnhem Land. A component of this project aims to find ways to recycle discarded fishing nets locally and internationally. Partners in the projects include regional resource management groups, Indigenous communities, the fishing industry and conservation groups. The project is receiving additional practical assistance from research organizations, and from Australian and Provincial government agencies. On Western Cape York, Queensland, ghost nets are being removed from nesting beaches.

Other activities currently being funded by the Australian Government include:
* Funding has been provided through the Commonwealth Environment Research Facility for a research project run by James Cook University to provide information on how to better manage marine turtles (and dugongs). The project will address threats, such as sand loss, disturbance at nesting sites and climate change on marine turtle rookeries in north Queensland and specifically, will examine hatchling production, juvenile recruitment and will look at the causes, rates and patterns of sand lost from green turtle rookeries of international significance in the northern Great Barrier Reef. The project runs from 2006 to 2010.
* A project to satellite tag marine turtles caught in long lining operations off eastern Australia to provide information on the pelagic stage of the life cycle, engage fishers in turtle conservation and investigate the impact on turtles of being caught in longline fishing operations. Currently three turtles have been tagged, with a total of eight tags to be attached during 2007.
* A project to measure sand temperatures on key index nesting beaches across all known genetic stocks and the geographic range of marine turtles in Australia. The data will provide a basis for monitoring the impacts of changes in sand temperatures caused by climate change. Up to 100 data loggers will be distributed across approximately 50 beaches in Western Australia, Northern Territory and Queensland. The data loggers are being deployed during 2007 and the information will be downloaded annually for a 5-year period.
* A project to conduct DNA analysis of genetic samples stored around Australia by the University of Canberra. The project will address specific management issues regarding population boundaries for olive ridley, hawksbill, flatback and leatherback turtles through the use of genetic markers (mtDNA sequencing). This includes analysis of harvested samples across northern Australia to estimate the impact on source populations. This project will conclude at the end of 2007.

The Australian Government is also currently funding the following international projects:
* Engagement with Papua New Guinea on Torres Strait Natural Resource Management issues, including the sustainable take of turtle (and dugong) in Daru, Western Province.
* Assisting with the conservation of endangered marine turtles in Fiji, Tuvalu and Vanuatu. Specific objectives of the project are to: initiate the collection of baseline marine turtle data in order to determine long term trends; to assist in identifying nesting beaches, documenting numbers of turtles, determining current harvest and other threats, and determining and mapping feeding areas; and to implement capacity building of local monitors and researchers to continue to carry out the turtle conservation activities after the project is completed. The activities are being coordinated by the Institute of Marine Resources of The University of South Pacific, working closely with local partners.
* Funding was provided to the Pacific Regional Environment Programme (SPREP) for capacity building for Pacific Island people involved in turtle and dugong management. Activities may include funding Pacific Islander participation in dugong research in Australia, visiting and learning from marine turtle ecotourism ventures run by Indigenous

communities and training in marine turtle nesting tagging and monitoring. These activities will be conducted in upcoming years.

Western Australia

In Western Australia, all six marine turtle species are protected and may not be taken without a licence issued under the provisions of the Wildlife Conservation Act 1950.

Western Australia is currently developing a marine turtle recovery and management plan for six species of marine turtle, including the establishment of a marine turtle management team, and a series of actions to halt the decline of turtle populations and manage the threats to these species.

Management strategies for marine turtles have been included in the Ningaloo Marine Park and Muiron Islands Marine Management Area, Shark Bay Marine Park, Montebello/Barrow Islands marine conservation reserves Management Plans and the indicative management plan for the proposed Dampier Archipelago marine conservation reserves.

A standardised nesting monitoring protocol has been developed and has been implemented along the Ningaloo coast, at Cemetery and Pretty Pool Beaches in Port Hedland, and at Bell's Beach, near Wickham. A turtle tour guide accreditation course has been developed and implemented at Exmouth and the Jurabi Turtle Centre.

The Jurabi Turtle Centre, near Exmouth, is in its third year of operation. The centre has educational displays and volunteers give talks each evening during the nesting season. The WA government has also earmarked $1 million to establish a turtle interpretive centre in Port Hedland over the next two years.

Northern Territory

In Northern Territory waters, marine turtles are protected under the Parks and Wildlife Act which is managed by the Northern Territory Department of Natural Resources, Environment and the Arts.

Activities in the Northern Territory for marine turtle conservation and management include:
* Monitoring at a number of nesting sites in the Northern Territory including monitoring by Indigenous rangers on the Tiwi Islands, Groote Eylandt and Sir Edward Pellew Group of Islands.
* A community monitoring and education programme, with flatback hatchlings released on a local Darwin beach.
* Reduction of feral dogs from beaches of the Tiwi islands and some areas of north-east Arnhem Land to increase the success of olive ridley nesting.
In 2006, NRETA (Marine Biodiversity Group) took over co-ordination of the debris program (and the National Marine Debris Database) from WWF-Australia, who remains an advisory partner. The marine debris monitoring program in the NT was initiated by the WWF in 2000, in response to the concerns of coastal Indigenous communities, land councils, government agencies, conservation organisations and the fishing industry. The project has received funding through the Natural Heritage Trust and continues to be a community based, collaboration between Indigenous people, community groups, sea rangers and scientists.

The Dhimurru Land Management Aboriginal Corporation in North-east Arnhem Land has been involved in a collaborative marine turtle research, monitoring and management program with the Key Centre for Tropical Wildlife Management-Charles Darwin University and the Northern Territory Government over the past 10 years. Dhimurru Land Management Aboriginal Corporation now employs 16 Indigenous Marine Rangers. Their tasks include marine turtle rescues, marine debris surveys and clean-up.

Queensland

Protection for the major sea grass pastures was declared in the Great Barrier Reef World Heritage Area, Hervey Bay and Moreton Bay areas in 2004. Measures such as go-slow boating zones and restrictions on fishing operations in certain areas have been implemented.

The Queensland Parks and Wildlife Service has conducted 37 years of large scale tagging on nesting beaches and foraging populations. They have also coordinated the exchange of tagging data, including information on tag returns. For the past 5 years the Great Barrier Reef Marine Park Authority has jointly funded monitoring at key nesting and foraging locations.

An extensive ghost-net removal program is being undertaken on north western Cape York to mitigate incidental bycatch of nesting and foraging turtles amongst other marine wildlife.

Within the Great Barrier Reef Marine Park the first Traditional Use of Marine Resources Agreement (TUMRA) between Girringun Traditional Owners and GBRMPA was accredited in December 2005. The Woppaburra Traditional Owners are also currently progressing the development of a TUMRA. A TUMRA sets out ways traditional harvest activities will be managed by Traditional Owner groups. Sustainable hunting management plans are also being developed for other communities hunting turtles in Queensland.

The Queensland Trust for Nature, a not-for-profit fund has recently been established. The Trust purchases properties with high conservation values, ensures perpetual conservation of the land and resells the land, returning proceeds back to the Trust Fund. Properties purchased have important marine turtle nesting sites.

1.3.1 Describe any socio-economic studies or activities that have been conducted among communities that interact with marine turtles and their habitats. [BPR, INF]

The Australian Government has allocated funding to assist Traditional Owners in Northern Australia develop community-driven approaches to turtle and dugong management (see details in Section 1.2.1). One component of the project is a study of socio-economic factors impacting levels of traditional harvest. This study will be completed at the end of 2007.

The Australian Government has also funded a community based clean-up and monitoring program aimed at finding solutions to the marine debris problem on the western coast of Cape York, Gulf of Carpentaria and Arnhem Land (see details in Section 1.2.1). Marine debris has socio-economic impacts on many Aboriginal and Torres Strait Islander peoples who rely on marine turtles for subsistence.

1.3.2 Which of these adverse economic incentives are underlying threats to marine turtles in your country? [TSH]

- ☐ High prices earned from turtle products relative to other commodities
- ■ **Lack of affordable alternatives to turtle products**
- ■ **Ease of access to the turtle resource (eg. by virtue of proximity or ease of land / water access)**
- ☐ Low cost of land near nesting beaches
- ■ **Low penalties against illegal harvesting**
- ☐ Other1:
- ☐ Other2:
- ☐ Other3:
- ☐ None of the above or Not Applicable

Notes:
Lack of affordable alternatives: Some remote Aboriginal and Torres Strait Islander communities rely on marine turtle meat and eggs for subsistence because of the high costs of store-bought goods such as meat.

Ease of access to the turtle resource (eg. by virtue of proximity or ease of land/water access): Many Aboriginal and all Torres Strait Islander communities are located in areas where turtles are abundant. In particular, some Torres Strait Islander communities are situated on or near islands that support significant turtle nesting populations.

Low penalties: Enforcement and compliance of any domestic illegal harvesting is very difficult in most remote regions in Australia. This is particularly problematic for Illegal, Unregulated and Unreported (IUU) take of marine turtles and eggs in Australian territorial waters by foreign illegal fishers.

1.3.3 Has your country has taken any measures to try to correct these adverse economic incentives? [BPR]

■ YES ☐ NO ☐ NOT APPLICABLE (no adverse economic incentives exist)

The Australian Government has recently established a Partnership Approach between governments and Indigenous communities to identify ways that marine turtles can be sustainably managed and harvested by communities. The Partnership will provide advice to Australian governments on actions needed to ensure that the economic issues related to the sustainable harvest of turtles are adequately addressed.

The Australian Government has also provided funding to directly assist Traditional Owners, through the North Australian Indigenous Land and Sea Management Alliance (NAILSMA), to develop community based approaches to managing marine turtle harvest more sustainably. Eight communities are currently participating in this project in the Torres Strait and Northern Peninsula Area of Cape York.

Section 4.2 describes additional projects to address alternative livelihood opportunities.

1.4.1 Indicate, and describe in more detail, the main fisheries occurring in the waters of your country, as well as any high seas fisheries in which flag vessels of your country participate, that could possibly interact with marine turtles. [INF]

a) Shrimp trawls: ■ YES ☐ NO

Australian government managed commercial fisheries that are known to or potentially could interact with marine turtles[1] include:
* Northern Prawn trawl - located off Australia's northern coast, and extends from the low water mark to the outer edge of the Australian fishing zone in the area between Cape York in Queensland and Cape Londonderry in Western Australia.
* Torres Strait Prawn trawl - located in the eastern section of the Torres Strait Protected Zone.
* Trawl sector of the Coral Sea Fishery[2] including waters from Sandy Cape, Fraser Island to Cape York, generally east of the outer boundary of the Great Barrier Reef Marine Park to the edge of the Australian Fishing Zone, excluding the area of the Coringa-Herald and Lihou Reef National Nature Reserves.
* Western Trawl Fisheries - north west and western deepwaters to the outer edge of the Australian fishing zone.
* Southern and Eastern Scalefish and Shark Fishery - extends from near Fraser Island in Queensland to Cape Leeuwin in south west Western Australia.

State-managed trawl fisheries that are known to or potentially could have interactions with marine turtles include:
* Queensland East Coast Otter Trawl
* Queensland Gulf of Carpentaria Developmental Finfish Trawl
* Queensland River and Inshore Beam Trawl
* Queensland Stout Whiting Trawl
* NSW Ocean Trawl
* NSW Estuary Prawn Trawl
* South Australian Prawn Trawl
* Northern Territory Finfish Trawl
* Western Australian Shark Bay Prawn
* Western Australian Exmouth Gulf Prawn
* Western Australian Onslow and Nickol Bay Prawn
* Western Australian Kimberly Prawn
* Western Australian Pilbara Trawl
* Western Australian Abrolhos Islands and Mid West Trawl

1. Some of the mentioned fisheries in this list have not had any recorded interactions with marine turtles, however, as they operate in the area of marine turtles, interactions are possible. e.g. no reported interactions with turtles have occurred in the QLD River and Inshore Beam Trawl, however interactions are possible.
2. This fishery includes a broad range of species including finfish, sea cucumbers, aquarium fish, trochus and lobster. See http://www.afma.gov.au/fisheries/ext_territories/coral_sea/at_a_glance.htm

b) Set gill nets: ■ YES ☐ NO

The following fisheries are known to or potentially could have interactions with marine turtles:
* Western Australian Tropical and Temperate Shark Fisheries
* Queensland Gulf of Carpentaria Inshore Finfish Fishery
* Queensland East Coast Inshore Finfish Fishery
* Tasmanian Marine scalefish
* Northern Territory Shark Fishery - Although NT fisheries have set closed areas and net set restrictions it is likely to have some degree of impact. Currently the fishery is required to conduct an observer program to determine the extent of interactions with turtles.

c) Anchored Fish Aggregating Devices (FADs): ■ YES ☐ NO

The Sea Installations Act 1987, section 40, permits the Environment Minister to provide a certificate for particular sea installations (FADs) to be installed at specified locations without a permit. The Minister shall give a certificate if satisfied that the installation, when so installed, will only be used for particular scientific activities or activities relating to marine archaeology. A small number of these certificates have been granted.

d) Purse seine (with or without FADs): ☐ YES ■ NO

Little to no turtle interactions have been reported to date in purse seine fisheries across Australia. Most purse seine activity is in fisheries in southern and south western waters.

e) Longline (shallow or deepset): ■ YES ☐ NO

The following fisheries are known to or potentially could have interactions with marine turtles:
* Western Australian Temperate and Tropical Shark Fisheries.
* Eastern Tuna and Billfish Fishery: extends from Cape York, Queensland, to the South Australian/Victorian border, including Tasmania.
* Western Tuna and Billfish Fishery: westward from the tip of Cape York covering part of Queensland, Northern Territory, Western Australia, South Australia to the South Australian\Victorian border out to and beyond the 200 nm Australian Fishing Zone (AFZ) boundary.
* Northern Territory Shark Fishery.
* Southern Bluefin Tuna Fishery: The fishery encompasses the Australian Fishing Zone and high seas activities, focussing on the waters off southern Australia. Most Southern Bluefin Tuna catch by longlining occurs off the east coast of Australia.
* Torres Strait Finfish Fishery
* Longline sector of the Coral Sea Fishery[1]
* Queensland Deepwater Finfish Fishery
* NSW Ocean Trap and Line Fishery

1 This fishery includes a broad range of species including finfish, sea cucumbers, aquarium fish, trochus and lobster. See http://www.afma.gov.au/fisheries/ext_territories/coral_sea/at_a_glance.htm

f) Driftnet: ☐ YES ■ NO

This method is prohibited in Australia.

g) Other1:

Turtles are a traditional fishery in the Torres Strait Protected Zone and within this zone is managed by the Australian Fisheries Management Authority.

h) Other2:

* Western Australian Western Rock Lobster Fishery
* South Australian Rock Lobster Fishery
* New South Wales Ocean Trap and Line Fishery
* Western Australian West Coast Deep Sea Crab Fishery - although none reported to date
* Western Australian Shark Bay Experimental Blue Swimmer Crab Fishery
* Western Australian South Coast Crustacean Fishery although none reported to date
* Victorian Rock Lobster Fishery
* Queensland Spanner Crab Fishery
* Queensland Mud Crab Fishery
* Queensland Blue Swimmer Crab Fishery

☐ **None of the above**

1.4.2 Please indicate the relative level of fishing effort and perceived impact of each of the above fisheries on marine turtles (e.g. in terms of by-catch). [TSH]

a) Shrimp trawls

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Source: *** NOTE: Due to the large number of fisheries in Australia, limited knowledge of fishing effort and no knowledge of impact it is impossible to indicate the level of fishing effort and perceived impact with any accuracy.

The most significant catch of marine turtles in trawl fisheries are from the Northern Prawn Fishery, the Queensland East Coast Trawl Fishery and the Western Australian Pilbara Trawl Fishery. Incidental capture of marine turtles in trawl gear was a key contributing factor to the decline in the eastern Australian loggerhead population (Limpus and Reimer 1994).

In 2001 the otter trawl fishery was listed as a key threatening process under the EPBC Act, which made Turtle Excluder Devices (TEDs) mandatory in otter trawl fisheries operating in northern Australian waters. Turtle excluder devices became compulsory in the Northern Prawn Fishery in April 2000, the East Coast Trawl Fishery in December 2000 and the Torres Strait Prawn Fishery in March 2002.

The introduction of turtle excluder devices in the Northern Prawn Fishery in 2000 has seen the number of turtles caught in trawl nets reduce from over 870 in 1999 to 27 in 2004 (Perdrau and Garvey 2005). Preliminary logbook data for 2006 indicates 45 interactions in the Northern Prawn Fishery with one death (a loggerhead turtle). Interactions occurred with 12 flatback turtles, 10 green turtles, 6 hawksbill turtles, 5 Pacific (olive) ridley turtles, 2 loggerhead turtles and 10 unidentified turtles. Three interactions occurred in the Torres Strait Prawn Fishery in 2006 (two green turtles and a flatback turtle) with no deaths.

Turtle excluder devices were made mandatory in the Queensland East Coast Trawl fishery through the East Coast Trawl Management Plan. The incidental capture and mortality of turtles decreased substantially after their introduction.

References:

Limpus, C.J. & D. Reimer (1994) The Loggerhead Turtle, Caretta caretta, in Queensland: a population in decline in Proceedings of the Australian Marine Turtle Conservation Workshop, Gold Coast 14-17 November 1990, 39-59.

Perdrau, M., G. and Garvey, J., R. (2005). Northern Prawn Fishery Data Summary 2004. Logbook Program, Australian Fisheries Management Authority, Canberra.

b) Set gill nets

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Source: The impact of gill net fisheries has not been quantified; however impact is expected to be relatively low compared with catch from trawl nets, traps and longlines. However there is likely to be impacts from pelagic gillnets and pelagic and demersal longline fisheries.

The most significant known turtle interactions are from gillnets in the Queensland East Coast Inshore FinFish Fishery (Department of Environment Assessment of the Queensland East Coast Inshore Finfish Fishery, http://www.environment.gov.au/coasts/fisheries/qld/east-coast-finfish/pubs/east-coast-finfish-assessment.pdf).

c) Anchored Fish Aggregating Devices (FADs)

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Source:

d) Purse seine (with or without FADs)

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Source: Little to no turtle interactions have been reported to date in purse seine fisheries across Australia. Most purse seine activity occurs in fisheries in southern waters.

e) Longline (shallow or deepset)

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Source: The estimated marine turtle catch by Australian pelagic longliners is considerably less than some other longline fisheries around the world, including those in the Mediterranean, the US in the Atlantic and the Pacific (DAFF 2004 unpub).

The most significant longline catches are from the Commonwealth managed Eastern Tuna and Billfish Fishery and the Southern and Western Tuna and Billfish Fishery which catch around 400 turtles per year (Robins et al. 2002). Although the species composition of the catch is poorly reported, it is estimated that 60% of the turtles caught are leatherback turtles (Robins et al. 2002). The mortality rate of sea turtles caught by Australian longliners is unknown but thought to be relatively low for leatherbacks (Robins et al. 2002).

Preliminary logbook data for 2006 indicates a total 20 interactions with turtles in the Eastern Tuna and Billfish Fishery involving 5 deaths and 4 interactions in the Western Tuna and Billfish Fishery involving no deaths. There was no breakdown of turtles by species.

Currently work is under way to better assess the level of bycatch in these fisheries. Fishermen have undertaken training in turtle handling, recovery and release and issued with de-hookers to facilitate releasing turtles, which have been hooked on their flippers or swallowed the hook.

References:

Robins, C. M., Bache, S. J., and Kalish, S. R. 2002. Bycatch of sea turtles in pelagic longline fisheries - Australia. Fisheries Research and Development Corporation: Canberra.

f) Driftnet

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ■ **NONE** ☐ UNKNOWN

Source:

g) Other1 (from 1.4.1): **Direct take**

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Source: Under Section 211 of the Native Title Act 1993 Indigenous communities and individuals with a native title right are allowed to take marine turtles without requiring a permit or license. There is generally no quantification of the level of harvest and little information from which to assess the impact of harvest. For this reason, we have not indicated the scale of impact of harvest.

h) Other2 (from 1.4.1): **Trap and Pot Fisheries**

Fishing effort:

☐ RELATIVELY HIGH ☐ MODERATE ■ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Perceived Impact:

☐ RELATIVELY HIGH ☐ MODERATE ■ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Source: In pot fisheries, turtles may become entangled in float lines or enter traps and drown. The most significant turtle catches from pot or trap fisheries are in the Queensland crab fisheries.

Turtle interactions with the crab fisheries have been documented through the Queensland Environmental Protection Agency StrandNet database and they have been identified as an issue in the assessment of these fisheries under the EPBC Act. For the spanner crab fishery, interactions predominantly occur via entanglement with float lines. In contrast, in the mud crab and blue swimmer crab fisheries, turtles tend to become entangled in the pot openings. There has been discussion about the introduction of a prescribed pot opening dimension in the crab fisheries (for both the commercial and recreational sectors) to minimise gear entanglement, but to date this has not been implemented.

1.4.3 Describe any illegal fishing that is known to occur in or around the waters of your country that may impact marine turtles. Describe the measures being taken to deal with this problem and any difficulties encountered in this regard. [TSH]

There have been reports of Illegal Unregulated and Unreported (IUU) take of turtles by Indonesian fishers in northern Australian waters. The increasing usage of gill nets by Indonesian fishers in addition to long lines to target shark have increased the risk of incidental take of turtles.

Australia's commitment to reduce illegal fishing in northern waters has had a significant impact on the frequency of Foreign Fishing Vessels (FFVs) entering Australian waters. The Australian Customs Service, Coastwatch, Australian Fisheries Management Authority and the Royal Australian Navy are the primary agencies involved in the surveillance and enforcement programs established to address IUU fishing in these remote regions.

Other agencies and groups contributing to these programs are Indigenous Sea Ranger groups, the National Parks and Wildlife Service, Marine Parks, Water Police and State Fisheries agencies. Discarded fishing nets is also of major concern to Australia. A recent study has found that the great majority of discarded gill and trawl nets found in the Gulf of Carpenteria were from foreign fishing fleets. These are considered a high risk threat to turtles. A net collection program has been established to reduce this risk. The following website: http://www.ghostnets.com.au/index2.html provides information on the type of marine debris recovered in the Carpentaria Ghost Nets Programme.

Compliance initiatives in regard to domestic fishing include establishment of compliance and enforcement programs including at sea inspections, flights and port inspections.

1.4.4 Which of the following methods are used by your country to minimise incidental capture/mortality of marine turtles in fishing activities? [IND]

a) **Appropriate handling** of incidentally caught turtles (e.g. resuscitation or release by fishers using equipment such as de-hooking, line cutting tools and scoop nets)

■ **YES** ☐ NO ☐ NOT APPLICABLE

Protected species Identification and Handling Guides have been distributed to relevant Fisheries and the majority of fishers have received training relating to this.

Australian Government funding was used to purchase de-hookers and line cutters, which have been made available to all operators in the Australia's pelagic tuna and billfish longline fisheries. Workshops/videos were used to train operators in their use and in turtle handling more generally.

All QLD fishers receive training on the identification of protected species and seanet officers also work with fishers around the country using the protected species handling manual and ID cards developed by DEW/State agencies etc.

The NT Seafood Council produced an Environmental Management System (EMS) for each of the NT commercial fisheries. The EMS contains protected species awareness information for professional fishing operations and includes marine turtles.

b) **Devices that allow the escape of marine turtles** (e.g. turtle excluder devices (TEDs) or other measures that are comparable in effectiveness)

■ **YES** ☐ NO ☐ NOT APPLICABLE

Compulsory Turtle Excluder Devices (TEDs) are in place in all vessels in the Northern Prawn Fishery, the East Coast Trawl Fishery, the Western Australian trawl fisheries and the Torres Strait Prawn Fishery.

The use of turtle exclusion devices and fishing techniques to reduce turtle bycatch and mortality in the Northern Prawn Fishery is required through a Direction under the Northern Prawn Fishery Management Plan.

Although the use of turtle excluder devices is now common in most trawl fisheries, the level of success in reducing turtle entanglement and mortality is unquantified.

In the Coral Sea and Torres Strait fisheries the use of Bycatch Action Plans and turtle excluder devices is compulsory. A Tuna and Billfish Longline and Minor Line Fisheries Bycatch Action Plan is also in operation.

c) **Measures to avoid encirclement** of marine turtles in purse seine fisheries

☐ YES ■ **NO** ☐ NOT APPLICABLE

There have been no recorded marine turtle interactions in Australia's Purse Seine fisheries.

d) **Appropriate combinations** of hook design, type of bait, depth, gear specifications and fishing practices

■ **YES** ☐ NO ☐ NOT APPLICABLE

Australian Government funding is being used to undertake research on bycatch mitigation measures such as hook design (including circle hooks), type of bait, weighted swivels and wire leaders to reduce bycatch. Positive results for turtle catch rates were received for the pilot study and the project is now being extended for broader coverage and to trial a greater number of hooks.

e) **Monitoring and recovery of fish aggregating devices** (FADs)

☐ YES ■ **NO** ☐ NOT APPLICABLE

Fish aggregating devices can only be used in Australian waters for particular scientific activities when exemption certificates are granted under the Sea Installations Act 1987.

f) **Net retention and recycling schemes**

■ **YES** ☐ NO ☐ NOT APPLICABLE

Marine debris has been identified as an issue in the regional marine planning process for the northern planning area, as well as in the Recovery Plan for Marine Turtles in Australia.

The Australian Government has allocated AUD $2.0 million to develop a community based clean-up and monitoring program aimed at finding solutions to the marine debris (including discarded fishing nets) problem on the western coast of Cape York, Gulf of Carpentaria and Arnhem Land. A component of this project aims to investigate ways to recycle discarded nets locally and internationally (see section 1.2.1 for more detail).

OceanWatch Australia are currently investigating the establishment of a recycling system along the east coast of Australia for discarded nets and mono line from commercial and recreational fishers.

g) **Spatial and temporal control of fishing** (e.g. seasonal closures of fishing activities)

■ **YES** ☐ NO ☐ NOT APPLICABLE

Some spatial and temporal controls are in place in some fisheries that afford protection for marine turtles. For instance, there are closures around Bramble Cay in the Torres Strait that serve to protect breeding sites of marine turtles.

Within the Great Barrier Reef World Heritage Area, a range of spatial closures was implemented across the marine areas to provide protection for the biodiversity in the region. Although these closures were not implemented specifically for fisheries management reasons, they do apply to recreational and commercial fisheries that operate in the area and hence offer a measure of protection to marine turtles where implemented in significant marine turtle inter-nesting or

foraging habitats.

h) **Effort management control**

■ **YES** ☐ NO ☐ NOT APPLICABLE

Seasonal and permanent closures occur over seagrass beds in Northern Australia targeted by the Northern Prawn Fishery and in the Great Barrier Reef World Heritage Area. Within the Northern Prawn Fishery there are 12 permanent closures involving Caledon Bay, Port Langdon, North West Bay, Alyangula, Bartalumba Bay, Dalumba Bay, Cape Shield to West Island, Vanderlins (Sir Edward Pellew Group), Darwin to Point Blaze, Port Essington, Mornington Island and Arnhem Bay. Permanent fishery closures occur within the Coral Sea Natural Nature Reserves and within sections of the Great Barrier Reef Marine Park.

■ **Other (list and explain):**

Please Note: All commonwealth and Torres Strait and Provincial managed export fisheries have been assessed strategically for how they manage/mitigate bycatch - including turtle interactions where appropriate. These strategic assessments make appropriate recommendations to the fisheries Bycatch Action Plans, where relevant (further details are in section 1.4.5 - Other actions to address fisheries bycatch below).

☐ None of the above

1.4.5 Which of the following programmes has your country developed - in consultation with the fishing industry and fisheries management organisations - to promote implementation of measures to minimise incidental capture and mortality of turtles in national waters and in the high seas? [IND]

Onboard observer programmes

■ **YES** ☐ NO ☐ NOT APPLICABLE

Observer programs are conducted in a wide range of fisheries that include the capacity to identify interactions with non target species such as marine turtles. These observer programs exist across various fishing sectors. For instance, an observer program has been implemented in the Eastern Tuna and Billfish Fishery and the Western Tuna and Billfish Fishery. Having observers on board appears to improve the quality of data reported. A number of observers are trained in turtle handling, de-hooking and line cutting and a small number have received training in turtle tagging.

Queensland has an ongoing long term monitoring program for a range of fisheries that provides for monitoring protected species interactions such as with marine turtles. On-board monitoring and daily logbook programs occur in fisheries such as the Gulf of Carpentaria inshore gillnet fishery.

Vessel monitoring systems

■ **YES** ☐ NO ☐ NOT APPLICABLE

Vessel Monitoring Systems are used on all vessels in the Northern Prawn Fishery, Western Tuna and Billfish Fishery, East Coast Otter Trawl Fishery, Eastern Tuna and Billfish Fishery and offshore net fisheries (7-25 nm) in the Gulf of Carpentaria (Queensland).

All Fishing vessels operating in a Commonwealth Fishery will be required to have a Vessel Monitoring System fitted and operational by 1 July 2007, unless alternative arrangements can be met.

Inspections (i.e. at sea, in port, at landing sites)

■ **YES** ☐ NO ☐ NOT APPLICABLE

Many fisheries have established compliance strategies and programs that have the capacity to further enforce measures to monitor and minimize interactions with protected species such as marine turtles. Surveillance and enforcement activities are undertaken by the Australian Customs Service, the Australian Navy, Great Barrier Reef Marine Park Authority and Boating and Fisheries Officers. Compliance and enforcement programs include at sea inspections, flights and port inspections.

Training programmes / workshops to educate fishers

■ **YES** ☐ NO ☐ NOT APPLICABLE

The Australian Government has provided funding to the SeaNet Environmental Extension project, which assists the commercial fishing industry to reduce interactions with protected species. SeaNet works with commercial fishers to assist them in the identification and handling of protected species, the use of TEDs, de-hookers and line cutters, circle hooks and a range of other bycatch reduction methods relating to turtle interactions. Training is conducted through workshops and the distribution of videos.

A threatened and endangered species handling course is compulsory in Queensland for all commercial fishers.

Informative videos, brochures, printed guidelines etc.

■ **YES** ☐ NO ☐ NOT APPLICABLE

Many fisheries are provided with information and education material that addresses the identification and handling of protected species such as marine turtles. For instance, Queensland has developed a set of information brochures covering a wide range of protected species including turtles that contains advice on identification and mitigation actions. Turtle identification and handling guidelines are also available for many Commonwealth managed fisheries.

OceanWatch Australia developed a video explaining methods for de-hooking and line cutting and distributed this to all Australian pelagic longline vessels with appropriate training.

The Fisheries Research and Development Corporation and the Australian Fisheries Management Authority recently funded the project 'Sea Turtle Mitigation for Australian Pelagic Longline Fisheries'. This project will be implemented through a video, onboard research and a series of port visits to educate fishers on turtle conservation, handling, and resuscitation techniques. Longline boats in Mooloolaba, Queensland are participating in the project, and fishers are reacting positively and seem eager to get involved.

Other (list and explain): Other actions to address fisheries bycatch

■ **YES** ☐ NO ☐ NOT APPLICABLE

A National Policy on Fisheries Bycatch has been adopted with the aim of reducing impacts on bycatch populations and minimising waste. All major fisheries managed by the Australian Government have developed bycatch action plans which outline measures to be taken by the fisheries to manage bycatch. The Commonwealth Fisheries Minister has released a Guide to Addressing Bycatch in Commonwealth Fisheries, which specifies that bycatch measures need to be assessed and implemented to significantly reduce discards of all non-target species in all Commonwealth fisheries with the goal to halve it by 2008 as required by the Future Operating Environment for Commonwealth Fisheries.

The Southern and Western Tuna and Billfish Fishery and the Eastern Tuna and Billfish Fishery have also developed Codes of Practice, which identifies actions for reducing interactions with turtles, amongst other species.

In May 2007, Australia participated in a meeting of the East Asia Seas Regional Coordination Unit under the United Nations Environment Programme to develop a regional action plan for marine litter. The action plan is currently being developed.

☐ **None of the above**

1.4.6 Are the mitigation measures described in 1.4.4 and 1.4.5, periodically reviewed and evaluated for their efficacy? [SAP]

■ **YES** ☐ NO ☐ UNSURE

The Australian Fisheries Management Authority carries out a 6 monthly assessment of the implementation of fisheries Bycatch Action Plans for Australian Government fisheries, with a review of each plan every 2 years. Fisheries Management Plans are reviewed as appropriate.

The Department of the Environment and Water Resources conducts strategic assessments of the management arrangements of all Commonwealth fisheries and state export fisheries in accordance with the EPBC Act, which involves

an assessment relating to the impact of fisheries on protected marine species. These assessments which are conducted every 3 to 5 years ensure that, over time, fisheries are managed in an ecologically sustainable way. As a result of the assessments, recommendations are often developed by DEW for fishery management agencies to action to further strengthen the effectiveness of the management arrangements. For example, a recommendation was made for measures to be introduced in the Eastern Tuna and Billfish Fishery to reduce the incidental capture of marine turtles and to improve the survivability of those that are caught.

1.4.7 In your country, what types of data collection, research and development have been undertaken to support the reduction of marine turtle incidental catch (while taking into consideration the impact of various mitigation measures on other species)? [SAP]

Assessments of Commonwealth and certain State-managed fisheries under the Environment Protection and Biodiversity Conservation Act (1999) requires the reporting of protected species interactions and improvements in protected species mitigation measures as key outcomes for most fishery assessments.

Australian Government funding has been provided to develop a Wildlife Bycatch Database. The database summarises available information on techniques in use, or being developed, to reduce bycatch of non-target marine wildlife in Australia and New Zealand. The database was launched as part of Sea Week in March 2007.

Research is continuing on more effective Turtle Excluder Devices to apply to a range of trawl fisheries.

AFMA has designed an ecological risk management framework to assist in meeting its environmental management and reporting responsibilities. An ecological risk assessment is an assessment of the impact, both direct and indirect, that a fishery's activities may have on all aspects of the marine ecosystem. The framework comprises the ecological risk assessments and the management responses to those assessments. The ecological risk assessments will help to identify the key ecological areas that management needs to focus on and will allow AFMA to manage its fisheries within an ecosystem based management process. The ecological risk assessments will streamline the environmental reporting requirements of each fishery.

AFMA initiated the development of ecological risk assessments for Commonwealth fisheries in 2001. Phase one was finalised in November 2004 and was a largely qualitative assessment of the potential ecological risks in most Commonwealth fisheries. The second phase of the project is now being implemented and involves a semi-quantitative assessment of all major fisheries using catch and biological data.

Once finalised this project will allow AFMA to provide information on the effects of various fisheries on marine turtles among other species.

SeaNet works with industry to implement practical solutions to bycatch issues.

1.4.8 Has your country exchanged information and provided technical assistance (formally or informally) to other Signatory States to promote the activities described in 1.4.4, 1.4.5 and 1.4.7 above? [SAP]

■ **YES** ☐ NO ☐ UNSURE

The Australian Government participated in the following meetings:

Researchers at the Australian Maritime College received funding from the Kuwait Institute of Scientific Research to conduct research and to educate fishers in the Kuwait Shrimp Trawl Fishery about the use of turtle excluder devices and bycatch reduction devices. Workshops were conducted with fishers to provide hands-on training in the design and construction of the turtle excluder devices and bycatch reduction devices and on-board training conducted on their use. The turtle excluder devices and bycatch reduction devices were compared to the bycatch in standard nets during three 1-week periods at sea in late 2003.

1.4.9 What legislative and practical measures has your country taken in support of UN General Assembly Resolution 46/215 concerning the moratorium on the use of large-scale driftnets? [SAP]

Australia passed legislation in 1991 (Australian Fisheries Management Act 1991) that gives effect to the Convention for the Prohibition of Fishing with long Drift Nets in the South Pacific.

In the Great Barrier Reef World Heritage Area, the largest commercial nets that can be used are 1.2km in length. They can only be used in accordance with the Queensland Fisheries Act (1994) and Fisheries Regulations 1995.

In the Torres Strait, commercial net fishing for finfish is banned because of concerns about the undesirable impact of

net fishing, particularly in terms of bycatch such as marine turtles.

1.5.1 Does your country have legislation to prohibit direct harvest and domestic trade in marine turtles, their eggs, parts and products; and to protect important turtle habitats? [IND]

■ **YES** ☐ NO ☐ UNSURE

Federal Legislation
All six marine turtle species in Australia are listed as threatened and migratory under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), which makes them matters of National Environmental Significance (NES). Additionally, under the EPBC Act, areas of the marine environment under Australian Government jurisdiction and world heritage areas, are a matter of NES (in some cases turtles are one of World Heritage values underlying the World Heritage listing). It is therefore an offence to recklessly kill, injure, take, trade, keep or move these species in a Commonwealth area, unless the person taking the action holds a permit under the EPBC Act or the activity is carried out in accordance with a State/Territory or Australian Government fishery plan of management accredited by the Minister for the Environment and Water Resources or under the Native Title Act (1993). Any action which has, will have, or is likely to have a significant impact on matters of NES (including marine turtles, or the marine environment under Australian Government jurisdiction) must be referred to DEW for assessment and approval. Currently the Torres Strait Turtle Fishery is being assessed under this process to ensure its ecological sustainability.

Section 211 of the Native Title Act (1993) provides a native title right to direct harvest by Indigenous people, where that harvest is for the purpose of satisfying personal, domestic, or non-commercial communal needs; and in the exercise or enjoyment of native title rights and interests.

Great Barrier Reef Marine Park
Under the Great Barrier Reef Marine Park Zoning Plan 2003, turtles are considered Protected Species and the harvest of such species requires the written approval of the Great Barrier Reef Marine Park Authority. Nothing in the Zoning Plan is intended to extinguish any native title rights and interest nor is it intended to affect the operation of section 211 of the Native Title (1993) in relation to any provision of the Zoning Plan (s1.7).

Torres Strait
"Fisheries Management Notices" (FMN) declared under the Torres Strait Fisheries Act (1984) are used to implement operational management arrangements within the various fisheries. One FMN is current for 'regulating' the direct harvest of turtles within the Torres Strait turtle fishery area. FMN 66 limits the taking of turtles to traditional fishing and prohibits the take and carriage of turtles from commercially licensed fishing boats unless that boat is operating under the conditions of a Traditional Inhabitant Boats licence and is less than 6 metres in length. In addition to this notice, other FMNs are in effect that ensure the direct harvest of turtles is reduced or eliminated through the use of turtle excluder devices or by-catch reduction devices in the area of the prawn fishery (FMN 70 & 81). It is acknowledged that the section 211 provisions of the Native Title Act (1993) may invalidate fisheries management notice 66 in some circumstances.

Also in the Torres Strait, turtles have been declared an Article 22 traditional fishery under the Torres Strait Treaty 1985 between Australia and Papua New Guinea. Traditional inhabitants harvest turtles as part of their traditional way of life and livelihood, which is protected by the Treaty. Under the Treaty, traditional inhabitants means, in relation to Australia, persons who (i) are Torres Strait Islanders who live in the protected zone or the adjacent coastal area of Australia, (ii) are citizens of Australia, and (iii) maintain traditional customary associations with areas or features in or in the vicinity of the Protected Zone in relation to their subsistence or livelihood or social, cultural or religious activities. A further purpose of the Treaty is to protect and preserve the marine environment as per Article 10.4.

Queensland
The Queensland Nature Conservation Act (1992) (NCA) provides for the listing of turtles as vulnerable species and creates offences for taking, keeping or using these species (or products from these species) without authority. However the Queensland Community Services (Aborigines) Act (1984) and Community Services (Torres Strait) Act (1984) authorises residents of Deeds of Grant in Trust areas to take marine products or fauna for use on the Deeds of Grant in Trust area.

Due to the vulnerable species listing, permits are not granted under the NCA for hunting of turtle. Accordingly take, keep and use can only lawfully occur under a traditional right by a traditional owner or by a community member under the Queensland Community Services (Aborigines) Act (1984) and Community Services (Torres Strait) Act (1984).

Northern Territory
Turtles are protected wildlife in the Northern Territory under Section 43 of the Territory Parks and Wildlife Conservation Act (2001). Section 66 of the Act prohibits the taking, interference with, possession, control or movement of protected wildlife, unless authorised to do so under the Act.

Section 122 of the Act recognises the rights of Aboriginal peoples who have traditionally used an area of land or water

to continue to use that area for traditional hunting, food gathering (other than for sale) and for ceremonial and religious purposes. Traditional hunting of turtles by Aboriginal people is covered by Section 122 and is therefore authorised under Section 66 of the Act. Such authorisation does not permit the utilisation of turtles in other than and in accordance with Aboriginal tradition.

Western Australia
The Western Australian Department of Environment and Conservation has legislative responsibility to conserve wildlife on Department of Environment and Conservation managed lands and waters under the Conservation and Land Management Act (1984) and to conserve and protect flora and fauna throughout the State under the Wildlife Conservation Act (1950). Pursuant to the Wildlife Conservation Act, Notice 2005 specially protects fauna and the six species of marine turtles (loggerhead, green, hawksbill, leatherback, flatback and olive ridley's) are listed as fauna that is rare or is likely to become extinct.

Section 23 of the Wildlife Conservation Act (1950) provides for Australian Aboriginals and Torres Strait Islanders to harvest marine fauna (and flora) from Crown land, except nature reserves and wildlife sanctuaries, and any other land (includes waters), provided that where it is occupied it is with the consent of the occupier, for food for themselves and their families, but not for sale. Department of Environment and Conservation managed land is occupied land. While Wildlife Conservation Regulation 63 indefinitely suspends section 23 in relation to "Specially Protected Fauna" an exemption is in place in relation to the six turtle species.

1.5.2 Which, among the following list, are economic uses and cultural values of marine turtles in your country? Please rate the relative prevalence / importance of each consumptive or non-consumptive use. [INF]

USES / VALUES	RELATIVE PREVALENCE / IMPORTANCE
Meat consumption	
■ **YES** ☐ NO	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN

Please note: Marine turtles and eggs have economic use and cultural value to Aboriginal and Torres Strait Islander people in Australia. The relative prevalence/importance of the consumption of meat and fat of marine turtle and eggs to coastal Aboriginal and Torres Strait Islander people varies for different communities. For this reason we have not indicated a scale for the relative prevalence/importance of marine turtles for consumptive use. New information may become available when the results of a socio-economic study of turtle and dugong in Indigenous communities being conducted by NAILSMA is released in early 2008.

Egg consumption	
■ **YES** ☐ NO	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Shell products	
☐ YES ■ **NO**	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Fat consumption	
■ **YES** ☐ NO	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Traditional medicine	
☐ YES ■ **NO**	☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN
Eco-tourism programmes	
■ **YES** ☐ NO	☐ HIGH ☐ MODERATE ■ **LOW** ☐ UNKNOWN

An eco-tourism venture has been established on western Cape York to provide financial opportunities for local Indigenous communities to undertake nesting turtle monitoring, feral pig eradication/control and ghost net removal.

Cultural / traditional significance

■ **YES** ☐ NO ■ **HIGH** ☐ MODERATE ☐ LOW ☐ UNKNOWN

As noted above, marine turtles and their eggs are of economic, cultural, and spiritual importance to Aboriginal and Torres Strait Islander people who have had close associations with turtles for millennia. Turtles and their eggs have economic value because they provide sustenance, particularly for remote and isolated communities where alternative sources of protein may not be readily available or affordable. Turtles play a significant role in the customary economy of many communities. The spiritual and cultural significance of turtles is illustrated in the stories, traditions and contemporary activities of many coastal Indigenous communities and acted out in numerous ceremonies.

Other

Other: Education and research - For example, turtles have been the focus of curriculum development at a school in the Tiwi Islands, Northern Territory.

1.5.3 Please indicate the relative level and impact of traditional harvest on marine turtles and their eggs. [IND, TSH]

Level of harvest:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Impact of harvest:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ■ **UNKNOWN**

Source of information:

Please note: The relative level and impact of traditional harvest on marine turtle and their eggs is difficult to assess because it varies across different communities in different areas. However, there is generally no quantification of the level of harvest and little information from which to assess the impact of harvest. For this reason, we have not indicated scale of impact of harvest.

As noted above, marine turtles and their eggs are of economic, cultural, and spiritual importance to Aboriginal and Torres Strait Islander people who have had close associations with turtles for millennia. Turtles and their eggs have economic value because they provide sustenance, particularly for remote and isolated communities where alternative sources of protein may not be readily available or affordable. Turtles play a significant role in the customary economy of many communities. The spiritual and cultural significance of turtles is illustrated in the stories, traditions and contemporary activities of many coastal Indigenous communities and acted out in numerous ceremonies.

Available information on the levels and impacts of traditional harvest is provided below. However, research in Australia on the issue of Indigenous harvest is generally not well-developed, and more research and reporting are needed to accurately quantify the level of take.

In Torres Strait, the Australian Fisheries Management Authority monitored the traditional harvest of turtles and eggs from 1991-1993 and 1996-2001 (see references below). Since 2001 no monitoring has been undertaken and, as such little is known about the current level of impact that traditional harvest is having on the turtle population. Monitoring of the harvest of turtles and their eggs in Torres Strait is a priority action under the Torres Strait regional action plan of the Dugong and Marine Turtle Project described in 1.2.1.

Monitoring harvest in the Great Barrier Reef Marine Park is occurring as part of the implementation of accredited traditional use of marine resources agreements (TUMRAs). TUMRAs are developed by Aboriginal or Torres Strait Islander Traditional Owners and are essentially a community based management plan for ensuring sustainable harvest of marine resources.

An attempt was made to quantify the level of Indigenous take in some regions through the report 'National Recreational and Indigenous Fishing Survey' (2003), however the methodology of this research has been criticised.

In addition to direct monitoring samples have been collected from harvested turtles in Torres Strait, Gulf of Carpentaria,

NE Arnhem Land, and a new project in the Kimberley, as well as the harvest in Bali. Initial findings were published in at UNEP report by Moritz et al. (2002), and further work is ongoing at the University of Canberra.

References:
Dews, G., Harris, A.N., Poiner, I.R., and Kerr, J. 1993. Guide to monitoring the traditional catch of the Torres Strait. Report to the Scientific Advisory Committee of the Torres Strait Protected Zone. October 1993

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Harris, A.N., Bishop, M, Skewes, T.D., Dews, G.J. and Pitcher, C. R. 1997. Transfer of traditional fisheries monitoring in Torres Strait to the Australian Fisheries Management Authority, with training. Report on CSIRO Research 1993-1996. Final report to the Scientific Advisory Committee of the Torres Strait Protected Zone. March, 1997.

Moritz, C., D. Broderick, K. Dethmers, N. FitzSimmons and C. Limpus. 2002. Migration and genetics of Indo-Pacific marine turtles. Final Report to UNEP/CMS.

1.5.4 Have any domestic management programmes been established to limit the levels of intentional harvest? [SAP]

■ **YES** ☐ NO ☐ UNKNOWN

The National Partnership Approach for the sustainable harvest of turtles and dugongs was established to further develop a nationally coordinated approach to the management of the Indigenous harvest of marine turtles and dugong (see details in Section 1.2.1).

The Australian Government has funded the Turtle and Dugong Management Project to develop community-driven approaches to sustainable management of marine turtles and dugongs across northern Australia (see details in Section 1.2.1). In some regions such as Torres Strait, regional action plans include monitoring and management of turtle harvests.

In the Great Barrier Reef World Heritage Area a regulatory framework has been established for managing harvest of marine turtles. This includes the accreditation of TUMRA's (see section 1.2.1).

In Queensland, nine communities in western Cape York Peninsula are continuing discussions towards the development of new Community Management Agreements.

1.5.5 Describe any management agreements negotiated between your country and other States in relation to sustainable levels of traditional harvest, to ensure that such harvest does not undermine conservation efforts. [BPR]

The Memorandum of Understanding (MoU) between Australia and Indonesia (1974) permits traditional Indonesian fishers to enter areas of the Australian Fishing Zone and Continental Shelf 'within the Box' for traditional fishing, but excludes the take of turtles in the box. The MoU Box Management Committee was established by Indonesian and Australian Government officials in 2002. It was agreed that the basic premise of action on the MoU Box would be to conserve MoU Box resources whilst observing the needs of traditional fishers. An evolving management document, known as the MoU Box Management Strategy, has been developed.

The Torres Strait Treaty ('the Treaty') between Australia and PNG came into force on 15 February 1985. The Treaty defines conservation outcomes for the region. The main purposes of the Treaty are, inter alia, to set out in law the importance of the preservation of the traditional way of life and livelihood of traditional inhabitants of the Torres Strait and the protection and preservation of the marine environment and indigenous flora and fauna.

The Treaty establishes a Torres Strait Protected Zone, which covers both Australian and PNG waters. Traditional inhabitants may engage in traditional activities, including traditional fishing and turtle and dugong hunting, within the Torres Strait Protected Zone. The sale of turtle meat and products is prohibited in the Torres Strait (Torres Strait Protected Zone Joint Authority 2001). Some traditional harvest monitoring programs have operated in Australian waters but are no longer running. Efforts were made to extend these programs into Papua New Guinean waters (Torres Strait Protected Zone Joint Authority 2001). Two committees have been established under the Treaty to ensure its effective operation: the Joint Advisory Committee (JAC) and the Environmental Management Committee. The Environmental Management Committee is the main environmental advisory mechanism to the JAC and discusses a number of environmental issues relevant to the region including fisheries management, mining, turtles and dugong, and marine pollution.

The Australian Government has supported the development of the Regional Marine Turtle Conservation Programme by

the Pacific Regional Environment Programme and works together with an associated active network of governments and non-government organizations to effect turtle conservation and sustainable use in the Pacific.

A regional agreement is currently being negotiated with relevant States in the Pacific region for the conservation and management of marine turtles under the auspice of the CMS. If this is agreed to, it is anticipated that this arrangement will link to the above Regional Marine Turtle Conservation Programme and include provisions to ensuring the sustainable harvest of marine turtles where traditional harvests occur.

The Australian Government is also funding a project to engage with PNG in natural resource management and specifically, turtle and dugong management. A series of workshops is likely to be held to discuss issues of take, alternative livelihood issues and regulatory mechanisms. The project will be conducted during 2007.

1.6.1 First, select one of the options at left to indicate whether or not your country has any of the following measures in place to minimise the mortality of eggs, hatchlings and nesting females. If yes, then estimate the relative effectiveness of these measures. [IND, SAP]

MEASURES	RELATIVE EFFECTIVENESS
Monitoring / protection programmes	
■ **YES** ☐ NO ☐ N/A	☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

One of the objectives of the revised Recovery Plan for Marine Turtles in Australia will be to identify, conserve and protect habitats that are critical for the survival of marine turtles. This includes the protection of nesting beaches and addressing major factors which are identified as impacting on turtle nesting. The revision of the Recovery Plan is currently being finalized.

The Australian Government is currently funding a number of activities including:
* A project to measure sand temperatures on key index nesting beaches across all known genetic stocks and the geographic range of marine turtles in Australia. The data will provide a basis for monitoring the impacts of changes in sand temperatures caused by climate change. Up to 100 data loggers will be distributed across approximately 50 beaches in Western Australia, Northern Territory and Queensland. The data loggers are being deployed during 2007 and the information will be downloaded annually for a 5-year period.
* A three year project running from 2005 to 2008 to promote knowledge transfer and exchange on community turtle monitoring and conservation. Specific objectives of the project include: the development of a nationally accredited volunteer training programme; a study monitoring the impact of visitors at nesting beaches; the development and testing of a National Code of Conduct for visitor-turtle interactions.
* Funding to Girringun Aboriginal Corporation, on the North-East Queensland coast to monitor turtles in their TUMRA region (see section 1.2.1).

In addition, the Australian Government has recently funded a number of projects that involve Indigenous communities in monitoring of nesting beaches, including:
* Traditional Owners on the Tiwi and Melville Islands have been involved in satellite tracking of olive ridley turtles, school and community awareness raising activities, harvest monitoring and feral dog control at nesting beaches to increase hatchling survivorship. This project was completed in 2006.
* Traditional Owners in Torres Strait have been trained to participate in satellite tagging of hawksbill and green turtles, monitoring of reproductive status of green turtles using laparoscopic examination and harvest monitoring. This project was completed in 2006.

Funding has also been provided to develop Natural Resource Management plans for Northern Territory, Cape York, Southern and Northern Gulf of Carpentaria, Burdekin, Wet Tropics, Pilbara, Kimberley, Mackay Whitsunday, Burnett Mary and Torres Strait which include priority research and monitoring actions for turtle conservation in their respective regions.

Many significant nesting beaches are protected through restricted or limited visitation to Commonwealth marine protected areas.

A Technical Working Group of turtle researchers has developed draft national protocols for the monitoring of marine turtle populations to ensure a standardised approach. The draft National Protocol for Marine Turtle Nesting Beach Monitoring is expected to be finalised in 2007.

Western Australia
The Western Australian Department of Environment and Conservation is developing a marine turtle wildlife recovery and management plan. The recovery plan assesses the current level of protection for habitat and makes recommendations for identifying important habitats and ensuring that these are included in the reserve system.

An Indigneous Ranger programme has been established by the Kimberley Land Council in northern Western Australia in conjunction with the NAILSMA Dugong and Marine Turtle project (see section 1.2.1). Seven rangers have been employed with a work program focused around dugong and marine turtle and sea country management. Activities including nest monitoring, cultural mapping, beach cleanups, habitat mapping and awareness raising are ongoing.

Marine Turtle monitoring locations in Western Australia include: loggerhead turtles at Dirk Hartog and Muiron Islands; green turtles at Barrow, Rosemary and Lacepede Islands; hawksbill turtles at Rosemary and Varanus Islands; and flatback turtles at Barrow Island and Mundabullangana station.

Beach nesting monitoring studies begun during the 2003/04 breeding season along the Ningaloo coast, and at Port Hedland and Wickham, funded by the Australian Government. A program is being developed for 80 Mile Beach, including aerial surveys. The oil/gas and mining industries are supporting some of these monitoring studies.

A standardised monitoring protocol for nesting turtles has been implemented in Exmouth, Wickham and Port Hedland. This program has been underway for the past three years and has been slightly adapted over this time, following evaluation of the program's success.

Queensland
The GBRMPA and Queensland Government have developed complementary marine protected area zoning in waters adjacent to key rookeries in the Great Barrier Reef World Heritage Area. Protection is also provided through the declaration of National Parks throughout Northern Australia.

In Queensland, including the Great Barrier Reef Marine Park, monitoring species and sites include: loggerhead turtle at Mon Repos and Wreck Island; Green turtle at Heron Island and Raine Island, Hawksbill turtle at Milman Island, Flatback turtle at Peak Island and Wild Duck Island, Curtis Island, Leatherback turtle at Wreck Rock beaches, as well as foraging studies at Moreton Bay, Shoalwater Bay, Capricornia Reefs and the Howick Group of islands.

QPWS has also formed an eco-tourism partnership with Earthwatch Institute which provides funding support for long term monitoring of hawksbill turtle populations. Outcomes of this research are disseminated internationally.

Northern Territory
Monitoring by Indigenous rangers occurs at a number of nesting sites in the Northern Territory such as the Tiwi Islands, Groote Eylandt and Sir Edward Pellew Group of Islands.

The Northern Territory government is also conducting a large and on-going 3-phase program for species management. Phase 1 was to locate and document distribution and status of fauna, including marine turtles. This is largely completed. Phase 2 is to choose important sites and establish on-going monitoring. Phase 3 is to institute management where appropriate. A long-term monitoring project is also proposed for the Sir Edward Pellew Islands that will gather baseline data as well as long-term data on population dynamics. This project will be conducted in conjunction with the Lianthuwirriyarra Indigenous Sea Rangers.

A community monitoring and education programme, with flatback hatchlings releasings occurs on a local Darwin beach.

Further details of monitoring programmes is provided in section 3.2.1.

Education / awareness programmes

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

Marine turtle interpretive centres are located at Mon Repos, in Queensland and near Exmouth in Western Australia. These centres provide public education and awareness on marine turtle conservation issues more generally and on nesting beach protection.

The Northern Territory runs a monitoring and education programme, including releasing flatback hatchlings from a local Darwin beach.

The Australian Government recently funded a community awareness raising project on the Tiwi Islands, Northern Territory. Part of this project involved working with the local school to incorporate marine turtle biology and conservation into the curriculum.

Refer also to section 4.1.1.

Egg relocation / hatcheries

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

In the Northern Territory, local activities include relocation of nests in peril from beach erosion or dune movement.

There is also an egg relocation program on mainland beaches on the Woongarra Coast, in South East Queensland for nests that are prone to flooding. This has increased hatchling production by 25% in green turtle 'doomed eggs'.

Predator control

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

In Queensland, fox control occurs on South and Central Queensland beaches to reduce loggerhead egg loss. This control has reduced loggerhead egg loss to less than 5% per annum.

A Cape York feral species control forum was held in February 2006 to focus on developing on-ground methodologies for reducing feral pig impact on nesting beaches.

The Queensland Parks and Wildlife Service and the Department of Natural Resources and Mines will be conducting a two year research program to determine the best methodologies for controlling pigs. The project will be based on the mainland adjacent to Crab Island and use Crab Island as a control site.

On western Cape York, the Cape York Weeds and Feral Animal Program (hosted by Cook Shire Council), assisted by the Northern Australian Quarantine Strategy conducted a feral pig eradication program (through baiting and aerial shooting), during May 2002. 3700 pigs were eradicated, reducing the overall population by 68% that were living on the marine plain (Seymour and Molyneaux, 2003, unpublished report). A second eradication program with the Napranum community (near Weipa on western Cape York) was undertaken late September 2003, with over 300 pigs destroyed in 8 hours. Analysis of these programmes have found that an aerial shoot exercise, followed by a baiting campaign on the remaining pigs should be carried out before each year's turtle-nesting season begins, to ensure that turtle nesting sites are given every opportunity to evolve naturally with only minimum disturbance from feral pigs. Subsequent pig and dog eradication activities occurred in 2006.

A management strategy is being developed for the control of pigs and other feral animals on Prince of Wales Island, Torres Strait.

Fox baiting and the trialing of other types of devices to save turtle nests from depredation by foxes also occurs in Western Australia along the northwest cape coastline.

In Western Australia, the baiting of fox populations in the vicinity of mainland North-west Cape green, loggerhead and hawksbill nesting rookeries has reduced nest predation by >90%. Fox baiting programs are in place at a number of locations along the Ningaloo coast, and at Cowrie Beach on Mundabullangana station. Fox and cat trapping is also conducted annually at the start of the nesting season by Pilbara Iron at Bell's Beach (the beach is on their mining lease).

In the Northern Territory, efforts have been made to reduce the numbers of feral dogs from beaches of the Tiwi islands and some areas of north-east Arnhem Land to increase olive ridley nesting success.

Vehicle / access restrictions

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

In Western Australia, some Beaches along the Ningaloo coast are closed to vehicles during nesting/hatching season, and education of beach users continues in other areas.

In Queensland, selected major nesting sites are managed with no public visitation during the nesting season. Tourists are encouraged to visit areas such as Mon Repos, where there is highly regulated visitation and education. Extensive volunteer networks assist with monitoring of turtle rookeries in Mackay and Townsville regions

Removal of debris / clean-up

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

The Australian Government has allocated AUD $2.0 million (with matched in-kind State/Northern Territory Government and industry support) to develop a community based clean-up and monitoring programme aimed at finding solutions to the marine debris problem on the western coast of Cape York, Gulf of Carpentaria and Arnhem Land. A component of this project aims to find ways to recycle discarded fishing nets locally and internationally.

Customs also monitors and collects marine debris from islets in marine reserves such as the Coringa-Herald NNR and Ashmore Reef. At Cocos (Keeling) Islands, some effort is made to destroy large nets washed ashore. On Christmas Island, the Australian Government's Envirofund funded a project in 2003/04 to improve beach access to allow regular clean-ups and encourage visitors to collect marine debris, which will also help protect the nesting habitat of the Green Turtle and Hawksbill Turtle.

A marine debris monitoring program in the Northern Territory was initiated by the WWF in 2000, in response to the concerns of coastal Indigenous communities, land councils, government agencies, conservation organisations and the fishing industry. In 2006, The Northern Territory Department of Natural Resources, Environment and the Arts (Marine Biodiversity Group) took over co-ordination of the debris program (and the National Marine Debris Database) from WWF-Australia, who remains an advisory partner. The project has received funding through the Natural Heritage Trust and continues to be a community based, collaboration between Indigenous people, community groups, sea rangers and scientists. Marine Debris surveys are conducted on an annual basis at seven locations (Tiwi Islands, Cobourg Peninsula, Elcho Island, Cape Arnhem, Groote Eylandt, Blue Mud Bay and Vanderlin Island). See: http://www.nt.gov.au/nreta /wildlife/marine/research.html#debris.

The debris monitoring program complements the Carpentaria Ghost Nets Programme, which is primarily focused on the collection and disposal of nets and the prevention and rescue of entangled wildlife within the Gulf of Carpentaria.

OceanWatch Australia is currently developing a recycling system for both commercial and recreational fishing line and nets along the east coast of Australia.

Re-vegetation of frontal dunes

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

Nationally, the Australian Government has funded a range of activities to eradicate weeds, to re-vegetate dunes and to reduce erosion.

The Australian Government Envirofund has funded a number of projects around the country that will stabilise, protect and manage access to coastal dune areas.

In the Northern Territory some general dune management is underway in a number of parks and reserves although it is not specifically marine turtle related.

In Queensland, the dunes of Mon Repos Conservation Park were re-vegetated with native forest in 1985 to prevent disorientation of hatchlings inland. This has successfully reduced hatchling disorientation at this beach.

Building location/design regulations

☐ YES ■ **NO** ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

Light pollution reduction

■ **YES** ☐ NO ☐ N/A ☐ EXCELLENT ■ **GOOD** ☐ LOW ☐ UNKNOWN

A number of beaches close to residential areas in Queensland have capped street lighting.

In Western Australia, strict requirements are placed on lighting for mining developments in the Kimberley region as a result of approval conditions for the project under the Environment Protection and Biodiversity Conservation Act 1999. Lighting audits are also regularly conducted on offshore oil/gas facilities adjacent to turtle nesting beaches, and lighting practices are adjusted wherever possible.

Other (list and rate them)

■ **YES** ☐ NO ☐ N/A

1.6.2 Has your country undertaken any evaluation of its nest and beach management programmes? [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

OBJECTIVE II. PROTECT, CONSERVE AND REHABILITATE MARINE TURTLE HABITATS

2.1.1 What is being done to protect critical habitats *outside* of established protected areas? (NB: It is assumed that legislation relating to established protected areas will have been described in Section 1.5.1) [BPR, SAP]

One of the objectives of the revised Recovery Plan for Marine Turtles in Australia will be to identify, conserve and protect habitats that are critical for the survival of marine turtles.

Section 1.6 outlines a range of measures being undertaken to protect important nesting beach habitat across Northern Australia.

Protection of critical habitats for marine turtles are included under a range of initiatives by Indigenous communities funded by the Australian Government as part of the Northern Australian Indigenous community-driven approach to sustainable management of marine turtles (see Sections 1.2.1, 1.3.1, 1.5.2, 1. 5.3, 1.6.2, 3.1.7 & 4.3.1)

Some Indigenous communities in the Northern Territory (e.g., Tiwi Island and Groote Eylandt) in Queensland (Mapoon and Napranum) have undertaken protection and monitoring of their critical turtle habitats as part of their land and sea management programmes.

2.1.2 Are assessments routinely made of the environmental impact of marine and coastal development on marine turtles and their habitats? [IND, SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

Nationally, under the EPBC Act all developments in Australia's jurisdiction that affect matters of National Environment Signficance must be referred to DEW for assessment and approval.

In the Northern Territory, marine debris surveys are conducted annually in the Gulf of Carpentaria and Arnhem Land Entanglement Surveys. Impacts of marine and coastal development, among other things, are assessed during these annual trips.

In Queensland, a statewide stranding program is run to record the distribution of sick, injured and dead marine turtles and to identify the cause of death where possible. This is linked to a Queensland-wide GIS compatible stranding database. In addition, wild turtle populations at selected foraging areas are monitored to assess turtle health, including incidence of boat strike fractures and fibropapilloma disease.

In Western Australia, conservation of marine turtles is considered as a part of the compulsory EIS for all major development/mining applications. A number of developments are currently proposed that have the potential to impact on turtle nesting or foraging sites. Appropriate controls required as part of the project development, including monitoring, lighting and noise restrictions.

2.1.3 Is marine water quality (including marine debris) monitored near turtle habitats? If yes, describe the nature of this monitoring and any remedial measures that may have been taken. [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

The revised Recovery Plan for Marine Turtles in Australia identifies the need to conserve and protect habitats that are critical for the survival of marine turtles. Recognition that water quality is impacted by both land management and maritime pollution will need to be reflected in the actions implemented across Australia to protect turtle habitat from these impacts.

The EPBC Act and Marine Protected Area Plans of Management restrict discharges into marine protected areas.

The Great Barrier Reef Marine Park Authority Reef Water Quality Protection Plan identifies actions, mechanisms and partnerships to build on existing Government policies and industry and community initiatives to assist in halting and reversing the decline in the quality of water entering the Reef. It can be downloaded from: http://www.gbrmpa.gov.au

/corp_site/key_issues/water_quality/rwqpp.pdf.

In Queensland, the Environmental Protection Agency monitors water quality throughout Queensland's streams and bays.

In Western Australia, marine reserve management plans include actions to monitor water quality. The North West Shelf Joint Environmental Management Study has undertaken water quality monitoring in north west Western Australia to establish baseline levels. The Western Australia Department of Environment and Conservation have undertaken sediment and water quality baseline surveys in the Pilbara. The petroleum and mining industries and port operators also undertake water and sediment quality monitoring in there areas of operation.

2.1.4 Are measures in place to prohibit the use of poisonous chemicals and explosives? [SAP]

■ YES ☐ NO ☐ NOT APPLICABLE

Using poisonous chemicals and explosives for fishing purposes is not permitted in Australia.

The management of chemicals at the various stages of their lifecycle occurs at a State or Territory level.

In Western Australia the use of chemicals and explosives in the mining industry is regulated and closely monitored.

Within the Great Barrier Reef Marine Park, permits are required to manage port activities including the use of chemicals. The Great Barrier Reef Marine Park Act (1975) does not allow the unauthorised discharge of waste in the Marine Park.

In Queensland, compliance is monitored via the Queensland Boating and Fisheries Patrol.

Northern Territory legislation states that only fishing gear stipulated in the regulations or approved by the Director of Fisheries can be used. Therefore the use of chemicals or explosives for fishing in Northern Territory waters is not permitted. Compliance in the Northern Territory is monitored via the Police, Fisheries and Marine Enforcement Unit (PFMEU).

2.2.1 Are efforts being made to recover degraded coral reefs? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc). [IND, SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE (no degraded coral reefs)

In the Great Barrier Reef Marine Park reef water quality protection plans aim to improve coral reef habitats over the longer term.

In the Cocos (Keeling) Islands, reefs are generally healthy as a result of their remoteness, however, they are monitored by Parks Australia North using ReefCheck.

Reefs in other Australian marine protected areas (Coringa-Herald, Lihou Reef, Elizabeth-Middleton Reefs, Ashmore Reef etc), are also being monitored by the Australian Institute of Marine Science.

2.2.2 Are efforts being made to recover degraded mangrove habitats that are important for turtles? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.) [IND, SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE (no mangrove habitats important for turtles)

In the Great Barrier Reef Marine Park, reef water quality protection plans are in place to improve mangrove and seagrass habitats over the longer term.

At Cocos (Keeling) Islands, lagoon coastal vegetation (which hawksbill turtles shelter under during the day) is cut back for firewood.

In Western Australia, mangrove habitats are given special consideration when developments are proposed. The Western Australia Environmental Protection Agency has guidelines as to the amount of mangrove habitat than can be disturbed/destroyed in given areas. In addition, where industrial developments disturb/destroy mangroves they undertake rehabilitation and replanting programmes, where required.

2.2.3 Are efforts being made to recover degraded sea grass habitats? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.). [IND, SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE (no degraded sea grass habitats)

Seagrass-Watch is a community-based seagrass monitoring program in Queensland, supported by the Queensland Department of Primary Industries and Fisheries and the Australian Government's Natural Heritage Trust. The program has grown extensively since it began in 1997. Seagrass health and species composition at over 40 sites are now regularly monitored across the east coast of Queensland and the Torres Strait. Data is hosted in a database provided by the Queensland Department of Primary Industry and the Northern Fisheries Centre, with the interpretation of results circulated to coastal communities via a quarterly newsletter. Areas of degraded seagrass habitats are reported through regular monitoring leading to targeted investigation as to the cause of seagrass decline.

Seagrass watch monitoring sites identified and agreement made with Environs Kimberley (Roebuck Bay, Broome sea grass monitoring program) to share resources and expertise.

At Cocos (Keeling) Islands, efforts are being made to protect important seagrass habitat from degradation from a new port facility and proposed hovercraft service.

OBJECTIVE III. IMPROVE UNDERSTANDING OF MARINE TURTLE ECOLOGY AND POPULATIONS THROUGH RESEARCH, MONITORING AND INFORMATION EXCHANGE

3.1.1 Give a list of available literature that includes baseline information from studies carried out in your country on marine turtle populations and their habitats. [INF]

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Some additional information on research being conducted in Australia is provided below:

Collaborative studies are being conducted on the following subjects: disease issues in marine turtles (in WA); growth rates (in the NT and the Cocos-Keeling islands); population genetic studies of all species at selected rookeries and in harvests and for green and hawksbill turtles at selected feeding grounds (Australia and surrounding region); temperature dependant sex determination, reproductive physiology, stress response, impact of disturbance on nesting beaches, population genetics, hatchling emergence behaviour and fitness, baseline studies of nesting turtles, post-hatchling genetics, demography, diet, and reproductive physiology as well as an assessment of turtle nesting numbers and importance of specific beaches (all in QLD).

The information on this will be published as it becomes available.

3.1.2 Have long-term monitoring programmes (i.e. of at least 10 years duration) been initiated or planned for priority marine turtle populations frequenting the territory of your country? [IND, BPR]

■ **YES** ☐ NO ☐ UNSURE

The Australian Government has provided funds for a number of long term monitoring programs in Commonwealth reserves. These including a tagging and monitoring project in the Coral Sea Reserves that begun in 1992 and at Ashmore Reef most years since 1994. The tagging in the Coral Seas is continuing, although on a less regular basis due to its remote location. Recently access has been granted and transport provided by the Royal Australian Navy and customs and work was conducted by Charles Darwin University staff and students.

Marine turtle monitoring has also occurred on the Cocos (Keeling) Islands over a seven year period. See http://www.environment.gov.au/parks/publications/cocos/turtle/index.html for the 2006 report.

The Australian Government is currently funding a project to monitor the temperature of key marine turtle index to assess the potential impacts of climate change (see section 1.2.1). This project is beginning in 2007 and will run for a 5-year period.

In Queensland, Queensland Parks and Wildlife Service has conducted 37 years of large scale tagging on nesting beaches and foraging populations. They have also coordinated the exchange of tagging data, including information on tag returns.
For the past 5 years the Great Barrier Reef Marine Park Authority has jointly funded with the EPA monitoring at key nesting and foraging locations.

In Western Australia, tagging studies have been conducted at a range of locations since the mid 1980s. Over 25,000 turtles have been tagged, and recovered. The WA tagging database has been substantially updated and reformatted in recent years to better house the data and to include stranding information. A database has also been developed for beach track monitoring program.

In the Northern Territory, Bare Sand Island has been monitored every year since 1996.

3.1.3 Has the genetic identity of marine turtle populations in your country been characterised? [INF, PRI]

■ **YES** ☐ NO ☐ UNSURE

The genetic identity of all major green, loggerhead, hawksbill and flatback nesting populations across Australia has been established, with further work continuing to address specific questions. Green turtle foraging populations have been analysed along a transect across northern Australia and present research is adding southern sites off Western Australia and along the east coast of Queensland. Two hawksbill foraging populations from eastern and northern Australia have been analysed. Samples have been taken from harvested turtles and stranded turtles at sites in northern Australia that are currently being analysed. Post-hatchling genetics have been studied off eastern Australia (M. Boyle, PhD thesis, James Cook University).

DNA samples from the Cocos-Keeling Islands and Coral Sea are being included in current analyses.

In 2007, the Australian Government is funding a project to investigate the genetic composition of a range of marine turtle species (including leatherback turtles) and populations across Australia (see section 1.2.1).

Results are presented in:

Broderick, D. Moritz, C., Miller, J.D., Guinea, M., Prince, R.I.T. and Limpus, C.J. 1994. Genetic studies of the hawksbill turtle Eretmochelys imbricata: evidence for multiple stocks on Australian waters. Pacific Conservation Biology 1:122-131.

Dethmers,, K. E. M., Broderick, D., Moritz, C., FitzSimmons, N. N., Limpus, C. J., Lavery, S., Whiting, S., Guinea, M., Prince, R. I. T., and Kennett, R. 2006.. The genetic structure of Australasian green turtles (Chelonia mydas): exploring the geographic scale of genetic exchange. Molecular Ecology 15:393-3946.

FitzSimmons, N. N., A. R. Goldizen, J. A. Norman, C. Moritz, J. D. Miller, and C. J. Limpus. 1997. Philopatry of male marine turtles inferred from mitochondrial markers. Proceedings National Academy Science USA: 94:8912-8917.

FitzSimmons, N. N., C. Moritz, C. J. Limpus, L. Pope, and R. Prince. 1997. Geographic structure of mitochondrial and nuclear gene polymorphisms in Australian green turtle populations and male-biased gene flow. Genetics 147:1843-1854.

Kiki E. M. Dethmers, Damien Broderick, Craig Moritz, Nancy N. Fitzsimmons, Colin J. Limpus, Shane Lavery, Scott Whiting, Mick Guinea, Robert I. T. Prince and Rod Kennett (2006). The genetic structure of Australasian green turtles (Chelonia mydas): exploring the geographical scale of genetic exchange. Molecular Ecology.

Moritz, C., Broderick, D., Dethmers, K., FitzSimmons, N., and Limpus, C. 2002. Population Genetics of Southeast Asian and Western Pacific Green Turtles, Chelonia Mydas. Available at: http://www.environment.gov.au/coasts/mpa/ashmore/turtles/pubs/turtles.pdf

See also: FitzSimmons, Nancy; Lachlan W. Farrington; Megan J. McCann; Craig Moritz, and Colin J. Limpus. 2003. Final Report to Environment Australia: Genetic Identification of Australian Marine Turtle Stocks and their Representation at Feeding Grounds and in Regional Harvests.

3.1.4 Which of the following methods have been or are being used to try to identify migration routes of turtles? Use the text boxes to provide additional details. [INF, PRI]

Tagging ■ **YES** ☐ NO

Monitoring and tagging has occurred at sites across Northern Australia over both long and short time frames and Sections 1.6 and 3.1.2 provide further details.

Genetic studies of foraging ground populations and post-hatchlings are contributing to this understanding, see Section 3.1.3.

Satellite tracking ■ **YES** ☐ NO

The Australian Government has provided recent funding for satellite tracking of:
* Turtles caught in longline fishing operations off the eastern Australian coast to provide information on the pelagic stage of the life cycle, engage fishers in turtle conservation and investigate the impact on turtles being caught in longline fishing operations. Currently 3 turtles have been tagged, with a total of eight tags to be attached during 2007.
* Olive ridley turtles on the Tiwi and Melville Islands in the Northern Territory. The project involved Traditional Owners on the Tiwi and Melville Islands in the satellite tracking as well as school and community awareness raising activities, harvest monitoring and feral dog control at nesting beaches to increase hatchling survivorship. This project was completed in 2006 and the report is available at: http://www.environment.gov.au/coasts/publications/index.html
* Hawksbill and green turtles in the Torres Strait. Traditional Owners were trained to participate in satellite tagging of hawksbill and green turtles, monitoring of reproductive status of green turtles using laparoscopic examination and harvest monitoring. The project was completed in 2006 and the report is available online at: http://www.seaturtle.org/tracking/ - project_id=100

In Western Australia, satellite tags have been attached to green and flatback turtles from Barrow Island, flatbacks from Mundabullangana station and hawksbills from Rosemary Island. These studies have provided some preliminary information on foraging grounds in Western Australia and have mainly been supported by the petroleum industry.

Indigneous rangers in the Kimberley, Western Australia have attached satellite transmitters to three green turtles tracked using satellite radio transmitters from nesting beach on Lacepede Islands to their home foraging grounds off the Kimberley and NT coasts. This was a joint project between the Bardi-Jawi Rangers, NAILSMA and WA Department of Environment and Conservation. In the Northern Territory satellite tags have been attached to green turtles in the Gulf of

Carpentaria as well as flatbacks south-west of Darwin.

■ **Other**

Genetic Studies: See section 3.1.3

☐ **None of the above**

3.1.5 Have studies been carried out on marine turtle population dynamics and survival rates (e.g. including studies into the survival rates of incidentally caught and released turtles)? [INF, PRI]

■ **YES** ☐ NO ☐ UNSURE

In Western Australia, some research has been conducted in Shark Bay to determine interaction between green and loggerhead turtles and the primary predator in the system - the tiger shark. Link to paper abstract and related website:
http://www.int-res.com/abstracts/meps/v288/p285-294/
http://www.fiu.edu/~heithaus/SBERP/pages/homeframeset.htm

In the Northern Territory, hatchling survival rates and fitness have been investigated at Bare Sand Island. Research has been conducted on the influence of clutch size and nest depth on survival and fitness of flatback turtle hatchlings.

In the Cocos-Keeling Islands, studies on the population dynamics of the foraging green and hawksbill turtles are being conducted. This will give population densities, growth rates and size and species structure of the population. For the most recent study see: http://www.environment.gov.au/parks/publications/cocos/turtle/pubs/turtle-report-2006.pdf.

In Queensland, mathematical population models have been published for Eastern Australian green and loggerhead turtle populations.

These include:

Chaloupka, M. 2002. Stochastic simulation modelling of southern Great Barrier Reef green turtle population dynamics, Ecological Modelling, 148:79-109.

Chaloupka, M. 2002. Phase 1: Phase 1 - Assessment of suitability of Queensland Parks & Wildlife Service Sea Turtle Data for use in models of the population dynamics of the Southern Great Barrier Reef Green Turtle Stock. Research Publication No. 74. Great Barrier Reef Marine Park Authority, Townsville.

Chaloupka, M. 2003. Phase 2: Development of a Population Model for the Southern Great Barrier Reef Green Turtle Stock. Research Publication No. 81 Great Barrier Reef Marine Park Authority, Townsville.

3.1.6 Has research been conducted on the frequency and pathology of diseases in marine turtles? [INF, PRI]

■ **YES** ☐ NO ☐ UNSURE

Minor work has been done, however, access to remote locations can limit these studies. Queensland and Western Australia have stranding and mortality databases. If possible, post-mortems and pathology tests are conducted, however, restrictive factors include time elapsed between death discovery and prohibitive distances. In the Northern Territory, moribund turtles have been studied for parasite loads and diseases.

Monitoring of diseased green turtles and collection of tissue sample from the Sir Edward Pellew Islands has been conducted by the Lianthiwirriyarra Sea Rangers.

See also:

http://www.epa.qld.gov.au/nature_conservation/wildlife/caring_for_wildlife/marine_strandings/ where the following reports can be downloaded.

Greenland, J.A., Limpus, C.J. and Currie, K.J. 2004. Queensland marine wildlife stranding and mortality database annual report 2001-2002. III. Marine Turtles, Wildlife Ecology Unit, Forestry and Wildlife Division, EPA Brisbane.

Haines, J.A. and C.J. Limpus. 2001b. Marine wildlife stranding report and mortality database annual report 2000 - Turtles. Research Coordination Unit, Parks and Wildlife Strategy Division, Queensland Parks and Wildlife Service, Brisbane.

Limpus, C.J., Haines, J.A. and Flakus, S. 2000b. Marine Wildlife Stranding and Mortality Database Annual Report, 1999 - Turtles. QPWS, Brisbane.

Raidal, S.R.,and Prince, R.I.T. 1996. First confirmation of multiple fibropapillomas in a Western Australian sea turtle (Chelonia mydas). Marine Turtle Newsletter 74. pp7-9.

Raidal, S.R., O'Hara, M., Hobbs, R.P. and Prince, R.I.T. 1998. Gram-negative bacterial infections and cardiovascular parasitism in green sea turtles (Chelonia mydas). Australian Veterinary Journal 6:415-417.

3.1.7 Is the use of traditional ecological knowledge in research studies being promoted? [BPR, PRI]

■ **YES** ☐ NO ☐ UNSURE

The EPBC Act promotes the use of traditional ecological knowledge in cooperation with Indigenous people. Accordingly, the National Partnership Approach described in Section 1.2.1 and 1.5.3, promotes the role of traditional ecological knowledge in underpinning the implementation and monitoring of sustainable harvests of turtles.

The Marine Turtle and Dugong Management Project described in Section 1.2.1, being implemented by a number of key Indigenous communities across northern Australia includes regional projects which aim to incorporate Indigenous knowledge in management of turtles. One specific part of the project includes Traditional Knowledge recording work in participating communities in Cape York.

An Indigenous Sea Rangers Network is being managed by the Northern Land Council. Indigenous people are being trained to become Sea Rangers. Sea Rangers amongst other things are contact points for researchers wishing to work with Indigenous communities on turtles.

In the Shark Bay, Exmouth and Port Hedland areas of WA, Indigenous people are involved in turtle monitoring programs. The Bardi-Jawi Rangers program in the Kimberley has a work program focussed around dugong and marine turtle and sea country management.

See also:

Kennett, R, A. Webb, G. Duff, M. Guinea and G. Hill (eds). 1998. Marine Turtle Conservation and Management in Northern Australia. Centre for Indigenous Natural and Cultural Resource Management and Centre for Tropical Wetlands Management, Northern Territory University, Darwin, Australia, 118pp.

Kennett, R. Mununguritj, N. and Yunupingu D. 1998. The Dhimurru Miyapunu Project. In, Kennett, R. Webb, A. Duff, G. Guinea, M. and Hill, G. 1997. (eds). Marine Turtle Conservation and Management in Northern Australia. Centre for Indigenous Natural and Cultural Resource Management and Centre for Tropical Wetlands Management, Northern Territory University, Darwin, Australia, pp 69-75.

Kennett, R.M., D. Yunupingu, B. Wunungmurra, N. Mununguritj and R. Marika. 1997. Nhaltjan Nguli Miwatj Yolngu Djaka Miyapunuwu: Sea turtle conservation and the Yolngu people of north east Arnhem Land, Australia. In, 'Principles of Conservation Biology, (Ed. G. Meffe). Sinauer Associates, USA, pp 426-432

Kennett, R.M. 1996. Science turns to Aboriginal knowledge to save endangered turtles. On the Brink! 8 Newsletter of the Endangered Species Program, Australian Nature Conservation Agency, Canberra.

3.2.1 List any regional or sub-regional action plans in which your country is already participating, which may serve the purpose of identifying priority research and monitoring needs. [INF]

Australia supports the Pacific Regional Environment Programme and the associated action plan for marine turtles coordinated by the Secretariat. In March 2007, Australia attended a workshop to review the implementation of the 2003-2007 Marine Turtle Action Plan and to prepare a revised one for the upcoming 5-year period.

The Australian Government supports the proposed development of a regional conservation arrangement for marine turtles in the Pacific. Australia is working with its Pacific neighbours and existing regional conservation organisations such as the Pacific Regional Environment Programme, to progress this issue.

3.2.2 On which of the following themes have collaborative studies and monitoring been conducted? Use the text boxes to describe the nature of this international collaboration or to clarify your response. Answer 'NO' if the studies/monitoring undertaken do not involve international collaboration. [INF, PRI]

a) Genetic Identity ■ **YES** ☐ NO ☐ NOT APPLICABLE

There has been extensive collaboration across Australia that has included the governments, indigenous communities and researchers at several universities who have contributed samples to Australia-wide projects. DNA analyses were originally done in collaboration with the University of Queensland, but this is now done with the University of Canberra, and the post-hatchling research was conducted at James Cook University.

Queensland Parks and Wildlife Service staff have led the collaboration of large Indo-Pacific genetics projects on green and hawksbill turtles.

Samples have also been collected from green and hawksbill turtles at Cocos (Keeling) Islands and Ashmore Reef.

A project is currently underway to address specific questions about the genetics of certain marine turtle species and populations across Australia.

Current collaborations in the Pacific include the collection of tissue samples from Fiji, Tuvalu and Vanuatu. Genetic researchers from across the Indian Ocean are now coordinating sampling efforts for ocean wide studies of green and hawksbill turtles.

See section 3.1.3 for current publications arising from these collaborations and also:

b) Conservation status ☐ YES ■ **NO** ☐ NOT APPLICABLE

c) Migrations ☐ YES ■ **NO** ☐ NOT APPLICABLE

d) Other biological and ecological aspects ☐ YES ■ **NO** ☐ NOT APPLICABLE

☐ **Other**

3.3.1 List, in order of priority, the marine turtle populations in your country in need of conservation actions, and indicate their population trends. [PRI]

Recovery actions in the Recovery Plan for Marine Turtles in Australia are identified for all six species found in Australian waters. Under the Recovery Plan, all species of marine turtles is treated as priority, however, population trends have been given below, where available.

Loggerhead Turtle: There are two genetic stocks nesting in Australia; the East Australian and West Australian stocks. The eastern Australian stock is in serious decline, 86% decline in breeding since mid 1970s (Limpus and Limpus 2003). Long term census data for the West Australian stock has not been analysed. Australia supports the third largest global stock of loggerheads.

Olive Ridley Turtle: A genetic assessment of nesting population stocks at Tiwi Island and in the Gulf of Carpentaria is underway. Nesting occurs in Arnhem Land NT and hugely significant nesting on the Tiwi Islands and genetic samples of 71 nesting animals have been provided for analysis (Whiting et al 2006), nesting is also known to occur; in Arnhem Land, Northern Territory and Western Cape York, Qld (Limpus pers. comm. 2003). No census data has been collected (Limpus pers. comm. 2003). From a limited sample size, it appears that the Australian stock(s) are genetically distinct from those in other countries (Bowen et al. 1998).

Hawksbill Turtle: Current data suggests that there are two genetic stocks nesting in Australia. These are the West Australian and North Eastern Australian stocks (Broderick et al. 1994). The North Eastern Australian stock which

includes the Northern Peninsula Area, central and western Torres Strait, adjacent northern GBR and north-east Arnhem land is declining at 3-4% per year (Limpus and Miller 2000). The West Australian stock is the largest Hawksbill nesting population in the Indian Ocean (Limpus pers. comm. 2003). Long-term census data has been collected for the West Australian stock has not been analysed. It is not known whether the population is in decline. North-east Australian stock is one of the world's largest nesting populations and is in decline.

Leatherback turtle: A genetic assessment of leatherback samples from nesting and stranded turtles is now being done. The Australian population is very small and is declining (Limpus pers. comm. 2003).

Green Turtle: There are seven genetic stocks nesting in Australia. These are: Southern Great Barrier Reef, Coral Sea Platform, Northern Great Barrier Reef, Gulf of Carpentaria, Northwest Shelf, Ashmore Reef and Scott Reef stocks (Dethemers et al. 2006). The Northern Great Barrier Reef stocks are possibly in early stages of decline (evidence includes changes in nesting female demography; loss of hatchling recruitment in the northern GBR; population modeling for southern GBR) (Limpus et al. 2003; Limpus pers. comm. 2003). There is no long-term census data for the other five genetic stocks of green turtle found in Australian waters (Limpus pers. comm. 2003). The Northwest Shelf stock is possibly the second largest global stock, however, there is no long term census data for this area (Morris pers. comm. 2005).

Flatback Turtle: Four genetic stocks have been identified: the West Australian, Arnhem Land, North Eastern Gulf of Carpentaria and East Australian stocks (FitzSimmons 2003). Unlike other marine turtles a strong pattern of genetic isolation by distance has been observed, indicating limits to gene flow between populations that are more than a few hundred kilometers apart such that genetic isolation increases with distance (FitzSimmons et. al. 2003). The eastern Australian stock has been stable over last 30 years (Limpus et al. 2002). Long term data for the West Australian stock has not been analysed. There is no long-term census data for northern Australia. It is thought that population decline must be occurring in the Gulf of Carpentaria because of predator loss of eggs and other losses.

References:-

Bowen, B. W., Clark, A. M.; Abreu-Grobois, F. A., Chaves, A., Reichart, H. A., and Ferl, R. J. 1998. Global phylogeography of the ridley sea turtles (Lepidochelys spp.) inferred from mitochondrial DNA sequence data. Genetica, 101:179-89.

FitzSimmons, Nancy; Lachlan W. Farrington; Megan J. McCann; Craig Moritz, and Colin J. Limpus. 2003. Final Report to Environment Australia: Genetic Identification of Australian Marine Turtle Stocks and their Representation at Feeding Grounds and in Regional Harvests.

Limpus, C.J. 2003. pers. comm. Department of the Environment and Heritage. Canberra.

Limpus, C.J. and Chatto, R. 2004. 'Marine Turtles' In National Oceans Office. Description of Key Species Groups in the Northern Planning Area. National Oceans Office: Hobart, pp 113- 136.

Limpus, C. J. and Limpus, D. J. 2003. The loggerhead turtle, Caretta caretta, in the equatorial and southwest Pacific Ocean: a species in decline. In: Witherington, B. and Bolten, A. Biology and Conservation of Loggerhead Turtles. Washington, D. C., Smithsonian Institution Press, pp. 199-209.

Limpus, C. J. and Miller, J. D. 2000. Australian hawksbill turtle population dynamics project. Final report. Brisbane: Queensland Parks and Wildlife Service.

Limpus, C. J.; Parmenter, J., and Limpus, D. J. 2002. The status of the flatback turtle, Natator depressus, in Eastern Australia. NOAA Technical Memorandum NMFS-SEFSC, 477:140-142.

Limpus, C. J.; Miller, J. D.; Parmenter, C. J., and Limpus, D. J. 2003. The green turtle, Chelonia mydas, population of Raine Island and the northern Great Barrier Reef: 1843-2001. Memoirs Queensland Museum, 49(1):349-440.

Whiting, S., Hadden, K., Long, J., Lauder, A. and Kleidon, A. 2006. Sea Turtle Conservation and Education on the Tiwi Islands, Final Report to Natural Heritage Australia, Canberra. http://www.environment.gov.au/coasts/publications /index.html

Whiting, S. D., Long, J., Hadden, K. and Lauder, A. (in press). Insights into size, seasonality and biology of the olive ridley turtle in northern Australia. Wildlife Research, 34, 1-11.

3.3.2 Are research and monitoring activities, such as those described above in Section 3.1 periodically reviewed and evaluated for their efficacy? [SAP]

■ **YES** ☐ NO ☐ UNSURE

The National Turtle Recovery Group provides a forum through which research priorities can be reviewed on a regular basis, and new priorities set.

A review of the Western Australian monitoring program was undertaken in 2003 (Limpus, unpub). The changes recommended in this review are in the process of being implemented.

3.3.3 Describe how research results are being applied to improve management practices and mitigation of threats (in relation to the priority populations identified in 3.3.1, among others). [SAP]

As discussed generally in Sections 3.3.1 to 3.3.3 and others, long term monitoring projects are undertaken to detect long term changes in population trends to identify priority areas for management. Tagging and genetic studies provide information on genetic diversity, migration patterns and key nesting and foraging areas to help identify phases critical sites for protection. Information on life history parameters are used for population modelling studies to estimate sustainable levels of harvest and to model other impacts on populations. Research on interactions between marine turtles and fisheries are used to mitigate these threats (see details in Section 1.4).

Predation rates are being used on the Tiwi Islands to determine whether predator control is needed on an olive ridley nesting beach.

3.4.1 Has your country undertaken any initiatives (nationally or through collaboration with other Range States) to standardise methods and levels of data collection? [BPR, INF]

■ **YES** ☐ NO ☐ UNSURE

A Technical Working Group of turtle researchers participating in the National Turtle Recovery Group have developed draft national protocols for the monitoring of marine turtle populations. The draft National Protocol for Marine Turtle Nesting Beach Monitoring are expected to be finalised in 2007.

In Queensland, staff from James Cook University and Queensland Parks and Wildlife Service are engaged in training in neighbouring countries.

3.4.2 To what extent does your country exchange scientific and technical information and expertise with other Range States? [SAP, IND]

■ **OFTEN (SYSTEMATICALLY)** ☐ OCCASIONALLY ☐ RARELY ☐ NEVER

3.4.3 If your country shares scientific and technical information and expertise with other Range States, what mechanisms have commonly been used for this purpose? Comment on any positive benefits/outcomes achieved through these interactions. [INF]

Results of research are disseminated through training courses in turtle research, management and monitoring; as scientific advisors to Pacific Regional Environment Programme regional marine turtle conservation programme, collaboration in developing a Pacific Regional Environment Programme turtle database, conference and meeting attendance, through networks, print media, the internet and other publications.

See for instance:

http://www.environment.gov.au/coasts/species/turtles/index.html or
http://www.gbrmpa.gov.au/corp_site/key_issues/conservation/threatened_species/turtles/

3.4.4 Does your country compile and make available to other countries data on marine turtle populations of a regional interest? [INF]

■ **YES** ☐ NO ☐ UNSURE

Queensland Parks and Wildlife has developed a regional mapping system for marine turtles nesting populations and their breeding migrations in the Indo-Pacific Region. Col Limpus, from Queensland Parks and Wildlife Service has also provided technical input into the Pacific regional database, which has been produced to accommodate and handle the

various data sets being produced around the Pacific countries.

Queensland Parks and Wildlife Service has also formed an eco-tourism partnership with Earthwatch Institute, which provides funding support for long term monitoring of hawksbill turtle populations. Outcomes of this research are disseminated internationally.

Data on marine turtle populations is made publicly available, when ever possible.

OBJECTIVE IV. INCREASE PUBLIC AWARENESS OF THE THREATS TO MARINE TURTLES AND THEIR HABITATS, AND ENHANCE PUBLIC PARTICIPATION IN CONSERVATION ACTIVITIES

4.1.1 Describe the educational materials, including mass media information programmes that your country has collected, developed and/or disseminated. [INF, PRI]

The Australian Government has funded the following information/education programmes:

* The Australian Government and the Marine Education Society of Australasia launched an awareness raising campaign focusing on marine bycatch in wild fisheries in March 2007.

* The Australian Government is currently funding a three year project running from 2005 to 2008 to promote knowledge transfer and exchange on community turtle monitoring and conservation. Specific objectives of the project include: the development of a nationally accredited volunteer training programme; a study monitoring the impact of visitors at nesting beaches; the development and testing of a National Code of Conduct for visitor-turtle interactions.

* The NHT funded the Marine Turtle (and Dugong) Management Project includes a public education, awareness and information initiatives including a traditional knowledge handbook, an art competition and communication strategy through (see Section 1.2.1 for details).

* The Carpentaria Ghost Nets project (see Section 1.2.1), includes an awareness raising program in schools, a Gulf ghost nets website and community awareness raising through posters, radio and newsletters.

* Australian Seabird Rescue's Operation Coastline project under Envirofund that ran during 2004-05 to encourage stewardship in coastal communities to reduce human impact on coastal wildlife. Specific aims of the project included school talks, increased awareness through public speaking and the media, training of community members in proactive monitoring, public relations, and specific rescue and rehabilitation techniques for seabirds, shorebirds and marine turtles. Eight coastal communities, 40 school groups and at least 12 community groups were targeted.

* A network of community groups to monitor marine turtles and deliver education programs, such as the Indo-Pacific Sea Turtle Conservation group. The Indo-Pacific Sea Turtle Conservation Group has undertaken an extensive public education program throughout north-eastern Queensland.

* A short video, a turtle lifecycle play, and an entire school semester on turtle biology, conservation and culture was undertaken on the Tiwi Islands coinciding with the NHT funded project Sea turtle conservation and education on the Tiwi Islands (see section 1.2.1).

* SeaNet Environmental Extension Service for the fishing industry to work with industry to reduce bycatch and adopt best practice management with respect to environmental impacts.

Nationally, the Australian Government's Natural Heritage Trust has funded the following education materials:

* Codes of conduct for tourist interactions (both on-shore and in-water) with turtles, an on-going project

* The production of waterproof flipcards to help in the identification of marine species, including marine turtles, likely to be encountered by fishers.

* An educational DVD titled 'One in a Thousand' funded by the Fisheries Research Development Corporation. The DVD will be distributed to all primary schools in Australia as an education tool on marine turtles.

* The development of the WWF-Australia Net Kit, a guide to identifying fishing nets, which includes the identification and reporting of entangled marine turtles.

* In 2006 a website was developed to support the bilingual Green Turtle Dreaming exhibition, which examines the relationship of northern coastal Indigenous Australian communities and coastal Indonesian communities have with marine turtles. See http://www.mfgsc.vic.edu.au/greenturtledreaming/

* The Marine Turtle Recovery Newsletter, which provides updates on activities related to turtle conservation and management. The newsletter is widely available via various networks or on the following website:

http://www.environment.gov.au/coasts/publications/turtle-newsletter/index.html

* A brochure on Marine turtles in Australia (1997)

* A colour brochure on Indo-Pacific marine turtles (which also comes in an Indonesian language version) in association with the Queensland Environment Protection Agency

* A Protected Species ID Guide which provides details on location and identifying characteristics of protected marine species including marine turtles (2007)

In the Great Barrier Reef Marine Park, GBRMPA has educational material such as turtle information kits, websites, posters, turtle ID brochures. GBRMPA administers the Reef Guardian Schools Program which encourages school students to be environmentally active and committed "Reef Guardians". An education strategy and campaign has been implemented to enhance public awareness of the value and plight of turtles, and outlines how people can assist. Mass information programmes include media releases, television community service announcements asking boaters to reduce speeds in shallow waters throughout the World Heritage Area, reef user workshops to promote Best Environment Practices to boat users, liaison with advisory committees and stakeholders such as boaters, fishers, and Indigenous communities.

In the Torres Strait, CRC Torres Strait has trained high school teachers in Seagrass Watch and the Torres Strait Regional Authority (TSRA) and Australian Fisheries Management Authority (AFMA) has promoted the need and the importance of managing marine turtles with year 11 students. The TSRA has also produced a school education kit in local Torres Strait Islander languages as part of the Turtle and Dugong Management Project described in section 1.2.1. The education kit is to be incorporated into the Queensland educational curriculum for Years 3-4.

In Cocos-Keeling Islands education occurs at a local level by researchers and government officers through presentations and viewing of research.

The Queensland Parks and Wildlife Service has developed a series of leaflets concerning marine turtles, including "Hints for turtle watching along the south Queensland coast" (http://www.gbrmpa.gov.au/corp_site/key_issues/conservation /threatened_species/actions.html#Boat%20Strikes) and a "tags wanted" poster has been developed and distributed throughout northern Australia and the South Pacific to encourage tag returns. In Queensland, media programmes include television advertising for go-slow zones and reduction in boat-strike in shallow waters and TV documentaries on marine turtles.

In Western Australia, the Department of Environment and Conservation has a range of information pamphlets, and is developing a series of web pages about turtles to be posted on the Naturebase website - www.naturebase.net. School and community group talks are undertaken when requested. The Ningaloo Community Turtle Monitoring Project has developed a website at www.ningalooturtles.org.au. The public is notified about beach closures in sensitive mainland rookeries and about the introduction of fox-baiting campaigns that place domestic dogs at risk.

In the Northern Territory, turtle carapaces and mounted young specimens are used in local public talks. The Dhimurru Land Management Aboriginal Corporation has produced an educational video, Nhaltjan Nguli Miwatj Yolngu Djaka Miuapunuwu: Sea turtle conservation and the Yolngu people of north east Arnhem Land, about their collaborative marine turtle research and management project. The Dhimurru Rangers and Yirralka Dhanbul Landcare have also developed a program to involve local schools in sea country management and awareness activities. Marine debris and marine turtle fact sheets have been produced associated with NetKit - a guide to identifying fishing nets, to help to educate volunteers, industry and the general public. Occasional local media coverage occurs on marine turtle incidents/activities. A new non-profit group called AusTurtle has formed in the NT that will help raise money for research projects and also produce and disseminate educational material.

Australia facilitates networking and information exchange through the contribution of web-sites and newsletters:

The Australian Government Department of the Environment and Water Resources Website:
http://www.environment.gov.au/coasts/species/turtles/index.html
The National Turtle Recovery Group Newsletter, which is available at:
http://www.environment.gov.au/coasts/species/turtles/newsletter/index.html

Great Barrier Reef Marine Park Authority website including stranding list server:
http://www.gbrmpa.gov.au/corp_site/info_services/stranding_announce
http://www.gbrmpa.gov.au/corp_site/key_issues/conservation/natural_values/marine_turtles

The Australian Government Department of Agriculture, Fisheries and Forestry Website:
http://www.affa.gov.au/content/publications.cfm - ObjectID=26A9E754-A7F8-4368-8861A9BA4D5F5663

WWF's tracking work is displayed on www.seaturtle.org to allow international access.

The Australian Institute of Marine Science's website: http://www.aims.gov.au/ipstcg/

4.1.2 Which of the following groups have been the targets of these focused education and awareness programmes described in above in Section 4.1.1? [PRI, INF]

- ■ **Policy makers**
- ■ **Fishing industry**
- ■ **Local/Fishing communities**
- ■ **Indigenous groups**
- ■ **Tourists**
- ■ **Media**
- ■ **Teachers**
- ■ **Students**
- ■ **Military, Navy, Police**
- ☐ Scientists
- ☐ Other:
- ☐ None of the above

Section 4.1.1 provides further detail.

In the Northern Territory, schools and junior ranger groups are targeted through the Community Education section of Northern Territory Parks and Wildlife Commission, and members of the public through the Parks and Wildlife Commission for activities such as hatchling releases on Darwin beaches.

In Western Australia, the marine turtle tourism interpretative centre provides talks to schools and community groups when requested, regular news articles are published in local newspapers, and occasionally stories about turtles are run on local radio and television.

In Queensland, the Indo-Pacific Sea Turtle Conservation Group provides displays and gives talks to schools, teachers and the general public in the Townsville region. ReefHQ aquarium in Townsville promotes turtle conservation messages and the aquarium's mascot is a turtle. The Mackay and District Turtle Watch Group assists with monitoring of nesting turtles and has developed brochures for schools and the general public in the Mackay region.

4.1.3 Have any community learning / information centres been established in your country? [BPR, SAP]

■ **YES** ☐ NO

In the Northern Territory, displays are located at Black Point Ranger Station and the Dhimurru Land Management Aboriginal Corporation office in Nhulunbuy, Northern Territory.

The Lianthiwirriyarra Ranger Station in Borroloola, NT displays educational posters and other educational information in their office aimed at both ranger and general community education and awareness raising.

In Queensland, a turtle ecotourism and information centre exists at Mon Repos Conservation Park providing comprehensive interpretative and educational information. A major museum display on marine turtles is also housed at the Queensland Museum in Brisbane.

In Western Australia, a marine turtle tourism interpretative centre has been built at North-West Cape (Jurabi), and second centre is planned for Port Hedland. These interpretive centres provide information to people living and visiting the local area.

4.2 Alternative livelihood opportunities [IND, BPR] Describe initiatives already undertaken or planned to identify and facilitate alternative livelihoods (including income-generating activities) for local communities.

The Australian Government funded a Marine Turtle and Dugong Management project to be run over three years with Indigenous communities on dugong and turtle management (see Section 1.2.1). A component of the project will be the study of socio-economic factors impacting levels of traditional harvest. Such factors may include the high costs of fresh meat in remote communities which results in reliance on turtles as a subsistence livelihood. The socio-economic study is expected to be completed during early 2008.

In 2000-01 the Australian Government funded a project titled Development of Aquaculture as an Alternative Income Generating Livelihood for Traditional Indonesian Fishers Dependant On Declining Fisheries in Australian Waters. The

project involved a study of socio-economic issues facing traditional Indonesian fishers who access the MoU box in the Timor Sea, and the review and assessment of feasible alternative livelihoods.

4.3.1 Describe initiatives already undertaken or planned by your country to involve local communities, in particular, in the planning and implementation of marine turtle conservation programmes. Please include details of any incentives that have been used to encourage public participation, and indicate their efficacy. [BPR, IND]

The Recovery Plan for Marine Turtles in Australia acknowledges that marine turtles are of economic, cultural, and spiritual importance to Indigenous Australians and that Governments need to work with Indigenous communities to develop management strategies as a priority. As a result the Government is implementing the National Partnership Approach described in section 1.2.1.

The Australian Government's Natural Heritage Trust is supporting regional communities to identify key natural resource management (NRM) issues and to develop and implement response strategies within the context of a regional natural resource management plan. As detailed in Section 1.6, NRM Plans are required to address issues of National Environmental Significance, including the protection and managements of endangered and migratory marine species such as marine turtles. Plans are being developed for all regions across Northern Australia.

Projects funded through other components of the Natural Heritage Trust include:
* Commitment of A$3.8m to the Marine Turtle and Dugong Management a project across northern Australia to directly engage Indigenous communities in the sustainable management marine turtle (and dugong) populations (see Section 1.2.1)
* The Carpentaria Ghost Nets project (see Section 1.2.1)., intended to assist regional communities (particularly Indigenous communities) address problems caused by marine debris;
* A project to develop a tourist operator's code of conduct for interactions with marine turtles, including on-line and in-person workshops with tourist operators, management agencies, NGO's and Indigenous representatives;
* A pilot project involving Indigenous rangers and communities on the Cape York peninsula to monitor the impact culling of feral pigs and dogs (see section 1.2.1);
* A project for Traditional Owners and Indigenous Rangers to monitor turtles and dugong in the Girringun TUMRA region (see section 1.2.1);
* A $112,500 turtle and dugong monitoring and management project around the Sir Edward Pellow Islands in the Northern Territory. The project was funded in 2004-05 as part of the Regional component of the Natural Heritage Trust;
* $25,000 was provided in 2003-04 through Envirofund to assist the development of the Warruwi Community Ranger Program in the Northern Territory. The project was to identify priorities for land and sea management and included a survey for marine debris, turtles and dugong.
* Envirofund has also supported community monitoring of turtles at a range of locations across Australia including the Dampier Archipelago, Western Australia (2004-05) and Caloundra in Queensland (2006-07).

In the Northern Territory, collaboration with Traditional Owners occurs in relation to dog-baiting programs on Aboriginal land, marine-debris and entanglement surveys and Indigenous Sea Ranger training workshops. Research is conducted at Bare Sand Island with the consent of the Traditional Owners of the island. Community education is principally on the island with volunteers and the general public. Formal audio-visual presentations are given to tourist groups visiting the island. The Aboriginal people in Kakadu have been involved in long-term turtle monitoring programs on Field Island, including tagging, nest fate monitoring and collecting genetic samples for national stock assessment program. A new non-profit group called AusTurtle has formed in the Northern Territory that will help raise money for research projects and also produce and disseminate educational material. This group will work with others groups such as universities and Traditional Owners.

WWF-Australia's NetKit has provided a vehicle for commercial fishers to participate in marine turtle conservation through providing feedback on sea turtle oceanic strandings and marine debris.

In Western Australia, the marine turtle tourism interpretative centre and the Ningaloo Community Turtle Monitoring Program have been developed to raise community awareness and involvement in marine turtle conservation activities. The monitoring program has been extended to Port Hedland and Wickham, where community groups are the driving forces. Along the Ningaloo coast, local pastoral lease holders are collaborating with the Western Australian Department of Environment and Conservation in fox baiting and monitoring programs.

The Great Barrier Reef Local Marine Advisory Committees put out media releases on turtle nesting and hatching to alert communities of possible impacts during nesting and hatching times.

4.3.2 Describe initiatives already undertaken or planned to involve and encourage the cooperation of Government institutions, NGOs and the private sector in marine turtle conservation programmes. [IND, BPR]

Nationally, the Australian Government set up the Natural Heritage Trust in 1997 to help restore and conserve Australia's environment and natural resources. Thousands of community groups, non-government organisations and members of the private sector have received funding for environmental and natural resource management projects including marine turtle projects, at the community, regional and national level.

The Australian Government has also established the National Turtle Recovery Group. The Group consists of representatives from Indigenous and scientific communities, the commercial and recreational fishing industry, as well as State and Territory Governments and the Australian Government and non-government conservation organizations. Members of the National Turtle Recovery Group include representatives with a diverse range of experience and a high degree of knowledge relating to turtle biology, ecology and management of marine turtles. The Group has been established to advise and assist the Australian Government on the implementation and evaluation of the Plan, and to identify priority actions.

The National Turtle Recovery Newsletter is used to inform, and encourage networking between, researchers, Indigenous communities, Government, non-government organisations and other stakeholders.

Marine turtle conservation and management will be a priority of the Natural Resource Management Strategy funded under the Australian Government's Natural Heritage Trust for the Torres Strait region.

The Dugong and Marine Turtle Project and the Carpentaria Ghost Nets project described in Section 1.2.1, both flag the need for targeted and coordinated research, and have established expert 'reference groups' to ensure project activities (eg monitoring programs) are based on best practice.

In the Northern Territory, government, non-government organisations and general community initiatives include: Indigenous Sea Ranger Workshops, training visits, assistance with funding applications, as well as research volunteers at Bare Sand Island, who come from Conservation Volunteers Australia and Odyssey Adventures as well as the general public.

In the Great Barrier Reef Marine Park, Australian Government Natural Heritage Trust funding occurs of organisations like the Indo-Pacific Sea Turtle Conservation Group and Mackay Turtle watch, and the Reef Guardian Schools Program. Work at Cocos (Keeling) Islands is a joint effort between the Department of the Environment and Heritage and Biomarine International.

In Western Australia, a number of partners are involved in the community turtle monitoring programs at Ningaloo, Port Hedland and Wickham, and the long term census tagging program, including WWF, Cape Conservation Group, Murdoch University, Care For Hedland Environmental Association, BHP Billiton Iron Ore, Pilbara Iron, Woodside Energy, Chevron Australia, Apache Energy, Gorgon, MacMahon, Threatened Species Network, Natural Resource Managment Regional Coordinating Group, Coastcare and Dampier Primary School. Collaboration is occurring between the Western Australian Department of Conservation and Land Management and James Cook University to undertake field trials of the National Code of Conduct for watching/interacting with marine turtles.

OBJECTIVE V. ENHANCE NATIONAL, REGIONAL AND INTERNATIONAL COOPERATION

5.1.1 Has your country undertaken a national review of its compliance with Convention on International Trade in Endangered Species (CITES) obligations in relation to marine turtles? [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

Australia has not undertaken a national CITES review specifically for marine turtles, however, we provide annual trade and compliance reports to the CITES Secretariat as well as biannual reports on Australia's administration and legal arrangements in relation to CITES.

5.1.2 Does your country have, or participate/cooperate in, CITES training programmes for relevant authorities? [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

Yes - for the Oceania region.

5.1.3 Does your country have in place mechanisms to identify international illegal trade routes (for marine turtle products etc.)? Please use the text box to elaborate on how your country is cooperating with other States to prevent/deter/eliminate illegal trade. [SAP]

■ **YES** ☐ NO ☐ NOT APPLICABLE

Australia is a Party to CITES, and the Australian Customs Service screens all imports into the country. All illegally exported/imported CITES or native specimens that are detected by the Australian Customs Service are seized. Seizure notices are issued to people found illegally exporting/importing specimens, and the details (including country of origin and country of export) are recorded in a central, searchable database. Penalties for breaches under the EPBC Act range from seizure of the specimen or products to the application of severe fines and/or prison sentences. Strong enforcement relationships with other CITES Management Authorities and customs organisations (particularly in the Oceania region), enable effective exchange of information concerning breaches of CITES.

All officers of the Australian Customs Service are inspectors ex officio under the EPBC Act. Members of the Australian Federal Police and police forces from external territories as well as quarantine officers under the Quarantine Act 1908 are also inspectors ex officio under the EPBC Act

5.1.4 Which international compliance and trade issues related to marine turtles has your country raised for discussion (e.g. through the IOSEA MoU Secretariat, at meetings of Signatory States etc.)? [INF]

Bilateral discussions with other States on direct harvest of turtles in Australian waters are undertaken.

In particular, discussions are ongoing with Papua New Guinea under the Torres Strait Treaty arrangements through the Joint Advisory Committee and Environmental Management Committee (see Section 1.5.5). These discussions include the need for sustainable harvest of marine turtles, protection of critical habitats and the issues of the illegal take of marine turtles by foreign fishers in Australian waters.

Officials from the Government of Australia and Indonesia meet annually at the Working Group on Marine Affairs and Fisheries. Marine turtle conservation and management is discussed.

There is also the Arafura/Timor Sea Experts Forum (ATSEF), a non-binding forum for collaboration between Indonesia, Timor Leste and Australia for the sustainable use of the living resources of the Arafura and Timor Seas (see Section 5.3.2).

Australia also promotes synergies with other regional/global convention secretariats such as the Pacific Regional Environment Program.

5.1.5 Describe measures in place to prevent, deter and eliminate domestic illegal trade in marine turtle products, particularly with a view to enforcing the legislation identified in Section 1.5.1. [INF]

As detailed in Section 1.5.1, Australia's Environment Protection and Biodiversity Conservation Act (1999) and state/territory government legislation regulate domestic trade in marine turtle products.

Some education and awareness material is also used, including media collaboration with Coastwatch/the Australian Customs Service.

5.2.1 Has your country already developed a national action plan or a set of key management measures that could eventually serve as a basis for a more specific action plan at a national level? [IND]

■ **YES** ☐ NO

The 2003 Recovery Plan for Marine Turtles in Australia identifies the following priorities for management measures:

* Maintain and enhance existing levels of protection for marine turtles to enable population growth so that these species may be removed from the threatened species list under the Environment Protection and Biodiversity Conservation Act (1999),

* Ensure that any future anthropogenic impacts do not limit population growth; and,

* Continue to encourage regional protection, conservation and management throughout their range.

In accordance with the EPBC legislation, DEW must undertake a complete review of the Recovery Plan within five years from the date when it was made. In 2005, the National Turtle Recovery Group completed a review of the actions and objectives of the current plan and because a number of these had been completed or were out-of-date, a decision was made to review the plan early. The revised Recovery Plan is expected to be completed in 2008.

The Australian Government has been working in association with State and Territory Governments to identify regions across Australia to facilitate integrated delivery of Natural Resource Management priority issues. Regional bodies, State/Territory governments and the Commonwealth work together to develop integrated natural resource management plans for each region in Australia. Regional plans set out the means for identifying and achieving the region's natural resource management targets and are agreed by Government and the community. These plans are subject to regular review. See http://www.nrm.gov.au/about-regions/index.html#plans for more information.

Australia's governments are working together to set up a national system of protected areas throughout our entire marine zone. Marine Protected Areas are land and/or sea especially dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources, and managed through legal or other effective means. Depending on where they are located, marine protected areas in Australian waters may be managed by State, Territory or Commonwealth government agencies, or a combination of government agencies. Management Plans have been developed for the majority of Commonwealth Marine Parks. The Management Framework for Ningaloo Marine Park was developed in 2002 and includes a framework for the conservation of marine turtles in Ningaloo. The plan is available at: http://www.environment.gov.au/coasts/mpa/ningaloo/plan/pubs/plan.pdf.

The National Partnership Approach for the Sustainable Harvest of Turtle and Dugong (the Partnership) is an initiative of the Natural Resource Management Ministerial Council (NRMMC) to form a partnership between the Australian, Western Australian, Northern Territory and Queensland Governments, the Torres Strait Regional Authority and relevant Aboriginal and Torres Strait Islander communities. The key objective of the Partnership is to understand the experiences and aspirations of Indigenous communities in relation to management of the sustainable harvest of turtle and dugong and to use this to inform policy and programme development and implementation by Australian governments. The Partnership operates though a series of meetings that are held in Indigenous communities or regions. Key Government and Indigenous stakeholders are invited to discuss the issues of sustainable harvest.

In Western Australia, a review process is specified in most, if not all management plans, and a specific turtle recovery and management plan is being developed.

5.2.2 From your country's perspective, which conservation and management activities, and/or which particular sites or locations, ought to be among the highest priorities for action? [PRI]

Please note that as Australia has shared international boundaries and turtle stocks with Indonesia and Papua New Guinea (and other Melanesian countries such as Solomon Islands and Vanuatu), the following activities should be taken both domestically and in partnership with Indonesia and/or Papua New Guinea and other Melanesian countries:

1.5 e) Negotiate, where appropriate, management agreements on the sustainable level of traditional harvest, in consultation with other concerned States, to ensure that such harvest does not undermine conservation efforts.

1.4 a) Develop and use gear, devices and techniques to minimise incidental capture of marine turtles in fisheries, such as devices that effectively allow the escape of marine turtles, and spatial and seasonal closures. Reduce incidental capture by introducing Turtle Excluder Devices (TEDs).

3.1 a) Conduct baseline studies or gather secondary information on marine turtle populations and their habitats, particularly in relation to the potential impacts of climate change.

1.6 c) Minimise the mortality of eggs, hatchlings and nesting female turtles caused by feral and domestic animals.

2.1 b) Designate and manage protected/conservation areas, sanctuaries or temporary exclusion zones in areas of critical habitat, or take other measures (e.g. modification of fishing gear, restrictions on vessel traffic) to remove threats to such areas.

2.1 d) Undertake assessments of the environmental impact of marine and coastal development and other human activities that may affect marine turtle populations and their habitats.

2.1 e) Manage and regulate within each jurisdiction the use of beaches and coastal dunes, for example location and design of buildings, use of artificial lighting, and transit of vehicles in nesting areas.

2.1 f) Monitor and promote the protection of water quality from land-based and maritime pollution, including marine debris, that may adversely affect marine turtles.

2.2 b) Remove debris that impedes turtle nesting and hatchling production.

3.2 b) Conduct colaborative studies and monitoring on genetic identify, conservation status, migrations and other biological and ecological aspects of marine turtles.

4.2 a) Involve stakeholders, and local communities in particular, in planning and implementation of conservation and

management measures.

5.2.3 Please indicate, from your country's standpoint, the extent to which the following local management issues require international cooperation in order to to achieve progress. [PRI]

Illegal fishing in territorial waters	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Incidental capture by foreign fleets	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Enforcement/patrolling of territorial waters	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Hunting/harvest by neighboring countries	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Poaching, illegal trade in turtle projects	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Development of gear technology	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Oil spills, pollution, marine debris	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Training / capacity-building	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Alternative livelihood development	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL
Identification of turtle populations	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Identification of migration routes	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Tagging / satellite tracking	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Habitat studies	☐ ESSENTIAL ■ **IMPORTANT** ☐ LIMITED ☐ NOT AT ALL
Genetics studies	■ **ESSENTIAL** ☐ IMPORTANT ☐ LIMITED ☐ NOT AT ALL

International cooperation is essential for the following local management issues:

* Hunting of green turtles at Browse Island
* International long line fisheries
* Hawksbill turtle harvest in Solomon Islands (possible stockpiling of turtle shell) of turtles nesting and foraging in the Great Barrier Reef World Heritage Area
* Papua New Guinean turtle harvest in Torres Strait (including Australian waters) for selling in Daru
* Identifying the sustainable harvest of marine turtles in the Papua New Guinea and Australian sectors of the Torres Strait
* Foreign nets and other marine debris discarded in international/non-Australian waters which wash ashore on beaches in the Northern Territory and Gulf of Carpentaria, usually resulting in mortality of marine turtles and other marine creatures). Research indicates most derelict fishing gear originates from international sources, rather than from the Australian fishing industry.

5.3.1 Identify existing frameworks/organisations that are, or could be, useful mechanisms for cooperating in marine turtle conservation at the sub-regional level. Please comment on the strengths of these instruments, their capacity to take on a broader coordinating role, and any efforts your country has made to enhance their role in turtle conservation. [INF, BPR]

Officials from the Government of Australia and Indonesia meet annually at the Working Group on Marine Affairs and Fisheries. Marine turtle conservation and management is discussed.

There is also the Arafura/Timor Sea Experts Forum (ATSEF), a non-binding forum for collaboration between Indonesia, Timor Leste and Australia for the sustainable use of the living resources of the Arafura and Timor Seas (see Section 5.3.2).

The need for complementary sustainable management of harvesting of marine turtles within Torres Strait is discussed by the Joint Advisory Committee and Environmental Management Committee under the Torres Strait Treaty arrangements (see Section 1.5.5).

Australia also promotes synergies with other regional/global convention secretariats such as the Pacific Regional Environment Program.

The Australian Government is currently supporting the proposed development of a regional conservation arrangement for marine turtles in the Pacific. Australia will work with its Pacific neighbours and existing regional conservation organisations such as the Pacific Regional Environment Programme to help develop this plan.

WWF has an Asia Pacific Regional Action Plan for Marine Turtles and has active marine turtle conservation programs across the region, involving offices in Fiji, PNG, Solomon Islands, New Caledonia, Australia, Indonesia including Papua, Philippines, Malaysia, Vietnam, Thailand, India and East Africa countries. Activities include the full spectrum of on-the-ground and policy work with communities and governments to protect critical habitat and curb direct and indirect take of turtles, including through fisheries gear reform and harvest of eggs and meat. Initiatives are also underway with the tourism industry in Thailand, and through TRAFFIC to monitor international trade. WWF-Australia hosts the regional Marine Turtle Coordinator and is actively supporting a coordinated set of marine turtle conservation activities in the South Pacific and Melanesia regions, including regular meetings to facilitate lesson learning and information exchange, and there is a draft WWF South Pacific marine turtle strategy.

5.3.2 Has your country developed, or is it participating in, any networks for cooperative management of shared turtle populations? [BPR, INF]

■ **YES** ☐ NO ☐ NOT APPLICABLE

5.3.3 What steps has your country taken to encourage Regional Fishery Bodies (RFBs) to adopt marine turtle conservation measures within Exclusive Economic Zones (EEZs) and on the high seas? [SAP]

The Australian Government seeks to ensure that relevant RFBs take appropriate approaches towards turtle conservation in line with approaches implemented domestically. Australia sees it as a priority to implement the United Nation Food and Agriculture (FAO)'s Technical Guidelines for Responsible Fisheries, as well as the FAO Guidelines to Reduce Sea Turtle Mortality in Fishing Operations.

5.4.1 Describe your country's needs, in terms of human resources, knowledge and facilities, in order to build capacity to strengthen marine turtle conservation measures. [PRI]

There is a need to continue to build on and resource current initiatives (see Sections 1.2.1, 1.3.1, 1.5.2, 1. 5.3, 1.6.2, 3.1.7 & 4.3.1) that increase the capacity of Indigenous communities to implement marine turtle management and monitoring activities at a local level.

There are large areas of North Western Australia, particularly the island habitats that have not been adequately surveyed to determine whether there are significant or critical habitats for turtles present.

5.4.2 Describe any training provided in marine turtle conservation and management techniques (e.g. workshops held, training manuals produced etc.), and indicate your plans for the coming year. [PRI, INF]

The National Turtle Recovery Group has also been established to advise the Australian Government on the implementation of the Turtle Recovery Plan. There are Australian Government representatives, provincial government representatives, expert scientists, members of non-government conservation organizations and Indigenous representatives on the Recovery Group. The Group helps ensure conservation efforts are not duplicated.

The Australian Government funded initiatives include:
* The project involved training Traditional Owners on the Tiwi and Melville Islands in satellite tracking of marine turtles as well as school and community awareness raising activities, harvest monitoring and feral dog control at nesting beaches to increase hatchling survivorship. This project was completed in 2006 and the report is available at: http://www.environment.gov.au/coasts/publications/index.html
* Hawksbill and green turtles in the Torres Strait. Traditional Owners were trained to participate in satellite tagging of hawksbill and green turtles, monitoring of reproductive status of green turtles using laparoscopic examination and harvest monitoring. The project was completed in 2006 and the report is available online at: http://www.seaturtle.org /tracking/ - project_id=100
* Funding for organisations such as the Indo-Pacific Sea Turtle Conservation Group and community groups, to monitor marine turtles and deliver education programs, including training workshops on turtle monitoring.

* A tourist operator's code of conduct for interactions with marine turtles, including on-line and in-person workshops with tourist operators, management agencies, NGO's and Indigenous representatives.
* A project to hold workshops in Central coastal NSW with registered organizations on the care of sick and injured turtles and the creation of signs to raise awareness on marine turtles found in the region, the threats to them and how people can minimize threats.

In the Northern Territory, occasional workshops and on-site activities occur in relation to marine turtle conservation and management. The Northern Territory Government has continued training (previously conducted by WWF) in monitoring techniques on the Tiwi Islands, Groote Eylandt and Sir Edward Pellew Islands.

Training in GIS has also been provided to several Indigenous Sea Rangers groups by WWF over the past few years through projects such as the Tiwi Island engagement project described above.

An eco-tourism venture has been established on western Cape York to provide financial opportunities for local Indigenous communities to undertake nesting turtle monitoring, feral pig eradication/control and ghost net removal.

In Western Australia, community volunteer turtle monitors are formally trained in a competency based program to identify species of turtle and nesting activity on nesting beaches at Ningaloo, Port Hedland and Wickham. A turtle tour guide training program has also been developed through collaboration between the Western Australian Department of Environment and Conservation and Exmouth TAFE to ensure consistent and appropriate delivery of information on turtles during commercial turtle tours.

The Fisheries Research and Development Corporation funded the project 'Sea Turtle Mitigation for Australian Pelagic Longline Fisheries' in 2003. This project is being implemented through a video, onboard research and a series of port visits to educate fishers on turtle conservation, handling, and resuscitation techniques. Longline boats in Mooloolaba (Queensland) are participating in the project, and fishers are reacting positively and seem eager to get involved. Workshops to provide fishers with the incentives and the knowledge to reduce sea turtle mortality have been conducted nationally with good attendance form both fishers and observers. Post workshop discussions have indicated that most fishers considered the workshops to be beneficial with some fishers urging others to attend. A draft report on the project is expected in mid-2007.

Ongoing transfer of information from SeaNet officers with the fishing industry in reducing interactions with protected species, including turtles.

See Section 4.1.1 for additional information.

5.4.3 Specifically in relation to capacity-building, describe any partnerships developed or planned with universities, research institutions, training bodies and other relevant organisations. [BPR]

Australian Government Natural Heritage Trust funding supports partnerships with universities, researchers, provincial governments, community groups and Indigenous communities.

In Western Australia, a number of partners are involved in the community turtle monitoring programs at Ningaloo, Port Hedland and Wickham, and the long term census tagging program, including WWF, Cape Conservation Group, Murdoch University, Care For Hedland Environmental Association, BHP Billiton Iron Ore, Pilbara Iron, Woodside Energy, Chevron Australia, Apache Energy, Gorgon, MacMahon, Threatened Species Network, Natural Resource Management Regional Coordinating Group, Coastcare and Dampier Primary School. A turtle tour guide training course has been developed between the Department of Environment and Conservation in Exmouth and the Exmouth TAFE, to ensure accreditation of guides taking tourists to see turtles. The Department of Environment and Conservation in Western Australia also supports university research (PhD students) with in-kind support and advice.

In the Northern Territory, Charles Darwin University has developed the Key Centre for Tropical Wildlife Management, with involvement from Government. A non-profit group, AusTurtle, also exists, which is providing funds and equipment to research groups.

In the Great Barrier Reef World Heritage Area partnerships have been developed between the Great Barrier Reef Marine Park Authority, CRC Reef, Reef HQ aquarium, Reef Guardian Schools and Reef Guardian Councils, James Cook University and schools and Traditional Owner Groups.

WWF have partnerships with the Dhimurru Land Management Aboriginal Corporation, Tony and Lisette Lewis Foundation, Northern Territory Government - Fisheries Group, Lianthiwirriyarra Sea Rangers - Mabunji Resource Association - Borroloola, Marthakal Homelands Resource Centre - Wessel Islands, Anindilakwa Angurugu Land Council - Groote Island, Conservation Volunteers Australia, Key Centre for Tropical Wildlife Management - Charles Darwin University, National Heritage Trust - Australian Government.

Through the turtle and dugong management project NAILSMA has facilitated a number of collaborations aimed at building the capacity of Indigenous communities through partnerships with research organizations, NGO's etc. Examples

include:

* Facilitating Research Partnership Agreements for marine turtle research between Dhimurru Aboriginal Land Management Corporations and University and government collaborators as well as the Kimberley Land Council and the Western Australian Department of Environment and Conservation.
* Development of a training program for all Torres Strait Turtle and Dugong Project Officers including opportunities for turtle research and management training with Queensland Environment Protection Agency (QEPA) and linkages with James Cook University.
* Planning and negotiations with Queensland Department of Primary Industries and Fisheries for boat and helicopter field based operations to map and monitor seagrass meadows and provide training to Indigenous rangers.
* Development of activity plan for joint patrols between Indigenous Rangers and the Australian Quarantine Inspection Service.
* Negotiations with data specialists to develop a training program to improve Lianthwirriyarra Sea Ranger skills in data recording, management and analysis.
* Dhimurru Rangers engaged in training in turtle research and health monitoring with staff from Charles Darwin University and Northern Territory Department of Primary Industries and Fisheries.
* On going negotiations with Kimberley TAFE (Higher Education Centre) to tailor certificate II in Conservation and land management for Bardi Jawi Rangers engaged on Turtle and Dugong Project.

There is also a partnership between OceanWatch Australia and the Australian Government, research institutions and the industry for the SeaNet programme that operates nationally.

5.5.1 National policies and laws concerning the conservation of marine turtles and their habitats will have been described in Section 1.5.1. Please indicate their effectiveness, in terms of their practical application and enforcement. [SAP, TSH]

The effectiveness of national policies and laws concerning conservation of marine turtles in Australia is difficult to quantify due to the lack of information on status of different populations. However, it is clear from a recent review of the Recovery Plan for Marine Turtles in Australia that a large majority of actions from the plan have been completed or are underway, that major shifts in public perception and increased government action has been achieved. Significantly, the review showed that:
- good progress had been made to reduce interactions between marine turtles and commercial fishing boats;
- significant work was underway to engage Indigenous communities in the management of dugong and turtle populations and address unsustainable Indigenous harvest;
- monitoring had been done to determine the level of mortality of marine turtles caused by entanglement in marine debris and remedial actions are underway;
- protocols for the monitoring of marine turtle nesting were in the final stages of development; and
- protocols for the marine turtle tourism industry were under development.

5.5.2 Has your country conducted a review of policies and laws to address any gaps, inconsistencies or impediments in relation to marine turtle conservation? If not, indicate any obstacles encountered in this regard and when this review is expected to be done. [SAP]

■ **YES** ☐ NO ☐ UNSURE

See Section 5.5.1

5.5.3 From the standpoint of law enforcement, has your country experienced any difficulties achieving cooperation to ensure compatible application of laws across and between jurisdictions? [TSH]

■ **YES** ☐ NO ☐ UNSURE

A workshop was held to discuss conservation and research and to specifically discuss the issue of enforcing turtle conservation in the Browse Island MoU Box. As a result of this workshop, Commonwealth officers visiting the Browse Island MoU Box on a regular basis can be granted authority to implement Western Australian legislation in the region to better facilitate law enforcement and turtle conservation in the region.

Under the Environment Protection and Biodiversity Conservation Act 1999, state/territory government officials can also be made wardens of the Act.

Amendments to the Environment Protection and Biodiversity Conservation Act 1999 came into effect on 19 February 2007. These amendments have, among other changes, enhanced the Act's compliance and enforcement regime and made it easier and quicker to bring compliance action against people and organisations that breach the EPBC Act,

including a new regime to deal with the detention of non-citizens suspected of committing an offence against the EPBC Act involving the use of a foreign vessel in the Australian jurisdiction but outside the migration zone.

OBJECTIVE VI. PROMOTE IMPLEMENTATION OF THE MoU INCLUDING THE CONSERVATION AND MANAGEMENT PLAN

6.1.1 What has your country already done, or will it do, to encourage other States to sign the IOSEA MoU? [INF]

Australia has made representations to other States in the region on the benefits of signing the MoU, with limited results. Australia has provided funds to the Secretariat to enable non-signatory States to attend the meetings of signatory states of the MoU. Complementary to the geographical scope of the IOSEA MoU, the Australian Government was represented at the Pacific Regional Environment Programme (SPREP) workshops in March 2003 and March 2007. The March 2007 workshop was held to review the 2003-2007 Action Plan for marine turtles and to prepare a plan for the upcoming 5-year period. Attempts were made by the Australian delegates to ensure consistency between regional and international Action Plans.

The Arafura/Timor Sea Experts Forum is a non-binding forum for collaboration between Indonesia, Timor Leste and Australia for the sustainable use of the living resources of the Arafura and Timor Seas. The Forum aims to promote cooperation and collaboration in research aimed at achieving sustainable management of living resources.

Australia has also raised the IOSEA MoU at annual meetings of the joint Indonesian/Australian Marine Affairs and Fisheries Working Group meetings.

Australia continues to encourage States in the region to join the MoU opportunistically during bilateral meetings with non-signatory Range States. One example includes the meetings held to develop a regional agreement for dugong under the Convention of Migratory Species.

6.1.2 Is your country currently favourable, in principle, to amending the MoU to make it a legally binding instrument? [INF]

■ **YES** ☐ NO ☐ NO VIEW

6.1.3 Would your country be favourable, over a longer time horizon, to amending the MoU to make it a legally-binding instrument? [INF]

■ **YES** ☐ NO ☐ NO VIEW

Australia is supportive of making the MoU a legally-binding agreement, provided the initiative comes from member states themselves.

6.2 Secretariat and Advisory Committee

6.2.1 What efforts has your country made, or can it make, to secure funding to support the core operations of the IOSEA MoU (Secretariat and Advisory Committee, and related activities)? [IND]

To date Australia has provided funding of A$265,000 to the MoU, with contributions up to 2008 for Secretariat operations and including a contribution for the Year of the Sea Turtle Campaign in 2006. Australia will also be providing a one-off additional contribution during 2007 of A$50,000 to support the Secretariat and has previously provided AUD $15,000 to the MoU Secretariat to assist non-Signatory range state attendance at the 1st and 2nd Meeting of the Signatory States, as well as funding the attendance of Dr Col Limpus to the Advisory Committee Meetings and Meetings of the Signatory States.

6.3.1 What funding has your country mobilised for domestic implementation of marine turtle conservation activities related to the IOSEA Marine Turtle MoU? Where possible, indicate the specific monetary values attached to these activities/programmes, as well as future plans. [IND]

Funding for domestic implementation of marine turtle conservation activities related to the IOSEA Marine Turtle MoU is primarily provided through the Natural Heritage Trust. Funding provided has been detailed in Sections 1.2 - 1.6, Section 2, Section 3, Section 4 and Section 5.

6.3.2 Has your country tried to solicit funds from, or seek partnerships with, other Governments, major donor organisations, industry, private sector, foundations or NGOs for marine turtle conservation activities? [IND]

■ YES ☐ NO

In Western Australia the petroleum and gas industries currently support marine turtle research including monitoring and satellite tracking studies and genetic studies as well as university student research projects to investigate impact of tourism on marine turtles and to test methods to mitigate these impacts. A number of partners are involved in the community monitoring and long term census programs including WWF, Cape Conservation Group, Murdoch University, Care For Hedland Environmental Association, University of Canberra, BHP Billiton Iron Ore, Pilbara Iron, Woodside Energy, Chevron Australia, Apache Energy, Gorgon, MacMahon, Threatened Species Network, NRM Regional Coordinating Group, Coastcare and Dampier Primary School.

One particular project of note is the Gorgon gas project in Western Australia. As part of its approval process for development, Gorgon joint ventures are required to prepare an environmental protection plan. The plan includes a $60m commitment to a series of new initiatives to conserve the flatback turtle population in the area undergoing development as well as other endangered species.
Activities to be funding include:
* a 30-year North West Shelf Flatback Turtle Conservation Programme to survey, monitor and research turtle populations.
* the eradication of non-Indigenous species.

The Tony and Lisette Lewis Foundation has contributed funds to marine turtle conservation through WWF Australia.

6.3.3 Describe any initiatives made to explore the use of economic instruments for the conservation of marine turtles and their habitats. [BPR]

The Great Barrier Reef Marine Park Authority generates funding through the eco-certification of tourism operation in the Great Barrier Reef Marine Park.

6.4.1 Has your country designated a lead agency responsible for coordinating national marine turtle conservation and management policy? If not, when is this information expected to be communicated to the IOSEA MoU Secretariat? [IND]

■ **YES** ☐ NO

The Australian Government Department of the Environment and Water Resources is the lead agency responsible for coordinating national marine turtle conservation and management policy.

6.4.2 Are the roles and responsibilities of all government agencies related to the conservation and management of marine turtles and their habitats clearly defined? [IND]

■ **YES** ☐ NO ☐ UNSURE

The Australian Government has responsibility for the management of marine turtles and their habitats in areas under Commonwealth jurisdiction and international affairs. The Australian Government is also responsible for the development and implementation of national approaches to turtle management, such as the Recovery Plan for Marine Turtles in Australia.

State and territory governments principally have responsibility for coastal areas and waters to 3 nautical miles.

6.4.3 Has your country ever conducted a review of agency roles and responsibilities? If so, when, and what was the general outcome? If not, is such a review planned and when? [SAP],

■ **YES** ☐ NO ☐ UNSURE

The Department of Environment and Water Resources maintains ongoing dialogue with other agencies and reviews roles and responsibilities on an on-going basis.

Comments/suggestions to improve the present reporting format:

It would be valuable to provide a section in the report where countries can identify emerging issues for marine turtles in their country.

The compilation of the Australian National Report takes a significant amount of time and effort to complete and to coordinate responses from all contributors. Reporting needs to be less onerous in order for it to be done effectively. We propose that IOSEA adopt biannual national reporting with a brief update on marine turtle activities conducted over the past year, provided at the annual IOSEA meetings.

The National Report template still requires work to minimise duplication and repetition, for example, information about monitoring programs and collaboration with other organisations appears in more than one location in the report. Questions often require details that have been included numerous times elsewhere, for example, Questions 2.1.1., 3.3.3, 5.4.1 and 6.3.1, which results in the time-consuming task of extensive cross-referencing throughout the report.

Australia has concerns about how we will coordinate responses from the 20 or more people that contribute to the report now that it is online. We currently complete this by circulating a Microsoft Word version and tracking the changes that each contributor makes, before compiling them into the overall National Report. The compilation process is expected to be difficult next time unless a Microsoft Word version of the report can be provided. In addition, making any changes (i.e. moving information around between objectives) and editing the report once online has been found to be time-consuming because of the need to save the information before going to each new objective.

In Australia's case, it is very difficult to allocate ratings to assess effectiveness, prevalence or significance, even generally, because of the diverse nature of marine turtle populations and their pressures, and their significance to Indigenous people. Attempting to rate such parameters is unlikely to be meaningful as it is often leads to largely subjective conclusions.

Additional information not covered above: