



# Indian Ocean – South-East Asian Marine Turtle Memorandum of Understanding



## Australia

### GENERAL INFORMATION

**Agency or institution primarily responsible for the preparation of this report:**

Australian Government Department of the Environment

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

Australian Fisheries Management Authority  
Biomarine International  
Charles Darwin University)  
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]

All six marine turtle species in Australia are listed as threatened and migratory under the national Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and are therefore protected. Green turtles nest, forage and migrate across temperate and tropical northern Australia (Qld, NT, and WA). Throughout their lifecycle, they mainly forage on shallow seagrass meadows or algae mats. The loggerhead turtle occurs in the waters of coral and rocky reefs, seagrass

beds and muddy bays throughout eastern, northern and western Australia. While nesting is concentrated in southern Queensland and from Shark Bay to the North West Cape in Western Australia, foraging areas are more widely distributed. Olive ridley turtles nest in the Northern Territory and the north-western coast of Cape York Peninsula, Queensland. A substantial part of the immature and adult population forage over shallow benthic habitats from northern Western Australia to south-east Queensland, though large juvenile and adult olive ridley turtles have been recorded in both benthic and pelagic foraging habitats. The flatback turtle is found foraging in the tropical waters of northern Australia, Papua New Guinea and Papua in Indonesia, and is one of only two species of sea turtle without a global distribution. Nesting is confined to Australia. They nest across northern Australia from south-east Queensland to the north-west shelf in Western Australia. Hawksbill turtles nest in Torres Strait, the northern Great Barrier Reef and Arnhem Land in the Northern Territory. Hawksbill turtles forage in temperate to tropical tidal and sub-tidal coral and rocky reef habitat and have been found as far south along the east coast as northern New South Wales. They have also been found, though less frequently, within seagrass habitats of coastal waters, as well as deepwater habitats. The leatherback turtle is a pelagic feeder, which forages in coastal waters of all Australian states. No major nesting has been recorded in Australia, although scattered isolated nesting (one to three nests per annum) occurs in the Northern Territory, most recently in 2012. Some nesting has occurred in northern NSW near Ballina. However, no nesting has been recorded in Queensland or NSW since 1996. Nesting in Western Australia is still unknown or unconfirmed. In Australia, marine turtles face a number of threats associated with a range of human activities, including: commercial and recreational fishing; coastal infrastructure and development (including industrial, residential and tourism development); declining water quality from catchment runoff, Indigenous use; feral animal predation; and climate change. These threats include: light disturbance; habitat loss and damage; by-catch from fisheries and shark control measures; boat strikes; entanglement and ingestion of marine debris (secondary impacts can include loss of breeding habitat); changes to sea surface temperature, particularly changes to the Southern Oscillation Index, which determines breeding intervals (primarily for green turtles), and chance disasters (e.g. oils spills). More recently, the widespread impacts of extreme weather (i.e. cyclones, flooding) and the subsequent decline and degradation of seagrass meadows along the Queensland coast has also had a significant impact on available food for green turtles.

### **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]**

International On 1 January 2013, amendments to the International Maritime Organisation's International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V came into force, prohibiting the discharge of all garbage from ships into the sea (except under very specific circumstances). The amendments also list requirements for garbage management plans on ships and port reception facilities for receiving waste. MARPOL is implemented in Australia through the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (administered by the Australian Maritime Safety Authority). In August 2013, AMSA hosted an IMO funded workshop aimed at increasing the capacity of countries participating in the Secretariat of the Pacific Regional Environment Programme to implement Annex V of the MARPOL Convention. Some of these participant countries are not states contracted to the MARPOL convention. Agencies from the Cook Islands, Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Tonga, Marshall Islands, Vanuatu, New Caledonia and Australia participated in the AMSA workshop. Carnival Australia, as a major cruise ship operator in the Pacific region, was also involved. National As mentioned in section 1.1, all six marine turtle species in Australia are listed under the EPBC Act. Leatherback, loggerhead and olive ridley turtles are listed as endangered and the flatback, green and hawksbill turtles are listed as vulnerable (for more information see <http://www.environment.gov.au/epbc/protect/index.html>). A consequence of these listings requires the development of a recovery plan. In July 2003, the national Recovery Plan for Marine Turtles in Australia was adopted. The Recovery Plan (2003) outlines the protocols and approaches used to conserve and manage marine turtle populations in Australia. It focuses on assessing the causes of mortality and identifying ways to address them. The Recovery Plan seeks to reduce the likelihood that current threats to marine turtle populations will cause mortalities, or to modify activities to reduce the potential for future mortalities, and to ensure that traditional harvest of marine turtles by indigenous Australians and Torres Strait Islanders is ecologically sustainable. For a copy of the Recovery Plan see: <http://www.environment.gov.au/coasts/publications/turtle-recovery/pubs/marine-turtles.pdf>. The Australian Government is currently revising the Recovery Plan for Marine Turtles in Australia (2003), with input from State and Territory Government agencies, Indigenous representatives, scientists and conservation non-governmental organisations. In 2013-14, the incoming Australian Government committed to implement a Dugong and Turtle Protection Plan (DTPP), which will work to enhance the protection and conservation of marine turtles and dugongs in Far North Queensland and the Torres Strait. The Dugong and Turtle Protection Plan is a component of the Reef 2050 Plan, and includes seven elements to be delivered by various Australian Government agencies and divisions, including the Department of the Environment, Department of the Prime Minister and Cabinet (PM&C) and the Australian Crime Commission (ACC). Funding for the Dugong and Turtle Protection Plan was identified in the 2014-15 Budget announcement, and full implementation will commence in the 2014-15 financial year. Under the Dugong and Turtle Protection Plan, the Australian Government has committed to: • \$2M

for a specialised Indigenous ranger programme for marine conservation and strengthened enforcement and compliance; • \$2M to an Australian Crime Commission (ACC) investigation into the illegal poaching and transportation of turtle and dugong meat; • Tripling of penalties under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the Great Barrier Reef Marine Park Act 1975 (GBRMP Act) to provide additional protection for dugong and turtle populations from the threats of illegal poaching and trade; • \$700,000 toward marine debris clean-up initiatives; • \$300,000 to support for the Cairns and Fitzroy Island Turtle Rehabilitation Centres; • A National Protection Strategy for Marine Turtles and Dugong, including an updated Recovery Plan for Marine Turtles of Australia and other policy documents under the EPBC Act; and • Working with Indigenous leaders towards an initial two-year opt-in moratorium on the taking of dugongs.

Threat Abatement Plans Threat abatement plans establish a national framework to guide and coordinate Australia's response to key threatening processes registered under the EPBC Act. There are currently four Threat Abatement Plans that list impacts on turtle populations and their habitats as one of their key threatening processes. They are the: impacts of marine debris on vertebrate life; predation by exotic rats on Australia offshore islands of less than 1000km<sup>2</sup> (100,000 ha) (2006); predation by European red fox; and predation, habitat degradation, competition and disease transmission of feral pigs (2005). Each of these TAPs includes specific measures for the prevention and management of impacts to marine turtles. The Threat Abatement Plan for the impacts of marine debris on vertebrate life provides a coordinated national approach to the implementation of measures to prevent and mitigate the impacts of harmful marine debris on vertebrate marine life, including marine turtles by:

- Contribution to the long-term prevention of the incidence of harmful marine debris;
- Removing existing harmful marine debris from the environment;
- Mitigating the impacts of harmful marine debris on marine species;
- Monitoring the quantities, origins and impacts of marine debris and assessing the effectiveness of management arrangements over time for the strategic reduction of debris.

<http://www.environment.gov.au/biodiversity/threatened/publications/tap/marine-debris.html>) In 2014, the Australian Government is undertaking a review of the progress and effectiveness of the threat abatement plan. The review will consider current efforts in comparison to five years ago and highlight successes and failures of the plan in guiding and facilitating action. It will identify threat abatement actions funded by the Australian Government as well as work undertaken by state and territory governments, community and other organisations. In listing the feral pig TAP (2005), two species of turtle were identified by the TSSC as being directly affected by pig predation; the hawksbill and flatback turtles. The plan seeks to minimise the spread of pigs and eradicate where possible, but realises that the approach to reducing impacts from pigs need to be coordinated through all relevant government agencies and NGOs at all levels. Australia has over 8300 islands under 100 000 ha, of which at least 133 are now known to have one or more species of exotic rodents. House mice and ship rats are by far the most common rodents on Australian islands. Exotic rodents have been eradicated from 39 islands, almost all from Western Australia. In listing the predation by European red fox TAP (2008), no species of marine turtle were specifically identified. However, following the review in 2013, 4 species of marine turtle were identified: flatback, leatherback, green and loggerhead turtles. Key Threatening Process The listing of Incidental catch (bycatch) of sea turtles during coastal otter-trawling operations in Australian waters north of 28°S (2001) was listed as a KTP, not requiring a TAP as actions were already underway to manage this threat. The final point (of the listing advice) notes that the listing should be reviewed when turtle exclusion devices are fully deployed in otter trawling operations in the area described by the KTP (northern Australia). This is now the case: TEDs are compulsory across all northern jurisdictions and most southern ones. Nest to Ocean Programme The Commonwealth and Queensland governments made a \$7 million commitment to protect marine turtle eggs and hatchlings from predation by feral pigs and other predators. The Queensland Parks and Wildlife Service will lead delivery of this program over four years in close collaboration with the Commonwealth Department of the Environment and other partner agencies. Key marine turtle rookeries along the coast and on offshore islands will be identified and prioritised for active nest protection and predator control efforts. Annual implementation plans and monitoring programs will be developed for the priority sites. Due to the geographic scale of this program, the State will be divided into a series of four zones or program areas to focus delivery of outcomes and methods according to the factors and characteristics of the individual zone. They are: Cape York (east coast) to Townsville; Cape York (west coast); Rockhampton to Bundaberg; and Townsville to Rockhampton. Marine Debris The Australian Government and the relevant state and territory governments are working together on responding to marine debris problems in northern Australia. This is being done through a range of mechanisms, including:

- funding through the DTPP of \$700000 toward marine debris cleanup;
- the implementation of a Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Marine Life (2009);
- the ongoing development of marine debris monitoring surveys, including identifying the source of ghost nets, and cleanup programs, partly funded through the Australian Government's Landcare Programme and directly by the Department of the Environment; and
- representations to south East Asian countries including Indonesia on the ecological impacts of marine debris, particularly ghost nets.

The Australian Government's Marine Bioregional Planning Program In 2012, Australia met its international and national commitments to establish a National Representative System of Marine Protected Areas (NRSMPA) by 2012 through the establishment of 40 new Commonwealth marine reserves under the Environment Protection and Biodiversity Conservation Act 1999. These new reserves added more than 2.3 million square kilometres to the former national system of Commonwealth marine reserves and expanding Australia's marine protected areas in Commonwealth waters to 60, covering some 3.2 million square kilometres (including the Great Barrier Reef Marine Park). This is the largest representative network of marine protected areas in the world. State and the Northern Territory

governments also have marine protected areas within their coastal waters under their own legislation and processes as part of the NRSMPA. These Commonwealth marine reserves play an important role in the long-term conservation of marine ecosystems and its related biodiversity, including migratory species. The Australian Government has developed marine bioregional plans under the EPBC Act. The plans aim to strengthen the operation of the EPBC Act in the Commonwealth marine environment in each marine region to ensure the marine environment remains healthy and resilient. The Plans identify conservation values, pressures on those values, priorities for management and guidance on avoiding impact (see [www.environment.gov.au/mbp](http://www.environment.gov.au/mbp)). One important element of these Plans is the identification of biologically important areas for over 66 different marine species, including marine turtles. A web-based tool is available through the Plans that identifies what areas are important for different behaviours, such as nesting, feeding and interesting activity. Guidance is provided on what actions represent greater risk of impact to marine turtles. This improved spatial information assists developers avoid and mitigate impacts to marine turtles. This tool is available at [www.environment.gov.au/cva](http://www.environment.gov.au/cva).

**Raine Island Turtle Breeding Recovery Project** The Raine Island Turtle Breeding Recovery Project aims to protect and maintain the world's largest green turtle rookery, and is managed by the Threatened Species Unit of the Queensland Department of Environment and Heritage Protection (DEHP). The steering committee for this project includes the Great Barrier Reef Marine Park Authority (GBRMPA), the Queensland Department of National Parks, Recreation, Sport and Racing (NPRSR) and Traditional Owners.

**StrandNet** The Queensland Marine Wildlife Strandings and Mortality Program (StrandNet) maintains records of stranded and dead marine wildlife (turtles, dugongs, whales, dolphins and sharks), and is managed by the Threatened Species Unit of EHP. Major partners in this program are GBRMPA and NPRSR. Information is also supplied by the Queensland Department of Fisheries, Forestry and Agriculture (DAFF). National Landcare programme (formally Caring for Our Country) The Australian Government National Landcare Programme (which includes legacy projects from the Caring for our Country initiative) and Working on Country programme provides funding to Indigenous organisations in the Northern Territory, Queensland and north-western Australia engaged in sea management activities to employ full-time equivalent Indigenous rangers. These rangers undertake activities that include marine debris collection and dugong and turtle-related activities. Turtle-related activities can include recording turtle observations, feral pig control at nesting sites, tagging, measuring, weighing, DNA sampling, fitting transmitters and recording nest sites. See section 1.3.1 for more information on community initiatives.

**State Government 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. WA has mandated use of TEDs in all trawl fisheries since 2006. 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 Muiroon 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. Through environmental assessment processes (at state and Commonwealth levels), research and management conditions have been implemented on coastal and marine developments to mitigate against potential impact.

**Northern Territory** In Northern Territory waters, marine turtles are protected under the Territory Parks and Wildlife Conservation Act 2000 which is managed by the Northern Territory government. NT has mandated use of TEDs in its major trawl fisheries. Activities in the Northern Territory for marine turtle conservation and management include:

- Monitoring at a number of nesting sites including monitoring by Indigenous rangers on the Tiwi Islands, Groote Eylandt and the Sir Edward Pellew Group of Islands.
- A community monitoring and education programme, with flatback hatchlings release on a local Darwin beach
- Long-term monitoring of flatback turtles at Bare Sand Island, Fog Bay.
- Kakadu National Park (Commonwealth Government) undertake annual monitoring of nesting flatback turtles on Field Island in Van Diemen Gulf

A marine debris monitoring program in the Northern Territory was initiated by the non-government organisation, the World Wide Fund for Nature (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 from the Commonwealth government and continues to be a community based, collaboration between Indigenous people, community groups and sea rangers. Based on long-term survey and monitoring data, the Northern Territory government has identified marine turtle nesting beaches of international, national and regional significance across the Northern Territory coastline. These beaches are of great ecological significance and the classification will guide potential future decisions on the location of marine protected areas. Collaborative research between the Northern Territory government, Charles Darwin University researchers and Indigenous communities has continued. Projects are limited though include nesting studies of olive ridley turtles at the Tiwi Islands, hawksbill turtles at Groote Eylandt and flatback turtles at Sir Edward Pellew Islands. Additional projects include monitoring of green turtle nesting at Cobourg Peninsula (with Conservation Volunteers Australia) and sporadic monitoring of leatherback turtles at Cobourg Peninsula. The Northern Territory government has a Stranding Database for recording marine fauna mortality or injury. Programme planning is currently underway to prioritise and manage monitoring, research and threats to marine fauna populations including turtles. Queensland Major critical habitats for dugongs (and therefore green turtles) were protected

under the gazettal of 16 dugong protection areas (DPA's) under the Queensland Fisheries Act 1994 in 1998. These DPA's primarily restrict commercial fishing activities in these areas to minimise the risk from set mesh nets. Protection of islands used as rookeries have been gazetted as National Parks under the Nature Conservation Act 1992. Mandatory inclusion of turtle excluder devices was introduced in the East Coast Otter Trawl Fishery in 2001. Raine Island, which supports the largest nesting aggregation of green turtles in the world, was declared as a National Park (Scientific) in 2006. This is the highest level of protection under the Nature Conservation Act 1992. The area is also covered under an Indigenous Land Use Agreement (ILUA). Raine Island Partnership Opportunity In May 2014, the Queensland Environment Minister Andrew Powell announced the Saving Raine Island's green turtle population—partnership opportunity. Over the next five years, the Queensland Government Department of Environment and Heritage Protection (EHP) plans to launch a partnership project to secure the future of the northern Great Barrier Reef green turtle population. The project will require funding in the vicinity of \$5 million over five years in the initial stage to get the recovery program underway to first stabilise the population and then improve for future generations. Sponsorship will provide funding for work like: • beach engineering • sand replenishment • fencing • turtle tagging • remote sensing including video recording and weather stations • tide and sea level monitoring, and • 3D modelling using GPS survey technology. <https://www.ehp.qld.gov.au/wildlife/animals-az/green-turtles-raine-island.html> Great Barrier Reef management Additional protection for major seagrass meadows and critical inter-nesting habitat around major rookeries was provided in the Great Barrier Reef Marine Park in 2004 under the Great Barrier Reef Marine Park Zoning Plan 2003. Measures such as go-slow boating zones and restrictions on fishing operations in certain areas have been implemented. The Queensland Government 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. Between 2003 and 2008 the Great Barrier Reef Marine Park Authority jointly funded monitoring at key nesting and foraging locations. 'Go slow for those below' program in Queensland 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. The GBRMPA and QPWS began developing and accrediting with Traditional Owners with Traditional Use of Marine Resources Agreement (TUMRA) in 2005 and have accredited six more TUMRA's since. A TUMRA sets out ways Traditional Owners will manage their sea country, including traditional hunting, and also outline how the group wishes to engage with relevant government agencies. Sustainable hunting management plans are also being developed for other communities hunting turtles in Queensland. More detail at section 1.3.1 An ILUA (ILUA) is another process with which traditional owners can enter into a negotiated agreement about the management of resources in within their sea country. To date one has been signed, more information at section 1.3.1. Extensive marine turtle management including strandings rescue, nest monitoring and pig control (pigs are the highest cause of marine nest predation in many areas of Cape York) are being carried out by Indigenous ranger groups in north QLD. 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. Western Cape Turtle Threat Abatement Alliance (WCTTAA) is a partnership of on-ground land and sea owners and managers, formed to set priorities, seek solutions and share knowledge to maximise the use of resources for coastal management on western Cape York, e.g. coordinate turtle threat abatement programs and implement contract with Ghostnets Australia. Tasmania In Tasmanian waters, all marine turtles are listed as Specially Protected Wildlife under the Nature Conservation Act 2002 which is managed by the Tasmanian Department of Primary Industries, Parks, Water and Environment. New South Wales In New South Wales, three species of marine turtles (loggerheads, leatherbacks and green turtles) are protected under the Threatened Species Conservation Act 1995. Loggerheads are listed as endangered and green turtles and leatherbacks are listed as vulnerable. The NSW Department of Primary Industries is currently investigating alternative techniques for capturing estuarine crabs (i.e. mud crabs and blue-swimmer crabs), as the existing gear occasionally catches turtles. It will also examine the practice of overnight setting of crab nets by recreational fishers, and consider the need for fewer nets per fisher. Victoria In Victoria, one species of marine turtle is listed as threatened under the Flora and Fauna Guarantee Act 1988. The Leatherly Turtle (*Dermochelys coriacea*) is considered critically endangered in Victoria according to the Department of Sustainability and Environment's Advisory List of Threatened Vertebrate Fauna in Victoria – 2007. Sightings and strandings are recorded in the Atlas of Victorian Wildlife. The National Policy on Fisheries By-Catch is being implemented. National Policy on Fisheries By-Catch (AFFA 1999) was released after agreement by all Australian governments to develop by-catch policy to address by-catch in all fisheries. Bycatch arrangements are being incorporated into Fishery Management Plans for each Victorian managed fishery.

### **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]**

Community initiatives The Australian Government has allocated funding to assist Traditional Owners in Northern Australia develop community-driven approaches to turtle and dugong management. These initiatives include: • The Australian Government Working on Country programme, which provides funding to seventeen Indigenous organisations in the

Northern Territory, Queensland and north-western Australia, engaged in sea management activities, to employ 300 full-time equivalent Indigenous rangers. These rangers undertake activities that include marine debris collection and dugong and turtle-related activities. Turtle-related activities can include recording turtle observations, feral pig control at nesting sites, tagging, measuring, weighing, DNA sampling, fitting transmitters and recording nest sites.

- Supporting the development and implementation of 14 community-based dugong and turtle management plans in the Torres Strait region. With support of the Torres Strait Regional Authority's (TSRA) Land and Sea Management Unit through its Environmental Management Program, the plans aim to: promote community control and empowerment; respect cultural values and traditional knowledge; conserve natural and cultural values of their management area; and utilise two-way management through mutual investigation and implementation of Western and Indigenous systems of knowledge. The TSRA employs 45 Indigenous rangers and a dedicated Sea team support the implementation of community-based Torres Strait Dugong and Turtle Management projects that assist communities in the delivery of their respective management plans.
- A \$2.4 million project, the 'Saltwater People Network (SPN)' funded from 2009 to 2013, built on an earlier North Australia Indigenous Land and Sea Management Alliance Limited (NAILSMA) Dugong and Marine Turtle Project. The SPN is a network of Indigenous Land and Sea managers across north Australia, working together for better saltwater country management, including the protection of coastal habitats used by the marine turtles, as well as marine turtle stocks.
- NAILSMA currently receives Australian Government support for the I-Tracker Program (<http://nailsma.org.au/hub/programs/i-tracker>), an initiative formulated through the Dugong and Marine Turtle Project and further developed through the SPN. I-Tracker provides training and computer based field tools (based on CyberTracker software) that assist Indigenous communities to collect, manage, map and report on spatial data. This includes support to monitor turtles and their habitats, as well as feral animal management (pig predation of turtle nests is a major threat in many areas of north Australia) and ghost nets. <http://www.nailsma.org.au/i-tracker/marine-turtle-monitoring> for additional information specific to marine turtle monitoring.
- The northern hub of the National Environmental Research Program (NERP) also funds a NAILSMA-led biodiversity theme project which includes a case study focused on marine turtle, dugong, and seagrass management and monitoring in north Australia in partnership with Indigenous communities and research organisations. <http://nailsma.org.au/biodiversity-monitoring/marine-turtle-and-dugong-monitoring-wunambal-gaambera-healthy-country>.
- The Environment Department has published the Australian Government Reef Achievements (2008-2013) report, which has a section on the Land and Sea Country Indigenous Partnership Programme, including key achievements already delivered under the programme.
- Under the Australian Government's current Reef program, a further \$10 million in funding has been committed for the five years until 2018. A key objective of the program is to expand the TUMRA program across the GBR catchment. TUMRA's provide an agreed basis for Traditional Owners and marine managers to work together to protect cultural values and to manage cultural important species in accordance with traditional lore and to ensure sustainability.
- In the past, the Australian Government has funded community based clean-up and monitoring programs to address the marine debris problem on the western coast of Cape York, Gulf of Carpentaria and Arnhem Land. Marine debris has socio-economic impacts on many Aboriginal and Torres Strait Islander peoples who rely on marine turtles for subsistence. Currently, funding is coming through the Qld government for community based action on the east and west coasts of Cape York Peninsula and TSRA. General funding is provided by the Australian Government through Indigenous ranger programs, which may include marine debris actions.
- Reef Plan in the Great Barrier Reef World Heritage Area
- Tangaroa Blue Foundation is supported by QLD Government funding and previous CFOC funding to remove and mitigate marine debris in Cape York through the Australian Marine Debris Initiative. The northern hub of the National Environmental Research Program also funds a NAILSMA-led biodiversity theme project, which includes a case study focused on marine turtle, dugong, and seagrass management and monitoring in north Australia in partnership with Indigenous communities and research organisations. See <http://nailsma.org.au/biodiversity-monitoring/marine-turtle-and-dugong-monitoring-wunambal-gaambera-healthy-country>, for additional information. Extensive marine turtle monitoring is being carried out by Indigenous ranger groups in north WA. For example, the Wunambal Gaambera Aboriginal Corporation's Unguu Rangers are a partner in the above mentioned program (see <http://nailsma.org.au/biodiversity-monitoring/marine-turtle-and-dugong-monitoring-wunambal-gaambera-healthy-country>). Within the Great Barrier Reef Marine Park the first Traditional Use of Marine Resources Agreement (TUMRA) for the Giringun Aboriginal Corporation (which represents the six Traditional Owner groups party to the TUMRA) was accredited in December 2005 by the GBRMPA/QPWS. Since then an additional six TUMRAs have been accredited with Traditional Owner groups, namely the Woppaburra TUMRA, the Wuthathi TUMRA, the Port Curtis Coral Coast Regional TUMRA, the Lama Lama TUMRA, Yuku Baja Muliku TUMRA and the Yirrganydji TUMRA accredited in May 2014. There are several more TUMRA's currently under development. An ILUA has also been signed with the Kuuku Ya'u people of north-eastern Cape York Peninsula and the State of Queensland and the GBRMPA. While the legislative mechanism underpinning the document is different, the agreement is essentially similar to a TUMRA in that it provides a framework for engagement and outlines how the Kuuku Ya'u will use and manage resources within their sea country. Extensive marine turtle management including strandings rescue, nest monitoring and pig control (pigs are the highest cause of marine nest predation in many areas of Cape York) are being carried out by Indigenous ranger groups in north QLD. In 2013, land and sea managers from Pormpuraaw, Napranum, Mapoon and Northern Peninsula Area made a formal agreement to work together for the protection of marine turtles along the west coast of Cape York through the formation of the Western Cape Turtle Threat Abatement Alliance (WCTTAA). The function of the alliance is to direct funding into priority areas; undertake

regional coordination of marine turtle work programs, training, data collection and analysis; and recognition and utilisation of local expertise. WCTTAA is a bottom up approach to threat abatement through the coordination of on-ground works, and sharing of resources. Aboriginal Councils and Land Trusts support WCTTAA with work implemented and directed by Ranger Groups. WCTTAA members have strategic representation on the Turtle and Dugong Taskforce and the group's direction is in line with Queensland indigenous sea country policy. Discussions are currently underway with groups in Aurukun and Kowanyama regarding their future involvement in WCTTAA to strengthen coordination of turtle protection activities along the length of the western coastline of Cape York. A full time Coordinator is employed with funding support from Cape York NRM and Ghost Nets Australia to support and coordinate these activities. Further information can be found at the Cape York NRM website ([www.capeyorknrm.com.au](http://www.capeyorknrm.com.au)). The li-Anthawirriyara Rangers also carry out an extensive turtle monitoring program in the Sir Edward Pellew group of islands, including boat-based monitoring and an annual turtle camp. Other Indigenous Ranger programs in the NT also do extensive turtle monitoring. 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. Socio-economic studies or activities A component of the NAILSMA Dugong and Marine Turtle Project mentioned above was a study of socio-economic factors impacting levels of traditional harvest. Reports from this work and related outcomes can be found at [http://www.nailsma.org.au/publications/dmtp\\_reports.html](http://www.nailsma.org.au/publications/dmtp_reports.html).

### 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

Lack of affordable alternatives to turtle products: Some remote Aboriginal and Torres Strait Islander communities rely on marine turtle meat and eggs as a fresh source of protein for subsistence partially because of the high costs and low quality of store-bought goods in remote areas, such as meat. Ease of access to the turtle resource (e.g. by virtue of proximity or ease of land/water access): Many Aboriginal and 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 against illegal harvesting: Rather than low penalties, the issue of enforcement and compliance of any domestic illegal harvesting is very difficult in most remote regions in Australia. This is also a problem (in some areas) of 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)

Many of the Australian Government initiatives are designed to support the sustainable use of turtle resources and provide compliance and enforcement training to Indigenous rangers. With funding support from the Australian Government the TSRA is supporting 14 Torres Strait communities in implementing their community-based management plans to sustainably manage dugong and turtle populations. The TSRA employs 45 Indigenous, community-based Rangers and three dedicated staff to manage marine based projects within the Land and Sea Management Unit to support the implementation of management plans and to conduct additional Dugong and Turtle Management Projects Plans in the Torres Strait and

nearby PNG. TUMRAs provide for Traditional Owners to hunt culturally important species within sustainable limits and to work together with governments to address other activities impacting on such species, including poaching and illegal hunting. An additional component to the Indigenous ranger programs compliance and enforcement training is a specialised indigenous ranger program to increase the compliance and enforcement aspect. The Australian Government has committed an additional \$2 million over 3 years to facilitate this training.

**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

Detail: Australian government managed commercial fisheries that are known to or potentially could interact with marine turtles<sup>1</sup> 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<sup>2</sup> 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. Coral Sea Fishery – longline and trawl • Western Trawl Fisheries - north west slope and western deepwater beyond 200m isobath 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. Detailed information on these fisheries and their interactions with marine turtles can be found in the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) Fisheries Status Report at: [http://www.abares.gov.au/publications\\_remote\\_content/publication\\_series/fishery\\_status\\_report](http://www.abares.gov.au/publications_remote_content/publication_series/fishery_status_report) State-managed trawl fisheries that are known to or potentially could have interactions with marine turtles include: • Queensland East Coast Otter Trawl Fishery • Queensland Gulf of Carpentaria Developmental Finfish Trawl Fishery • Queensland River and Inshore Beam Trawl Fishery • Queensland Stout Whiting Trawl Fishery (for descriptions of Queensland managed fisheries see Fisheries Queensland Annual Status Reports at: [http://www.dpi.qld.gov.au/28\\_10916.htm](http://www.dpi.qld.gov.au/28_10916.htm)) • NSW Ocean Trawl • NSW Estuary Prawn Trawl • South Australian Prawn Trawl • Northern Territory Finfish Trawl (for a description of Northern Territory managed fisheries see Northern Territory Annual Status Reports at: <http://www.nt.gov.au/d/Fisheries/index.cfm?Header=Fishery%20Status%20Reports>) • Western Australian Shark Bay Prawn • Western Australian Shark Bay Scallop • Western Australian Broome • 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 (for descriptions of Western Australian managed fisheries see Western Australian State of the Fisheries reports at: <http://www.fish.wa.gov.au/docs/sof/>) • Tasmanian Scalefish Fishery <sup>1</sup>Some of the 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. <sup>2</sup> This fishery includes a broad range of gear types, only some of which interact with marine turtles. See [http://www.abares.gov.au/publications\\_remote\\_content/publication\\_series/fishery\\_status\\_report](http://www.abares.gov.au/publications_remote_content/publication_series/fishery_status_report)

**b) Set gill nets:**  YES  NO

Detail: The following fisheries could potentially have interactions with marine turtles: • Western Australian Tropical and Temperate Shark Fisheries • Queensland Gulf of Carpentaria Inshore Fin Fish Fishery • Queensland East Coast Inshore Fin Fish Fishery • Tasmanian Scalefish Fishery • Northern Territory Offshore Net and Line Fishery. Details on mitigation and management arrangements for these and other fisheries where set gillnets may interact with marine turtles can be found at the following State Fisheries websites: • Western Australia - [www.fish.wa.gov.au](http://www.fish.wa.gov.au) • South Australia - [www.pir.sa.gov.au/fisheries](http://www.pir.sa.gov.au/fisheries) • Victoria- <http://www.dpi.vic.gov.au/fisheries> • Tasmania - <http://www.dpiw.tas.gov.au/inter.nsf/themenodes/dren-4vh86l?open> • New South Wales - <http://www.dpi.nsw.gov.au/fisheries/commercial> • Queensland - [http://www.dpi.qld.gov.au/28\\_140.htm](http://www.dpi.qld.gov.au/28_140.htm) • Northern Territory - <http://www.nt.gov.au/d/Fisheries/>

**c) Anchored Fish Aggregating Devices (FADs):**  YES  NO

Detail: The Sea Installations Act 1987 (Commonwealth) (SI Act) requires potential operators of sea installations, including anchored Fish Aggregating Devices (FADs), to seek a permit or exemption certificate for a sea installation within Commonwealth waters. Sections 20-21 and 40-42 of the SI Act set out the requirements for applications and the



considerations that must be taken into account by the Minister in deciding whether to issue a permit or exemption certificate, respectively. Considerations include: the size of the proposed installation, its projected life span and the likely effect it will have on the environment. Anchored FADs are not known to be used in any commercial tuna fisheries in the Australian EEZ. Australia has also banned tuna fishing on FADs in the Pacific Ocean north of Latitude 20°S (i.e. tropical waters) to reduce the take of yellowfin and bigeye tuna. This exceeds the three month annual ban actually required by international agreement. A number of anchored FADs have been installed along the New South Wales, Western Australian and southern Queensland coastline to facilitate scientific research into recreational fish species and to facilitate recreational fishing activities. As a consequence of permit or exemption certificate conditions, most FADs must be checked regularly and, if any environmental risk is identified or environmental incident occurs, the operator must undertake all reasonable measures to mitigate the risk or impact. The Department of the Environment must also be notified of any environmental incident.

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

Detail:

Few or 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 in Australia.

**e) Longline (shallow or deepset):**  YES  NO

Detail: 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. This also includes waters of the AFZ adjacent to Norfolk Island and the high seas areas covered by the Convention on the Conservation of Highly Migratory Fish stocks in the Western and Central Pacific Ocean. • 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. This includes the high seas areas covered by the Indian Ocean Tuna Committee. • 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. • Line and Trap Sector of the Coral Sea Fishery • Northern Territory Offshore Net and Line Fishery. • Northern Territory Timor Reef Fishery • Queensland Deepwater FinFish Fishery • NSW Ocean Trap and Line Fishery

**f) Driftnet:**  YES  NO

This method is not permitted in any Australian fisheries.

**g) Other1:**

Turtles are a traditional fishery in the Torres Strait Protected Zone and within this zone, the turtle fishery is managed by the Torres Strait Protected Zone Joint Authority.

**h) Other2:**

Trap and pot fisheries would have some (comparatively rare) interactions where turtles become entangled in the float line. Trap and Pot Fisheries • 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 • Tasmanian Rock Lobster Fishery • Coral Sea 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: The level of interaction with marine turtles varies among fisheries and within fisheries varies, depending on the gear, area and season. There is an Australian Government legislative requirement to take all reasonable steps to minimise interactions and report interactions. The limited available data on interactions with marine turtle species remains a key constraint in some fisheries (ABARES Fisheries Status Report [http://www.abares.gov.au/publications\\_remote\\_content/publication\\_series/fishery\\_status\\_report](http://www.abares.gov.au/publications_remote_content/publication_series/fishery_status_report)). Therefore the relative level of fishing effort and perceived impact of fisheries on marine turtles has not been indicated. 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. Attempting to rate such parameters may not be meaningful as it is often leads to largely subjective conclusions. The potential cumulative impact of the fisheries on species needs to be considered. The distribution of many marine turtle species within the Australian fishing zone means that some species may interact with a number of fisheries, including fisheries in other jurisdictions and on the high seas. Currently, data constraints limit the understanding of cumulative impacts across fisheries and jurisdictions (Phillips et al. 2010). Phillips, K, Giannini, F, Lawrence, E & Bensley, N 2010, Cumulative assessment of the catch of non-target species in Commonwealth fisheries: a scoping study, BRS, Canberra. a) Shrimp trawls

Since the adoption of the Recovery Plan for Marine Turtles in Australia (Environment Australia 2003) under the Environment Protection and Biodiversity Conservation Act 1999 in 2003, all jurisdictions have made the use of approved turtle excluder devices mandatory in all trawl fisheries which are likely to interact with marine turtles. The introduction of turtle excluder devices have reduced the number of marine turtles caught in trawl fisheries. For example, the number of marine turtles caught in the Northern Prawn Fishery declined from approximately 5700 turtles per year (before 2001, when turtle excluder devices were introduced) to approximately 30 per year (after 2001) (Griffiths et al. 2007). Since the development and implementation of TEDs, the capture and mortality of marine turtles trawl nets has been reduced by more than 99% (Brewer et al 2006, Griffiths et al 2007; Woodhams et al 2011; Woodhams et al 2012). References: Griffiths, S, Kenyon, R, Bulman C, Dowdney, J, Williams, A, Sporcic, M & Fuller, M (2007) Ecological risk assessment for the effects of fishing: report for the Northern Prawn Fishery, report for the AFMA, Canberra. Woodhams, J., I. Stobutzki, S. Vieira, R. Curtotti and G. A. Begg, Eds. (2011). Fishery status reports 2010: status of fish stocks and fisheries managed by the Australian Government. Canberra, Australian Bureau of Agricultural and Resource Economics and Sciences. Woodhams, J., S. Vieira and I. Stobutzki, Eds. (2012). Fishery status reports 2011: status of fish stocks and fisheries managed by the Australian Government. Canberra, Australian Bureau of Agricultural and Resource Economics and Sciences. Environment Australia (EA) (2003). Recovery Plan for Marine Turtles in Australia - July 2003. [Online]. Canberra: Environment Australia. Available from: <http://www.environment.gov.au/coasts/publications/turtle-recovery/index.html>.

**b) Set gill nets**

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source: In Queensland, interactions with protected species, such as marine turtle, are reported in species of conservation concern logbooks. The reported level of interaction for Queensland managed fisheries can be found in the fisheries status reports at: [http://www.dpi.qld.gov.au/28\\_10916.htm](http://www.dpi.qld.gov.au/28_10916.htm)) In Western Australia, the Western Australian State of the Fisheries Report suggests that the impact of gill net fishing on marine turtles is low; see this report at: <http://www.fish.wa.gov.au/docs/sof/> The quantification of marine turtle bycatch in all net fisheries is poor, and requires further investigation.

### ***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: The New South Wales Department of Primary Industries undertook a Review of the Environmental Factors of their FAD Program in May 2008. The review noted that, since the commencement of the FAD Program in 2001, no interactions with cetaceans, marine turtles or other threatened species have been reported. An update to their Program was completed in October 2013.

### ***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: Few or no turtle interactions have been reported to date in purse seine fisheries across Australia. Most purse seine activity occurs in fisheries in southern waters where Marine Turtle presence is minimal.

### ***e) Longline (shallow or deepset)***

#### **Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  **UNKNOWN**

#### **Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  **UNKNOWN**

Source: Within the TSPF, the PZJA requires operators to use turtle excluder devices in trawl gear. This requirement has been in place since the beginning of the 2002 fishing season. In 2004, the use of bycatch reduction devices became mandatory. In May 2008, the PZJA also agreed to implement trawl exclusion zones around Deliverance Island, Kerr Islet and Turu Cay to protect important nesting areas for green turtles (*Chelonia mydas*) and flatback turtles (*Natator depressus*). In 2008 AFMA released AFMA's Program for addressing Bycatch and Discarding in Commonwealth Fisheries: an Implementation Strategy. The bycatch and discarding program is aimed at assisting fisheries tackle bycatch and discarding issues in a focused and cost-effective way. ([http://www.afma.gov.au/wp-content/uploads/2010/06/is\\_env\\_bycatch-prog\\_feb08\\_20080417.pdf](http://www.afma.gov.au/wp-content/uploads/2010/06/is_env_bycatch-prog_feb08_20080417.pdf)) The Bycatch and Discard Program develops fishery specific workplans which focus on 'high risk' bycatch and threatened, endangered and protected species as identified through the Ecological Risk Assessment (ERA) process in accordance with the Implementation Strategy. Since then, most Commonwealth fisheries have a workplan in place. Australia is a member of the Western and Central Pacific Fisheries Commission(WCPFC) which has agreed to a series of conservation and management measures to address the bycatch of marine turtles, seabirds and sharks. The ecological risk management report also lists specific actions for the priority groups—for example, all vessels in the Eastern Tuna and Billfish Fishery (ETBF) are required to carry line cutters and de-hookers so that turtles and other threatened, endangered or protected species can be easily removed from fishing gear, should they become hooked or entangled. Education programs were coordinated to assist operators with training in turtle handling, recovery and release

and improved reporting. Fisheries permit conditions also require operators to carry line-cutters and de-hookers on board, at all times, to facilitate the release of turtles, which may have been hooked on their flippers or swallowed the hook. AFMA's operates an in-house Observer Program, which places observers (independent of the fishing industry) on fishing vessels to provide reliable and verified information on fishing catch, effort, and practices onboard fishing vessels operating in Commonwealth waters. The program also monitors the impact of fishing on the broader marine environment including Threatened, Endangered and Protected species. The onboard observer program was supplemented (in 2010) with a 10 boat trial of an onboard camera monitoring system (e-monitoring system). The trial demonstrated the robustness of the e-monitoring system and its ability to monitor the majority of interactions with protected species. The e-monitoring system has the potential to cover 100% of all fishing activity for a particular vessel, which provides stronger incentives for improved logbook reporting. AFMA has now engaged a third party provider for the e-monitoring program and it is expected that by early 2015 the ETBF and Western Billfish and Tuna Fishery (WBTF) will have electronic monitoring across their fleets. AFMA has now decided to market test the scientific observer program. The Australian Fisheries Management Authority publishes quarterly reports of logbook interactions with threatened, endangered and protected species on its website. In 2012, 67 turtles were reported as being entangled in gear, 64 of which were reported as being released alive. [http://data.daff.gov.au/data/warehouse/9aam/fsrXXd9abm\\_/fsr12d9abm\\_00220131029/00\\_FishStatus2012\\_1.1.0\\_LR.pdf](http://data.daff.gov.au/data/warehouse/9aam/fsrXXd9abm_/fsr12d9abm_00220131029/00_FishStatus2012_1.1.0_LR.pdf) Logbook interactions for 2012 indicate: TSPF: four green turtles and one unclassified turtle were caught, and all were released alive. ETBF: four green turtles (*Chelonia mydas*) were hooked, but were all released alive. Five leatherback turtles (*Dermochelys coriacea*) were also hooked; four were released alive and one was released in unknown condition. Finally, an unidentified turtle was also hooked and observed to be dead. WTBF: one loggerhead turtle and two unclassified turtles were hooked and released alive STF: to date, no interactions of skipjack tuna purse-seine nets with marine mammals, turtles or sharks have been recorded.

#### **f) Driftnet**

##### **Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

##### **Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  **NONE**  UNKNOWN

Source: This method is not permitted in any Australian fisheries.

#### **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 individuals with a native title right are allowed to take marine turtles without requiring a permit or licence. In the Torres Strait region Rangers are conducting catch data monitoring of marine turtles and dugongs. • Data collected is stored by the TSRA on agreement with of Traditional Owners regarding its usage and dissemination as part of the 14 community-based management plans. • Ranger's report catch data summaries back to community to assist community-based management decisions, such as sustainable harvest. • Traditional Owners have stipulated the data will not be provided to any organisation without their official permission. A review of the voluntary community dugong and turtle catch monitoring program was completed by internationally recognised experts. Their report recommended a number of improvements including a small-scale pilot trial of a method customised for each community where data will be collected using direct observation and access point design.

#### **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: The most significant recorded marine turtle mortality in Australia from pot or trap fisheries are in the Qld crab fisheries. StrandNet reported 291 marine turtle mortalities associated with entanglements in crab pots and float line, representing 51% of all mortalities associated with fisheries interactions (Meager and Limpus 2012). In addition, entanglement of marine turtles is expected to occur in pot fisheries outside of Queensland. Of particular concern, the interactions of leatherbacks in South Australian, Victorian and Tasmanian pot fisheries are poorly reported. Low numbers of marine turtles have been recorded as entangled in pot lines in Western Australia. Meager, J. J. and C. J. Limpus (2012). "Marine wildlife stranding and mortality database annual report 2011. III. Marine Turtle." Conservation Technical and Data Report 2012: 1-46 37 turtles were recorded as entangled or caught in crab pots or associated gear: • 13 of these turtles were released alive • 24 of these cases were mortalities: o 15 were caught inside pots, o nine were entangled in float lines.

**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]**

Some illegal fishing is known to occur at Scott Reef and Browse Island in the Timor Sea where foreign fishers sometimes land (illegally) and harvest nesting green turtles. Several Torres Strait Island communities have reported significant illegal methods of harvest of dugong and turtle within their management waters, primarily by fishermen originating from PNG. AFMA is responsible for foreign compliance with the Torres Strait Fisheries Act (dugong and turtle use by traditional inhabitants in the Torres Strait is treated as a fishery under the TSF Act). TSRA Rangers have undertaken compliance and surveillance training as part of their Conservation and Land Management certificate. Frequent aerial surveillance flights over-fly these sensitive locations and in contact with surface vessel patrols and backed up by strong legislation create a powerful deterrent. It is considered that the illegal harvest is small as a result of these measures. The Australian Crime Commission will be undertaking an investigation into the illegal harvest of marine turtles and dugongs with the recent announcement of \$2M in funding from the Australian Government. This will be focused in Australian (Far North Queensland) and Torres Strait waters. The Government has also submitted an amendment to the EPBC Act and the GBRMP Act through Cabinet to triple the penalties that can be incurred if people are found to be illegally harvesting turtles and dugongs. Active discussions have commenced with relevant communities through the TUMRA process in the GBR and through other mechanisms to work towards a voluntary "no take" model to reduce the cumulative impacts, which includes harvesting and develop approaches that are more sustainable in the current climate.

**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

Bycatch education programs are continuing to be run in the Australian Pelagic Longline Fisheries. These programs are designed to improve handling techniques, species identification and improve post-release survival rates for turtles, sharks and other bycatch species. A skipper education program is currently being coordinated in the ETBF to provide targeted training for bycatch, species identification, reporting and improved handling techniques for protected species. 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. Fisheries permit conditions now require operators to carry line-cutters and de-hookers on board, at all times, to facilitate the release of turtles, which may have been hooked on their flippers or may have swallowed the hook. Workshops/videos were distributed and used to train operators in their use and in turtle handling and Protected Species Identification. Handling Guides were also provided. Wire traces are not permitted in Australia's pelagic tuna and billfish longline fisheries (nylon traces are used). This increases the chances of a turtle escaping, as well as enabling easier release of turtles using line cutters without having to bring them onboard, in turn

improving their post-release survival rates. In 2011, the Northern Territory (NT) Seafood Council (with OceanWatch Australia) 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. Multiple EMSs have been produced for Queensland fisheries. These EMSs are legislative and regulatory requirements for commercial fishers as well as ethical obligations for fishers to ensure social license. They discuss techniques for turtle avoidance as well as handling, resuscitation and release. They include Moreton Bay, Sunshine Coast, Wide bay Burnett, Hinchinbrook, and the Gulf of Carpentaria Fisheries. <http://www.afma.gov.au/managing-our-fisheries/environment-and-sustainability/>

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

Details/future plans: Compulsory Turtle Excluder Devices (TEDs) are in place in all vessels in the Northern Prawn Fishery, the Northern Territory Demersal Scalefish Fishery, the Queensland East Coast Trawl Fishery, all Western Australian trawl fisheries and the Torres Strait Prawn Fishery. The development of turtle excluder devices (TEDs) was accompanied by research into their success in reducing bycatch of marine turtles while maintaining quantity and quality of target species catch (Robins-Troeger et al. 1995, Brewer et al. 1998, Salini et al. 2000). In longline fisheries, there has been considerable research and development into bait and hooks that reduce the bycatch and mortality of marine turtles and other animals (Gilman et al. 2006, Read 2007). In addition, handling and release procedures have been improved with the objective of reducing the extent of marine turtle injuries and releasing more turtles back into the ocean (Robins et al. 2007). Research related to shark control programs has focussed on hook design and bait types that reduce marine turtle (and other marine animal) capture and mortality (Sumpton et al. 2009). Add references from plan Brewer, D., N. Rawlinson, S. Eayrs and C. Burrige (1998). "An assessment of bycatch reduction devices in a tropical Australian prawn trawl fishery." Fisheries Research 36: 195-215 Gilman, E., E. Zollett, S. Beverly, H. Nakano, K. Davis, D. Shiode, P. Dalzell and I. Kinan (2006). "Reducing sea turtle by-catch in pelagic longline fisheries." Fish and Fisheries 7(1): 2-23 Read, A. J. (2007). "Do circle hooks reduce the mortality of sea turtles in pelagic longlines? A review of recent experiments." Biological Conservation 135(2): 155-169 Robins-Troeger, J. B., R. C. Buckworth and M. C. L. Dredge (1995). "Development of a trawl efficiency device (TED) for Australian prawn fisheries. II. Field evaluations of the AusTED." Fisheries Research 22: 107-117. Robins, C. M., E. J. Bradshaw and D. C. Kreuz (2007). Marine turtle mitigation in Australia's pelagic longline fisheries. Canberra, Australia, Fisheries Research and Development Corporation Final Report 2003/013. Salini, J., D. Brewer, M. Farmer and N. Rawlinson (2000). "Assessment and benefits of reduction in prawns due to use of different bycatch reduction devices in the Gulf of Carpentaria, Australia." Fisheries Research: 1-8 Sumpton, W. D., B. Lane and T. Ham (2009). "Gear modifications and alternative baits that reduce bait scavenging and minimize by-catch on baited drum-lines used in the Queensland Shark Control Program." Proceedings of the Royal Society of Queensland 116: 23-35. Sumpton, W. D., S. M. Taylor, N. A. Gribble, G. McPherson and T. Ham (2011). "Gear selectivity of large-mesh nets and drumlines used to catch sharks in the Queensland Shark Control Program." African Journal of Marine Science 33(1): 37-43

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

YES  **NO**  NOT APPLICABLE

Few or no turtle interactions have been reported to date in purse seine fisheries across Australia. Most Australian purse seining activity occurs in fisheries in southern waters where Marine Turtle presence is minimal.

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

**YES**  NO  NOT APPLICABLE

Details/future plans: 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/traces to reduce bycatch. A trial of the use of circle hooks in the Eastern Tuna and Billfish Fishery was conducted which demonstrated a capacity to reduce Marine Turtle interactions, however, capture rates of shark species increased. As a consequence, the use of circle hooks is not compulsory but there is substantial voluntary use of circle hooks by industry, particularly in areas with the potential for higher marine turtle interactions. It is believed to be as high as 98% of the fleet (OceanWatch Australia Survey

2010). Turtle Smart Crab Pots, a pot and rope combination that minimises the turtle's ability to enter crab pots and become entangled, was developed by Queensland's Moreton Bay crab fishers and OceanWatch Australia. A significant uptake was seen by east coast professional crab fishers and a flow-on effect was the design and construction of commercially-produced pots for professional and recreational fishers. This work is on-going. OceanWatch Australia championed the TAngler Bin (2006 –present), a recreational fishing line collection and educational tool. This initiative has created a heightened awareness of the problem of discarded fishing line and has reduced the amount of fishing gear released into the environment with the potential to impact on marine turtle and other marine life. These specially designed receptacles are strategically placed at boat ramps for fishers to dispose of waste fishing gear. Current reach of the TAngler Bin network includes New South Wales, limited locations in Queensland, Victoria and South Australia with spin-offs projects aligned or emulating the TAngler Bin messages in Western Australia, Queensland and Victoria,

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

YES  NO  NOT APPLICABLE

Under the Sea Installation Act 1987, exemption certificates for Fish Aggregating Devices (FADs) can only be issued if the installation, when so installed, will be used solely for scientific or marine archaeological purposes, or for a purpose deemed appropriate by the Environment Minister. FADs used for commercial fishing do not require a permit or exemption under the Act and can be installed in waters south of 20° S in the Skipjack fishery.

f) **Net retention and recycling schemes**

YES  NO  NOT APPLICABLE

The Ghostnets Australia Programme is a multi-million dollar program funded by the Government that takes place in cooperation with up to 22 indigenous communities/organisations across Northern Australia. The program works in one of the hotspots for the accumulation of derelict fishing gear on parts of the Northern Australian coastline. They also assist with science and research projects with CSIRO, conduct education. GhostNets Australia, an alliance of indigenous communities from coastal northern Australia, have focused on removal of derelict fishing nets from the marine environment and engagement with Indonesian communities to better understand the regional origins of these 'ghost' nets. Through innovative engagement with the broader community, this group have significantly raised the national profile of marine debris issues. The Department of the Environment is supporting work involving GhostNets Australia, CSIRO, NOAA and the Indonesian Ministry for Marine Affairs and Fisheries to reduce the incidence of derelict fishing gear in the Arafura Sea. Work done to date has engaged fishers, port authorities, local communities and stakeholders within key fishing communities in eastern Indonesia to identify the reasons for fishing gear loss and the identify potential solutions. Indigenous rangers collect ghostnets, rescue entangled wildlife, using data collection applications designed with CyberTracker software in partnership with NAILSMA's I-Tracker program, and work to identify the origins of ghostnets through a 'Net Kit', developed by the WWF. More than 2000 nets were removed 2010 from a 425 km coastline. The Northern Gulf Resource Management Group Limited is conducting the Local Indigenous Solutions for a Global Problem in Northern Australia project. The project has been expanded to target ghost nets across the northern coast of Australia by training Indigenous communities on the removal of ghost nets from the environment and the rescue and rehabilitation of injured wildlife. Funding has been provided over four years through the Australian Government's Caring for our Country program. With the help of a WWF net identification guide, the sea rangers record information about the nets, which will help inform negotiations to address the problem at its source. Over 200 different types of nets have been identified to date. The Djelk Rangers are involved in a number of 'fee for service' activities for the Australian Quarantine and Inspection Service. These include monitoring invertebrates, marine pests, vertebrate diseases and landing sites as well as monitoring and removing marine debris. The Djelk Rangers are also now partners in the GhostNets Australia Project (<http://www.ghostnets.com.au/projects.html?cat=Art>) Yirralka Rangers: Land and sea management activity - Sea country work currently includes monitoring and reporting of fishing vessels to NT Fisheries and undertaking illegal foreign fishing vessel patrols for the Australian Quarantine and Inspection Service. Other activities include monitoring turtle and dugong habitats and the removal of marine debris and ghost nets from coastal waters and beaches ( <http://www.ghostnets.com.au/projects.html?cat=Art>) Marpoon Land and Sea Rangers run regular debris clean-ups and ghost net recoveries throughout the year. Collection data is integrated with Junior Ranger activities and the local school students. Torres Strait Regional Authority Rangers have surveys point on islands throughout the TS to monitor marine debris. Torres Strait Regional Authority conducts marine debris clean-ups using the Tangaroa Blue methods in conjunction with planned Land and Sea Management Unit operations on inhabited and uninhabited islands throughout the Torres Strait. Ocean marine debris has

also been removed directly from the marine environment. The Australian Government's Border Protection Command has an established tasking to detect and report all large marine debris, particularly derelict fishing nets, in Australian waters. One of the objectives under the Australian National Threat Abatement Plan for the impacts of marine debris on vertebrate marine life (May 2009) is to improve waste management practices on land and at sea. The following paper has looked at the problem of managing ghost nets: Gunn, R., Hardesty, B.D. and Butler, J., (2010) Tackling 'ghost nets': Local solutions to a global issue in northern Australia. *Ecological Management & Restoration*, 11:88-98. CSIRO provided the Department with the report Understanding the types, sources and at sea distribution of marine debris in Australian waters (Hardesty and Wilcox 2011). This report details current modelling at sites distributed along Australia's Exclusive Economic Zone. Findings from this report suggest that most debris in the Australian marine zone is of Australian origin. More recently, CSIRO and UWA have collaborated to collect data on debris densities every 100 nautical miles around the entire Australian continent. A subset of these results have recently been published (Reisser et al. 2014), with analysis of the likely sources for debris observed at sea. In general, the west coast and very northeastern tip of the continent appear to receive material from international sources, while the east coast of the continent appears to primarily receive materials from domestic sources. CSIRO and GhostNets Australia published a study which included modelled net pathways, validated against independent data for the Gulf of Carpentaria and surrounding regions (Wilcox et al. 2012). This study illustrated the vast majority of nets that are found in the Gulf and surrounding regions pass relatively close to the port of Weipa. This work points to a potential significant cost saving in recovery efforts, if nets can be identified at sea to the northwest of Weipa and then retrieved as they pass close to the port. CSIRO has collaborated with GhostNets Australia to evaluate the sources of derelict fishing gear along Australia's northern coast. Of the nearly 15,000 nets recovered to date, it appears that the majority come from neighbouring countries in the Arafura and Timor Seas, with a particular concentration along the international boundary and in the prawn trawling waters to the north of the Gulf (Wilcox et al. 2013, Wilcox et al. 2014, Gunn et al. Unpublished Data). CSIRO and GhostNets Australia cooperated to put satellite tracking devices on several drifting nets in the Gulf, validating that nets circulate in the Gulf clockwise, completing a circuit of the gulf in less than a year. SeaNet Indonesia: Ghostnets Australia proposes to work with the Arafura Sea Ecosystem Action Program to promote the adoption of best practice fisheries management within the Arafura and Timor Seas. The goal of this project is to reduce by-catch and minimise the discarding of fishing gear, hence addressing a major source of ghost nets in the region. This project is likely to benefit turtles foraging in the Gulf, Torres Strait and north east Cape York and reduce impacts on marine turtle stocks nesting across north Queensland. OceanWatch Australia, and a range of partners, conducted marine debris clean-ups in Queensland including at Bundaberg, Fraser Island, Tin Can Bay and Hayes Inlet (Moreton Bay) from 2007 to the present. These have been conducted at strategic times, especially post-flood. Significant quantities of debris has been collected and disposed of. For example, the amount of debris removed from Hayes Inlet was 7.6 tonnes. Torres Strait Regional Authority conducts marine debris clean-ups using the Tangaroa Blue methods in conjunction with planned Land and Sea Management Unit operations on inhabited and uninhabited islands throughout the Torres Strait. Tangaroa Blue Foundation was funded through a Caring for our Country Grant in 2012/2013 to expand the Australian Marine Debris Initiative. This program works with 47 Indigenous communities across Northern Australia on the removal of marine debris from the coastline, collection of data, tracking the data to the source and working with stakeholders to find practical solutions that prevent marine debris from occurring in the first place. The AMDI program is on-going and currently has 2.75 million pieces of data from 1130 coastal locations across the country.

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 in the Torres Strait Prawn Fishery around Bramble Cay, Deliverance and Kerr Islands and Turu Cay. Within the Torres Strait region through the community-based Dugong and Turtle Management Plans, Torres Strait communities have identified a range of spatial and temporal closures for the harvest of dugongs and turtles. The closures vary from community to community and may include: • Method of hunting; • Age or sex of turtle being taken; • Limits on take of turtles and/or eggs; and • Foraging or rookery habitat closures. The management plans are voluntary and not legislated; therefore, closures are not enforced legally by the relevant Torres Strait Protected Zone Joint Authority agencies, but are based on cultural protocol and respect by Traditional Owners for each other's land and sea management initiatives. Some areas in Commonwealth Marine Reserves currently restrict fishing or are likely to restrict fishing in some way in the future. While these reserves were not declared to manage fisheries or to specifically protect marine turtles, they do offer increased protection where they coincide with the ranges of these species. Examples include Ashmore Commonwealth Marine Reserve and the Coral Sea Commonwealth Marine Reserve, both of which contain turtle nesting sites.



#### h) Effort management control

YES  NO  NOT APPLICABLE

All relevant Australian fisheries have limited entry and unless managed by quotas, have strict effort limits. In general, fishing effort in most relevant Australian fisheries has declined under improved management.

Other (list and explain):

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

Most jurisdictions use some form of onboard observer program. Scientific observer programs are conducted in a wide range of Commonwealth fisheries. The onboard observer program was supplemented (in 2010) with a 10 boat trial of an onboard camera monitoring system (e-monitoring system). AFMA has now engaged a third party provider for the e-monitoring program and it is expected that by early 2015 the ETBF and Western Billfish and Tuna Fishery (WBTF) will have electronic monitoring across their fleets. AFMA has now decided to market test the scientific observer program. (<http://www.afma.gov.au/services-for-industry/observer-program/>) 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

Since 1 July 2007, all vessels operating in Commonwealth Fisheries outside Torres Strait have been required to have a Vessel Monitoring System (VMS) fitted and operational. Other jurisdictions, such as Queensland East Coast Otter Trawl Fishery, also use VMS. On 9 April 2014, the PZJA published Vessel Monitoring System (VMS) guidelines for the Torres Strait Prawn Fishery (TSPF). <http://pzja.gov.au/resources/publications/torres-strait-prawn-fishery-vessel-monitoring-system-guidelines-2014-2/>

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

YES  NO  NOT APPLICABLE

Australian jurisdictions have developed an Australian Fisheries National Compliance Strategy 2010-2015 ([http://www.pir.sa.gov.au/\\_\\_data/assets/pdf\\_file/0008/135908/EXE119\\_Aust\\_Fisheries\\_National\\_Compliance\\_Strategy.pdf](http://www.pir.sa.gov.au/__data/assets/pdf_file/0008/135908/EXE119_Aust_Fisheries_National_Compliance_Strategy.pdf)). 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 Fisheries Management Authority, Australian Customs Service, the Australian Navy, Great Barrier Reef Marine Park Authority and state and territory 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 Northern Prawn Fishery (NPF) conducts training on turtle identification and release procedures via its Crew Member Observer program, which is currently managed by the Northern Prawn Fishing Industry Pty Ltd. CSIRO has helped the NPF develop and trial turtle excluder devices and other by catch reduction devices: 'escape hatches' that help larger species avoid capture. This ensures that crew members across the fishing fleet are well informed of release procedures to maximise the survival rates of turtles landed in the fishery. The observer program has operated for more than a decade, collecting information about threatened, endangered and protected species affected by the fishery. CSIRO trains the crew member observers, and analyses and manages specimens and data. In 2012, the program collected data on 3200 trawls. <http://www.afma.gov.au/2012/08/northern-prawn-fishery-crew-member-observers-prepare-for-tiger-prawn-season/> Training similar to that provided in the NPF is, to varying degrees, provided to crews in all Australian Fisheries where turtle interactions are likely. The Australian Government's Fisheries Research and Development Corporation (FRDC) has undertaken a number of projects aimed at training fishers regarding marine turtle interactions. These have been reported on previously, no new projects appear to have been undertaken since. In summary they are: FRDC Final Report – 2003/013 – Marine Turtle Mitigation in Australia's Pelagic Longline Fishery. FRDC Final Report - 2009/083 - Tactical Research Fund: Evaluating the impact of fishing on marine turtles relative to other impacts. FRDC Final Report - 2008/101 - Extension of Fisheries Research and Development Corporation funded research results on improved bycatch reduction devices to the Queensland East Coast Otter Trawl Fishery FRDC project 2011/009: Assessment of novel gear designs to reduce interactions between species of conservation interest and commercial fishing nets. FRDC project 2011/063: Tactical Research Fund: Quantifying the ecological and economic value of short soak time for gill nets used in the small mackerel / shark fishery in southern Queensland.

## 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, both Queensland and the Northern Territory have developed a set of information brochures covering a wide range of protected species including turtles that contains advice on identification and mitigation actions. Commonwealth fishers and scientific observers are provided with the Protected Species ID Guide, which includes the Indo-Pacific Marine Turtle ID Guide. Turtle identification and handling guidelines are also available for many Commonwealth managed fisheries. OceanWatch Australia developed a video 'Hooks Out and Cut the Line' (2006) explaining methods for de-hooking and line cutting and distributed this to all Australian pelagic longline vessels with appropriate training. Other instructional video's have been produced collaboratively that have been converted into other languages, such as the 'Crossing the Line' designed for longline fishers which was distributed in conjunction with training workshops. Also produced was 'One in a Thousand' Student Education Kit. The kit has been distributed to the majority of Queensland schools and continues to be sold at Mon Repos Marine Turtle Education Centre to raise funds for turtle research and conservation projects. Around 4000 kits have been sold. Crew Member Observers in the Northern Prawn Fishery are provided with turtle identification guides as well as information on release procedures for maximizing turtle survival rates as part of an annual training program. The same information has also been provided to all operators in the fleet. The Torres Strait Prawn Fishery handbook, which is distributed to all license holders annually, provides sea turtle identification guides as well as turtle recovery procedures. National Heritage Trust – OceanWatch Australia (2005) Circle of Dependence Protected Species Handling Manual. Pyrmont NSW. This book documents appropriate and practical handling of fish, mammals, reptiles and birds for all commercial gear types in easy to follow step-by-step instructions. It was distributed in conjunction with initiatives such as training DVDs 'Crossing the Line' and 'Hooks Out Cut the Line'. 'Go Slow for Those Below' (2011) was a television campaign including informative commercials highlighting the importance of vessel go-slow areas for turtle protection. It was aimed at both commercial and recreational fishers. 'Where your Seafood Comes From' (2011) was a range of short films documenting sustainable fishing practices adopted by commercial fishers including marine turtle safe gear and turtle handling procedures to minimize injury and death.

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

YES  NO  NOT APPLICABLE

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

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

**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]**

AFMA initiated the development of ecological risk assessments (ERAs) for Commonwealth fisheries in 2001. Between 2002 and 2009 AFMA commissioned ERAs for all Commonwealth fisheries. In some fisheries ERAs have been rerun. Since the implementation of the ERA's each successive year has shown a decline in the number of threatened or protected species being trapped as bycatch. For more information on ERA's of other Commonwealth fisheries see the Australian Government Bureau of Agricultural and Resource Economics and Sciences Fishery status reports 2010, available at [http://adl.brs.gov.au/data/warehouse/fishstatus20109abff00101/fishstatus20109abff00101\\_11a/FishStatus2010\\_1.00.pdf](http://adl.brs.gov.au/data/warehouse/fishstatus20109abff00101/fishstatus20109abff00101_11a/FishStatus2010_1.00.pdf) See section 1.4.5 e) for information about the Australian Government's Fisheries Research and Development Corporation (FRDC)

**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

Representatives from OceanWatch Australia have attended and participated at international forums such as: South American Fisheries Forum (2006); American Association for the Advancement of Science (2007); New Zealand Mitigation Workshops (2008); Forum Fisheries Agency workshop (2008); and Annual Symposium on Sea Turtle Biology and Conservation (2009).

**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. The Australian Fishing Management Authority has introduced restrictions on net sizes for nets used in traditional fishing for finfish to reduce the risk of incidental catch of turtle.

**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

Australian Government legislation All six marine turtle species in Australia are listed as threatened and migratory under the national Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), and considered as matters of National Environmental Significance (NES). Additionally, under the EPBC Act, areas of the marine environment under Australian Government jurisdiction (i.e. Commonwealth areas) and World Heritage Areas, are also a matter of NES (in some cases marine turtles are one of the World Heritage values underlying the World Heritage listing). It is an offence to kill, injure, take, trade, keep or move these species in a Commonwealth area or World Heritage 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 or under the Native Title Act (1993). Section 211 of the Native Title Act 1993 provides a native title right to direct harvest of marine turtles by Traditional Owners, where that harvest is for the purpose of satisfying personal, domestic, or non-commercial communal needs; and in the exercise of native title rights and interests. Great Barrier Reef Marine Park Traditional use activities in the Great Barrier Reef Marine Park are managed under the Great Barrier Reef Marine Park Act 1975, and the Great Barrier Reef Marine Park Regulations 1983. The Great Barrier Reef Marine Park Zoning Plan 2003 recognises that under section 211 of the Native Title Act 1993, native title holders may undertake traditional use of marine resources in the Great Barrier Reef Marine Park. 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 marine turtles within the Torres Strait turtle fishery area. FMN 66 limits the taking of marine 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 marine turtles is reduced or eliminated through the use of turtle excluder devices in the area of the prawn fishery (FMN 81 & 82). Also in the Torres Strait, marine 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. Queensland The Queensland Nature Conservation Act 1992 provides for the listing of marine turtles as vulnerable species and creates offences for taking, keeping or using these species (or products from these species) without authority. However the Queensland Aboriginal and Torres Strait Islander Communities (Justice, Land and Other Matters) Act 1984 provides, despite any other Act, that a member of a community of Aborigines or Torres Strait Islanders resident in a community government or Indigenous Regional Council (IRC) area shall not be liable to prosecution for an offence for taking marine products or fauna by traditional means for consumption by members of the community. Northern Territory Marine 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 marine 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 marine turtles other than 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) 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. Tasmania In Tasmanian waters, all marine turtles are listed as Specially Protected Wildlife under the Wildlife Regulations (General) 2010 of the Nature Conservation Act 2002 which is managed by the Tasmanian Department of Primary Industries, Parks, Water and Environment. Loggerhead turtles (*Caretta caretta*) are listed as Endangered and green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*) and hawksbill (*Eretmochelys imbricate*) as Vulnerable under the Tasmanian Threatened Species Protection Act 1995. It is an offence to take (kill, injure, catch, damage, destroy and collect), buy, sell or have possession of any specially protected wildlife or any product of specially protected wildlife in Tasmania, unless licensed to do so via a permit issued under the Nature Conservation Act 2002 and (for listed species) the Threatened Species Protection Act 1995. New South Wales In New South Wales, three species of marine turtles (loggerheads, leatherbacks and green turtles) are protected under the Threatened Species

Conservation Act 1995. Loggerheads are listed as endangered and green turtles and leatherbacks are listed as vulnerable. The Office and the Environment and Heritage is responsible for administering the TSC Act, which aims to protect species, populations and ecological communities threatened with extinction in NSW. The TSC Act, through Part 8A of the National Parks and Wildlife Act 1974 (NPW Act) prohibits the harming, picking, possessing, buying or selling of individual threatened species. The Act prohibits damaging their habitat and contains provisions to protect endangered populations and threatened ecological communities. Victoria In Victoria, the leatherback turtle (*Dermochelys coriacea*) is listed as threatened under the Flora and Fauna Guarantee Act 1988. The Leathery Turtle (*Dermochelys coriacea*) is considered critically endangered in Victoria according to the Department of Sustainability and Environment’s Advisory List of Threatened Vertebrate Fauna in Victoria – 2007.

**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**

Marine turtles and eggs have economic (by providing food that would otherwise have to be bought) 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 turtles 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 meat consumption, egg consumption or fat consumption.

**Egg consumption**

**YES**  **NO**

**HIGH**  **MODERATE**  **LOW**  **UNKNOWN**

See note above

**Shell products**

**YES**  **NO**

**HIGH**  **MODERATE**  **LOW**  **UNKNOWN**

Shells are valued by some Indigenous people and are used in traditional ornaments like dari in the Torres Strait.

**Fat consumption**

**YES**  **NO**

**HIGH**  **MODERATE**  **LOW**  **UNKNOWN**

See note above

**Traditional medicine**

**YES**  **NO**

**HIGH**  **MODERATE**  **LOW**  **UNKNOWN**

See note above

**Eco-tourism programmes**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

In Queensland, a turtle ecotourism and information centre exists at Mon Repos Conservation Park, Queensland providing comprehensive interpretative and educational information. From November to March, visitors can see nesting and hatching turtles on the beach at night. For more information go to: <http://www.derm.qld.gov.au/parks/mon-repos/index.html> The li-Anthawirriyarra Rangers also have trialed a turtle related ecotourism program. See <http://www.nailsma.org.au/hub/events/turtle-camp-opportunity-li-anthawirriyarra-sea-rangers> Some eco-tourism activities to watch nesting flatback turtles occur on Bare Sand Island near Darwin. Ecotourism activities exist in the township of Mapoon in the Gulf of Carpentaria, northern Queensland. Some eco-tourism activities to watch nesting flatback turtles occur on Bare Sand Island near Darwin.

Ecotourism activities exist in the township of Mapoon in the Gulf of Carpentaria, northern Queensland.

### 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.

### Other

Please note: Marine turtles and eggs have economic (by providing food that would otherwise have to be bought) 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 turtles 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 meat consumption, egg consumption or fat consumption.

### 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:

Harvest of turtles and their eggs occurs in many regions across northern Australia. Indigenous management of marine turtle resources has developed over many millennia in Australia and there is a strong desire among Indigenous communities for increased responsibility in managing marine resources (NAILSMA 2013). Many Indigenous communities have management plans that aim to sustainably manage this natural resource, and are involved in government funded programmes. Currently, there is limited data available on the level of harvest of turtles or eggs from any stock. Although, several Indigenous ranger groups are now collecting harvest data to inform community management plans. Sea ranger programs are in place across northern Australia that conduct various conservation, management and research activities regarding marine turtles, with over 50 ranger groups in WA, NT and Qld in coastal or island communities. In the Torres Strait, several community management plans have been developed in order to manage marine turtles Green turtle Harvest of adults and eggs occurs at rookeries across northern Australia as well as boat-based harvesting, primarily of large females, but also males and subadults (Kennett et al. 1998, Morris et al. 2001, Chatto et al. 2008, Limpus 2008). Harvest of sGBR green turtles occurs at coastal foraging

areas, with a previous estimate of 500-1000 turtles per year harvested in Australia and a similar amount in neighbouring countries (New Caledonia, Fiji and Vanuatu) (Limpus 2008). Harvest of nGBR green turtles by coastal Indigenous communities and Torres Strait Islanders has been estimated as yearly harvests of approximately 4000 turtles in Torres Strait, captured mostly by boat (Limpus et al. 1986, Johannes et al. 1991, Harris et al. 1994, Harris et al. 1995, Limpus 2008). Indigenous harvests of green turtles along the northeast Arnhem Land coast are estimated to be approximately 480 per year (Kennett et al. 1998). In Western Australia, an estimated 500 green turtles may be harvested annually along the Dampier Peninsula, based on surveys in 2001 (Morris et al. 2001, Limpus 2008). Total harvests are estimated at several thousand per year in Western Australia (Henry et al. 2003), which would include turtles from the NWS, GoC, nGBR and sGBR stocks (Limpus et al. 1992, Prince 1994, Kennett et al. 2004), as well as possibly other stocks (Jensen 2010). Additionally, harvest of turtles from the Ashmore Reef and Scott-Browse stocks has been occurring from the non-permitted harvest of females and/or their eggs by Indonesian fishermen (Whiting et al. 2000, Limpus 2008). Loggerhead turtles Harvest of loggerhead turtles from the WA stock has not been identified as significant (Kowarsky 1982, Morris et al. 2001). Estimated harvest of adults from the swPacific stock is approximately 40 turtles per year, including harvests in Papua New Guinea, Solomon Islands and New Caledonia, as well as within eastern Australia 2008 (Limpus 2008). Flatback turtles Harvest of flatback turtles for meat has been recorded from the Arafura Sea stock (Kwan 1989, Johannes et al. 1991, Hope 1998, Kennett et al. 1998). Egg harvest is also reported for the Arafura Sea (Kennett et al. 1998, Chatto et al. 2008) and east Australia stocks (Limpus et al. 1983, Limpus et al. 1993), including a potentially high rate of harvest in some areas (Kennett et al. 1998, Limpus 2007, Chatto et al. 2008). Harvest of nesting females and eggs has been reported for the Pilbara coast stock, by both Indigenous and (illegally) non-Indigenous people (Prince 1994, Limpus 2007). Flatback turtles from various stocks are also be harvested in Papua (Limpus et al. 1993), Indonesia (Suarez 2000) and Papua New Guinea (Kwan 1989). Hawksbill turtle Indigenous communities harvest hawksbill turtles for their shells and meat, and also harvest eggs, though eating meat is risky as it can be fatally toxic (Limpus 1987). Harvests from the nQld stock are estimated to be 50-100 individuals and hundreds of clutches per year and similar or larger harvests were estimated for the NT stock (Limpus 2009). No substantial harvest on hawksbill turtles from the WA stock has been reported (Limpus 2009), as they generally appear to be regarded as inedible. Harvesting of Australian hawksbill stocks may also be occurring in substantial numbers in Indonesia (Limpus 2009). Tag recoveries of hawksbill turtles that live at foraging areas in Australia and nest in neighbouring countries come predominantly from turtles that were killed in those countries, including Vanuatu, Solomon Islands, Papua New Guinea and Indonesia. Olive ridley turtle Olive ridley turtles and their eggs are harvested from the northeast Arnhem Land stock (Kennett et al. 1998, Chatto et al. 2008) and there is concern that the combined effects of feral, varanid and human predation on eggs on this stock could be unsustainable (Limpus et al. 2004, Chatto et al. 2008). Leatherback turtle Few leatherback turtles are eaten by Indigenous Australians, as it appears that they are considered unpalatable (Limpus 2004). In Queensland, the reports received suggest that less than one leatherback turtle per decade has been captured and killed (Unpublished data, EPA Queensland Turtle Conservation Project). There is no evidence that eggs or hatchlings are being taken for human consumption. References Chatto, R. and B. Baker (2008). The distribution of marine turtle nesting in the Northern Territory. Darwin, Northern Territory Department of Natural Resources, Environment, the Arts and Sport: 332. Harris, A., G. Dews, J. Kerr and I. Poiner (1995). 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Green turtle *Chelonia mydas* (Linnaeus). *A Biological Review of Australian Marine Turtles*, Queensland Parks and Wildlife Service and Australian Department of Environment and Heritage: 103. Limpus, C. J. (2008). A biological review of Australian marine turtle species. 4. Olive Ridley turtle *Lepidochelys olivacea* (Escholtz). *A Biological Review of Australian Marine Turtles*, Queensland Parks and Wildlife Service and Australian Department of Environment and Heritage. Limpus, C. J. (2009). A biological review of Australian marine turtle species. 3. Hawksbill turtle, *Eretmochelys imbricata* (Linnaeus). A biological review of Australian marine turtle species. T. Q. E. P. Agency. Brisbane, The Queensland Environmental Protection Agency. 3. Limpus, C. J. (2009). A biological review of Australian Marine Turtles: 6. Leatherback turtle *Dermochelys coriacea* (Vandelli). *A Biological Review of Australian Marine Turtles*. C. J. Limpus. 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Since 2001 no formal monitoring has been undertaken and, as such little is known about the current level of impact that traditional harvest is having on the marine turtle population. However, research has focused on developing community-based approaches to monitoring traditional harvest: • In the Torres Strait region, Rangers are conducting catch monitoring of marine turtles in collaboration with hunters. Data is stored with the TSRA under an agreement with Traditional Owners regarding its usage and dissemination. Data is being collected on a voluntary basis. A review of the voluntary community dugong and turtle catch monitoring program was completed by internationally recognised experts. Their report recommended a number of improvements including a small-scale pilot trial of a method customised for each community where data will be collected using direct observation and access point design. • 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). 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 Harris, A.N., Dews, G., Poiner, I.R. and Kerr, J. 1994. The traditional and island based catch of the Torres Strait Protected Zone. Final report to the Scientific Advisory Committee of the Torres Strait Protected Zone. April 1994. 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.

#### 1.5.4 Have any **domestic** management programmes been established to limit the levels of intentional harvest? [\[SAP\]](#)

YES  NO  UNKNOWN

The Australian Government supports a range of initiatives in collaboration with traditional owners and Indigenous communities to manage the levels of intentional harvest of marine turtles to be sustainable. While community management plans aim to sustainably manage this natural resource, limited data are available on the current level of harvest of turtles or eggs from any stock. Several Indigenous ranger groups are now collecting harvest data to inform community management plans. Refer to section 1.3.1 for more information



**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]**

Single species action management plan for loggerhead turtle The Department of the Environment has worked closely with the COP appointed Councilor for Marine Turtles to develop a single species action plan for loggerhead turtles in the South Pacific Ocean. The Australian government provided both financial and logistical support for a technical meeting with the aim of elaborating on the plan for loggerhead. It is anticipated that the draft plan will be presented to the 18th Scientific Council meeting for consideration and to the 11 CoP for endorsement. 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, and other CITES listed species, 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 Papua New Guinea came into force on February 15 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. Traditional fishing, including for turtle, is included as an individual fishery in Article 22 of the Treaty and as such, both countries have an obligation to manage and conserve the fishery. Several bi-lateral committees that discuss turtle management have been established under the Treaty: the Joint Advisory Committee (JAC), and the Environment 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. In addition, a fisheries bi-lateral meeting is held annually that discusses traditional fishing for turtle. The Australian Government has supported the development of the Regional Marine Turtle Conservation Programme by the Secretariat of 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. The 2008-2012 action plan was revised at a workshop in 2012. The action plans were endorsed at the 23rd SPREP meeting and are now in place. The Australian Government assisted the Papua New Guinean Government, through the Department of Environment and Conservation to develop The Guiding Framework for the sustainable management of marine resources, which identified opportunities to meet identified issues regarding the sustainable management of marine resources in the Torres Strait, particularly turtle and dugong, through broad community consultation. The Guiding Framework has been used as a basis for a project being undertaken by the Sea Turtle Foundation (STF), in partnership with the then Marine and Tropical Science Research Facility (MTSRF) and also partly funded by the Department of Foreign Affairs and Trade and PNG Sustainable Development. In 2010 the project delivered documentation outlining the turtle and dugong lifecycle and outlining some community-identified and agreed strategies and mechanisms for communities to address in the sustainable management of these resources. In 2011, STF provided further documentation, teaching aids for schools, both teachers and students, and provided communities with a range of resources.

**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

Please note that in Australia, the range of measures is used by all jurisdictions (i.e. Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we

have not indicated a scale of relative effectiveness. Refer section 1.5.1 A good example of this is: Since 2006 the TSRA, Traditional Owners and communities have collaborated with JCU through various sources of funding provided by the Australian government to monitor dugong and turtle populations of the Torres Strait. Presently (2011-14) JCU is coordinating a project under the National Environmental Research Program's Tropical Ecosystems Hub that is using monitoring, genetics, state-of-the-art tracking and remote sensing to develop, (a) an understanding of the status of marine turtles, (b) a detailed understanding of turtle and dugong spatial ecology, plus the threats to these populations, and (c) dugong population assessments. The project will both improve stakeholder understanding, capacity and skills to better manage priority species and provide valuable data that is useable and understandable to those making decisions regarding turtle and dugongs. The project aims to enhance the ability of Government and community to manage these threatened species, and also add value to the evolving Dugong and Turtle Management Plans and the Torres Strait Land and Sea Ranger Program. Indigenous ranger programs involved in the Western Cape Turtle Threat Abatement Alliance (Mapoon, Nanum Wunghim (Napranum), Pormpuraaw, and Apudthama/NPA (Injinoo)) also do extensive nest monitoring and nesting site management. OceanWatch Australia assists Queensland Department of Environment and Heritage Protection (since 2005 – ongoing) with its long-term marine turtle monitoring program in Moreton Bay. This includes participation in the annual turtle rodeo to collect data and provision of anecdotal information gained through fisher communications.

### Education/awareness programmes

YES  NO  N/A

EXCELLENT  GOOD  LOW  UNKNOWN

Please note that in Australia, the range of measures ticked are used by all jurisdictions (i.e., Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we have not indicated a scale of relative effectiveness.

Yes, see section 1.3.1 and 1.4.5 (f) Another example is: The Trustee For The Gnaraloo Station Trust initiated the Gnaraloo Turtle Conservation Program in 2005 to identify, monitor and protect nesting rookeries of endangered sea turtles. On ground monitoring commenced in 2008 along with a feral animal program and continues today. The project was provided with funding through the Australian Government's Caring for our Country program (2010-11). The research and data collected is then provided to state and Commonwealth agencies to facilitate decision making. The program undertakes extensive community engagement and hosts field excursions.

### Egg relocation/hatcheries

YES  NO  N/A

EXCELLENT  GOOD  LOW  UNKNOWN

Please note that in Australia, the range of measures ticked are used by all jurisdictions (i.e., Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we have not indicated a scale of relative effectiveness.

Egg relocation occurs at Mon Repos Conservation Park, near Bundaberg, Queensland.

The Department of the Environment considers that conservation of marine turtles in the wild should be the primary focus of conservation efforts and ex-situ efforts such as hatcheries, a secondary option.

### Predator control

YES  NO  N/A

EXCELLENT  GOOD  LOW  UNKNOWN

Please note that in Australia, the range of measures ticked are used by all jurisdictions (i.e., Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we have not indicated a scale of relative effectiveness.

Refer sections 1.2.1 and 1.3.1 As mentioned in section 1.2.1 the Australian Government in collaboration with the Qld Government are implementing a 3 year programme aimed at removing feral pigs from northern Australia. Indigenous ranger programs across north Australia implement comprehensive feral animal management programs, including feral pig control. This is of particular relevance to marine turtles in Cape York where feral pig predation of turtle nests represents a grave threat to large nesting sites. WWF, Wreck Rock Turtle Research Team and BMRG are currently determining the effectiveness of predator exclusion devices at Wreck Rock beach - see: [http://www.wwf.org.au/our\\_work/saving\\_the\\_natural\\_world/wildlife\\_and\\_habitats/australian\\_priority\\_species/marine\\_turtles/what\\_wwf\\_is\\_doing\\_to\\_protect\\_marine\\_turtles/loggerhead\\_watch\\_project/](http://www.wwf.org.au/our_work/saving_the_natural_world/wildlife_and_habitats/australian_priority_species/marine_turtles/what_wwf_is_doing_to_protect_marine_turtles/loggerhead_watch_project/) In the Torres Strait the impact of invasive predators is minimal, limited to feral dogs on some inhabited islands. The TSRA secured funding from the Queensland government for an integrated pest management project to manage three invasive species, one of which is feral/wild dogs that are impacting on nesting marine turtles.

### Vehicle / access restrictions

YES  NO  N/A  EXCELLENT  GOOD  LOW  UNKNOWN

2012 National Report Please note that in Australia, the range of measures ticked are used by all jurisdictions (i.e., Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we have not indicated a scale of relative effectiveness.

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 (loggerheads and flatback turtles) in Mackay and Townsville regions.

### Removal of debris / clean-up

YES  NO  N/A  EXCELLENT  GOOD  LOW  UNKNOWN

Please note that in Australia, the range of measures ticked are used by all jurisdictions (i.e., Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we have not indicated a scale of relative effectiveness.

See sections 1.3.1 and 1.4.4(f)

### Re-vegetation of frontal dunes

YES  NO  N/A  EXCELLENT  GOOD  LOW  UNKNOWN

Please note that in Australia, the range of measures ticked are used by all jurisdictions (i.e., Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we have not indicated a scale of relative effectiveness.

For example, the Fitzroy Basin Association Queensland in central Queensland is expanding the scope of its coastal program to include work with volunteers to protect nests of rare and threatened turtles (flatback, green turtles).

### Building location/design regulations

YES  NO  N/A

EXCELLENT  GOOD  LOW  UNKNOWN

Please note that in Australia, the range of measures ticked are used by all jurisdictions (i.e., Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we have not indicated a scale of relative effectiveness.

Under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), actions that have, or are likely to have, a significant impact on a matter of national environmental significance require approval from the Australian Government Minister for the Environment (the minister). The minister will decide whether assessment and approval is required under the EPBC Act. There are currently eight matters of national environmental significance protected under the EPBC Act, including listed threatened species such as marine turtles. A new streamlined approach for the environmental approval of offshore petroleum and greenhouse gas activities in Commonwealth waters came into effect on 28 February 2014. The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is now the sole assessor for offshore petroleum activities in Commonwealth waters. This means that actions will not require individual referral, assessment or approval under the EPBC Act provided they are undertaken in accordance with the endorsed NOPSEMA Program. The NOPSEMA Program has been endorsed by the Minister for the Environment as meeting the high environmental standards set out under national environmental law and has built in safeguards to ensure the objectives of the EPBC Act continue to be met and impacts on matters of national environmental significance are not unacceptable

### Light pollution reduction

YES  NO  N/A

EXCELLENT  GOOD  LOW  UNKNOWN

Please note that in Australia, the range of measures ticked are used by all jurisdictions (i.e., Australian Government, state/territory government, and, local government) and may reflect differing priorities for protection and conservation. There may also be considerable variability in terms of the effectiveness of these measures across different jurisdictions. For these reasons we have not indicated a scale of relative effectiveness.

Activities can be conditioned through the EPBC Act or through state and territory guidelines, such as those developed by the EPA in WA. [http://www.epa.wa.gov.au/Policies\\_guidelines/EAGs/Pages/default.aspx](http://www.epa.wa.gov.au/Policies_guidelines/EAGs/Pages/default.aspx) For example, in Western Australia, strict requirements are placed on lighting for mining developments in the Kimberley and Pilbara region as a result of approval conditions for the project under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Lighting audits are also regularly conducted on offshore oil/gas facilities adjacent to turtle nesting beaches, and lighting practices are adjusted wherever possible. Similarly, any activity approved under the EPBC Act where light pollution may cause potential impacts on marine turtle species, specific approval conditions are given to mitigate against any impacts. Ruth Kamrowski ([ruth.kamrowski@my.jcu.edu.au](mailto:ruth.kamrowski@my.jcu.edu.au)) has just finished her PhD on this topic, see: Ruth L. Kamrowski,, Col Limpus, Rhondda Jones, Sharolyn Anderson and Mark Hamann (2014) Temporal changes in artificial light exposure of marine turtle nesting areas. *Global Change Biology*. DOI: 10.1111/gcb.12503 Limpus, Col, and Kamrowski, Ruth L. (2013) Ocean-finding in marine turtles: the importance of low horizon elevation as an orientation cue. *Behaviour*, 150 (8). pp. 863-893. Kamrowski, Ruth L., Limpus, Col, Moloney, James, and Hamann, Mark (2012) Coastal light pollution and marine turtles: assessing the magnitude of the problem. *Endangered Species Research*, 19 (1). pp. 85-98.

### 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

No

## 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 *Recovery Plan for Marine Turtles in Australia 2003* was to identify and protect habitats that are critical for the survival of marine turtles, this is being continued in the remade draft recovery plan.

Section 1.6 outlines a range of measures being undertaken to protect important nesting beach habitat across Northern Australia. Within the Torres Strait region a Dugong Sanctuary has been in place since the commencement of the Torres Strait Treaty, which covers a large continuous seagrass meadow; an important foraging habitat for dugong and turtle. In line with recent research recommendations, the TSRA is facilitating a community consultation process in regard to the proposed expansion of the existing Dugong Sanctuary and the protection of turtles within the Sanctuary also. Additionally, through the community-based Dugong and Turtle Management Plans, Torres Strait communities have identified a range of spatial and temporal voluntary closures for the harvest of dugongs and turtles. The closures vary from community to community and may include: • Method of hunting; • Age or sex of turtle being taken; • Limits on take of turtles and/or eggs; and • Foraging or rookery habitat closures. The management plans are voluntary and not legislated; therefore, closures are not enforced legally by the relevant Torres Strait Protected Zone Joint Authority agencies, but are based on cultural protocol and respect by Traditional Owners for each other's land and sea management initiatives.

### 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

Under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), actions that have, or are likely to have, a significant impact on a matter of national environmental significance require approval from the Australian Government Minister for the Environment (the minister). The minister will decide whether assessment and approval is required under the EPBC Act. A new streamlined approach for the environmental approval of offshore petroleum and greenhouse gas activities, in Commonwealth waters, came into effect on 28 February 2014. The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is now the sole assessor for offshore petroleum activities in Commonwealth waters. This means that actions will not require individual referral, assessment or approval under the EPBC Act provided they are undertaken in accordance with the endorsed NOPSEMA Program. In undertaking assessment, NOPSEMA has committed to having regard to existing protective mechanisms of the EPBC Act, such as recovery plans and threat abatement plans, to ensure that they have all the relevant information available to inform their decision-making. Activities that will have an unacceptable impact on listed threatened species, such as listed marine turtles, will not be approved. Separate to commonwealth requirements, all states and territories have legislation that requires assessment of impacts to marine species and their habitats, refer to section 1. 5.1.

### 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

Reef Plan is the joint agreement between the Australian and Queensland Governments to halt and reverse the decline in water quality flowing to the Great Barrier Reef. The Queensland Department of Environment and Heritage Protection (DEHP) regulates industries with waste outputs into waterways and monitors ecosystem health in rivers, estuaries and coastal areas throughout the eastern coast of Queensland. DEHP also conducts a number of biological and habitat monitoring programs to assist local councils and other managers to reduce impacts and improve water quality and ecosystem health. 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 their areas of operation. Marine debris data is collected and reported to Tangaroa Blue Foundation as part of the Australian Marine Debris Initiative at coastal locations across

Northern Australia including turtle nesting areas, e.g. Raine Island. Turtle strandings are also reported through this program and reports forwarded to relevant state authorities. A marine water quality monitoring program has been established in collaboration between TropWATER (JCU) and TSRA across the Torres Strait to assess the possible impacts of development in PNG on the local marine environment, including adjacent to key nesting and foraging habitats.

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

YES  NO  NOT APPLICABLE

The Great Barrier Reef Marine Park Authority works closely with the Australian Department of Defence to minimise the potential for negative interactions with protected species when conducting live firing exercises and underwater demolitions within the Great Barrier Reef Marine Park. In all states and territories the use of chemicals and explosives in industry is regulated and closely monitored.

#### 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 Cocos (Keeling) Islands - reefs are generally healthy as a result of their remoteness and 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. In the Great Barrier Reef Marine Park - reef water quality protection plans aim improve coral reef habitats in the long term. The Great Barrier Reef Extreme Weather Response Program was implemented by the Great Barrier Reef Marine Park Authority following the extreme weather events of the 2010-11 summer. The Program also involved a wide range of partners, including the Queensland Department of Environment and Heritage Protection, reef industry groups and research agencies. The main aims were to: • Assess the nature and extent of floods and cyclones that affected the Reef • Investigate the implications for reef managers and reef users • Integrate, and built on, existing management programs • Increase our understanding of the implications of climate-related events for the Great Barrier Reef, and thereby increase our capacity to prepare for the predicted effects of climate change.

#### 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 improvement plans are in place to improve mangrove and seagrass habitats over the longer term. 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 that can be disturbed/destroyed in given areas. In addition, where industrial developments disturb/destroy mangroves they undertake rehabilitation and replanting programmes, where required. In southern Queensland, Ocean Watch Australia instigated a Mangrove Watch Program in partnership with research providers and local community groups. This program monitors mangrove habitats to improve catchment and habitat health. The program is now conducted by Wildlife Preservation Society of Queensland and local groups.

#### 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 monitoring is currently occurring at numerous sites along Queensland's coastline and in eight Torres Strait communities. Seagrass-watch raises awareness on the condition and trend of near shore seagrass ecosystems and provides an early warning of major coastal environment changes. The program is supported by both the Australian and Queensland Governments. The Department of Employment, Economic Development and Innovation (Fisheries) is the primary support agency in Queensland and the Department of Environment and Heritage Protection and the Great Barrier Reef Marine Park Authority also provide some funding and logistical support, particularly in the Great Barrier Reef, and Moreton Bay and Great Sandy Marine Parks. In the Torres Strait region TSRA Rangers, with the support of the Sea Team and the JCU TropWATER group, coordinate seagrass monitoring at 11 sites across five inhabited islands to monitor the health of seagrass beds. A research project undertaken by TropWATER continues to assess seagrass productivity, resilience to climate change and capacity for recovery in the Torres Strait in order to establish stronger predictive relationships and models between climate impacts and seagrass health. At Cocos (Keeling) Islands, efforts are being made to monitor important discrete seagrass habitat after degradation from a new port facility. There have been some approval conditions for developments assessed under the Environment Protection and Biodiversity Conservation Act 1999 that have required the rehabilitation of sea grass habitat. One example is the Adani Abbot Point Coal Terminal 0 (EPBC 2011/6194) Abbot Point, Queensland, which required the rehabilitation of any sea grass bed degraded as a result of the activity. The Department does not consider the rehabilitation of sea grass to compensate the loss of sea grass due to the difficulty in rehabilitating it. As a consequence, the focus is on preventing the loss rather than rehabilitation efforts. Related reviews: Ganassin C and Gibbs PJ (2008) A review of seagrass planting as a means of habitat compensation following loss of seagrass meadow. A report for the NSW Department of Primary Industries.

### **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]**

Arthur, K., C. Limpus, G. Balazs, A. Capper, J. Udy, G. Shaw, U. Keuper-Bennett & P. Bennett (2008) The exposure of green turtles (*Chelonia mydas*) to tumour promoting compounds produced by the cyanobacterium *Lyngbya majuscula* and their potential role in the aetiology of fibropapillomatosis. *Harmful Algae*, 7, 114-125. Arthur, K. E., M. C. Boyle & C. J. Limpus (2008) Ontogenetic changes in diet and habitat use in green sea turtle (*Chelonia mydas*) life history. *Marine Ecology Progress Series*, 362, 303-311. Arthur, K. E., C. J. Limpus & J. M. Whittier (2008) Baseline blood biochemistry of Australian green turtles (*Chelonia mydas*) and effects of exposure to the toxic cyanobacterium *Lyngbya majuscula*. *Australian Journal of Zoology*, 56, 23-32. Arthur, K. E., K. M. McMahon, C. J. Limpus & W. C. Dennison (2009) Feeding Ecology of Green Turtles (*Chelonia mydas*) from Shoalwater Bay, Australia. *Marine Turtle Newsletter*, 123, 6-12. Bell, C. D., J. M. Blumenthal, A. C. Broderick & B. J. Godley (2010) Investigating Potential for Depensation in Marine Turtles: How Low Can You Go? *Conservation Biology*, 24, 226-235. Boyle, M. C., N. N. FitzSimmons, C. J. Limpus, S. Kelez, X. Velez-Zuazo & M. Waycott (2009) Evidence for transoceanic migrations by loggerhead sea turtles in the southern Pacific Ocean. *Proceedings of the Royal Society B*, 276, 1993-1999. Boyle, M. C. & C. J. Limpus (2008) The stomach contents of post-hatchling green and loggerhead sea turtles in the southwest Pacific: an insight into habitat association. *Marine Biology*, 155, 233-241. Chaloupka, M., K. A. Bjorndal, G. H. Balazs, A. B. Bolten, L. M. Ehrhart, C. J. Limpus, H. Sukanuma, S. Troëng & M. Yamaguchi (2008) Encouraging outlook for recovery of a once severely exploited marine megaherbivore. *Global Ecology & Biogeography*, 17. Chaloupka, M., N. Kamezaki & C. Limpus (2008) Is climate change affecting the population dynamics of the endangered Pacific loggerhead sea turtle? *Journal of Experimental Marine Biology and Ecology*, 356, 136-143. Chu, T. C., D. T. Booth & C. J. Limpus (2008) Estimating the sex ratio of loggerhead turtle hatchlings at Mon Repos rookery (Australia) from nest temperatures. *Australian Journal of Zoology*, 56, 57-64. Dethmers, K. E. M., M. P. Jensen, N. N. FitzSimmons, D. Broderick, C. J. Limpus & C. Moritz (2010) Migration of green turtles (*Chelonia mydas*) from Australasian feeding grounds inferred from genetic analyses. *Marine and Freshwater Research*, 61, 1376-1387. Dobbs, K. A., J. D. Miller, C. J. Limpus & A. M. Landry Jr (2010) Hawksbill Turtle Hatchling Sex Ratios and Incubation and Pivotal Temperatures From Milman Island, Great Barrier Reef, Australia. *Marine Turtle Newsletter* 128, 12-16. Dryden, J., Grech, A., Moloney, J. and Hamann, M., 2008. Rezoning of the Great Barrier Reef World Heritage Area: does it afford greater protection for marine turtles? *Wildlife Research*, 35:477-485. Flint, M., J. Patterson-Kane, C. Limpus & P. Mills (2010) Health Surveillance of Stranded Green Turtles in Southern Queensland, Australia (2006-2009): An Epidemiological Analysis of Causes of Disease and Mortality. *EcoHealth*, 7, 135-145. Flint, M., Blair, D., Patterson-Kane, J., Kyaw-Tanner, M., Mills, P.C. and Medimond, Blood flukes (Spirorchiidae) as a major cause of marine turtle mortality in Queensland, 57-61 pp. Flint, M., Limpus, C.J., Patterson-Kane, J.C., Murray, P.J. and Mills, P.C., Corneal Fibropapillomatosis in Green Sea Turtles (*Chelonia mydas*) in Australia. *Journal of Comparative Pathology*, 142:341-346. Flint, M., Morton, J.M., Limpus, C.J., Patterson-Kane, J.C. and Mills, P.C., REFERENCE INTERVALS FOR PLASMA BIOCHEMICAL AND HEMATOLOGIC MEASURES IN LOGGERHEAD SEA TURTLES (*CARETTA CARETTA*) FROM MORETON BAY, AUSTRALIA. *Journal of Wildlife Diseases*,

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**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

Flatback turtles have been monitored in Kakadu National Park since 1995. Marine turtle monitoring has occurred on the Cocos (Keeling) Islands over an 11 year period. See <http://www.environment.gov.au/parks/publications/cocos/turtle/index.html> for the 2006 report. In Queensland, various government agencies, including the Queensland Parks and Wildlife Service have conducted over 40 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. In the Northern Territory, Bare Sand Island has been monitored every year since 1996 and Field island for approximately 10 years. 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. Since 2006 in the Torres Strait region the TSRA, Traditional Owners and communities have collaborated with JCU through various sources of funding provided by the Australian government to monitor dugong and turtle populations of the Torres Strait. Current funding for the monitoring of marine turtle nesting and foraging populations will continue until 2018 under current arrangements.

**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, olive ridley and flatback nesting populations across Australia has been established. Genetic analyses have also been done on samples from several foraging areas for green and hawksbill turtles and from stranded or harvested turtles. This information has been incorporated into the draft of the marine turtle recovery plan. The Australian population of green turtles is distributed across ten identified genetically distinct populations including new populations identified at Cobourg Peninsula and the Cocos (Keeling) Islands. The other eight populations are found at: Northwest Shelf, Ashmore Reef, Scott/Browse Reef, northeast Arnhem land, Gulf of Carpentaria, northern Great Barrier Reef, Coral Sea and southern Great Barrier Reef. In addition, there are green turtles that feed in Australia that are part of stocks that breed in other countries (e.g. Indonesia, PNG and New Caledonia). Green turtles are found in Australian waters off the Northern Territory, Queensland, and Western Australian coastlines and more limited numbers in New South Wales. There are two genetically distinct populations of loggerhead turtles in Australia: one in Queensland and one in Western Australia. There are three genetically separate populations of hawksbill turtles, one in the northern Great Barrier Reef and Torres Strait, and one in Arnhem Land that is differentiated from the Qld population by temporal variation in breeding, and a third on the North West Shelf of Western Australia. Nesting hawksbill turtles from the northern Great Barrier Reef are known to migrate to the Northern Territory (Australia), the southern coast of Papua (Indonesia) and Papua New Guinea. Hawksbill turtles that forage on the Great Barrier Reef are known to migrate to neighbouring countries including Papua New Guinea, Vanuatu, and the Solomon Islands. There are five populations of flatback turtles distributed around Australia, with low but significant genetic structure between many populations and a major genetic break occurring across Torres Strait. New sampling for genetics is being done in the Kimberley, which will help determine the geographic boundaries of populations. There are two olive ridley populations, one that nests at sites in the Northern Territory and one nesting on the Cape York Peninsula near Weipa. Recent publications include: Jensen MP, Limpus CJ, Whiting SD, Guinea M, Dethmers K, Adyana IBW, Kennett R, Prince, B and FitzSimmons NN. 2013. Defining olive ridley turtle *Lepidochelys olivacea* management units in Australia and assessing the potential impact of mortality in ghost nets. *Endangered Species Research* 21:241-253. Dethmers, K.E.M., Jensen, M.P., FitzSimmons, N.N., Broderick, D. Limpus, C.J. and Moritz, C. 2010. Migration of green turtles (*Chelonia mydas*) from Australasian feeding grounds inferred from genetic analyses. *Marine and Freshwater Research*, Vol. 61, Number 12, p 1376 – 1387. Jensen, M.P. 2010. Assessing the composition of green turtle (*Chelonia mydas*) foraging grounds in Australasia using mixed stock analyses. Unpublished PhD Thesis, University of Canberra, Australia. Pittard, S. D. 2010. Genetic structure of the flatback turtle (*Natator depressus*): a nuclear and mitochondrial DNA analysis. Unpublished Honour's Thesis, University of Canberra, Australia. Boyle, M.C. 2009. Evidence for transoceanic migrations by loggerhead sea turtles in the southern Pacific Ocean. *Proceedings of the Royal Society B*. Vol. 276 no. 1664 1993-1999.

**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. Sections 1.6 and 3.1.2 provide further details.

**Satellite tracking**  YES  NO

Recent studies include: In the Torres Strait, satellite trackers have been attached to green and hawksbill turtles from the Mer (Murray) Island group, Badu and Kaiwalagal archipelago. Flatbacks have been satellite tagged in Deliverance Island. The results are used to primarily inform research and Traditional Owners to contribute to the management of marine turtles. WWF has begun a collaborative project with JCU and EHP to understand Flatback turtle whereabouts originating from Wunjunga beach – see: [http://www.wwf.org.au/our\\_work/saving\\_the\\_natural\\_world/wildlife\\_and\\_habitats/australian\\_priority\\_species/marine\\_turtles/what\\_wwf\\_is\\_doing\\_to\\_protect\\_marine\\_turtles/flatback\\_turtles\\_whereabouts\\_project/](http://www.wwf.org.au/our_work/saving_the_natural_world/wildlife_and_habitats/australian_priority_species/marine_turtles/what_wwf_is_doing_to_protect_marine_turtles/flatback_turtles_whereabouts_project/) In Queensland satellite trackers have been attached to loggerhead and green turtles in Moreton Bay and Mon Repos and green turtles from various locations within the Great Barrier Reef Marine Park. The results are used to inform research and management of the species and to determine the movement patterns and habitat utilization of animals following the extreme weather events of the 2010-2011 summer. This work is being conducted in partnership between James Cook University, the Giringun Traditional Owners, Queensland Parks and Wildlife Service and the GBRMPA. In Western Australia, satellite tags have been attached to green and flatback turtles from Barrow Island, flatbacks from Mundabullangana station, flatback turtles from Cape Domett, loggerheads from Ningaloo Reef and hawksbills

from Rosemary Island. Various consultants for marine develops have deployed transmitters on turtles from the Lacepede Islands, Scott Reef and the Kimberley coast. These studies have provided some preliminary information on foraging grounds in Western Australia and have mainly been supported by the petroleum industry.

Other

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

A consortium comprising researchers from the University of Canberra, James Cook University and the University of Melbourne are developing a population model for the northern Great Barrier Reef stock of the green turtle, *Chelonia mydas*. This population model is being developed to better understand the dynamics of this genetic stock and to be able to do scenario testing of the impacts of climate change and indigenous harvest. This population model is currently being tested prior to further development.

Officers within DEHP have been supporting the local traditional owner group Gudjuda to undertake a 10 year mark recapture program in Edgumbe Bay to understand population dynamics and sustainable use. WWF has been supporting this project since 2010.

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

YES  NO  UNSURE

**The University of Queensland (UQ)** conducted an assessment of disease and environmental impact on the health of loggerhead and green turtles in Queensland, Australia. On-going surveillance of disease prevalence can act as an 'early-warning system' for changes in the host-disease-environment paradigm.

Researchers from the School of Veterinary Science at James Cook University are working with Traditional Owners, WWF and QPWS in Edgumbe Bay to examine the aetiology of green turtle fibropapillomas in juveniles in this area.

Publications include:

Flint, M., Patterson-Kane, J., Limpus, C. and Mills, P. 2010. Health Surveillance of Stranded Green Turtles in Southern Queensland, Australia (2006–2009): An Epidemiological Analysis of Causes of Disease and Mortality. *EcoHealth*. Vol. 7 Issue 1, p135-145.

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

YES  NO  UNSURE

The national Environment Protection and Biodiversity Conservation Act 1999 promotes the use of traditional ecological knowledge in cooperation with Indigenous people. The North Australian Indigenous Land and Sea Management Alliance (NAILSMA) conducted a Traditional Ecological Knowledge project as part of their Dugong and Marine Turtle Project (see section 1.3.1). Final copies of the project report and related publications can be found at ([http://www.nailsma.org.au/publications/dmtp\\_reports.html](http://www.nailsma.org.au/publications/dmtp_reports.html)). Recognition and use of Traditional Ecological Knowledge is an important component of the activities of the Saltwater People Network project and the I-Tracker program (see section 1.3.1), which built on the NAILSMA Dugong and Marine Turtle Project. NAILSMA's I-Tracker program currently receives support from the Australian

government. The Torres Strait Regional Authority (TSRA) is supporting the design and development of a Traditional Ecological Knowledge system in Torres Strait to enable Rangers' cultural and natural resource management activities to be informed by Ailan Kastom (Island Custom). The project will allow for cultural datasets to complement other western scientific datasets through a geospatial, computer based system, with associated mechanisms to ensure that culturally sensitive data and Indigenous intellectual property rights are appropriately protected. The project is funded under the Australian Government's Caring for our Country program until 2018.

**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. Papua New Guinea is a member on the Torres Strait Scientific Advisory Committee which provides research advice on Torres Strait fisheries (including marine turtles) to the Protected Zone Joint Authority. In the Torres Strait region communities with the support of the TSRA have developed dugong and turtle management plans, which contain community derived objectives, concerns, and research priorities from their perspective. CMS single species action management plan for loggerhead turtle The Department of the Environment has worked closely with the COP appointed Councilor for Marine Turtles to develop a single species action plan for loggerhead turtles in the South Pacific Ocean. The Australian government provided both financial and logistical support for a technical meeting with the aim of elaborating on the plan for loggerhead. It is anticipated that the draft plan will be presented to the 18th Scientific Council meeting for consideration and to the 11 CoP for endorsement.

**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

Queensland Parks and Wildlife Service staff have led the collaboration of large Indo-Pacific genetics projects on green and hawksbill turtles. International collaboration was undertaken to define genetic populations of green turtles throughout the Indo-Pacific by Dethmers et al. (2006), which then allowed mixed stocks analyses of green turtles at Australasian feeding grounds (Dethmers et al. 2010). Post-hatchling migration of loggerhead turtles across the South Pacific involved collaboration with colleague in Peru (Boyle et al. 2009). International collaboration was crucial in determining the genetic stocks of hawksbill turtles in the Indo-Pacific and in conducting mixed stock analyses of hawksbill feeding grounds in the region (FitzSimmons 2010). Analyses of the origins of olive ridley turtles captured by ghost nets in the Arafura Sea and Gulf of Carpentaria developed an international collaboration to share genetic data (Jensen et al. 2013) Reference: Boyle, MC, N.N. FitzSimmons NN, Limpus CJ, Kelez S, Velez-Zuazo X and Waycott M. 2009. Evidence for trans-oceanic migrations by loggerhead sea turtles in the southern Pacific Ocean as demonstrated by mtDNA sequence analysis. Proc. R. Soc. B 276: 1993-1999. Dethmers KEM, Broderick, D, Moritz, C, FitzSimmons, NN, Limpus, CJ, Lavery, S, Whiting, S, Guinea, M, Prince, RIT 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. Dethmers, K.E., Jensen, M.P., FitzSimmons, N.N., Broderick, D., Limpus, C.J. and Moritz, C. 2010. Migration of green turtles (*Chelonia mydas*) from Australasian feeding grounds inferred from genetic analyses. Marine and Freshwater Research, 61, 1376-1387. FitzSimmons NN 2010. Population genetic studies in support of conservation management of hawksbill turtles in the Indian Ocean. Final Report Marine Turtle Conservation Award 98210-7-G126 to United States Fish and Wildlife Service, June 2010. Jensen MP, Limpus CJ, Whiting SD, Guinea M, Dethmers K, Adyana IBW, Kennett R, Prince, B and FitzSimmons NN. 2013. Defining olive ridley turtle *Lepidochelys olivacea* management units in Australia and assessing the potential impact of mortality in ghost nets. Endangered Species Research 21:241-253.

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

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### c) Migrations

YES  NO  NOT APPLICABLE

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Dethmers, K. E. M., M. P. Jensen, N. N. FitzSimmons, D. Broderick, C. J. Limpus & C. Moritz (2010) Migration of green turtles (*Chelonia mydas*) from Australasian feeding grounds inferred from genetic analyses. *Marine and Freshwater Research*, 61, 1376-1387.

### d) Other biological and ecological aspects

YES  NO  NOT APPLICABLE

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### **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 are treated as priority, however, population trends have been given below, where available. Green turtle: Green turtle meta-population numbers and stability differ across their Australian range. According to Chaloupka (2003) "the sGBR (southern Great Barrier Reef) metapopulation, which is the benthic component of the stock, comprises ca 685 000 individual turtles resident in the four benthic habitats. It is important to note that green turtles spend the early development years in oceanic or pelagic habitats so that there are significantly more than 685 000 green turtles in the sGBR stock. Reference: Chaloupka, M., (2003). Exploring the metapopulation dynamics of the southern Great Barrier Reef green sea turtle genetic stock using RAMAS/Metapop. In: Akçaya, H., Burgman, M., Kindvall, O., Wood, C., Sjogren-Gulve, P., Hattfield, J., McCarthy, M. (Eds.), *Species Conservation and Management: Case Studies*. Oxford University Press, New York. Recent evidence indicates that based on long-term trends at index nesting beaches, the Southern Great Barrier Reef green turtle stock is increasing at approximately 3.8% per year (Chaloupka et al. 2007). The data is less clear for the Northern Great Barrier Reef green turtle stock but there are indications that this stock is showing early signs of decline (Limpus, 2008). References: 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 of the Queensland Museum* 49(1): 349-440 Chaloupka et al. 2007; Chaloupka, M., Bjorndal, K.A., Balazs, G.H., Bolten, A.B., Ehrhart, L.M., Limpus, C.J., Suganuma, H., Troeng, S. & Yamaguchi, M. (2008). Encouraging outlook for recovery of a once severely exploited marine megaherbivore, *Global Ecology and Biogeography*, 17: 297-304 Limpus, C.J. (2008). A biological review of Australian marine turtle species. 2. Green turtle, *Chelonia mydas* (Linnaeus). Environmental Protection Agency, Brisbane. Loggerhead turtle: Loggerhead meta-population numbers and stability differ across their Australian range. There are two genetically distinct populations of loggerhead turtles in Australia: one in Queensland (Mon Repos/ Wreck Rock and the Swains Reefs) and one in Western Australia. The eastern Australia population is the most significant in the southern Pacific Ocean. The population is centred in the southern Great Barrier Reef and adjacent mainland near Bundaberg with an estimated population size of 1000 females, with 400 breeding annually. Annual monitoring has revealed that since 2000, the long term decline in nesting loggerhead turtle numbers has changed to a trend for increasing numbers at all eastern Australian loggerhead turtle index beaches, with 400 recorded nesting during the 2009-2010 season. In WA, low intensity nesting occurs on Murion Island and the beaches of north-west Cape. Loggerhead turtles constitute a relatively small proportion of the foraging turtle populations of 3250 at Ningaloo Reef, 4250 at Exmouth Gulf and 8400 at Shark Bay, which are predominantly composed of green turtles. Hawksbill turtle: Hawksbill turtle meta-population numbers and stability differ across their Australian range. The total population of hawksbill turtles in Australia is unquantified; however, Australia is thought to hold the largest breeding population in the world. In Australia, there are three genetically separate subpopulations, one in the northern Great Barrier Reef and Torres Strait, one in Arnhem Land, and one on the North West Shelf of Western Australia. Nesting hawksbill turtles from the northern Great Barrier Reef are known to migrate to the Northern Territory (Australia), the southern coast of Papua (formerly Irian Jaya) and Papua New Guinea. Hawksbill turtles that forage on the Great Barrier Reef are known to migrate to neighbouring countries including Papua New Guinea, Vanuatu, and the Solomon Islands. Several thousand females nest in Queensland and around 3,000 females nest in Western Australia each year. Major nesting of hawksbill turtles in Australia occurs at

Rosemary Island and Varanus Island in Western Australia and in the northern Great Barrier Reef and Torres Strait. Serious population declines of hawksbill turtles have been recorded worldwide. In Australia, long-term monitoring of nesting turtles at Milman Island in the Torres Strait has shown that the number of nesting hawksbill turtles has been declining by 3% to 4% per year for at least ten years. Olive ridley turtle: Olive ridley turtle meta-population numbers and stability differ across their Australian range. The Tiwi Islands provide habitat to a significant number of nesting olive ridley turtles, estimated to be at least 2,500 in 2004/05 (S. Whiting). Low density nesting occurs along the Arnhem Land coast of the Northern Territory and scattered nesting occurs in the Gulf of Carpentaria and other areas of the Northern Territory. There is irregular nesting in eastern Queensland and NSW. No nesting has been recorded in Western Australia. In Australia, detailed information on the size of nesting and foraging populations is unknown although the nesting population is estimated between 500 and 1000. Low density nesting occurs in neighbouring countries such as PNG and Indonesia. There is limited nesting of this species in the western Pacific Ocean and South Eastern Asia and therefore the Australian population may represent an isolated breeding population. Leatherback turtle: Leatherback turtle meta-population numbers and stability differ across their Australian range. No major nesting has been recorded in Australia, although scattered isolated nesting (1-3 nests per annum) occurs in the Northern Territory and historically in southern Queensland and northern NSW (not since 1996). Nesting in Western Australia is still unknown or unconfirmed. Animals from populations in PNG, India, Malaysia and Indonesia use the continental waters of Australia to feed and migrate to temperate waters and periodically these turtles are found along the coastline as stranded turtles. A small number of sightings have been made off the mid-west coast of Australia and off Victoria and Tasmania. Flatback turtle: Flatback turtles nest along the northern Australian coast. Major nesting locations occur in Arnhem Land in the Northern Territory, Cape Domett in Western Australia and western Cape York in Queensland.

**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**

**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]**

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 critical sites for protection. Information on life history parameters is 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. All of the above information will assist in informing the review of the Recovery Plan for Marine Turtles in Australia.

**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

**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]

Through the IOSEA MoU processes, workshops and training have been used for information sharing. CMS workshops and meetings SPREP workshops and meetings

#### **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 turtle nesting populations and their breeding migrations in the Indo-Pacific Region.

### **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]**

Refer to sections 1.4.5 (e) and 1.3.1 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". The Reef Guardian program has now been expanded to include Reef Guardian Councils, Fishers, Farmers and Graziers, with the main aim to work with these stakeholder groups to ensure their activities minimise impacts on the Great Barrier Reef and its biodiversity. 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, the Torres Strait Regional Authority (TSRA) in collaboration with the Department of Employment, Economic Development and Innovation (DEEDI) are training traditional owners, rangers and high school children in Seagrass Watch. Seven communities have sites that are monitored four times a year. There are also not for profit organisations that rely on donations and funding to undertake the work they do, for example. Cairns Turtle Rehabilitation Centre This centre was established in 2000, as a non-profit organisation. The centre rehabilitates injured and distressed turtles. <http://www.saveourseaturtles.com.au/fitzroy-project.html> Reef HQ Aquarium turtle hospital The Reef HQ Aquarium Turtle Hospital in Townsville, Queensland opened in August 2009. The hospital was developed to rehabilitate sick and injured marine turtles so they can be released back into the Great Barrier Reef Marine Park, enhancing their long term survival and sustainability as a threatened species. The hospital plays a key role in raising community awareness in relation to threatened species and encouraging behavioural change that contributes to nature conservation. The facility provides visitors with an opportunity to see and learn about the plight of marine turtles, through educational talks and guided tours of the hospital. <http://www.reefhq.com.au/turtle-hospital-at-reef-hq-aquarium> Educational books on turtles and climate change ([https://www.coralcoe.org.au/wp-content/uploads/2012/10/fuentes\\_educational-book\\_myrtle.pdf](https://www.coralcoe.org.au/wp-content/uploads/2012/10/fuentes_educational-book_myrtle.pdf)) have been distributed to schools in TS through ranger educational programs. In Western Australia, the Ningaloo Turtle Program has developed a range of education, awareness and information resources that can be downloaded from [http://www.ningalooturtles.org.au/resource\\_downloads.html#conduct..](http://www.ningalooturtles.org.au/resource_downloads.html#conduct..) Tangaroa Blue Foundation has a Marine Debris Education Kit aligned to the national curriculum which highlights the impacts of marine debris on wildlife including turtles.

#### **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

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

**YES**  **NO**

In Queensland, a turtle ecotourism and information centre exists at Mon Repos Conservation Park providing comprehensive interpretative and educational information. In Western Australia, a marine turtle tourism interpretative centre has been built at North-West Cape (Jurabi). This interpretive centre provides information to people living and visiting the local area. In Western Australia, the Gnaraloo Station Trust initiated the scientific Gnaraloo Turtle Conservation Program (GTCP) in 2005 to identify, monitor and protect key coastal nesting rookeries of endangered sea turtles on Gnaraloo beaches, namely loggerhead (*Caretta caretta*), green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*) turtles. <http://www.gnaraloo.com/conservation>

**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.**

Refer to section 1.3.1

**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 Australian Government Working on Country Programme supports Indigenous rangers in undertaking marine turtle conservation initiatives (see 4.2). The Australian Government provides funding to the Torres Strait Regional Authority to support the development and implementation of community-based dugong and turtle plans in the Torres Strait region. Refer to section 1.3.1 for more information Traditional Use of Marine Resource Agreements (TUMRAs) are being developed and implemented in the Great Barrier Reef Marine Park. Refer to section 1.2.1 for more information. 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. Refer to sections 1.3.1 and 4.1.3 for other examples. AusTurtle is an NGO that encourages public participation in turtle research at Bare Sand Island in the Northern Territory. Researchers and volunteers monitor nesting and foraging turtles. (see Section 1.6 for some examples).

**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]**

National Turtle Symposium This conference marks the 2nd Australian Marine Turtle Symposium and the 2nd Western Australian Marine Turtle Symposium, bringing together scientists, industry, government, and community and Indigenous groups to share knowledge and build partnerships to conserve turtles in Australia. 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. 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. The World Wildlife Fund for Nature (WWF) is involved in supporting turtle research with Traditional Owner groups within the Great Barrier Reef and particularly has help fund projects between Cardwell to Bowen, Queensland since 2010. WWF also provides support o the Reef HQ Aquarium Turtle Hospital and Cairns Turtle Rehabilitation Centre. There are also a number of corporate sponsors of the Reef HQ Turtle Hospital in Townsville, Queensland. WWF are also supporting local nesting monitoring groups including volunteer (Wreck Rock Turtle Research Team, and Queens Beach Action Group) and indigenous organisations (Gudjuda Aboriginal Reference Group) at various locations including Wreck Rock (loggerhead turtles) and Wunjuga beach (flatback 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 and Border Protection Service (ACBPS) manages a broad range of risks at the border, including the importation and exportation of goods that Australian law prohibits, restricts or regulates. ACBPS applies an intelligence-led, risk-based approach to managing these risks. ACBPS ensures compliance through pre and post clearance monitoring and intervention activities. 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 Environment Protection and Biodiversity Conservation Act 1999 (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. The Department of the Environment is engaged in INTERPOL's Environment Security Sub-Directorate and regularly exchanges intelligence and coordinates international law enforcement operations with a number of countries, including those in the Asia-Pacific region. The Department of the Environment convenes an Environment Crime and Crime Convergence Working Group comprising operational law enforcement representatives from a range of Australian Government agencies. The Working Group is assessing the risk to Australia of various environment

crimes (including wildlife trafficking) and determining appropriate enforcement strategies for application domestically and internationally to address emerging threats particularly in the Asia-Pacific region. The Australian Government, through the Department of the Environment, is the current Chair of the Coalition Against Wildlife Trafficking, a voluntary public-private coalition of like-minded governments and organisations which aims to focus public and political attention and resources on ending the illegal trade in wildlife and wildlife products. There are five other Government Partners (Canada, Chile, India, the UK and the USA) and fifteen non-government Partners.

**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.

**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 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

A Recovery Plan for Marine Turtles in Australia was developed in 2003 and 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 (EPBC Act), • ensure that any future anthropogenic impacts do not limit population growth; and, • continue to encourage regional protection, conservation and management throughout their range. In 2005 a review of the actions and objectives of the current plan was completed and because a number of these had been completed or were out-of-date, a decision was made to review the plan. The revision of the Recovery Plan is underway. 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. The Australian Government, states and the Northern Territory first agreed to establish the National Representative System of Marine Protected Areas (NRSMPA) in 1998. The primary goal of the NRSMPA is to establish and manage a comprehensive, adequate and representative system of marine protected areas to contribute to the long-term ecological viability of marine and estuarine systems, to maintain ecological processes and systems and to protect Australia's biological diversity at all levels. 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 shares international boundaries and turtle stocks with Indonesia and Papua New Guinea (and other Melanesian countries such as Solomon Islands and Vanuatu), the following activities are being taken both domestically and in partnership with Indonesia and/or Papua New Guinea and other Melanesian countries:

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. Most trawl fisheries now include Turtle Excluder Devices (TEDs).

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.

1.6 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 collaborative studies and monitoring on genetic identity, 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]**

<b>Illegal fishing in territorial waters</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Incidental capture by foreign fleets</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Enforcement/patrolling of territorial waters</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Hunting/harvest by neighboring countries</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Poaching, illegal trade in turtle projects</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Development of gear technology</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Oil spills, pollution, marine debris</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Training / capacity-building</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Alternative livelihood development</b>	<input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input checked="" type="checkbox"/> <b>LIMITED</b> <input type="checkbox"/> NOT AT ALL

<b>Identification of turtle populations</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Identification of migration routes</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Tagging / satellite tracking</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Habitat studies</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Genetics studies</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL

International cooperation is essential for the following local management issues: • Loggerhead single species action management plan • Hunting of green turtles at Browse Island (under the MoU Box) • Hawksbill turtle harvest in Solomon Islands of turtles that breed in Solomon Islands but forage in the Great Barrier Reef World Heritage Area (Miller et al. 1998; Parmenter 1983). • Under the Torres Strait Treaty 1985 Papua New Guinea nationals can harvest turtles in Torres Strait (including Australian waters). Marine turtles have been declared an Article 22 traditional fishery under the Treaty 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. The illegal harvest of turtle and dugong by PNG fishermen still remains a priority management issue for Torres Strait communities and the TSRA. • 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. • Dr Kathy Townsend (University of Queensland) is undertaking research on turtles in Moreton Bay, which shows at least 30% of turtles necropsied died because of plastic ingestion. • There are limited local management issues relating to alternative livelihood development in Australia and they do not rely on international cooperation. Alternative livelihood development in PNG may benefit from cooperation from Australia. • It is necessary to obtain samples from other countries to understand the shared nature of our stocks. For example, Kiki Dethmers obtained genetic samples from green turtles in Indonesia to obtain an understanding of the shared nature of Australian green turtle populations.

**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. This is an appropriate forum for marine turtle conservation and management to be discussed, in the context of the MoU Box. 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). The Torres Strait Treaty (‘the Treaty’) between Australia and Papua New Guinea came into force on February 15 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. Traditional fishing, including for turtle, is included as an individual fishery in Article 22 of the Treaty and as such, both countries have an obligation to manage and conserve the fishery. There is also the Arafura and Timor Seas Ecosystem Action (ATSEA) project, an International Waters project funded by the Global Environment Facility (GEF, involving Indonesia, Timor Leste and Australia.). The ATSEA project involved the development of a Transboundary Diagnostic Analysis (TDA). The TDA is a threat analysis which assesses the current state of the environment and resources in the Arafura and Timor seas, including pressures, threats and impacts from over-exploitation and climate change. The TDA provided the basis for the development of a Strategic Action Program (SAP), which outlines actions to address threats to the marine environment in the Arafura Sea, including threats to marine turtles. The SAP was endorsed by Ministers of the three countries in May 2014. The Department of the Environment is supporting work involving GhostNets Australia, CSIRO, NOAA and the Indonesian Ministry for Marine Affairs and Fisheries to reduce the incidence of derelict fishing gear in

the Arafura Sea. Work done to date has engaged fishers, port authorities, local communities and stakeholders within key fishing communities in eastern Indonesia to identify the reasons for fishing gear loss and the identify potential solutions. This work has fed into the development of an Indonesian Government Arafura Sea Fisheries Management Plan, with implementation of identified solutions to be taken forward in that context. This may include an extension program modelled on Australia's SeaNet program, subject to further scoping and securing adequate funding. This work is being done in the context of the Arafura and Timor Seas Ecosystem Action (ATSEA) Program – a Global Environment Facility project involving collaboration among Australia, Indonesia and East Timor on the conservation and sustainable management of the coastal and marine resources of the Arafura and Timor Seas. Supporting these efforts, the CSIRO and others used the Arafura Sea as a case study to examine the complex value chain, stakeholders, costs and benefits inherent in the ghost net issue (Butler et al 2013). This work will contribute to the adaptive co-management of ghost nets and other marine debris in the region. Australia also promotes synergies with other regional/global convention secretariats such as the Pacific Regional Environment Program. Australia works closely with its Pacific neighbours and existing regional conservation organisations such as the Secretariat of the Pacific Regional Environment Programme (SPREP). Under the SPREP Regional Marine Species Program 2008 - 2012, sits the Marine Turtle Action Plan. Its goal is to conserve marine turtles and their habitats, in keeping with the traditions of the people of the Pacific Islands region. Australia provided input into the revised action plan. This plan has now been endorsed by the SPREP Council. The World Wildlife Fund for Nature (WWF) has an Asia Pacific Marine Turtle Programme 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. More information see 'Marine Turtle Conservation in the Asia Pacific Region' (WWF 2005), available at [http://wwf.panda.org/what\\_we\\_do/endangered\\_species/marine\\_turtles/asian\\_marine\\_turtles/](http://wwf.panda.org/what_we_do/endangered_species/marine_turtles/asian_marine_turtles/)

**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 (referred to in Australia as Regional Fishery Management Organisations – RFMOs) 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]**

Australian government continues 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 the North and West, particularly the islands 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 Australian Government funded initiatives include: • In the Torres Strait region Traditional Owners, communities TSRA and JCU have been collaborating on numerous marine turtle conservation and management training and participation

opportunities since 2006. This collaboration still continues and will aim to build the capacity of rangers, Traditional Owners and community based on their priorities. Under the Dugong and Turtle Plan being implemented by the Queensland Government training is being rolled out in a number of indigenous communities around the coast of Queensland. Queensland government should update this section. See Sections 1.2.1, 1.3.1 and 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. [\[BPR\]](#)**

The Australian Government provides funding support and has partnership arrangements with universities, researchers, provincial governments, community groups and Indigenous communities. Refer to sections 1.2.1, 1.3.1, 1.5.2, 1.5.3, 1.6.2, 3.1.7 & 4.3.1 for more information. Some good examples include: The northern hub of the National Environmental Research Program also funds a NAILSMA-led biodiversity theme project which includes a case study focused on marine turtle, dugong, and seagrass management and monitoring in north Australia in partnership with Indigenous communities and research organisations. See <http://nailsma.org.au/biodiversity-monitoring/marine-turtle-and-dugong-monitoring-wunambal-gaambera-healthy-country> for additional information. In the Torres Strait region the TSRA actively collaborates with expertise from several research institutes in conjunction with Traditional Owners, rangers and communities, including James Cook University, the Australian Institute of Marine Science, TropWATER, the University of Queensland and the Department of Environment and Heritage Protection, as well as numerous small consultancies.

**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. [\[SAP, TSH\]](#)**

Australia has 3 tiers of environmental legislation at the commonwealth, state and territory, and local government levels. Most development proposals will be examined and assessed against the legislative requirements of the Acts relevant to that state and if necessary at the commonwealth level. Overall, the various environmental legislation are considered to be effective in managing impacts on listed species, and in ensuring that consideration has been given to the relevant species and their lifecycle requirements. In addition, most government agencies have developed policies and guidelines, and planning documents (i.e. recovery plans) to inform the public about what constitutes an important habitat area for relevant species; activities that are permissible; and how to manage impacts. In granting an approval to undertake an activity, the proponent is bound by the strictures of the approval. Enforcement is a component of the approval. Non compliance of an approval will instigate an investigation. When determining the feasibility of an activity consideration is given to all relevant planning documents, policies and guidelines. All environment legislation has some enforcement and compliance component. One of the limiting factors in applying enforcement is gaining access to the remote locations of turtle populations and their habitats.

**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 The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 has a requirement to be reviewed every 5 years built into the act. Most legislation has a requirement for review although the timeframe does differ. As a result of the more recent Australian National Audit Office (ANAO) review, the department has begun re-allocating resources to target the gaps on managing compliance identified in the review. <http://www.anao.gov.au/Publications/Audit-Reports?page=2> Commonwealth recovery plans have a requirement for review built into it. The 2003 Recovery Plan was reviewed in 2012, and as such a 'remade' recovery plan was deemed necessary to build on actions of the previous plan and to accommodate the substantially new information collected since its approval. The Department of the Environment is also in the process of developing marine turtle guidelines for managers and the public to help inform and guide future development planning.



**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

Australasian Environmental Law Enforcement and Regulators neTwork (AELERT) AELERT is a collective of environmental regulatory agencies from Australian and New Zealand governments at local, state and federal levels. AELERT members come together to pursue and advance best practice and risk-based approaches to the administration and enforcement of environmental regulation. AELERT provides a number of platforms for environmental regulators to work together and exchange information and knowledge.

**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 the MoU. Although outside the geographical scope of the IOSEA Turtle MoU, an Australian continues to be represented at the Secretariat of the Pacific Regional Environment Programme regional marine turtle conservation program workshops and meetings. SPREP has worked to ensure that their marine turtle Action Plan is in line with and complements the work of the IOSEA Marine Turtle MoU. 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. .

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Australia continues to encourage States in the region to join the MoU opportunistically during bilateral meetings with non-signatory Range States.

**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 notes the call for a timetable for the consideration of the legal character of the IOSEA MoU. A move towards a binding format should not be assumed and should only occur with the support of all relevant range and interested States. Importantly any proposals in this respect would have to provide a robust justification of costs and benefits. Australia supports encouraging other range states to join the MoU and implement the Conservation and Action Plan.

**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]**

Since 2001, Australia has provided funding to support the IOSEA MoU and recently contributed \$20,000. Australia continues to make contributions to the SPREP MoU.

**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]**

Australian Government funding for domestic implementation of marine turtle conservation activities related to the IOSEA Marine Turtle MoU is primarily provided through Caring for our Country and the National Environmental Research Program (NERP). Turtle related work comes under other funded projects and at times is not specified specifically, so estimates of total funding exclusively for turtles is hard to estimate.

**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 funded include: • a 60-year North West Shelf Flatback Turtle Conservation Programme to survey, monitor and research turtle populations; and • the eradication of non-Indigenous species.

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

This is an area that has not been investigated to-date.

**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 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 Commonwealth marine areas. The Australian government also takes lead on international affairs. The Australian Government is also responsible for the development and implementation of national approaches to turtle management, such as the 2003 Recovery Plan for Marine Turtles in Australia.

**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 Australian Government Department of the Environment maintains ongoing dialogue with other agencies and reviews roles and responsibilities on an on-going basis.

**Comments/suggestions to improve the present reporting format:**

While we recognise that the National Report is trying to remain faithful to the text of the Conservation and Management Plan, and appreciate the Secretariat's attempts to remove duplication and ambiguity, the National Report is still too long, too detailed and overly repetitious. We consider that the level of detail requested may inadvertently over-emphasise issues that some signatory states do not have sufficient resources to adequately address. A more streamlined report would be beneficial both for Signatory States and for others who wish to access the information.

In addition, the report still requires considerable effort to coordinate, with the need to coordinate input from many agencies, across multiple jurisdictions, researchers and NGOs, and where there are a significant number of turtle sites.

Any criteria used to assess Signatory State National Reports needs to be transparent and based on objective criteria. However, Australia notes that 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. Attempting to rate such parameters may not be meaningful as it is often leads to largely subjective conclusions.

**Additional information not covered above:**