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MEMORANDUM OF UNDERSTANDING ON THE CONSERVATION AND MANAGEMENT OF MARINE TURTLES AND THEIR HABITATS OF THE INDIAN OCEAN AND SOUTH-EAST ASIA

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Agenda Item 9.1

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND – NATIONAL REPORT 2019

(Prepared by the United Kingdom of Great Britain and Northern Ireland)

IOSEA MARINE TURTLES MEMORANDUM OF UNDERSTANDING - NATIONAL REPORTING 2019

IOSEA Marine Turtles MoU - National Reports

The purpose of completing the national report is to provide information on your country's implementation of the IOSEA Marine Turtle MoU including, as far as possible, contributions of cooperating non-governmental partners. Implementation will be assessed in terms of the six objectives of the Conservation and Management Plan (CMP). The online questionnaire is divided into these six main objectives, and asks specific questions in relation to the activities that need to be carried out to fulfil those objectives.

Please answer all questions as fully and as accurately as possible. It may seem time-consuming, but once you have completed the first report, the next time will be much easier because you can simply revise your existing report online. Comprehensive responses to the questions posed in Section 1.4 should satisfy many of the reporting requirements of the 2004 FAO Guidelines to Reduce Sea Turtle Mortality in Fishing Operations, thereby avoiding duplication of effort.

Description text is provided below some of the questions to explain what information needs to be provided. Text boxes can be expanded to accommodate longer answers or to explain and provide additional information, beyond what is requested. Details of future plans are especially encouraged. Wherever possible, please try to indicate the source of information used to answer a particular question, if a published reference is available. Remember that you are sharing information with other countries about your progress, so that it may be of benefit to them. At the same time, you may find it useful to look at other countries' reports to get ideas for marine turtle conservation that might be adapted to your context.

When working on the online questionnaire, save your information by clicking on the "Save all" button inside each section. An auto-save feature also saves any changed responses every 30 seconds, and whenever you move between sections. Feel free to attach additional material (published reports, maps etc) to this questionnaire.

Throughout the questionnaire, alongside each question you will find one or more 3-letter abbreviations within square brackets. These are used to indicate the purpose for which the information provided will be used in the subsequent analysis of all of the national reports, as shown in the following table.

To some extent, the order in which these different types of information are listed below is a reflection of their importance – ranging from critical indicators of performance to factual details that are merely informative.

Abbreviation	**Type**	**Treatment / Purpose**
IND	Indicator	The information provided serves, in and of itself, as a key indicator of successful implementation or of pre-requisites for same (eg. of core actions undertaken, resource availability, capacity etc.)
PRI	Priorities	The collective data will be synthesized to give an indication of what has been done already (helping to avoid duplication of effort); what is generally not being done (gaps that need to be addressed); and what interventions or specific assistance may be required.
TSH	Trouble-shooting	

Particular implementation problems and issues (possibly of special interest to a small group of countries) are identified/highlighted with a view to stimulating remedial action in the short-term.

BPR

Best practice

Well-documented examples of best practices / success stories will be compiled and presented as approaches that other Signatory States might consider pursuing (ie adopting or adapting to suit their own circumstances).

SAP

Self-Appraisal

Self-assessment of effectiveness and completeness of actions undertaken – intended to stimulate reflection within a given Signatory State on what more could or should be done in relation to a particular activity.

INF

Information

The information will be collected and compiled, with little or no modification, mainly for purpose of sharing of information that could be of interest or value to other readers and/or other analyses.

GENERAL INFORMATION

Signatory State:
Which agency or institution has been primarily responsible for the preparation of this report?
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Memorandum in effect in Signatory State since (dd/mm/yyyy):
› 01/06/2002

This report was last modified (dd/mm/yyyy):
› 29/05/2014

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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

Please introduce and summarise, in an abstract of less than a page, the marine turtle populations and their habitats in your country. Comment on their status and highlight the main conservation challenges and achievements to date. It is not necessary to list here by name the individual nesting beaches, feeding areas and developmental habitats that are important for marine turtles in your country, as this information can be generated from the 'Site-Threat' data sheets to be completed in Annex 1. **[INF]**

› The British Indian Ocean Territory (BIOT), administered by the British Indian Ocean Territory Administration, comprises an archipelago of 58 islands and covers some 640,000 sq km of ocean. The islands have a land area of only 60 sq km and 698km of coastline. Diego Garcia is the largest island of 44 sq km. Below the territorial seas lies approx. 204,000 sq km of coral reefs (to at least 60 m depth). The reefs of the BIOT probably represent some of the most pristine and best protected in the Indian Ocean, primarily due to their history and continuing isolation, but also supported by current management measures (Sheppard et al. 2012).
The BIOT hosts significant populations of nesting Eretmochelys imbricata (hawksbill turtles - CR) and Chelonia mydas (green turtles - EN), with both species nesting on all five atolls (Mortimer & Day, 1999). The most important nesting sites for the hawksbill turtle are Diego Garcia (48.5%), Peros Banhos (41.6%) and Egmont (5% total nesting activity) (Mortimer and Esteban et al. in review). Turtle Cove - a tidal creek at the southern end of the lagoon of Diego Garcia is an important foraging area for immature hawksbill turtles (Mortimer and Day 1999). For green turtles, the most important areas are Peros Banhos (38.8%), Diego Garcia (31.6%, Great Chagos Bank (16.1%) and Egmont (10.2% total nesting activity) (Mortimer and Esteban et al. in review).
The potential feeding habitats (coral reefs) available to hawksbills are quite extensive. Scientific expeditions (2016, 2019) validated results from satellite tracking of green turtles from Diego Garcia to vast seagrass meadows at various locations on the south-eastern and southwestern Great Chagos Bank (Hays et al. 2014; Christiansen et al. 2017; Esteban et al. 2018; Hays et al. 2018). Research is underway to increase understanding of the value of these unusual deep-water seagrass meadows (Thalassadendron ciliatum at 30 m depth). Two other species may forage pelagically in the waters of the Chagos, namely loggerhead (Caretta caretta) and leatherback turtles (Dermochelys coriacea - EN; Mortimer and Day 1999) and there has been a report of one leatherback turtle caught as bycatch before establishment of the MPA in 2010 (Pearce, pers. comm. MRAG Ltd). Of the total coastline in the Chagos (excluding the inner lagoon of Diego Garcia), an estimated 59-70% comprise habitat suitable for turtle nesting (Mortimer and Day 1999). The only island currently inhabited is the southern most island, Diego Garcia. The movements of the base personnel are restricted and all wildlife is strictly protected. Fifty-eight percent of the coastline of Diego Garcia have been rated as optimal habitat (i.e. "good" or "adequate") for turtle nesting. Of the total optimal habitat recorded, 60.7% occurs within the "Nature Reserve" restricted area. More than 80% of hawksbill and 87% of green turtle nesting occurred within the boundaries of the Nature Reserve (Mortimer 2000).
Human disturbance and ongoing habitat damage associated with the military base of Diego Garcia appears to be minor. Turtle nesting populations on many islands would benefit from the eradication of rats and feral cats. Commercial fishing has
been banned in all BIOT waters since 2010; on 1 April 2010, the BIOT Marine Protected Area (MPA) was established by proclamation within the Environment (Protection and Preservation) Zone proclaimed in 2003. It covers over half a million square kilometres and is currently one of the largest MPAs in the world and declared a no-take MPA. A senior Fisheries Protection Officer is employed who operates aboard a dedicated fishery patrol vessel throughout the year to enforce this. Nonetheless, some illegal fishing take place. Recreational fishing is permitted within Diego Garcia's 3nm territorial sea and some visiting yachtsmen fish for personal consumption. Turtle poaching in the uninhabited outer islands has been reported (Mortimer 2007), but the extent of this practice and its effect on the nesting turtle population is unknown.
Coastal erosion is thought to pose a significant threat to turtle nesting beaches (Mortimer 2007). Sites that are particularly sensitive to erosion include the Salomon Atoll, western Peros Banhos and western Diego Garcia. In sea turtles, the sex of offspring is determined by the incubation temperature with females being produced under warmer conditions. So an emerging threat as a result of climate change is the feminisation of populations through rising incubations temperatures. Preliminary research results from Diego Garcia report a balanced primary sex ratio (Esteban et al. 2016) providing evidence that BIOT may be an important source of male turtles for the Indian Ocean. The natural shading provided by coastal vegetation on the narrow beaches of BIOT assists with cooling turtle eggs.

1.2 Best practice approaches to minimizing threats

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. **[BRP]**

› A combination of approaches have been successfully adopted by
the BIOT authorities, to secure the continued recovery of sea
turtle populations in the Chagos archipelago, including:
legislation, protected areas, scientific research, education and awareness campaigns to sensitize base personnel, habitat restoration and development of a comprehensive conservation management plan

1.3 Programmes to correct adverse economic incentives

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]**

Elaborate on the nature of the socio-economic study/ activity undertaken, the results obtained (successful or otherwise) and the desirability/ suitability for replication.
Include references to published reports, where available.
› Not applicable: there are no permanent inhabitants anywhere in BIOT

1.3.2 Which of these adverse economic incentives are underlying threats to marine turtles in your country? **[TSH]**
☑ Others (Please describe)

› Not applicable

1.3.3 Has your country taken any measures to try to correct these adverse economic incentives? **[BPR]**
☑ Not applicable (No adverse economic incentives exist)

1.4 Reduction of incidental capture and mortality

1.4.1 Indicate, and describe in more detail, the main fisheries occuring in the waters of your country, as well as any high seas fisheries in which flag vessels of your country participate and interact with marine turtles.

Tick 'YES' to indicate that a fishery is present and interacting marine turtles or 'NO' to indicate that a fishery is not present or is not interacting with marine turtles. **[INF]**
If a fishery is present, use the text box to indicate, for example, the approximate geographic distribution of the fishery, how long it has been operating, how many vessels are involved, etc.

a) Shrimp trawls:
☑ No (Please provide details)

b) Set gill nets:
☑ No (Please provide details)

c) Anchored Fish Aggregating Devices (FADs):
☑ No (Please provide details)

d) Purse seine (with or without FADs):
☑ No (Please provide details)

e) Longline (shallow or deepset):
☑ No (Please provide details)

f) Driftnet:
☑ No (Please provide details)

g) Others (Please provide details)
› In 2010 the entire BIOT FCMZ was declared a no-take marine reserve (MPA) (with the exception of 3nm around Diego Garcia) and subsequently no fishing licences have been issued. The only exceptions are recreational fishing <3 nm from Diego Garcia for persons lawfully present in BIOT or by visiting yachts throughout BIOT.

› None

h) None of the above (Please provide details)
› 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]. Select from one of the following descriptions: RELATIVELY HIGH, MODERATE, RELATIVELY LOW, NONE (i.e. not present), UNKNOWN (i.e. unable to answer for whatever reason).

a) Shrimp trawls
Please select only one per line

	UNKNOWN	NONE	RELATIVELY LOW	MODERATE	RELATIVELY HIGH
Fishing efforts:	☐	☑	☐	☐	☐
Perceived impact:	☐	☑	☐	☐	☐

- Source of information / clarification
› "No-Take" MPA declared in 2010 and so there is no commercial fishing activity.

b) Set gill nets
Please select only one per line

	UNKNOWN	NONE	RELATIVELY LOW	MODERATE	RELATIVELY HIGH
Fishing effort:	☐	☑	☐	☐	☐
Perceived impact:	☐	☑	☐	☐	☐

- Source of information / clarification
› "No-Take" MPA declared in 2010 and so there is no commercial fishing activity.

c) Anchored Fish Aggregating Devices (FADs)
Please select only one per line

	UNKNOWN	NONE	RELATIVELY LOW	MODERATE	RELATIVELY HIGH
Fishing effort:	☐	☑	☐	☐	☐
Perceived impact:	☐	☑	☐	☐	☐

- Source of information / clarification
› "No-Take" MPA declared in 2010 and so there is no commercial fishing activity.

d) Purse seine (with or without FADs)
Please select only one per line

	UNKNOWN	NONE	RELATIVELY LOW	MODERATE	RELATIVELY HIGH
Fishing efforts:	☐	☑	☐	☐	☐
Perceived impact:	☐	☑	☐	☐	☐

- Source of information / clarification
› "No-Take" MPA declared in 2010 and so there is no commercial fishing activity.

e) Longline (shallow or deepset)
Please select only one per line

	UNKNOWN	NONE	RELATIVELY LOW	MODERATE	RELATIVELY HIGH
Fishing effort:	☐	☑	☐	☐	☐
Perceived impact:	☐	☑	☐	☐	☐

- Source of information / clarification
› "No-Take" MPA declared in 2010 and so there is no commercial fishing activity.

f) Driftnet
Please select only one per line

	UNKNOWN	NONE	RELATIVELY LOW	MODERATE	RELATIVELY HIGH

Fishing effort:	☐	☑	☐	☐	☐
Perceived impact:	☐	☑	☐	☐	☐

- Source of information / clarification
› "No-Take" MPA declared in 2010 and so there is no commercial fishing activity.

g) Others (from 1.4.1 g))
Please select only one per line

	UNKNOWN	NONE	RELATIVELY LOW	MODERATE	RELATIVELY HIGH
Fishing effort:	☐	☑	☐	☐	☐
Perceived impact:	☐	☑	☐	☐	☐

- Source of information / clarification
› "No-Take" MPA declared in 2010 and so there is no commercial fishing activity.

1.4.3 Describe any **illegal fishing** that is known to occur in or around the waters of your country that may impact marine turtles. Describe the measures being taken to deal with this problem and any difficulties encountered in this regard. **[TSH]**
› There is evidence of illegal inshore fishing (Mortimer 2007). Sri Lankan fishermen have been found in camps on the archipelago fishing mainly for beche de mer and are known to catch turtles, though there has been no recent evidence of this. Measures taken: the problem has been raised at the IOTC, with the Sri Lankan High Commission in London and with the Sri Lankan Ministry of Foreign Affairs; tougher fines and sentences imposed on the illegal fishermen caught.

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 fishersusing equipment such as de-hooking, line cutting tools and scoop nets)
☑ UNDER INVESTIGATION or NOT APPLICABLE (Details/future plans)

› Not applicable

b) **Devices that allow the escape of marine turtles** (e.g. turtle excluder devices (TEDs) or other measures that are comparable in effectiveness)
☑ UNDER INVESTIGATION or NOT APPLICABLE (Details/future plans)

› Not applicable

c) **Measures to avoid encirclement** of marine turtles in purse seine
☑ UNDER INVESTIGATION or NOT APPLICABLE (Details/future plans)

› Not applicable

d) **Appropriate combinations** of hook design, type of bait, depth, gear specifications and fishing practices
☑ UNDER INVESTIGATIONS or NOT APPLICABLE (Details/future plans)

› Not applicable

e) **Monitoring and recovery of fish aggregating devices** (FADs)
☑ UNDER INVESTIGATION or NOT APPLICABLE

› Not applicable

f) **Net retention and recycling schemes**
☑ UNDER INVESTIGATION or NOT APPLICABLE (Details/future plans)

› Not applicable

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

☑ UNDER INVESTIGATION or NOT APPLICABLE (Details/future plans)

› Not applicable

h) **Effort management control**
☑ None of the above

› Not applicable

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]

Please use the corresponding text boxes to explain/clarify each of your responses, including 'NOT APPLICABLE' responses, and indicate future plans in this regard. [IND]
Please describe the collaboration, when/where the programmes were introduced, any difficulties encountered, and general results obtained (i.e. successful and unsuccessful). Provide references to publications, where available.

a) **Onboard observer programmes**

X
☑ NOT APPLICABLE (Details/future plans)

› The BIOT Administration has a patrol vessel for various uses, but there has been no licensed fishery since April
2010.

b) **Vessel monitoring systems**
☑ YES (Details/future plans)

› The BIOT Administration (BIOTA) has co-sponsored a
resolution tabled at the 18th Session of the Indian Ocean Tuna Commission (IOTC) in June 2014 to implement full on Vessel Monitoring Systems (VMS) on all vessels licensed by IOTC coastal states.

c) **Inspections** (i.e. at sea, in port, at landing sites)
☑ NOT APPLICABLE (Details/future plans)

› No commercial fisheries

d) **Training programmes / workshops** to educate fishers
☑ NO (Details/future plans)

› No future plans to introduce training programmes/workshops.

e) **Informative videos, brochures, printed guidelines** etc.
☑ YES (Details/future plans)

› In 2000, educational signboards were produced under an FFI project to inform people visiting Turtle Cove about the importance of the foraging hawksbill population in the Cove (Mortimer, 2000). Information posted on these signboards is updated during or after each turtle research expedition, most recently in April 2019. Independently, the management of BIOT erected two viewing platforms adjacent to Turtle Cove, so that visiting base personnel could view the turtles without getting into the water. Base personnel are not allowed to swim in Turtle Cove. New information boards, funded through the EU Best fund have been added in commonly used areas in Diego Garcia. In 2017, a commemorative first issue stamp collection was published by BIOT with a turtle conservation brochure. In 2019, a series of three short videos is being released by the Bertarelli Foundation about turtle conservation research in BIOT.

- Other OR none of the above
☑ None of the above

› None

1.4.6 Are the mitigation measures described in 1.4.4 and 1.4.5 periodically reviewed and evaluated for their efficiency? **[SAP]**
☑ NO (Please provide details)

› Not applicable since April 2010. In 2010 the entire BIOT FCMZ was declared a no-take marine reserve (MPA) (with the exception of

3nm around Diego Garcia) and subsequently no fishing licences have been issued. The only exceptions are recreational fishing <3 nm from Diego Garcia for persons lawfully present in BIOT or by visiting yachts throughout BIOT.

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]**
› Not applicable

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]**
☑ NO

› None

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]**
› The use of drift nets is prohibited in BIOT waters

1.5 Addressing harvest of, and trade in, marine turtles; and protecting of habitat

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]**

Please provide details (title/date) of the relevant legislation, as well as any exemptions (e.g. for traditional harvest) under that legislation.
☑ YES

› The protection and preservation of Wildlife Ordinance 1970 (as amended) empowers the Commissioner to enact legislation to protect wildlife (including turtles), prohibit the purchase, sale or export of wildlife, and prohibit the introduction of wildlife. It also permits the seizure in certain circumstances, of any vessel which brought a suspected offender into the Territory and, if any fine imposed is not paid, the eventual forfeiture of that vessel. The Wild Life Protection regulations of 1984 makes it an offence to "intentionally kill or attempt to kill or injure, or to take or be in possession of" and "intentionally to destroy, damage or take any birds nest while the nest is in use or being built, or any birds egg or turtles eggs".
The Wildlife Protection (Amendment) Regulations 2000 (2003) extends this list to include possession of a dead animal or any part of an animal or of a dead animal. Green Turtles Protection regulations 1968 states that no person shall harpoon, kill, destroy or take possession of any turtle for any reason whatsoever (similar legislation was not passed for Hawksbills at this time because hawksbill flesh was not being hunted for its meat; however all turtles are protected under other legislation). The Prohibited Imports and Export Order, 1984 prohibits the exportation of wild animals, whether alive or dead, (includes turtle eggs). The Trade in Endangered Species (Control) Ordinance 2007 provides for the application of CITES, appointing the Administrator as the Management Authority and requiring that advice be taken from a scientific authority a person or authority as the Commissioner may from time to time appoint.
The Joint Nature Conservation Committee is appointed as the Scientific Authority under Section 5 of this Ordinance.
The Visitors and Visiting Vessels Ordinance 2006 states: No person shall without the written consent of the Commissioner in the outer islands engage in any of the following activities or undertakings, that is to say, any form of hunting; any collection or killing of any wildlife including molluscs and live or dead coral; any undertaking connected with forestry or agriculture; any cutting or other destruction or collection of any vegetation; any excavations, levelling of the ground or construction; any work involving the alteration of the configuration of the soil or the character of the vegetation; any act, of whatever kind, which pollutes any source of water or watercourse or sea area; or any act, of whatever kind, likely to harm or disturb the fauna or flora of the outer islands; AND No person shall without the written consent of the Commissioner introduce into, or allow to enter or land in the Territory or the territorial sea and internal waters adjacent thereto any non-indigenous fauna or flora.
Specific to Diego Garcia, restricted areas are defined under the Diego Garcia Conservation (Restricted Area) Ordinance 1994 and can only be entered under permit. A public Notice in 1997 rovided clearer definitions and restrictions, including the establishment of the Restricted Area of Diego Garcia with a Nature Reserve Area and a Strict Conservation Area.

1.5.2 Which, among the following list, are economic uses and cultural values of marine turtles in your country? [INF]

Please rate the relative prevalence / importance of each consumptive or non-consumptive use.
Use the text boxes below each rating to explain or clarify your responses.

a1) Meat consumption
☑ NO

b1) Egg consumption
☑ NO

c1) Shell products
☑ NO

d1) Fat consumption
☑ NO

e1) Traditional medicine
☑ NO

f1) Eco-tourism programmes
☑ NO

g1) Cultural / traditional significance
☑ NO

h) Other (list and rank):
› None

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

	RELATIVELY HIGH	UNKNOWN	NONE	RELATIVELY LOW	MODERATE
Level of harvest:	☐	☐	☑	☐	☐
Impact of harvest:	☐	☐	☑	☐	☐

Source of information / explanation:
› No exploitation since the early 1970s, but the impact of historic exploitation is still felt in the reduced size of nesting
populations (Mortimer 2009).

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

Use the text box to give details.
☑ NO

› Not applicable: no turtle fishery exists

1.5.5 Describe any management agreements negotiating 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]**
› Not applicable

1.6 Minimizing mortality through nesting beach programmes

1.6.1 Measures and effectiveness

First, tick one of the YES/NO-boxes 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]**

Use the text boxes below each rating to elaborate on your responses, including any lessons learned that might be of value to other Signatory States, and indicate your plans for the coming year. Please explain

any “Not Applicable (N/A)” responses.

a1) Monitoring/protection programmes
☑ YES

› A long-term monitoring programme for the sea turtle nesting
population on Diego Garcia has been conducted by Department of Environment personnel since 1996, assisted by military personnel and interested BIOT personnel. This bi-monthly survey (sometimes intermittent) of the 3.2km index beach in south-eastern Diego Garcia has provided evidence of seasonal patterns of nesting activity (green turtle peak: June-October; hawksbill turtle peak: November-February; Mortimer and Esteban, in review)

a2) Monitoring/protection programmes: relative effectiveness
☑ GOOD

b1) Education/awareness programmes
☑ YES

› See 3.1.2

b2) Education/awareness programmes: Relative effectiveness
☑ GOOD

c1) Egg relocation/hatcheries
☑ N/A

d1) Predator control
☑ YES

› Rat eradication programmes on Eagle Island and Ille Vache Marine

d2) Predator control: Relative effectiveness
☑ GOOD

› Rat eradication was attempted on Eagle Island in 2006 but it was not entirely successful. Predators remain a problem in other nesting areas (Sheppard and Spalding 2003). However, a further
rat eradication programme initiated on Ille Vache Marine in 2014, resulted in the island being officially declared rat-free in 2017. The Chagos Conservation Trust are currently undertaking a feasibility study and environmental impact assessment into further rat eradication across other islands in the Territory. The US Environmental team conduct pest control in Diego Garcia.

e1) Vehicle / access restrictions
☑ N/A

f1) **Removal of debris / clean-up**
☑ YES

› Frequent beach clean-up exercise conducted by military personnel in Diego Garcia; infrequent or none on all other islands.

f2) Removal of debris /clean-up: relative effectiveness
☑ LOW

g1) Re-vegetation of frontal dunes
☑ N/A

h1) Building location/design regulations
☑ NO

› The British representative on Diego Garcia does not allow
building or access to the turtle beaches.

i1) Light pollution reduction
☑ N/A

j.) Other (list and rate them)
› None

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

Use the text box to elaborate on your response, if necessary.
☑ YES

› The 'Chagos research expedition in 1996' provided the first systematic survey of turtle nesting activity. This was followed by a further survey in 1999 limited to Diego Garcia commissioned by the Foreign & Commonwealth Office; the study is reported in "Diego Garcia Marine Turtle Conservation Assessment" (Mortimer, 2000) where management efforts were reviewed and further recommendations proposed. A further indirect evaluation has been achieved through the Chagos Conservation Management Plan (2003). Turtle scientific expeditions took place in 2006, 2012, 2014, 2015, 2017, 2018 and 2019) as part of an active research programme (objectives outlined in previous section). Scientists (Hays, Mortimer, Esteban) currently inform management policies and plans via research publications, expedition reports and management planning.

OBJECTIVE II: PROTECT, CONSERVE AND REHABILITATE MARINE TURTLE HABITATS

2.1 Measures to protect and conserve 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]**

› The British representative on Diego Garcia does not allow building or access to the turtle beaches. Several other turtle nesting islands can be visited, and this is controlled by information given to visitors.

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

Use the text box to elaborate on your response.
☑ NOT APPLICABLE

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

› Regular water quality monitoring takes place in the Diego Garcia lagoon. In 2019, Cefas visited BIOT to conduct additional water quality surveys to inform future management activities.

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

Use the text box to elaborate on your response.
☑ YES

› The Explosives Ordinance of 1984 states that no person shall import, manufacture, be in possession of or use explosives except in accordance with a permit granted by the Commissioner's Representative. Under the Fisheries (Conservation and Management)
Ordinance of 1998 it is an offence to use explosives, poison or other noxious substances for the purpose of killing, stunning or disabling any marine animal (including turtles). It is also an offence to be in possession of the above for any of the purposes mentioned. BIOT Administration has been in communication with scientists about use of explosives in 2019 (Esteban pers. comm.)

2.2 Rehabilitation of degraded marine turtle habitats

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

Provide sufficient details of the measures taken, especially those measures shown to have been effective in recovering degraded coral reefs. Please indicate future plans in this regard.
☑ NOT APPLICABLE (no degraded coral reefs)

› The reefs of the Chagos probably represent some of the most pristine and best protected in the Indian Ocean.

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]**
☑ NOT APPLICABLE (no mangrove habitats important for turtles)

› No significant mangrove habitat present

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]**
☑ NOT APPLICABLE (No degraded sea grass habitats)

› No significant seagrass habitat adjacent to any island other than Diego Garcia. Surveys are underway in Diego Garcia and Peros Banhos to update state of knowledge about seagrasses reported by Drew (1980). Mortimer and Esteban are members of the South West Indian Ocean seagrass monitoring network and attended the inaugural meeting in November 2018.

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

3.1 Studies on marine turtles and their habitats

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]**

› Dujon, A., Schofield, G., Lester, R., Esteban, N. & Hays, G.C (2017). Fastloc-GPS reveals daytime departure and arrival during long-distance migration and the use of different resting strategies in sea turtles. Marine Biology 164: 187. doi:10.1007/s00227-017-3216-8

Dutton R.A 1980. The herpetology of the Chagos Archipelago. British Journal of Herpetology 6:133-134.

FitzSimmons N. (2010). Final report: Population Genetic Studies in Support of Conservation and Management of Hawksbill Turtles in the Indian Ocean. Marine Turtle Conservation Fund Award 98210-7-G126. Unpublished report to Multinational Species Conservation Fund. 24 pp.

Christiansen, F., Esteban, N., Mortimer, J., Dujon, A. & Hays, G.C. (2017). Diel and seasonal patterns in activity and home range size of green turtles on their foraging grounds revealed by extended Fastloc-GPS tracking. Marine Biology 164: 10. doi:10.1007/s00227-016-3048-y

Esteban, N., Laloe, J.-O., Mortimer, J.A., Guzman, A., & Hays,G.C (2016). Male hatchling production in sea turtles from one of the world's largest marine protected areas, the Chagos Archipelago. Scientific Reports 6, 20339. doi:10.1038/srep20339

Esteban, N., Mortimer, J.A. & Hays, G.C. (2017). How numbers of nesting sea turtles can be overestimated by nearly a factor of two. Proceedings of the Royal Society B: Biological Sciences 284: 20162581. doi:10.1098/rspb.2016.2581

Esteban N, Mortimer JA (2018). Sea Turtle Conservation Research Diego Garcia, BIOT. 21 November – 11 December 2018. Expedition Report to the Foreign and Commonwealth Office.

Esteban, N., Unsworth, R.K.F., Gourlay, J.B.Q. & Hays, G.C. (2018). The discovery of deep-water seagrass meadows in a pristine Indian Ocean wilderness revealed by tracking green turtles. Marine Pollution Bulletin 134, 99-105. doi:10.1016/j.marpolbul.2018.03.018

Frazier J.G. (1977). Marine Turtles in the Western Indian Ocean: British Indian Ocean Territories, Comoros. Oryx 13:162-175.

Hahn A, Jensen MP, Broderick D, FitzSimmons NN, Bell I, Mortimer JA, Whiting S, Limpus CJ, Trott S. In prep. Stock composition of hawksbill turtle (Eretmochelys imbricata) feeding grounds in the Indo-Pacific region.

Hays, G.C, Mortimer, J., Ierodiaconou, D. & Esteban, N. (2014). Use of Long-Distance Migration Patterns of an Endangered Species to Inform Conservation Planning for the World's Largest Marine Protected Area. Conservation Biology 28, 1636-1644. doi: 10.1111/cobi.12325

Hays, G.C., Alcoverro, T., Christianen, M.J.A., Duarte, C.M., Hamann, M., Macreadie, P.I., Marsh, H.D., Rasheed, M.A., Thums, M., Unsworth, R.K. F., York, P.H. & Esteban, N. (2018). New Tools to Identify the Location of Seagrass Meadows: Marine Grazers as Habitat Indicators. Frontiers in Marine Science 5:9. doi:10.3389/fmars.2018.00009

Mortimer, J.A & Crain, D.A (1999). Sex steroid concentrations in immature hawksbill turtles (Eretmochelys imbricta) in the Chagos Archipelago. 173-184 p. In: Sheppard, C.R.C., Seaward, M.R.D. (Eds), Ecology of the Chagos Archipelago, 173-184 p. Linnean Society Occasional Publications 2, 173-184 p.

Mortimer, J.A., Day, M. (1999). Sea turtle populations and habitats in the Chagos Archipelago. 159-175 p. In: Sheppard, C.R.C., Seaward, M.R.D. (Eds.), Ecology of the Chagos Archipelago. 159-175 p. Linnean Society Occasional Publications 2, 159-175 p.

Mortimer, J.A & Broderick, D (1999). Population genetic structure and developmental migrations of sea turtles in the Chagos Archipelago and adjacent regions inferred from mtDNA sequence variation. 185-194 p. In: Sheppard, C.R.C., Seaward, M.R.D. (Eds.), Ecology of the Chagos Archipelago, 185-194 p. Linnean Society Occasional Publications 2, 185-194 p.

Mortimer, J.A. (2000). Diego Garcia Marine Turtle Conservation Assessment (British Indian Ocean Territory). Final Report: on the Fieldwork to the British Indian Ocean Territory Department, Environment Science & Energy Department, and Foreign & Commonwealth
Office. 69 pages.

Mortimer, J.A. (2000). Sea turtle conservation programmes: Factors determining success or failure. 1-371 p. In: Salm, R.V., Clark, J.R., Siirila, E. (Eds.), Marine and Coastal Protected Areas: A guide for planners and managers. 1-371 p. IUCN, Washington D.C. 1-371 p.

Mortimer, J.A., Day, M. & Broderick, D. (2002). Sea turtle populations of the Chagos Archipelago, British Indian Ocean Territory. 47-49 p. In: Proceedings of the 20th Annual Symposium on Sea Turtle Biology and Conservation. Compilers: Mosier, A., A. Foley, & B. Brost. NOAA tech. Memo. NMFS-SEFSC-477, 369 p. Orlando, Florida.

Mortimer JA. (2007). Final report: Status & Conservation of Nesting Turtles in the Chagos Islands (BIOT). Marine Turtle Conservation Fund Award 98210-6-G073. Unpublished report to Multinational Species Conservation Fund. 8 pp. Mortimer, J. A. 2007. Sea turtles of the Chagos Archipelago - Populations in Recovery. IOSEA Profile of the Month (Archive) -- Sep 2007. http://www.ioseaturtles.org/pom_detail.php - id=60

Mortimer, J.A. (2009). History of turtle exploitation in Chagos. Chagos News 34: 14-16 p.
Mortimer, J.A. Esteban, N., Guzman, A.N., Hays, G.C. (in review) Estimates of sea turtle nesting populations in the southwestern Indian Ocean indicate the importance of Chagos Archipelago
Proctor, D & Fleming L.V (eds) (1999). Biodiversity: the UK Overseas Territories. Peterborough Joint Nature Conservation Committee, In Sheppard C.R.C. & Seaward M.R.D. (Eds.), Ecology of the Chagos Archipelago. Linnean Society Occasional Publications 2.
Sheppard, C., Spalding, M. (2003). Chagos Conservation Management Plan. 1-52 p.
Spalding M.D et al (2001). World Atlas of Coral Reefs. UNEP World Conservation Monitoring Centre.
Stoddart D.R (1971). Geomorphology of Diego Garcia Atoll. In Stoddart D.R., Taylor JD (Eds) Geography and Ecology of Diego Garcia Atoll, Chagos Archipelago. Atoll Research Bulletin 149:7-27.
Vargas SM, Jensen MP, Mobaraki A, Santos FR, Broderick D, Mortimer JA, Limpus C, Whiting S, FitzSimmons N. (2010). Phylogeography of the Hawksbill turtles (Eretmochelys imbricata) from the Indo Pacific Region. Abstract, 24-30 April 2010. Proceedings of the 30th International Symposium on Sea Turtle Biology and Conservation.

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]**

Please give details of the nature, duration and continuity of these programmes.
☑ YES

› Three index beaches on Diego Garcia were originally identified for long-term monitoring (Mortimer and Day 1999), and baseline data was collected in 1999 and 2001. Data gathering was suspended in 2001. Some ad hoc turtle monitoring activities were carried out in July 2003. A more systematic plan of data collection was reinstated in 2006 and between March 2006 and February 2007, 23 nest beach surveys were carried out, providing the first description of nesting seasonality in BIOT (Mortimer 2007). Since 2012 the turtle monitoring was revived on Diego Garcia implemented by personnel of the US Naval Support Facility (NSF) Environmental Office in collaboration with Mortimer, Esteban, Hays and the British Representative. While training materials and a monitoring protocol have been developed, encouragement of personnel by superiors is required to ensure that volunteers are available to continue the semi-monthly surveys. The high turnover of base personnel (maximum stay of 1 year) requires repeated training. Given the temperature anomalies experienced throughout the Indian Ocean in recent years, and the fact these are known to affect reproductive periodicity in nesting turtles, long term monitoring is regarded as extremely important. Annual egg clutch production and population trends were assessed using these long-term data and data from expeditions in 1996, 2006 and 2016 to report a marked and significant increase in the number of green turtle clutches and an increase in number of hawksbill turtle clutches (Mortimer and Esteban et al. in review).

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

Please give details (e.g. which species, which populations?).
☑ YES

› Patterns of mitochondrial DNA variation were first analysed
after samples collection during the 'Chagos 1996 Scientific Expedition'. As reported in Mortimer & Broderick (1999), mtDNA from Chagos was compared to populations from other rookeries in the Indian Ocean: Republic of Seychelles, Arabian Peninsula and Western Australia. Nesting hawksbills in Chagos and Seychelles are both characterized by high frequency mtDNA variants not recorded elsewhere in the world and differed from each other by significant haplotype frequency shifts. Nesting green turtles shared haplotypes with green turtle populations
in both the eastern and western Indian Ocean,but were distinct from those in the Arabian Peninsula. Only 3 green turtles were sampled however. Genetic studies and the inference that can be derived from them depends very much on the sample size used; one of the objectives of the 2006 scientific expedition was to collect many more genetic samples. Analysis of this material is completed or nearly completed (FitzSimmons 2010, Hahn et al., in prep., Vargas et al., in prep, Vargas et al. in press). In the wider Indian Ocean, Vargas et al., (2010) subsequently identified nine genetically separated groupings, with those nesting in Chagos and Seychelles forming a single grouping distinct from those in the Arabian Gulf and more easterly sites including Western Australia, (Vargas et al., 2010, and Vargas et al., in prep). Analysis of DNA from foraging hawksbills indicate that most foraging hawksbills in Chagos derive from rookeries in Chagos and Seychelles, which also contribute substantially to foraging aggregations in Cocos (Keeling) (FitzSimmons, 2010 unpublished report; Hahn et al.,

in prep.).

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]

a) Tagging

☑ YES (Details/future plans)

› The mark-recapture study of immature turtles in Turtle Cove was initiated during the Warwick Expedition to Chagos in February/March 1996 after Base personnel called attention to an aggregation of immature sea turtles that appeared to be resident in Turtle Cove. At the time, they were assumed to be green turtles, but most proved to be Critically Endangered hawksbill turtles. Over a five-day period, 42 immature hawksbills were captured in the shallow waters. Each was flipper tagged, using standard methodology employed by sea turtle biologists all over the world during the past 75 years. A series of carapace and body measurements were taken, along with genetic samples. The turtles ranged in size from 4 to 34 kg (9 to 75 lbs) (Mortimer & Day 1999). Monitoring has continued: in February 1999, 66% of the 41 turtles captured had been previously captured and tagged in 1996 (Mortimer 2000). In 2006 (48 turtles were captured), 2012 (72 turtles captured), and in June-July 2018 (91 turtles), high recapture rates were recorded. This demonstrated that many turtles remain resident in Turtle Cove over long periods of time, and that growth rates of immature turtles could be studied there. Growth rate data enables us to estimate how long turtles take to reach adulthood. Preliminary data indicated that on average, Turtle Cove hawksbills grew at a rate of 1.4 cm per year (Mortimer et al. 2002), which means that the turtles are likely taking 30-40 years to reach adulthood. This has important implications for management of their populations as it demonstrates how vulnerable they are to over-exploitation.
Following is a comparison of the numbers of turtles captured during each Turtle Cove expedition to date: 1996 (N=42); 1999 (N=41); 2006 (N=50), 2012 (N=76); Jun-July 2018 (N=97); and Nov-Dec 2018 (N=49). Although relatively fewer total turtles were captured in Nov-Dec 2018, in fact, the average number captured per day was higher than in previous seasons. There is evidence that the numbers of turtles foraging in Turtle Cove are increasing. Such an increase is likely attributable to protection afforded breeding turtles on nesting beaches throughout British Indian Ocean Territory, (including within the boundaries of the Chagos MPA) as well as at other sites in the region (such as Seychelles).
Analysis of the genetic samples collected in Chagos showed that the hawksbill turtles of Chagos are closely related to those of Seychelles and other populations in the Western Indian Ocean but have no relationship to those of western Australia (Mortimer & Broderick 1999; Mortimer et al. 2002; Vargas et al. 2016). Additional genetic samples collected during the June-July 2018 and November-December 2018 visits will enhance our ability to discern genetic relationships between turtles foraging in Turtle Cove and the nesting populations from which they derive in the wider Indo-Pacific region.

b) Satellite tracking

☑ YES (Details/future plans)

› Satellite tracking of green turtles (n=35) nesting on Diego Garcia took place from 2012-2018. Fastloc-GPS data have been analysed to demonstrate that BIOT is an important nesting refuge for green turtles for up to 5000 km from across the Western Indian Ocean including the East Africa (Somalia, Kenya, Mozambique) and islands (Madagascar, Maldives, Seychelles) and seagrass meadows on offshore banks and atolls (Great Chagos Bank) (Hays et al. 2014; Christiansen et al. 2017; Esteban et al. 2018). Results from satellite tracking of internesting movements have allowed estimation of clutch frequency of mean 6 clutches by green turtles on Diego Garcia (Esteban et al. 2017) which has important implications for population estimation. Research continues in the period 2019-2022.
Satellite tracking of hawksbill turtles nesting on Diego Garcia commenced in 2018 and preliminary results show that all hawksbills migrated to foraging grounds in BIOT (Esteban and Hays pers. comm.).
Since 2018 there has been extensive satellite tracking of juvenile hawksbill and green turtles captured and equipped with tags in Turtle Cove, Diego Garcia. These tracking data are relayed via satellite and also via a land-based receiving station (called a MOTE) that has been installed on Diego Garcia. These tracking results are revealing both the long-term fidelity of some juveniles to Turtle Cove, but also that some individuals leave the area and travel to distant site across the western Indian Ocean.

c) Other OR None of the above

☑ 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

› Studies have been undertaken in 1996, 1999, 2006, 2012 and 2018 is underway to determine the species, sex ratios, size classes, growth rates, and movements of turtle populations inhabiting - Turtle Cove - a tidal creek at the southern end of the main inner lagoon of Diego Garcia (Mortimer and Day 1999; Mortimer & Broderick

1999, Mortimer & Crain 1999, Mortimer 2007, Esteban and Mortimer 2018). Hawksbills were the most abundant turtle species in Turtle Cove, comprising more than 95% of the turtle encountered. All were juvenile and sub-adult, with maximum straight line carapace lengths ranging from 32 to 71 cm. Plasma estradiol-17b and androgen concentrations were evaluated as indicators of the sex of immature hawksbill turtles captured on their foraging grounds in the Chagos archipelago (Mortimer and Crain 1999). Androgen concentrations showed the bimodal distribution demonstrated by previous studies to reflect gender differences and indicated a sex ratio (2.75 F: 1.00M, n = 51) significantly skewed towards female.
It is hoped that with the establishment of a long-term monitoring programme for sea turtle nesting populations at Diego Garcia, it will enable the sizes of the nesting populations of Diego Garcia to be accurately assessed, seasonal patterns of nesting throughout the year to be determined (to provide more precise population estimates as well as a better understanding of turtle behaviour), and also
will allow long term annual fluctuations in nesting activity
to be monitored. No specific work on survival rates has been
conducted in Chagos Archipelago.

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

› Turtles captured and released in Turtle Cove were examined for injury and obvious evidence of disease (Mortimer & Day,1999; Mortimer 2007, Esteban and Mortimer 2018)

3.1.7 Is the use of traditional ecological knowledge in research studies being promoted? **[BPR, PRI]**
☑ NO

› The only island currently inhabited is Diego Garcia – military facility.

3.2 Collaborative research and monitoring

- 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]**

Use the text box to elaborate on your response.
› IOSEA, especially the WIO Marine Turtle Task Force.

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 (Details/future plans)

› A study by Mortimer & Broderick (1999) looking at the population
genetic structure and developmental migrations of sea turtles in the
Chagos Archipelago and adjacent regions inferred from mtDNA sequence
variation. The adjacent localities included Republic of Seychelles,
the Arabian Peninsula and Western Australia. The project was the result of collaboration between the survey team, US Naval Support Facility DG BIOT, Seychelles - EMPS-Project: Turtle and Tortoise Conservation - (funded jointly by the Govt. of Seychelles and the Global Environment Facility administered by the World Bank), the British Foreign & Commonwealth Office, Fauna and Flora International, the Chelonia Institute, National Science Foundation and Centre for Marine Conservation.
The results have been published in Sheppard et al (1999) Ecology of the Chagos Archipelago. Linnean Society Occasional Publications.
Currently an expanded version of that study is underway in
collaboration with geneticist Dr. Nancy Fitzsimmons of University
of Canberra. This new study is using the original samples collected
for Mortimer & Broderick (1999), plus new samples collected by
Mortimer in 1999 and 2006 (FitzSimmons 2010, Hahn et al., in prep.,
Vargas et al. 2015).

b) Conservation status
☑ YES (Details/future plans)

› Population estimation ongoing with collaboration between BIOT Administration, US Navy, Mortimer, Hays and Esteban.

c) Migrations

☑ YES (Details/future plans)

› Ongoing satellite tracking work has involved an international team from Swansea University (UK), Deakin University (Australia) and the
Seychelles.

d) Other biological and ecological aspects
☑ NOT APPLICABLE (Details/future plans)

3.3 Data analysis and applied research

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]**
› High Priority species:
Chelonia mydas and Eretmochelys imbricata are well protected by the administration of the BIOT and increases in nesting activity in response to this protection have been observed. In the long term it is hoped that this increase in reproductive output will result in true population increase when the large number offspring produced eventually mature and return to the nesting beaches as reproductive adults.
However given the global significance of its nesting populations the long-term survival and continued recovery of the turtle populations would be enhanced by conservation programmes.
Medium Priority species:
Caretta caretta, Dermochelys coriacea and Lepidochelys olivacea may occasionally forage in waters of Chagos. More work needs to be done to evaluate the importance of the habitats of Chagos to the survival of these three species. Population status and trends are not known.

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

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]**
› Research results are being used to improve the efficacy of conservation actions through management and threat mitigation.

3.4 Information exchange

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 [If yes, please give details of the agreed protocol(s)]

› Index beaches have been chosen for long-term monitoring on Diego Garcia.
Research about impacts of plastic on turtle nesting habitat is underway funded by UK DEFRA and in collaboration with Zoological Society London.
A Monitoring Protocol has been adopted for Diego Garcia including standardization of equipment and frequency of surveys.
The type of data recorded has also been standardized.
Training materials have been produced to ensure volunteers are able to carry out surveys effectively.

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

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]**
› Participation in the Western Indian Ocean - Marine Turtle Task Force. Collaborative research projects. Through publication of findings in scientific journals, and as conference proceedings.

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

Please give details **[INF]**
☑ YES

› Given the relationship with Hawksbill and Green turtle populations elsewhere in the region, especially the Seychelles, information on the status of turtle populations and habitats in Chagos, patterns of migration, genetic and
morphometric relationships, etc will be of regional interest.
Data from BIOT have been submitted by Dr Mortimer to
SWOT report III (http://www.seaturtlestatus.org/Client/Documents/r3_hawksbills.pdf)
for global hawksbill nesting map and also to the IUCN-MTSG
2007 Hawksbill Assessment.

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

4.1 Public education and information programmes

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

Details/future plans:
› Information signboards and leaflets - to inform the viewer (base personnel and visiting yachts) about the wildlife to instill an appreciation and respect for it.
Regulation board - informing base personnel and visiting yachts about the legislation/rules.Training materials for volunteer surveyors, describing the monitoring protocol were produced & distributed in Feb 1999.
Designated Turtle Month (November) on Diego Garcia to encourage participation in monitoring programme.
No entry - sign at Turtle Cove to prevent disturbance of turtles.
Two viewing platforms have been constructed at Turtle Cove.
BIOT has a website (www.biot.gov.io) and uploads turtle research expedition reports and research publications for public access. The metropolitan UK contributed to the costs of the IOSEA website. In addition ''Chagos News'' a newsletter is produced in UK by the Chagos Conservation Trust for its members.
The United Kingdom can further contribute to the development of a web-based information resource for marine turtle conservation through providing migration data, information on projects and genetic identity.

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]**
☑ Tourists
☑ Military, Navy, Police
☑ Additional information

› NB. There is no tourism in BIOT. This applies to visiting yachts in northern atolls who are made aware of the strict no-take laws. The only island that is Inhabited is Diego Garcia of which there is a non-resident population of approx. 3,000 military and civilian personnel. All military personnel are given an educational introduction to wildlife conservation when they are posted to the island. The teaching material on turtles has been prepared by Fauna and Flora
International. It also includes leaflets, signs and notice boards. This material is also made readily available to the civilian population of contact employees from the Philippines and Mauritius.

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

Please give details and indicate future plans
☑ NO

4.2 Alternative livelihoods opportunitiesDescribe initiatives already undertaken or planned to identify and facilitate alternative livelihoods (including income-generating activities) for local communities. **[IND, BPR]**
› Not applicable

4.3 Stakeholder participation

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]**
› Turtle Month (every November on Diego Garcia). Participation of base and military personnel in beach surveys and habitat restoration projects.
Monthly beach clean ups by the Diego Garcia Yacht Club.
An Adopt-a-Beach scheme is currently underway organised by the BIOT Administration.
A DEFRA funded project (Reducing impacts of plastics in BIOT) has funded annual beach clean ups of Egmont Atoll together with targeted monitoring of the impact of plastics on the nesting environment

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]**
› The joint Fauna and Flora International-Defra (UK’s Department for
Environment, Food and Rural Affairs) Flagship Species Fund receives funds from Defra and the corporate sector. The Fund provides support to practical and locally-run conservation projects on high-profile species, including turtles. Most recently funds have been used to support turtle conservation initiatives in the

Galapagos Islands and Cape Verde. The Darwin Initiative, funded by UK Government, assists countries that are rich in biodiversity but poor in financial resources to meet their objectives under the Convention on Biological Diversity (CBD) - in particular relating to the Nagoya Protocol on Access and Benefit Sharing (ABS); the Convention on International Trade in Endangered Species (CITES) and the International Treaty on Plant Genetic Resources for Food and Agriculture (Plant Treaty) through the funding of collaborative projects. The Initiative has funded a number of turtle projects, including the plastics project mentioned in the last section (2019-2022, collaborating partners: ZSL, Swansea University, BIOT Administration)

OBJECTIVE V: ENHANCE NATIONAL, REGIONAL AND INTERNATIONAL COOPERATION

5.1 Collaboration with, and assistance to, signatory and non-signatory States

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 (If yes, please elaborate briefly)

› BIOT's CITES legislation was reviewed in 2001, and again in 2007 when the Trade in Endangered Species (Control) Ordinance
2001 and amending Ordinance of 2006 were consolidated to form
the Trade in Endangered Species (Control) Ordinance 2007. At the 61st Meeting of the CITES Standing Committee in August
2011, the CITES Secretariat confirmed that the 2007 Ordinance
fully met the requirements of the Convention. It therefore
provides for the implementation of CITES and associated
obligations in relation to marine turtles.

5.1.2 Does your country have, or participate/cooperate in, CITES training programmes for relevant authorities? **[SAP]**
☑ YES (If yes, please provide details of these training programmes)

› The Joint Nature Conservation Committee and Royal Botanic Gardens Kew, in their capacity as the CITES Scientific Authorities for Metropolitan UK and BIOT, regularly provide
training on the scientific aspects of CITES implementation to
CITES Authorities in other Signatory States

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]**

Please give details of particularly successful interventions and prosecutions; and/or mention any difficulties experienced that impede progress in this area. Please provide references to any published reports (e.g. already prepared for CITES purposes) that give a more ample explanation.
☑ YES

› The metropolitan UK secures intelligence from the world
customs organizations, TRAFFIC International and Interpol. Any intelligence would be passed on to customs offices in the
region through appropriate channels, including the Foreign and Commonwealth Office and may also be passed on to the UK's National Wildlife Crime Unit.

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]**
› None

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]**
› See answer given to 1.5.1 and those given to the questions in 4.1.

5.2 Prioritisation, development and implementation of national action plans

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]**

Please explain.
☑ YES

› An Interim Conservation Framework was published in 2014. The BIOT Administration held a workshop in 2018 to begin development of a new Conservation Management Plan.

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?
(List up to 10 activities from the IOSEA Conservation and Management Plan). **[PRI]**
› 1. Conduct long-term monitoring of nesting and foraging populations in order to identify critical habitat requiring special protection, define the nesting seasons and evaluate long-term population trends.

(3.1)
2. Continue to conduct public awareness campaigns to sensitize base personnel. (4.1)
3. Improve surveillance of fishing vessels to discourage turtle
poaching in the outer islands. (1.4)
4. Eradicate rats and feral cats to minimize predation of turtle
eggs and hatchlings. (1.6)
5. Knowledge of migratory patterns across the Indian Ocean into BIOT waters would allow an assessment of the value of BIOT to Indian Ocean turtle populations. Satellite, tagging and genetic studies in the region should be highly supported. Recent studies have shown the utility of satellite tracking (3.1)
6. Ongoing monitoring of sand temperatures so that the risk of feminisation of populations through rising incubations temperatures can be objectively identified.

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 achieve progress. **[PRI]**
In other words, how important is **international** cooperation for addressing these issues?
Please select only one per line

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

Use the text box to list and rank any other local management issues for which international cooperation is needed to achieve progress.
› Hunting/harvesting by neighbours
Identification of turtle populations
Identification of migration routes
Genetic studies

5.3 Cooperation and Information exchange

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]**
› Information exchange was identified as a high priority by the IOSEA Western sub-regional group at the 2nd meeting of Signatory States (16-19 March 2004). We exchanged e-mail addresses and contact details with key partners within the region. We aim to always have representation through nomination of an experienced turtle biologist to the Western Indian Ocean - Marine Turtle Task Force.

5.3.2 Has your country developed, or is it participating in, any networks for cooperative management of shared turtle populations? **[BPR, INF]**
☑ NO

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? Please describe the interventions made in this regard, referring to specific RFBs. **[SAP]**
› None to report

5.4 Capacity-building

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]**
› With no permanent inhabitants based on BIOT and a high turnover of military personnel, training volunteers in survey techniques and
establishing a regular monitoring programme has proved difficult.

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]**
› All personnel on military base are given an educational introduction
to wildlife conservation and we have teaching material on turtles
prepared by Fauna and Flora International - leaflets, signs, and
noticeboards. These are also made readily accessible for the US and British servicemen as well as the civilian population of contract
employees from the Philippines and Mauritius.

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]**
› An international team of scientists from Swansea University (UK), Deakin University (Australia) and the Seychelles are working with base personnel on studies involving satellite tracking, monitoring incubation conditions and nesting numbers

5.5 Enforcement of conservation legislation

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]**
› See earlier sections regarding education, MPAs and enforcement

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]**

Please give details.
☑ NO

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]**

Please give details.
☑ NO

OBJECTIVE VI: PROMOTE IMPLEMENTATION OF THE MOU, INCLUDING THE CMP

6.1 IOSEA Marine Turtle MoU membership and activities

6.1.1 What has your country already done, or will it do, to encourage other States to sign the IOSEA MoU? **[INF]**
› The United Kingdom has encouraged other MoU signatory States to join CMS.

6.1.2 Is your country **currently** favourable, in principle, to amending the MoU to make it a legally binding instrument? **[INF]**
☑ NO

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]**
☑ NO (Use the text box to elaborate on your response, if necessary)

› At this stage we consider such a step remains premature . Although the
Secretariat has been successful in securing the membership of additional range states since the last meeting, we still
consider that against that background resources should be directed at practical conservation and securing participation
from key range states rather than seeking to alter the legal status of the agreement.

6.2 Secretariat and Advisory Committee

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]**
› In the past, the UK has provided funds for practical conservation
projects and the Year of the Turtle initiative. The UK continues to
contribute towards the Secretariat's ongoing administration costs whenever possible.

6.3 Resources to support implementation of the 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]**
› (1) 2006 Scientific expedition to Chagos - which included
re-surveying of turtle nesting activity and the collection of dozens
of samples for marine turtle DNA work, as part of a pan-tropical
study and lots of additional observations regarding beach erosion,
coral condition, etc which are also relevant to turtle conservation.
(2) Chagos Ecological Restoration project 2006 - CERP was directed by Fauna and Flora International and funded by the Overseas Territories Conservation Forum (UK Foreign and Commonwealth Office and Department for International Development), the Flagship Species Fund (Department for Environment, Food and Rural Affairs) and the Chagos Conservation Trust (a charitable organisation). Collaboration
and logistical support were also provided by the BIOT
administration.
(3) An ongoing programme to monitor turtle nesting activity at Diego Garcia is currently being implemented by personnel of the US Naval Support Facility (NSF) Environmental Office in collaboration with a member of the 2006 Scientific Expedition to Chagos.
(4) Darwin Initiative Challenge Fund project funded by the
Department for Environment, Food and Rural Affairs (totalling
GBP24,985) in 2012-2013. A Swansea University project on sea turtles in the British Indian Ocean Territory.
(5) Ile Vache Marine Restoration Project (with Darwin Plus funding of GBP32,256 from the Department for Environment, Food and Rural Affairs, Foreign and Commonwealth Office and Department for International Development) from May 2013 to July 2014. With co-funding also provided by the BIOT Administration, Chagos Conservation Trust, RSPB, Royal Botanic Gardens, Kew, Warwick University, Zoological Society London and local logistical support provided by G4S LLC and UK military forces based in BIOT, the project aims to restore the ecosystems of Ile Vache Marine, a tiny island in the Chagos Archipelago, by eradicating the invasive black rat. This will improve the breeding conditions for hawksbill and green turtles.
(6) Reducing plastics in BIOT project funded by DEFRA/Darwin (£330,000) led by ZSL and Swansea University. The project aims to set up beach cleaning protocols, increase awareness of impacts of plastics and determine effects of plastic on beach nesting environment.

6.3.2 Has your country tried to solicit funds from, or seek partnerships with, other Governments, major

donor organizations, industry, private sector, foundations or NGOs for marine turtle conservation activities? **[IND]**
☑ NO

6.3.3 Describe any initiatives made to explore the use of economic instruments for the conservation of marine turtles and their habitats. **[BPR]**
› None to report

6.4 Coordination among government agencies

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]**

Please elaborate, as necessary.
☑ YES

› The metropolitan UK's Department for Environment, Food and Rural Affairs.

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]**

Use the text box to elaborate.
☑ YES

› The UK's Scientific Advisors, the Joint Nature Conservation Committee, are the designated lead agency.

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]**

This question seeks to ascertain whether Signatories have made a serious examination of which agencies have a role to play in marine turtle conservation, either directly or indirectly, and which therefore should be apprised of the IOSEA MoU and its provisions.
If no internal review of interagency roles and responsibilities has been or will be undertaken, please elaborate if only to indicate that the necessary arrangements are already clear and not in need of further review.
☑ NO (Use the text box to elaborate)

› The interagency roles and responsibilities are clearly defined and not in need of further review at this stage.

OTHER REMARKS

Please provide any comments/suggestions to improve the present reporting format.
› The online reports cannot be exported - being able to do so would facilitate obtaining review and contributions to the report content from stakeholders
Free text boxes associated with multiple choice answers are too narrow which makes it harder to review inserted text
Despite regular auto-save, entries were repeatedly "lost" and had to be re-entered.

Feel free to include additional information not covered above:
› None