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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

# MALDIVES – NATIONAL REPORT 2019

*(Prepared by Maldives)*

# 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?
› Ministry of Environment

List any other agencies, institutions, or NGOs that have provided input:
› Environmental Protection Agency.
Reefscapers.
Olive Ridley Project.

Memorandum in effect in Signatory State since (dd/mm/yyyy):
› 1 July 2010

This report was last modified (dd/mm/yyyy):
› 30 June 2019

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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 Maldives is a small island state amidst the Indian Ocean where the islands are surrounded by white sandy beaches and diverse coral reefs. These beaches, reefs and marine ecosystems including sea grass beds represent ideal habitats for nesting and foraging marine turtles. Historical and recent assessments demonstrate that marine turtles either nesting or foraging are observed throughout this tropical archipelago. There are 5 species of marine turtles found in Maldivian waters. (Frazier, Salas, & Didi, 1984) These include hawksbill turtles, green turtles, loggerhead turtles, olive ridley turtles and leatherback turtles. The globally threatened species, hawksbill and green turtles have been recorded as common in Maldives. In 1984 the occurrence and breeding of hawksbill and green turtle were recorded as common while the rest of the three species' populations were recorded as dispersed and small (Frazier, Salas, & Didi, 1984). Correspondingly, in the Review of the Status of the Marine Turtles in Maldives in 2016, it was evident that for both nesting and foraging turtles, green and hawksbill turtles were most common.

The Maldives is developing at a rapid rate and many of the developmental practices pose challenges to marine turtle conservation. Reclamation is one of the major challenges that results in loss of nesting beaches. Climate change and associated impacts such as sea level rise and ocean acidification lead to loss of corals and to reef degradation. The conservation of marine turtle habitats are challenging due to impacts like coral bleaching exacerbated by human activities. Similarly, the green turtles are deprived of their feeding grounds because of the removal of sea grass beds in some resorts. Marine coastal pollution especially ghost nets are a major concern for the survival of marine turtles in Maldives. Although prohibited, unfortunately poaching of turtles and eggs for consumption and capturing of turtles for pet trade still occur. Furthermore, the dispersed nature of islands makes enforcement challenging. Coastal developments and building of coastal infrastructures presents yet more obstacles to the survival of marine turtles.

The fact that turtles are charismatic marine megafauna that plays a major role in the underwater beauty of Maldives, therefore contributing to the country's economy through tourism, encouraged the Government of Maldives in taking strict measures on protection of all species of turtles found in Maldivian waters. Over the years there were 2 moratoriums on turtle killing, harvesting and fishing, that lasted 20 years which finally prompted the essential protection of all species of turtles under law in 2016.

As a tropical island nation, the coral reefs, sea grass beds and beaches of Maldives provide ideal nesting and feeding habitats for marine turtles. Marine turtle conservation is a priority for Maldives considering their traditional and ecological value, economic role and the threatened status globally.

## 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]**

› Since 1978, a number of legislative measures were put in place to ensure the conservation of marine turtles and their habitats. A milestone in turtle conservation of Maldives was when a 10-year moratorium was established banning killing, fishing and harvesting of all species of turtles, which came into effect in 1995. Since then a second moratorium was imposed and with that the conservation efforts grew stronger to the eventual protection of all species of turtles under Environment Act in 2016. The Marine Research Centre developed a timeline of measures implemented by the Government of Maldives in protection of turtles (Ali & Shimal, 2016). This timeline with additional new updates is shown below.

1978 - Parliament passed Bill No. 24/ 78 prohibiting the catching of Hawksbill turtles less than 61cm in carapace length;

1979 - Parliament passed Bill No. 31/79 prohibiting the export of raw Hawksbill turtle shells; however export of items from processed hawksbill turtle shells were permitted;

1980 - Ministry of Fisheries banned the sale and display of turtles below the size limits specified in Bill No. 24/ 78;

1995 - Under a Presidential Decree, killing, fishing and harvesting of all species of turtles were banned for 10 years. This replaced the Bill No. 31/ 79 of 1979;

1995 - Exports of all species of turtles were banned by Ministry of Trade;

1995 - Ban on importation of turtle and turtle products in the country;

2006 - Ministry of Fisheries, Agriculture and Marine Resources renewed the moratorium on turtle killing and harvesting for another 10 years;

2006, 2007 - Egg harvesting was banned from 14 islands that were identified as significant nesting sites; HA. Mulidhoo, H.Dh Muiree, H.Dh Vaikaramuraidhoo, R. Furaveri, R. Vandhoo, B. Maamaduvvari, B. Maaddoo, B. Olhugiri, B. Miriyandhoo, Th. Kanimeedhoo, Th. Funadhoo, Th. Kandoodhoo, L. gaadhoo, G.Dh Gan;

2010 - Maldives became a signatory to Indian Ocean and South-East Asian Memorandum of Understanding on

Marine Turtles (IOSEA-MoU);
2015 - Launching of citizen-science program, Turtlewatch Maldives;
2015 - Upon Marine Research Centre's initiative, a North Indian Ocean- Marine Turtle Task Force (NIO-MTTF) was established. NIO-MTTF comprised of country representatives and NGOs from Pakistan, Bangladesh, India, Sri Lanka and the Maldives;
2013 - Maldives became a Party to Convention on International Trade in Endangered Species of Wild Fauna and Flora;
2016 – Protection of all species of marine turtles in an announcement (No: (IUL)438-ECAS/438/2016/72) under Environment Protection and Preservation Act of Maldives (Law no: 4/93);
2017 – First case of penalty to an individual for marine turtle related offence on 4 April 2017.

## 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.
› The economy of Maldives and the livelihoods of people are predominantly dependent on the coastal and marine ecosystems. A study on the economic case for biodiversity conservation in the Maldives was carried out in 2009 (Emerton, Baig, & Saleem, 2009). This study assessed the products and services (provisioning, regulating and supporting) from coastal ecosystems with their intrinsic worth to conclude that biodiversity based sectors in Maldives contribute to 71% of national employment, 49% of public revenue, 62% of foreign exchange, 98% of exports and 89% of GDP. It is evident from this study that biodiversity and coastal ecosystems are directly linked to the well being, food security, livelihoods and health of Maldivians.

You have attached the following Web links/URLs to this answer.

Valuing Biodiversity: The economic case for biodiversity conservation in the Maldives

1.3.2 Which of these adverse economic incentives are underlying threats to marine turtles in your country? **[TSH]**
☑ Ease of access to the turtle ressource (e.g. by virtue of proximity or ease of land/water access)
☑ Others (Please describe)

› -Lack of awareness
- Expansion of tourism and night time activities in turtle nesting beaches

1.3.3 Has your country taken any measures to try to correct these adverse economic incentives? **[BPR]**
☑ Yes (If yes, please describe these measures in detail)

› Any illegal activity is reported to the Environmental Protection Agency. The case is investigated with the help of Maldives Police Service and local councils after which a fine is imposed upon the offender.
In addition to this, the Government as well as other organizations carry out regular awareness programmes.

## 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)

› Maldives does not have shrimp trawling fisheries.

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

› This gear is not used in Maldives.

c) Anchored Fish Aggregating Devices (FADs):
☑ Yes (Please provide details)

› Maldives has around 50 FADs positioned throughout the atolls, which are all anchored FADs, and has netting

underneath (Miller, et al., 2017). There have been few ambiguous reports of turtle entanglement in these nets and Maldives is now aiming for net free FADs.

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

› Purse seine is prohibited under Fisheries Law of the Maldives.

e) Longline (shallow or deepset):
☑ Yes (Please provide details)

› The longline fishery is not as mainstream as other gear for tuna fishery in Maldives. Since 1985 foreign lonline fleet operated in the outer EEZ of Maldives, pursuant to licenses from the Fisheries Ministry (Ahusan, et al., 2018). As monitoring was challenging and due to the local fishermen's pressure, licensing ceased in 2010. Currently the longline fleet are only local and operate within Maldives EEZ. In 2017, 44 longline vessels were operating under license from Ministry of Fisheries, Marine Resources and Agriculture.
Turtle interaction is observed in the longline fishery of Maldives and it is mandatory to be reported. The attached figure depicts the interaction of marine turtles in the longline fishery sector from 2014-2017. Even though longline fishery has been observed as the only tuna fishery having interaction with non-target by catch species, the longline sector represents only 1% of the tuna caught (Ali, 2016).

You have attached the following documents to this answer.

Figure_1.pdf - Interactions of marine turtles in the longline fishery 2014 – 2017

f) Driftnet:
☑ No (Please provide details)

› Driftnets are not used for fisheries in Maldives.

g) Others (Please provide details)
› The pole and line fishery including bait fishery in Maldives is highly selective having negligible by-catch with no marine mammals or turtles being caught (Miller, et al., 2017). The pole and line fishery represents 70% of total landing of tuna. In live bait fishery for pole and line there are no interaction with turtle species (Jauharee, Neal, & Miller, 2015).
Similarly the handline and trolling fleet are also considered to have almost no by-catch (Ahusan, et al., 2018). The interaction of turtles in these fisheries is negligible in Maldives.
The grouper fishery in Maldives has rapidly developed due to export market. Previously caught by handline, the grouper are now caught by a snorkeling gear where the fishermen carry a baited line and a basket (MRC & MCS, 2011). This is a very selective fishing method with no by-catch of turtles or other species.

### 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
› Shrimp trawling is not carried out in Maldives.
Source: Ministry of Fisheries and Agriculture.

You have attached the following Web links/URLs to this answer.

Ministry of Fisheries, Marine Resources and Agriculture - Guidance and Regulations on Fisheries

b) Set gill nets
*Please select only one per line*

| | UNKNOWN | NONE | RELATIVELY LOW | MODERATE | RELATIVELY HIGH |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Fishing effort: | ☐ | ☑ | ☐ | ☐ | ☐ |
| Perceived impact: | ☐ | ☑ | ☐ | ☐ | ☐ |

You have attached the following Web links/URLs to this answer.

Ministry of Fisheries, Marine Resources and Agriculture - Guidance and Regulations on Fisheries

- Source of information / clarification
› Set gill nets are not used in Maldives.
Source: Ministry of Fisheries and Agriculture.

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
› Fishing effort near FADs are very high and there has been reports of marine turtles entangled in the nets underneath aFADs by fishermen (Miller, et al., 2017).

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
› Purse seines are not allowed in Maldives.
Source: Ministry of Fisheries and Agriculture.

You have attached the following Web links/URLs to this answer.

Ministry of Fisheries, Marine Resources and Agriculture - Guidance and Regulations on Fisheries

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
› The longline fleet of Maldives is not as extensive as the pole and line and there has been recorded marine turtle by-catch in this fishery.
Source: Maldives National Report submitted to the Indian Ocean Tuna Commission Scientific Committee - 2018

You have attached the following Web links/URLs to this answer.

Maldives National Report submitted to the Indian Ocean Tuna Commission

f) Driftnet
*Please select only one per line*

| | UNKNOWN | NONE | RELATIVELY LOW | MODERATE | RELATIVELY HIGH |
|---|---|---|---|---|---|
| Fishing effort: | ☐ | ☑ | ☐ | ☐ | ☐ |

| | | | | | |
|---|---|---|---|---|---|
| Perceived impact: | ☐ | ☑ | ☐ | ☐ | ☐ |

- Source of information / clarification
› Drift nets are not allowed in Maldives.
Source: Ministry of Fisheries and Agriculture.

You have attached the following Web links/URLs to this answer.

Ministry of Fisheries, Marine Resources and Agriculture - Guidance and Regulations on Fisheries

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
› Source: Maldives National Report submitted to the Indian Ocean Tuna Commission Scientific Committee - 2018

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]**
› Maldivian fishermen frequently encounter illegal fishing by foreign vessels within the EEZ of Maldives. Through international cooperation, 432 foreign vessels and 542 unauthorized drifting buoys were identified in a 2 year study carried out by Ministry of Fisheries and Agriculture (FIS, 2017). The Illegal, Unregulated and Unreported (IUU) fishing by these vessels have negative impacts to the fisheries sector of the country as well as managing the Indian Ocean fisheries. The Government of Maldives had alerted international bodies on this violation. Maldives is also working with Indian Ocean Tuna Commission to resolve the matter of illegal fishing. The illegal fishing by foreign vessels that occur around and within Maldivian waters do not adhere to Maldives regulations on fisheries. They use different types of gear which are not selective and are destructive such as purse seines and drift nets posing threats to marine turtles and other endangered species. The discarded drift nets as such threatens marine turtle survival.
The Maldives does not allow foreign vessel to fish in Maldivian waters and licenses are given only to local vessels. As such, Maldives Coast Guard effectively responds to reports from Maldivian fishermen regarding IUU fishing by foreign vessels.

## 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)
☑ YES (Details/future plans)

› As the longline fishery of Maldives has interaction with marine turtles with incidental by-catch. Measures have been put in place by Government to ensure minimal impact to marine turtles in this fishery. The Longline Fishery Regulation (No. 2014/R-388) makes it mandatory that any live turtle caught should be released with minimal impact. The regulation also makes it compulsory to have de-hookers and line cutters on all longline vessels.

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

› Turtle mitigation measures are enforced on all longline vessels of Maldives but since the use of nets is not allowed in Maldives Turtle Excluder Devices are not needed.

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

› Purse seine fishery is not allowed in Maldives.

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

☑ YES (Details/future plans)

› As a tuna fishing nation, the fishing gear used in tune fishery of Maldives are live bait pole and line, handline, longline and troll line. The pole and line fishery of Maldives is conducted in a sustainable manner. Marine Stewardship Council accredited this when they certified Maldives skipjack pole and line tuna fishery as sustainable in November 2012 (MSC, 2019). The live bait used for pole and line fishery landings are caught within the atolls using small lift nets and lights to attract the bait to the surface (Jauharee, Neal, & Miller, 2015). This also has minimal impact on reef and ecosystems.
Both pole and line and handline fishery of Maldives operated within 100 miles while the trolling fleet is limited to coastal areas within the atolls (Ahusan, et al., 2018). The longline fleet in Maldives is fully local and operates under a longline fishery regulation, which manages the fishery in a quota system targeting yellow fin and big eye tuna within and beyond 100 miles. Operating in the coastal areas, the troll fishery targets kawakawa and frigate tuna (Jauharee, Neal, & Miller, 2015).
The live bait pole and line fishery of Maldives exploits skipjack tuna, yellow fin tuna with some big eye tuna, frigate tuna and kawakawa. Fishing practice is now carried as multi day, venturing about 100 miles from shore where most fish are caught around aFADs located at a range of 12-15 miles from coast. Handline is also carried out as a multi day endeavour and targets large yellow fin tuna from the surface waters of less than 10m deep (Ahusan, et al., 2018).
The recreational fishing in Maldives targets species including sailfish, wahoo some species of tuna, and other large fish. Additionally, big game fishing is now a common practice in resorts. Mostly a catch and release fishery, this fishery uses trolling or rod and reel to capture fish around reef areas or seamounts (Ahusan, et al., 2018).
Of the 130000 tones of tuna landed in 2017, 99% represented pole and line skipjack tuna (Ahusan, et al., 2018). In handline gear, yellow fin tuna is caught almost exclusively representing 98% of the fish landings by handline gear.
Ministry of Fisheries, Marine Resources and Agriculture monitor the above listed fisheries. The hook design, depth and gear specifications highlighted above with the fishing practices including bait fishery ensures minimal impact on ecosystems and species such as marine turtles.

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

☑ YES (Details/future plans)

› In 2012, FAO reported that Maldives prematurely lost FADs due to environmental forces resulting in mooring rope failure, design failures that caused various problems and due to vandalism (Beverly, Griffiths, & Lee, 2012). The average lifespan of the FADs installed in Maldives from 1993 to 2008 was 2 years and 1 month. Over the years the Ministry of Fisheries, Marine Resources and Agriculture has taken more measures to effectively monitor FADs and have established strict regulations as such. The Maldives Police Service and Coast Guard are enforcing these measures. In partnership with the International Pole and Line Foundation, the Government of Maldives is conducting research using the aFADs in Maldives to study the tuna behaviour around FADs (Ahusan, et al., 2018).
There are netting underneath the existing aFADs that can impact marine turtles therefore Government has plans to move towards net free aFADs.

### f) **Net retention and recycling schemes**

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

› This is not applicable to Maldives, as purse seines and fisheries that make use of large-scale nets are not allowed. However a large number of ghost nets from unknown origins have been removed from the beaches and seas.

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

☑ YES (Details/future plans)

› The only fishery in Maldives that has spatial and temporal control is the grouper fishery. Due to challenges to the groper spawning and breeding, the Maldives Grouper Fishery Management Plan, has listed 5 spawning aggregation areas have been temporarily closed to fishing (MRC & MCS, 2011). These closed areas will provide a safe area for turtles and avoid entanglement in longline gear.

### h) **Effort management control**

☑ YES (Details/future plans)

› Subject to the Longline Fishery Regulation of Maldives (No. 2014/ R-388), the longline fleet targeted species are yellow fin and big eye tuna under an established Total Allowable Catch with quotas given for each vessel, and it is mandatory for each vessel to have a Vessel Monitoring System and logbook tallying catch and effort (Ahusan, et al., 2018)
If there is non-compliance with the set regulations, the Ministry of Fisheries, Marine Resources and Agriculture imposes penalties on the offenders.

## 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
☑ YES (Details/future plans)

› The data collected through mandatory logbook reporting are verified by many methods including the observer programmes. In Maldives an observer programme was initiated in 2015, but due to financial constraints and staff turn over the programme was suspended (Ahusan, et al., 2018). There is work currently being undertaken towards implementing an electronic observer system in accordance with the relevant resolutions of the Indian Ocean Tuna Commission (IOTC). However under a by-catch sampling programme, the Marine Research Centre has had observers on over 100 fishing trips from 2015 – 2017, where they collect biological and operational data under sampling protocols consistent with IOTC observer requirements.

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

› Under continuous monitoring of the Fisheries Management Unit of the Ministry of Fisheries, Marine Resources and Agriculture, Vessel Monitoring System (VMS) is implemented in 100% of longline vessels and a number of Pole and Line and Hand Line vessels.
There are plans to expand the VMS coverage under a project known as "Fisheries Resource Development Project".

c) **Inspections** (i.e. at sea, in port, at landing sites)
☑ YES (Details/future plans)

› A recent development in fisheries data collection of Maldives is the establishment and the fully operational web-enabled fishery information system known as "Keyolhu" (Ahusan, et al., 2018). The system collects all information relevant to reporting of fisheries, fishing licenses, fish processing licenses, fish purchase data by commercial companies, etc. This allows for real-time tracking of landing and purchases in addition to licenses of the fishing vessels.
In the three main tuna landing ports, size sampling of landings by fisherman samplers, scientific observers and staff of Marine Research Centre (MRC) is carried out (Ahusan, et al., 2018). MRC has also contracted fisherman samplers to report the catch data. In addition to this, fish buyers are required to report details of catch landings to Ministry of Fisheries, Marine Resources and Agriculture, in order to obtain a catch certificate. This data collected is used to verify the information collected from fisherman through logbook reporting. However a systematic port-sampling programme in not yet in place in Maldives to monitor the landings.

d) **Training programmes / workshops** to educate fishers
☑ YES (Details/future plans)

› In 1993 the Fishermen's Association of Maldives (MFA) was formed with the aim of education, providing incentives, facilitating market options and dissemination of information about new technologies to develop the Maldives fishing industry. The MFA conducts various training and awareness programmes including training of trainers. Through the Fishermen's Community Centre various technical and vocational trainings are provided to fishermen to promote sustainable fishery in Maldives.
Dhivehi Masverin is another NGO in Maldives working towards promoting sustainable pole and line fishery. They have posted many awareness materials and videos on rescuing turtles entangled in ghost nets in their social media posts.
The Maldives is a member of the International Pole and Line Foundation (IPNLF), who with the Government of Maldives conduct training of trainers to educate the fishers on sustainable fisheries, product quality and handling, bait handling, safety at sea, and the MSC standards and the certification process.
In partnership with IPNLF, the Government of Maldives also established a 'Fishermen's Community and Training Centre' in 2014.

You have attached the following Web links/URLs to this answer.

International Pole and Line Foundation
Ministry of Fisheries, Marine Resources and Agriculture
Maldives Fishermen's Association

Dhivehi Masverin - Dhivehi Masverin (translation: Maldivian Fishermen) Twitter Page

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

› Awareness through different means and by different tools are conducted by the Government, NGOs and other organizations.

1.4.6 Are the mitigation measures described in 1.4.4 and 1.4.5 periodically reviewed and evaluated for their efficiency? **[SAP]**
☑ YES (Please give details)

› Ministry of Fisheries, Marine Resources and Agriculture, to manage all fisheries effectively, are currently formulating a fisheries master plan. It is a priority to establish and strengthen continuous monitoring and effective reporting mechanisms subject to continuous advancement by researches and investments in new technology.

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]**
› A by-catch sampling programme has been initiated by Marine Research Centre which is a project that started in 2014 and will continue until 2020. The objective of the programme is to observe and sample by-catch in the pole and line tuna fishery. The observers regularly participate in fishing trips and measure the total catch including species composition. Data is collected from pole and line and hand line gear recoding catch, by-catch as well as live bait fishery. The observers follow a sampling protocol in accordance with IOTC requirements for observers.

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]**
☑ UNSURE

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]**
› Under the fisheries law of Maldives, it is not allowed to use large scale nets such as purse seines or drift nets or any such gear in fisheries.

## 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

› On April 4 2016, all species of marine turtles were protected under Environmental Protection and Preservation Act of Maldives (Law No. 4/93). Under this protection it was prohibited to do the following:
- capturing marine turtles
- disrupting nesting sites and poaching of eggs
- keeping of marine turtles as pets
- trading of marine turtles and their parts
- abusing marine turtles and carrying out activities that negatively impacts their habitats
- Importing and exporting of marine turtles, their eggs, their parts and derivatives
- Carrying out researches on marine turtles without the research approval from Environmental Protection Agency.

The protection of turtle in Maldives applies not only to the turtle species commonly found in Maldivian waters but also to all marine turtle species worldwide. This ensures the control of imports and exports of turtle species from other countries and safeguards any new species of marine turtle that may be found in Maldives in future.
Under the Environmental Protection and Preservation Act of Maldives, 61 areas have been declared as protected to date. These include islands with turtle nesting areas, coral reefs and mangroves that serve as important foraging areas for turtles.
The Government of Maldives has also pledged to designate at least 1 island, 1 reef and 1 mangrove/ wetland area as protected under law from each administrative atoll of the Maldives. This pledge was made in 2018 and is planned to be implemented within 5 years. This will ensure protection of more turtle habitats in the near future.

You have attached the following Web links/URLs to this answer.

Protected Areas of Maldives

## 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

☑ YES

› Accounts from historical writings of visitors to Maldives in the early and mid 20th century have evidence of Maldivians consuming turtle meat (Zahir, 2010).
Consumption of turtles was observed in 1984 when an assessment of turtles was carried out in Maldives, where some preferred to eat green turtles, others ate hawksbill and some ate both (Frazier, Salas & Didi, 1984).
Even now, there are reports of turtle meat consumption though it is prohibited under law.

a2) Meat consumption: relative prevalence/importance

☑ LOW

› Due to the protection status of marine turtles under law, it gives little opportunity for illegal poaching.

### b1) Egg consumption

☑ YES

› Although prohibited, poaching of eggs from nests is common in Maldives.
Poaching of eggs has been recorded in the earlier assessments of turtles as well (Frazier, Salas, & Didi, 1984). The same was observed in the review of the status of marine turtles in Maldives conducted in 2016 (Ali & Shimal, 2016).
It was noted by Reefscapers (previously known as Seamarc), an organization working in Maldives, that in implementing their turtle nest protection programme, they have observed that poaching of eggs is still common in Maldives with no regard to the regulatory measures in place intended to protect turtle eggs (Stradal & Fisher, 2016). To discourage selling of eggs, when necessary, they provide monetary incentives, paying MVR 10 per egg which are usually sold at MVR 2-5. But they have also observed that people usually take turtle eggs for personal consumption and not for trade.

b2) Egg consumption: relative prevalence/importance

☑ MODERATE

› Based on reports from organizations working on turtle conservation and marine turtle assessment in 2016, it is evident that egg consumption still occurs with no regard to their legal protection.

### c1) Shell products

☑ NO

› Due to strict fines associated with turtle exploitation and the ban on trade as well as export, shell products are hardly seen in Maldives.
From historical writings by Al-Idrisee in the 12th century and Ibn Battuta in the 14th century, Maldivians exploited marine turtles for their shells which were exported (Zahir, 2000). With the introduction of tourism in Maldives in late 1970s, turtle shells were sold to tourists as souvenirs. But these activities ceased with the protection measures put in place by Government.

c2) Shell products: relative prevalence/importance

☑ LOW

› The strict legal measures in place does not allow for shell products.

### d1) Fat consumption

☑ NO

› After embracing Islam in Maldives, it was a misconception at that time that Islam does not allow the consumption of turtle meat. But there was killing of turtles to serve as bait in shark fishery and extraction of oil to be used as a protective layer for wooden boats (Farzier, Salas, & Didi, 1984). Currently this is not observed in Maldives.

d2) Fat consumption: relative prevalence/importance

☑ LOW

### e1) Traditional medicine

☑ NO

› Based on literature on marine turtles, there has been no report of marine turtles being used for traditional medicine.

e2) Traditional medicine: relative prevalence/importance
☑ UNKNOWN

**f1) Eco-tourism programmes**
☑ YES

› The Maldives tourism industry is dependent on the pristine conditions of the natural environment and ecosystems and is a major contributor to the country's GDP. Underwater beauty including marine megafauna and the beautiful beaches are what attracts tourists to Maldives. Turtles play a major role in the tourism industry and many resorts in Maldives carry out programmes on turtle conservation. Maldives tourist resort islands have dive centres with marine biologists to ensure conservation of biological diversity and education of tourists. Similarly, Baa Atoll Biosphere Reserve, Addu Nature Park and Fuvahmulah Nature Park with conservation, learning and research, and livelihood programmes, are examples of successful ecotourism ventures in inhabited islands of Maldives.

You have attached the following Web links/URLs to this answer.

Fuvahmulah Nature Park Facebook Page
Addu Nature Park Facebook Page
Addu Nature Park
Maldives Visitor Survey February 2018 - Profile and opinion of international visitors to Maldives
Baa Atoll Biosphere Reserve - About the activities of Baa Atoll Biosphere Reserve

f2) Eco-tourism programmes: relative prevalence/importance
☑ HIGH

**g1) Cultural / traditional significance**
☑ YES

› Maldives as an island national takes pride in the marine environment especially the charismatic marine species that are seen in the diverse ecosystems. Although there are no data to prove the status and the exploitation level of marine turtles historically, the number of stories and legends related to marine turtles were correlated to the number of interaction between Maldivians and marine turtles (Frazier, Salas, & Didi, 1984). Even today Maldivians use turtle as an identity of this island nation with many souvenir products such as ornamental gifts and handcrafts representing marine turtles being sold.

g2) Cultural/traditional significance: relative prevalence/importance
☑ HIGH

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:
› Based on historical writings and assessments on marine turtles of Maldives, it has been concluded that the marine turtles populations have declined in Maldives (Zahir, 2010).

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.
☑ YES

› Harvesting of marine turtles and their eggs are prohibited under law in Maldives. But there are reports of illegal poaching. To address this, general awareness programmes are conducted by the Government, private sector as well as NGOs. The illegal cases that are reported, are subject to penalty under Regulation for Determination of Penalties and Obtaining Compensation for damages caused to the Environment (Reg No: 2011/ R-9). The Maldives Police Service, NGOs and private sector provide support and help the Environmental

Protection Agency in the enforcement of this regulation.

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]**
› N/A

## 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 turtlewatch programme was established by the Marine Research Centre and the International Union for Conservation of Nature in 2015. The aim of this programme is to collect information on marine turtles in their feeding and nesting areas. The information were collected by marine biologists based in resorts and "citizen scientists" based in inhabited islands. Under Turtlewatch Maldives, 2 standardised data collection protocols have been included in the National Coral Reef Monitoring Framework, which is a centralised coral database that provides a platform for different stakeholders to use and manage the information they collect on coral reefs of Maldives. Marine turtle protection and monitoring is now carried out by the Environmental Protection Agency, which enforces the legal protection and ensures strict penalty to offenders.
Reefscapers at Marine Savers Four Seasons Kuda Huraa & Landaa Giraavaru Resort of Maldives carries out Maldives Sea Turtle Conservation Programme. The programme commenced in 2011, is about marine turtle rehabilitation for injured and ill turtles, photo- identification, satellite tracking and nest identification (Stradal & Fisher, 2016). This programme also includes educational elements for local community and the tourists that visit the resort. The turtle stranding and rehabilitation programme at both locations ensures temporary medical care for injured and ill turtles.
The Olive Ridley Project carries out sea turtle population studies using capture-mark-recapture techniques through Photo-ID, genetic analyses of entangled sea turtles, sea turtle parasite studies, ghost gear analyses, sea grass research and rescue and rehabilitate injured and sick sea turtles. The ORP have the only veterinarian run Marine Turtle Rescue Centre situated on the Cocopalm Dhunikolhu resort (Cocopalm Dhunikolhu, 2018). At the rescue centre, turtles are rescued from ghost nets, rehabilitated and released. In Cocopalm Dhunikolhu they also have a laboratory and a veterinary clinic with surgical facilities.
The Atoll Marine Centre operated by a local NGO known as Naifaru Juveniles also rescues injured turtles and turtles under illegal captivity (Reid & Stead, 2018). In their rehabilitation programme, they also carry out tagging of turtles.

You have attached the following Web links/URLs to this answer.

Marine Research Centre - Turtle Watch Programme
Naifaru Juvenile
Olive Ridley Project - Fighting Ghost Nets and Saving Turtles
Our Maldivian Sea Turtle Conservation Programmes

a2) Monitoring/protection programmes: relative effectiveness
☑ GOOD

› Reefscapers at Marine Savers, collects data on sea turtle stranding which includes entangled and floating turtles. Based on the progress of the rehabilitation of each turtle, they are ultimately released to the location where they were found in case of green and hawksbill turtles, and to outside of atoll if an olive ridley turtle. The release of turtles are subject to meeting set conditions such as healing of all injuries and being off medication for two weeks (Stradal & Fisher, 2016). The released turtles are tagged to enable researchers to learn about critical information about turtles that are valuable in conservation. The release rate of rehabilitation programme is shown in the attached figure 2 and the stranding data for each species is shown in the attached figure 3 (Carvallo, 2018).
In Maldives, olive ridley turtles are the most common victims of ghost nets (Anderson et al, 2004, Stelfox et al. 2015). The Olive Ridley Project (ORP) reported that between 2011 and 2018, a vast number of olive ridley turtles were entangled with recorded 671 entangled turtles (ORP, 2019). They have observed that most entangled olive ridley turtles were females and 57% were juveniles. Furthermore over 50% of the entangled

turtles were rescued during Northeast monsoon (December – March). To date, the ORP has removed more than 1400 ghost nets from the Indian Ocean. Marine turtle rehabilitation and stranding data from Olive Ridley Project is shown in the attached figures 4 and 5.
The Atoll Marine Centre operated by Naifaru Juveniles has reported encountering lots of olive ridley turtles sick or injured from February 2017 to 2018 (Reid & Stead, 2018). During this period, Naifaru Juveniles rescued 59 turtles. Out of these 33 were released, 10 were transferred to other rehabilitation centres, and 20 died due to infection and disease. During one of their rehabilitation ventures, Naifaru Juveniles rescued 2 injured turtles entangled in a mass of nets comprising of 16 ghost nets (Reid & Stead, 2018). There were two additional turtles entangled in this mass that were uninjured and swam away while also remains of dead turtles were observed.

You have attached the following documents to this answer.

Figure_5.pdf - Turtle stranding data in Maldives(ORP)
Figure_4.pdf - Maldives turtle rehabilitation data(ORP)
Figure_3.pdf - Causes of stranding by species in Maldives (Reefscapers)
Figure_2.pdf - Rehabilitation results by year in Maldives (Reefscapers)

### b1) Education/awareness programmes
☑ YES

› The Government of Maldives, national and international organizations carry out many awareness and education programmes on marine turtle conservation in Maldives.
Marine turtle biology and conservation needs are included in the school curricula. In addition to this, the Ministry of Education is undertaking a successful project known as “Farukoe”, translated as “Child of the Reef” including education on marine environment and species, field experience by snorkelling at coral reefs for each student and reduction of threats by eliminating the use of single use plastics. Schools in Maldives implement this programme.
Marine Savers based in Landaa Giraavaru island, Olive Ridley Project based in Baa, Lhaviyani, Laamu and north male atoll, and Atoll Marine Centre in Naifaru island hold annual turtle festivals, carry out education programmes for school children, awareness session targeted to general public and provide a learning experience for their visitors.

You have attached the following Web links/URLs to this answer.

Maldives National Curriculum Framework
Farukoe Programme - About Farukoe

### b2) Education/awareness programmes: Relative effectiveness
☑ EXCELLENT

### c1) Egg relocation/hatcheries
☑ YES

› Reefscapers in their Maldives Sea Turtle Conservation Programme undertook a pilot study for nest relocation. By complying with international standards, a pilot study was started to relocate a turtle nest in February 2015 corresponding to the fifth day of incubation (Stradal & Fisher, 2016). Strict guidelines were followed during excavation, transportation and creation of a nest chamber. The result of this programme was that there were high numbers of un-hatched eggs. It was concluded by assessing the un-hatched eggs that the nest suffered mortality because of relocation either by heat, movement and/ or rotation and the process being disrupted at a later stage after relocation. The table attached shows the classification of eggs within the relocated nest including the number of hatched eggs, pipped eggs and un-hatched eggs.
In 2019, an olive ridley turtle nesting site in HA Hanimaadhoo Island was relocated due to disturbances to the nest, by a marine biologist working at a guesthouse in the same island (EPA, 2019). This was the first ever-recorded olive ridley turtle nest in Maldives. Form a clutch of about 190 eggs, 59 hatchlings successfully emerged after 65-70 days of incubation time and made their way to the sea.

You have attached the following documents to this answer.

Table_1.pdf - Table 1: Classification of eggs within the relocated nest

### c2) Egg relocation/hatcheries: Relative effectiveness
☑ GOOD

### d1) Predator control
☑ NO

› Although there are no predator control initiatives regarding marine turtles, head start programmes to increase the chance of survival of turtles by eliminating predator threats were carried out by some organizations in Maldives. Head start programmes are currently not allowed.
Reefscapers in Kuda Huraa and Naifaru Juveniles in Lhaviyani Atoll undertook hatchling rehabilitation

programmes for hawksbill and green turtles to ensure survival of hatchlings (Carvallo, 2018 ; Naifaru Juveniles, 2016).

d2) Predator control: Relative effectiveness
☑ UNKNOWN

**e1) Vehicle / access restrictions**
☑ N/A

e2) Vehicle/access restriction: relative effectiveness
☑ UNKNOWN

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

› Olive Ridley Project has removed over 1400 ghost nets from Maldivian waters.

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

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

g2) Re-vegetation of frontal dunes: relative effectiveness
☑ UNKNOWN

**h1) Building location/design regulations**
☑ YES

› The beach and 15 meters from vegetation line are not allowed to be developed in inhabited islands of Maldives.

h2) Buidling location/design regulations: relative efectiveness
☑ GOOD

**i1) Light pollution reduction**
☑ NO

i2) Light pollution reduction: Relative effectiveness
☑ UNKNOWN

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

› Under the Maldives Sea Turtle Conservation Programme, Reefscapers has a turtle nest protection programme. They aim to protect the nests throughout the Maldives by identifying nesting sites along with frequency and season of the nest while also determining the hatchling success of intact nests (Carvallo, 2018).
Even though a nesting season has not been determined by scientific evidence in Maldives, traditional knowledge indicates that nesting is more common in Northeast monsoon. This was observed by Reefscapers in their turtle protection programme and they also believe that in the case of Southweast monsoon due to heavy rain and inundation from storm surges, the hatching success rate would be lower(Stradal & Fisher, 2016). However research carried out by Hudgins et al (2017) indicate that more data is needed before these assumptions can be tested.

You have attached the following Web links/URLs to this answer.

• Citizen science surveys elucidate key foraging and nesting habitat for two endangered marine turtle species within the Republic of Maldives
Maldives Sea Turtle Conservation Programme

# 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]**

› Due to the importance of natural environment and biodiversity to the tourism sector, the conservation and management of the resorts' environment have been given a high priority. Under Maldives Tourism Act (law No. 2/ 99) and Regulation of the Protection and Conservation of Environment in the Tourism Industry (2006), the resort house reefs and the surrounding marine environment are managed. These coral reef areas are important and common areas for foraging marine turtles. Most of the resorts conduct conservation programmes focused on marine turtles and have marine biologists among their staff.
The importance of managed house reefs of resorts was proven by a research done on Ari Atoll of Maldives where coral reefs of tourist resorts, inhabited islands and uninhabited islands were assessed. The coral reefs in the managed resort house reefs were healthier and had more diversity (Moritz, et al., 2017).
The Environmental Protection Agency has also developed a list of "Environmentally Sensitive Areas" which includes 274 areas, many of which are turtle nesting sites. These are potential areas to undergo ecological surveys to be designated as protected areas.

You have attached the following documents to this answer.

Map_2-_Sensitive_Environments.pdf - Sensitive areas including turtle habitats

Map_1-_Protected_Areas_.pdf - Protected areas of Maldives

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.
☑ YES

› To reduce the impacts of developmental projects on ecosystems and biodiversity, Environmental Impact Assessment has been made mandatory for certain projects. Due to the environment of Maldives been susceptible to natural as well as anthropogenic threats, the EIA Regulation of 2012 (No. 2012/R-27) ensures that developmental practices are carried out in a manner that is least harmful to the environment with mandatory mitigation and monitoring measures to be put in place. The proponents, who do not comply with the set articles under the EIA regulation, are penalized under the Regulation to ensure that development is carried out in harmony with the environment.

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]**
☑ NO

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 use of poisonous chemicals and explosives are prohibited in Maldives for fishery. In Maldives, to import chemicals, a permit is required from Ministry of Defence. The import of any sort of explosives including gunpowder or parts of explosives is strictly prohibited in Maldives.

## 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.
☑ YES (Details/future plans)

› Reefscapers previously known as Seamarc, is an organization in Maldives involved in coral reef restoration for resort islands (Reefscapers, 2019). They have been conducting restoration projects on coral reefs since 2005 and are world renowned for their coral reef conservation programmes. This advanced coral reef propagation programme includes long term monitoring and maintenance. An initial survey follows the best environmental solution to restore a reef is proposed by Reefscapers. They increase the reproduction of most successful coral species and are now working on improving resiliency of coral reefs by transplanting corals

that can withstand higher temperatures. This is very important considering the fact that Maldives is one of the most vulnerable countries to global 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 (Details/future plans)

› According to the State of the Environment Report (2016), there are 74 islands in Maldives having wetland/ mangrove areas. Protection of mangroves and wetland areas are a priority for the Government of Maldives. However there are areas in Maldives that require rehabilitation measures but due to many challenges, this has not been carried out. Recently, Huraa mangrove in Male' Atoll went under a rehabilitated programme through a project by Huraa Island Council Office in collaboration with the Environmental Protection Agency. This is a protected mangrove area under Environment Act. The mangrove and wetland area suffered an influx of sediments during 2004 tsunami, which resulted in hindering of currents and circulation between the water body and the open sea. The water quality of the area was poor with pungent odor. As a rehabilitation measure, to improve the ecological and aesthetic value of the area, the wetland was deepened by removing accumulated sand and debris (Sandcays, 2017).

### 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 (Details/future plans)

› The Olive Ridley Project in collaboration with Six Senses Laamu have begun research to analyse the significance of seagrass patches to Green Turtles around Olhuveli Island, Laamu by placing turtle exclusion cages in selected patches of seagrass, enabling us to quantify the grazing pressure of Green Turtles within these patches. It is hoped that this research will help promote the important of seagrass within resorts and encourage widescale protection of seagrass meadows in the Maldives.
Further the Maldives Underwater Initiative by Six Sense Laamu encourages resorts to pledge to keep 80% of their sea grass meadows intact. Currently 33 resorts have signed up to the campaign.
An inventory of sea grass habitats in Maldives is planned to be conducted in accordance with NBSAP targets. This will provide the baseline information necessary for protection, management and rehabilitation of sea grass habitats.

You have attached the following Web links/URLs to this answer.

Protect Maldives Seagrass

# 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]**

› Frazier, J., (1980). Exploitation of marine turtles in the Indian Ocean. Human Ecology, 8: 329-370.
Didi, N.T. Hassan. 1983. Sea Turtles in the Maldives. In: Annual Fisheries, Report, No.3. Ministry of Fisheries, Male. pp 174-177.
Cesarini D. and Bernasconi L., 2010. Terrestrial Ecosystem Monitoring – North Province. Final Report. EPA/MEMP/IDA, Malé, Republic of the Maldives, 392 pp.
Anon. (2005). MALDIVES: Post-Tsunami Environmental Assessment. United Nations Environmental Programme.
Anderson, R. C., Zahir, H., Jauharee, R., Sakamoto, T., Sakamoto, I., andJohnson, G. (2009). Entanglement of Olive Ridley Turtles Lepidochelys olivacea in ghost nets in the equitorial Indian Ocean IOTC-2009-WPEB-07
Zahir, H. (2000). Status of Sea Turtles in the Maldives. Marine Research Bulletin; 4, 43-61.
Ali, K., & Shimal, M. (2016). Review of the Status of Marine Turtles in the Maldives. Marine Research Centre . Male': Ministry of Fisheries and Agriculture .
BOBLME. (2011). Marine Turtle Conservation Review Report. BOBLME Ecology.
Farzier, J., Salas, S., & Didi, N. H. (1984). Marine Turtles in the Maldives Archipelago. Marine Reserach Centre. Male': Ministry of Fisheries.
Hudgins, J., Mancini, A., & Ali, K. (2017). Marine Turtles of the Maldives: A field identification guide. Gland, Switzerland: IUCN and Government of Maldives.
Ministry of Environment and Energy. (2016). State of the Environment of Maldives . Male': Ministry of Environment and Energy.
Liew, H (20019). Turtle Conservation Plan for Gan Island. Maldives component in the Regional Programme for Participatory and Integrated Agriculture, Forestry and Fisheries Development for Long-term Rehabilitation and Development in Tsunami-affected Areas (GCP/RAS/2018/JPN)
Zahir, H (2000). Preliminary Findings of the Survey of the Nesting Beaches in Haa Alifu Atoll, Maldives. Marine Research Bulletin 4: 2-66.
Zahir, H (2006). Status of leatherback turtles in Maldives. Indian Ocean - South East Asian Leatherback Turtle Assessment. IOSEA Marine Turtle MoU - 83
Stelfox, M.R., Hudgins, J.A., Ali, K., Anderson, R. C. (2014). High mortality of Olive Ridley Turtles (Lepidochelys olivacea) in ghost nets in the central Indian Ocean IOTC-2014-WPEB-10.
AbdulRahman, R (2016). Satellite telemetry of green sea turtle juveniles (Chelonia mydas) to determine their movements and survivability in the Indian Ocean. Temasek Polytechnic School of Applied Science. ASc/VeT (2013/2014).
Stelfox, Martin & Hudgins, Jillian & Sweet, Michael. (2016). A review of ghost gear entanglement amongst marine mammals, reptiles and elasmobranchs. Marine Pollution Bulletin. 111. 10.1016/j.marpolbul.2016.06.034.
Hudgins, J.A., Hudgins, E.J., Ali, K., Mancini, A. (2017). Citizen science surveys elucidate key foraging and nesting habitat for two endangered marine turtle species within the Republic of Maldives, In: Herpetology Notes, volume 10: 463-471

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.
☑ NO

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

› In 2000, based on the available tagging information of a turtle tagged in Oman, which was found in Maldives, and a turtle tagged in Maldives, which was found in Kerala South India, it was suggested that the green turtles found in Maldives belong to wider Arabian Sea or Indian Ocean stock (Zahir, 2000).
In 2016, in-water surveys and nesting surveys were conducted by Marine Research Centre to determine the status of foraging and nesting turtles in Maldives (Ali & Shimal, 2016). The in water surveys were conducted in 8 atolls from February to December 2015 and the nesting surveys were carried out at 9 locations of Maldives. The results of these surveys indicated that of the foraging turtle species 67% of the turtles sighted were Hawksbill and the remaining 33% were green turtles. Out of the 172 nests identified in the nesting survey

efforts, 99% of nesting was by green turtles and the remaining 1% was by Hawksbill turtles. The age and gender composition of green and hawksbill turtles are depicted in the attached figure 6 and 7 respectively. The Olive Ridley Project reported to Environmental Protection Agency, that in 2017, in their photo identification programme, from 15,380 sightings 2,178 hawksbill turtles, 446 green turtles, 1 loggerhead, and 34 olive ridley turtles were identified. The photos were collected from over 400 reefs of Maldives. All atolls except Lhaviyani, had more sightings of Hawksbill turtle than green turtle which mostly included juveniles. From the data that was collected in different reefs, Olive Ridley Project noted that annual population growth rates were positive (>100%) at all reefs except one.

You have attached the following documents to this answer.

Figure_7.pdf - Age and gender composition of hawksbill turtles
Figure_6.pdf - Age and gender composition of green turtles

### 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 marine turtle rehabilitation centres established in Maldives carry out flipper tagging of turtles.

#### b) Satellite tracking

☑ YES (Details/future plans)

› To gain information on survival of turtles, migration, habitats, and behaviour, satellite tracking of turtles is undertaken by some organizations in Maldives. As such Reefscapers in Kuda Huraa & Landaa Giraavaru put satellite tags on turtles rescued from entangled nets before releasing. According to Reefscapers, total of 22 turtles have been tagged in both locations as of June 2019. In one of the cases they released 3 olive ridley turtles with satellite tags SPOT-293A in 2015, following internationally accepted guidelines. One of the tagged turtles travelled 2274km in 90 days, after reaching the southwest of the southern coast of Sri Lanka (Stradal & Fisher, 2016). The other travelled 2661 km in 116 days to a sandbank 134km south of Landaa Giraavaru where the transmission was lost. The third turtle after travelling 1150km in 76 days was last recorded at the west coast of India. The routes of these turtles are shown in the attached figure 8.

You have attached the following documents to this answer.

Figure_8.pdf - Satellite tracking data for 3 turtles

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]**
☑ NO

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

› There is undergoing research currently by Olive Ridley Project on parasites affecting marine turtles.

You have attached the following Web links/URLs to this answer.

Sea Turtle Hitchhikers – The Symbiotic Relationships of Sea Turtles

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

## 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 Marine Turtle MoU Conservation and Management Plan
- BOBLME Strategic Action Programme

### 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)

› Entangled Olive Ridley sea turtles have been compared to nesting females in Oman, Sri Lanka, India, Australia in an attempt to find out an origin. Results of this study are expected to be published in the later of 2019.

b) Conservation status
☑ NO (Details/future plans)

c) Migrations
☑ NO (Details/future plans)

d) Other biological and ecological aspects
☑ NO (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]**
› 1. Olive ridley turtle
Based on the available information, it is evident that olive ridley turtles are not as frequently seen as hawksbill and green turtles in Maldives, but are the most common victims of ghost nets. Recently an olive ridley turtle nesting beach was identified by the Environmental Protection Agency, in the upper north of Maldives, H.Dh.Hanimaadhoo. Up until this revelation, olive ridley was not known to nest in Maldives. There is a possibility of more nesting sites and the need for extensive surveying and research in this regard. Therefore, conservation measures need to be prioritized for olive ridley nesting sites as well.
2. Green turtle
Green turtle numbers were observed to be half the number of hawksbill turtles in 2016 (Ali & Shimal, 2016). The feeding areas in Maldives, sea grass beds are in need of conservation and management. There is a trend of removing sea grass beds in resorts of Maldives.
3. Hawksbill turtle
Hawksbill turtles are the most common is Maldives, but their nesting is observed to be very low (Ali & Shimal, 2016). Due to coral bleaching, reclamation activities and marine coastal pollution, their foraging grounds (coral reefs) are in need of management and rehabilitation.

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

› From 2016 till date, the Environmental Protection Agency has registered 5 facilities to conduct research on marine turtles. These include turtle conservation and rehabilitation, DNA analysis, photo identification and research on the origin of entangled marine turtles. The registered facilities include to include:
- Four Seasons Kuda Huraa
- Four Seasons Landaa Giraavaru
- Olive Ridley Project at Baa, Ihaviyani, North male and Laamu
- Naifaru Juveniles in Lh. Naifaru
- Atmosphere Kanifushi

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]**
› Based on the research results, government initiatives on protection and conservation of habitats are carried out. The research results are used in formulation of management plans for Marine Protected Areas (MPAs), which are important turtle habitats. The results also allow focused awareness programmes to be designed.

## 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)]

› The Olive Ridley Project together with the IUCN and Marine Research Centre have developed a standardised data collection procedure when finding entangled turtles and/or ALDFG. Data on ALDFG is now collected through the Indian Ocean using this standardised model.

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]**

› Maldives has submitted research papers to the Working Party on Ecosystem and By-catch (WPEB) under the Indian Ocean Tuna Commission, regarding the protection of marine turtles. The scientific papers on driftnets and interventions by Maldives has allowed the member states to consider decreasing of dFADs in the Indian Ocean. These outcomes will benefit range states of marine turtles in the Indian Ocean.

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]**

☑ UNSURE

# 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:
› The Government and other organizations have disseminated many infographics videos and guidelines through different projects and programmes. In order to ensure effective data collection under turtlewatch programme and for public awareness, a field identification guide on marine turtles was developed by the Government in collaboration with the International Union for Conservation of Nature (Hudgins, Mancini, & Ali, 2017).
Extensive awareness programmes are carried out by Marine Savers in Landaa Giraavaru and Kuda Huraa, Olive Ridley Project and Naifaru Juveniles. A number of festivals are also held each year on marine turtles of which the most prominent are the ones held in Lhaviyani Atoll, Baa Atoll and Laamu Atoll. The Olive Ridley Project's and Naifaru Juveniles' annual turtle festivals are very popular where different stakeholders attend the events, with information given to the public through interesting presentations and stalls with fun games. School children benefit the most from these festivals, where some of the specific activities include visiting of turtle rehabilitation sites and educational presentations.
In addition to the festivals, the Maldives Marine Science Symposium is a biennial event organized by the Marine Research Centre which brings together government organizations, private sectors, NGOs and independent researchers to share their knowledge and experiences on marine researches conducted in Maldives. Some of these researches are directly on turtles and others indirectly benefit turtle conservation.

You have attached the following documents to this answer.

Code-of-Conduct-Sea-Turtles-Olive-Ridley-Project.pdf - Sea Turtle Code on Conduct by Olive Ridley Project
Awareness_inforgraphic_on_marine_turtles.pdf - Awareness infographic on marine turtles

You have attached the following Web links/URLs to this answer.

Marine Research Centre - Maldives Marine Science Symposium
Marine turtles of the Maldives: a field identification guide

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
☑ Tourists
☑ Media
☑ Teachers
☑ Students
☑ Military, Navy, Police
☑ Scientists

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

Please give details and indicate future plans
☑ YES

› Visitors Centre in Addu Nature Park provides information on marine turtles.
The turtle rehabilitation centers in 3 different atolls of Maldives, conduct education programmes to tourists, locals, their staff and school students on marine turtle.
The Baa Atoll Biosphere Reserve Office conducts awareness and education programmes on marine megafauna including marine turtles.

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]**
› There have never been alternative livelihood initiatives in Maldives regarding marine turtles and no future plans to provide such opportunities, as the consumption of turtles and meat as well as their trade is prohibited.

## 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]**

› In the collection of turtle information by Turtle Watch programme, locals were involved as citizen scientists to provide important information on turtles. They were given awareness sessions on marine turtle identification and the use of established protocols for collection of marine turtle information.

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 Government of Maldives always encourages marine turtle conservation programmes by private sector and NGOs. Private sector and NGOs have been active in marine turtle nest protection and management, rescuing turtles and rehabilitation of them. The Government through extensive stakeholder consultation identifies the management regime for turtle habitats when they become protected areas. An example is Olhugiri Island in Maldives famous as a turtle nesting site. This island is managed by the Atoll Council with the local communities of the nearby two islands that use Olhugiri island. Additionally the management of Baa Atoll Biosphere Reserve, Addu and Fuvahmulah Nature Park are excellent examples of cooperation and coordination between the government, private sector and NGOs in conservation and management of biodiversity.
The identification of marine turtle nesting grounds throughout the Maldives has been planned by the Government of Maldives as a future activity that would benefit from the involvement of NGOs and private sector. Active participation of private sector and NGOs are anticipated to ensure success of the programme. It is planned that the key nesting sites identified to be protected and managed under Environment Protection and Preservation Act of Maldives.

# 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)

› The CITES is fully implemented in Maldives with a draft law soon to be published. Any turtle species exported from Maldives require an export permit from the Environmental Protection Agency, a CITES export permit issued by the CITES Management Authority, Ministry of Environment and a CITES import permit issued from the importing country's CITES Management Authority, and vice versa when a turtle species, a part or derivative is imported.

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 Maldives became a Party to CITES in 2013 and since 2014, extensive training and awareness programmes have been conducted by the Ministry of Environment targeting enforcement officers, importers, exporters, government institutions and general public. At least 2 trainings are held each year focused on Customs Officers. These trainings are on identification of CITES listed species, verification of CITES permits and other relevant information.

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.
☑ NO

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]**
› N/A

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]**
› The trade in marine turtles, their parts and derivatives are prohibited in Maldives. Illegal activities as such are subject to penalization under the Regulation for Determination of Penalties and Obtaining Compensation for Damages Caused to the Environment (Reg No: 2011/ R-9).
In addition to this, laws and regulations are in place to control trade, export and import of locally known threatened and protected species and their products. A coordinated effort by the Ministry of Economic Development, Ministry of Fisheries, Marine Resources and Agriculture and Ministry of Environment is underway in controlling trade of all protected species.

## 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

› The National Biodiversity Strategy and Action Plan 2016 – 2025 has targets on conservation of threatened species and identification of key habitats, their conservation and management. This action plan was developed with extensive stakeholder consultation that included local communities and local council offices.

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]**
› Activities:
2.1 a) Identify areas of critical habitat such as migratory corridors, nesting beaches, inter-nesting and feeding areas

3.1 a) Conduct baseline studies or gather secondary information on marine turtle populations and their habitats
1.6 b) Reduce the mortality of eggs and hatchlings to maximize hatchling recruitment and survival, preferably using conservation techniques that emphasizes natural processes wherever possible.
2.2 c) Enhance recovery of degraded coral reefs
2.2 d) Enhance recovery of degraded mangroves and sea grass habitats
2.1 d) Undertake assessments of the environmental impact of marine turtles and coastal development and other human activities that may affect marine turtle populations and their habitats
5.2 a) Develop a set of key management measures that could be used as a basis for action plans, through consultation with concerned government authorities, research institutions, NGOs, local communities and other stakeholders
1.1 b) Establish baseline data collection and monitoring programmes to gather information on the nature and magnitude of threats
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
4.1 a) Collect, develop and disseminate education materials
Identifying where entangled sea turtles drifting into the Maldives originate
Identify which fisheries generate the most ALDFG drifting into the Maldives
Locations:
1. Turtle nesting sites (examples of turtle nesting islands: HA. Mulidhoo, H.Dh Muiree, H.Dh Vaikaramuraidhoo, H.Dh. Hanimaadhoo, R. Furaveri, R. Fenfushi, R. Vandhoo, B. Maamaduvvari, B. Maaddoo, B. Olhugiri, B. Miriyandhoo, Cocopalm Dhunikolhu, K.Baros,Th. Kanimeedhoo, Th. Funadhoo, Th. Kandoodhoo, L. gaadhoo, G.Dh Gan)
2. Coral reefs (degraded coral reefs)
3. Sea grass habitats

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.
› N/A

## 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]**
› Maldives was working closely with India, Sri Lanka, Bangladesh, Myanmar, Thailand, Indonesia and Malaysia in the Bay of Bengal Large Marine Ecosystem Project. The outcome of this project was the BOBLME Strategic Action Programme. Currently the second phase of the project is being developed and Maldives in actively contributing to the formulation of the project in coordination with other countries in the Bay of Bengal. This could be useful for cooperating in marine turtle conservation especially in the implementation of the Strategic Action Programme.

You have attached the following Web links/URLs to this answer.

BOBLME Strategic Action Programee

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]**
› The Maldives submitted a proposal in 2016 to Indian Ocean Tuna Commission (IOTC) on procedures on a FAD Management Plan, to cut down the number of dFADs approved in the Indian Ocean and to ensure accountability mechanism to be put in place to reduce the entanglement of non-target species such as turtles and to prevent the adverse impacts of beaching events (IOTC, 2016).

## 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]**
› As a country that has more than 1900 islands, the enforcement of regulations and implementation of conservation measures are challenging, because the human resources and knowledge are centralized at the capital city. The Maldives Government welcomes the initiatives by resorts and different organizations, that conduct local level projects involving knowledge sharing at different parts of the country. However, the local governments' need more capacity in conservation where trained professional are currently limited. It is envisioned that each local council should have at least 1 environment officer working on conservation.
The surveying capacity of the Government needs to be strengthened especially for the results to feed into management plans and conservation initiatives. In the implementation of the Conservation and Management Plan of the IOSEA Marine Turtles MoU, there are currently few staff working on this. There is a need for more trainings and education for young staff who are invested in conservation with an ambition to further their career in conservation. Trainings are also needed for fishermen, fisheries NGOs and dive centres on how to retrieve entangled marine turtles from drift nets.
A rescue centre needs to be built in the vicinity of the Velana International Airport, especially since the quarantine facility at the airport is not fully equipped to hold confiscated live animals. This is important to ensure full compliance with CITES as well.

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 Government of Maldives and International Union for Conservation of Nature produced a marine turtle field identification guide. The Government has also collaborated with different NGOs and IGOs to conduct awareness programmes including festivals on marine turtle conservation.
In the coming year, the production of more awareness materials and at least 1 training workshop is planned.

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]**
› Under the Maldives Environment Management Project, the Ministry of Environment partnered with Maldives National University to start a Bachelor's degree programme on Environmental Management. The programme

was started in 2011, where the Project provided full scholarship to students that applied to Maldives National University for the Environment Management course.

## 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]**

› Pursuant to the Regulation for Determination of Penalties and Obtaining Compensation for damages caused to the Environment (Reg No: 2011/ R-9), all prohibited activities regarding marine turtles protection announcement (announcement number: IUL)438-ECAS/438/2016/72 ) are subject to fine. The Environmental Protection Agency has imposed such fines on 5 individuals till date with a total equivalent of MVR 199,000 (USD 12,905). Each of these fines was due to capture and mishandling of marine turtles.

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.
☑ YES

› The turtles in Maldives were previosly protected under a 10 year moratorium in 1995 which was renewed again in 2006. This moratorium only applied to killing, capturing and fishing of marine turtles while their eggs were being exploited with no legal measures in place to protect turtle nests and hatchlings. By taking into account these limitations, the Government protected all species of turtles under law in 2016, after the moratorium came to an end in 2015. The protection applied to all turtles and their eggs. The trade of turtles, eggs, their parts and derivatives were also banned.
The National Biodiversity Strategy and Action Plan (NBSAP) of Maldives was revised in 2016. The current action plan has 26 targets to be achieved by 2025. The current action plan has 26 targets to be achieved by 2025. Specific targets relevant to marine turtles are:
Target 9: By 2018 international trade in endangered species of wild fauna and flora are regulated.
Target 17: By 2025 pressures on coral reefs and other vulnerable ecosystems due to anthropogenic activities and climate change are minimised.
Target 18: By 2025 at least 10% of coral reef area, 20% of wetlands and mangroves and at least one sandbank and one uninhabited island from each atoll are under some form of protection and management.
Target 20: By 2025 rate of loss of all natural habitats are identified and where rate of loss is high, the rate of loss is at least halved or where feasible, brought close to zero.
Target 21: By 2020 prevent extinction of locally known threatened species.
Target 22: By 2018 illegal trade of locally protected species is eliminated.
Target 23: By 2023 pollution from waste and sewage has been brought to levels that are not detrimental to ecosystem functions and biodiversity.

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.
☑ YES

› The islands in Maldives are very dispersed making enforcement across the country challenging.

# 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]**
› Maldives statements and interventions as well as reporting to international conventions and conferences on conservation highlights the successful initiatives by Maldives including Maldivian waters being a turtle sanctuary and how regional cooperation through IOSEA Marine Turtle MoU has been helpful.

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

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 VIEW (Use the text box to elaborate on your response, if necessary)

› This needs more consultation.

### 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]**
› The Maldives pays their annual contribution to the IOSEA Marine Turtle MoU and will continue to do so.

## 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]**
› Government funds and international donor funds are utilized in the implementation of conservation activities under the IOSEA Marine Turtle MoU.
The protection of critical marine turtle habitats are carried out through government funds which support ecological surveying of the areas, social surveying to identify local communities' views and for stakeholder consultations. The Government also supports the formulation and implementation of management plans. In the case of Baa Atoll Biosphere Reserve, a separate fund known as "Conservation Fund" has been established to ensure sustainable financing mechanism for the implementation of conservation measures in the Biosphere Reserve.
Maldives utilized Global Environment Facility funds for the "Atoll Ecosystem Conservation Project" though which the Baa Atoll Biosphere Reserve was established. A new project is currently being formulated under GEF 6 STAR allocation for Maldives known as "Enhancing National Development through Environmentally Resilient Islands" to be implemented in Laamu atoll which includes conservation activities directly benefiting turtle population and their habitat protection.
Though funding from USAID, a project known "Reefs Generate Environmental and Economic Resiliency for Atoll Ecosystems" is now being implemented by the Government of Maldives and IUCN. The "Marine Turtles of Maldives: Field Identification Guide" and other infographics on marine turtle conservation were developed under this project.

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]**
☑ YES (If yes, give details of the approaches made (both successful and unsuccessful))

› The Maldives has submitted funding proposals to Global Environment Facility which includes marine turtle conservation activities.

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

## 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 Ministry of 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]**

Use the text box to elaborate.
☑ YES

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.
☑ YES (Use the text box to elaborate)

› A review of the agency roles was conducted recently with the change in government last November.

# OTHER REMARKS

Please provide any comments/suggestions to improve the present reporting format.
› N/A

Feel free to include additional information not covered above:
› Works Cited:
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# ANNEX 1: SPECIES, HABITAT AND THREAT DATA [PRI, INF]

**PLEASE COMPLETE A SEPARATE SECTION FOR EACH SITE/AREA**

## Site 1

### Name of site/area:

› The Maldives (as there are no site specific information available due to the limited data, and the fact that marine turtles are seen throughout the archipelago of Maldives this section is completed by considering the whole of Maldives as an important marine turtle habitat)

### On-site research activities:

☑ Tagging
☑ Genetic Sampling
☑ Satellite tracking
☑ Foraging surveys

Province / State:

› The whole of Maldives is taken as marine turtles nest and forage throughout the archipelago.

### Name of person / agency wwho has provided the information:

› Ministry of Environment

### Information was last updated: (dd/mm/yyyy)

› 5 June 2019

### Indicate the species occurence / use and relative importance of the site:

Abbreviations: Loggerhead Caretta caretta (CC); Olive Ridley Lepidochelys olivacea (LO); Green Chelonia mydas CM); Hawksbill Eretmochelys imbricata (EI); Leatherback Dermochelys coriacea (DC); Flatback Natator depressus (ND)
Use one of the following symbols or letters to indicate the presence or absence of a species at this site in the table above, including details (if known) about the relative importance of the site for nesting, feeding or development.

Insufficient information is available on the presence or absence of the species (leave box empty)
**---**
The species is **not present** or does not use this particular habitat type at this site.
**?**
It is speculated (only) that the species is present at this site and may be using one or more particular habitat types. In the absence of definitive information, place a **?** in the appropriate box(es).
✓
The species is definitely **known to be present** at this site; however no information is available on the relative importance of the site for nesting, feeding or development.
✓
**H**
The species is known to be present at this site and definitely uses this particular habitat. The site is considered to be of **high importance** for this species, relative to other sites in the country.
✓
**A**
The species is known to be present at this site and definitely uses this particular habitat. The site is considered to be of **average importance** for this species, relative to other sites in the country.
✓
**L**
The species is known to be present at this site and definitely uses this particular habitat. The site is considered to be of **lower importance** for this species, relative to other sites in the country.
**a - h**
**Additional information on nesting habitat (where available):**

Indicate the estimated number of nests per year for each species by inserting, in the appropriate boxes, one of the letters ' **a** ' through ' **f** ', corresponding to the following scale: **a**: 1 - 10 nests ; **b**: 11 - 100 nests ; **c**: 101 - 500 nests ; **d**: 501 - 1,000 nests ; **e**: 1,001 - 5,000 nests ; **f**: 5,001 - 10,000 nests ; **g**: 10,001 - 100,000 nests; **h**: more than 100,000 nests

| | ND Flatback | DC Leatherback | EI Hawksbill | CM Green | LO Olive Ridley | CC Loggerhead |
|---|---|---|---|---|---|---|
| Nesting | -- | | ✓ H | ✓ H | ✓ H | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Feeding | -- | ✓ | ✓ H | ✓ H | ✓ H | ✓ |
| Developmental | -- | ✓ | ✓ H | ✓ H | ✓ H | ✓ |

**Describe the nature of and intensity of threats to marine turtles at this site:**

| | **High (common occurence)** | **Medium** | **Low (rare event)** | **None** | **Unknown** |
|---|---|---|---|---|---|
| Exploitation of nesting females (i.e. direct harvest on land) | | ✓ | | | |
| Direct harvest of animals in coastal waters at or near the site | | ✓ | | | |
| Egg collection (i.e. direct harvest by humans) | | ✓ | | | |
| Incidental capture in coastal fisheries | | | ✓ | | |
| Boat strikes | | | ✓ | | |
| Marine debris (e.g. plastics at sea, flotsam) | ✓ | | | | |
| Industrial effluent | | | ✓ | | |
| Inshore oil pollution | | ✓ | | | |
| Agricultural/urban/tourism development (e.g. construction that disrupts nesting activities) | ✓ | | | | |
| Artificial lighting (on land or near shore) | | ✓ | | | |
| Habitat degradation (e.g. coastal erosion, debris that obstructs nesting etc.) | ✓ | | | | |
| Vehicles | | | ✓ | | |
| Sand mining / removal | ✓ | | | | |
| Natural threats, disease, predation of nests/nesting females (e.g. by domestic / feral animals), or natural predation at sea | | ✓ | | | |
| Other (type in): | Climate Change and associated impacts (including coral bleaching and sea level rise), removal of sea grass beds | | | | |

What measures have been introduced to remove threats to marine turtles at this site?
☑ Monitoring / protection programmes
☑ Education / awareness programmes
☑ Egg relocation / hatcheries
☑ Designation / management of protected areas, sanctuaries, exclusion zones etc.