



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



## Jordan

### GENERAL INFORMATION

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

- Faculty of Marine Sciences-Jordan University of Aqaba - Marine science station, Aqaba-Jordan - Environment department of Aqaba Special Economic Zone Authority

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

Aqaba Marine Park Authority, Jordan society for the conservation of marine turtles (JSCT) and Royal Society for Conservation of Marine Environment (JREDS)

**Designated Focal Point:**

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## OBJECTIVE I. REDUCE DIRECT AND INDIRECT CAUSES OF MARINE TURTLE MORTALITY

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

Population structure and distribution of sea turtles at four major sites along the coast of Jordanian Gulf of Aqaba revealed the following:

- Foraging sea turtles observed in the field were dominated by Hawksbill with few individuals of green turtles.
- Majority of turtles were ranging between 45-60 cm CCL (curved carapace length).
- Incidents of large size green turtles were also seen roaming mainly at ports area.
- Turtles at the southern part of Aqaba Gulf were more abundant while rare abundance observed at the more populated northern part of the Gulf.
- Recent gender ratio data of turtle population is still under investigation.
- The majority of turtles >80% inhabit the coral reefs.

We postulate that marine turtles in the Gulf of Aqaba are coming solely to forage only either on the associated fauna of coral reef and/or on the existing and flourishing sea grass.

- turtles in Jordan lack nesting beaches with an alternative beaches for nesting at Saudi Arabian or Egyptian coasts or even farther.
- The Jordan's National Action Plan for the Conservation of Marine Turtles is now effective and implemented by government and NGO's but still more efforts are requested.

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

- 1) Beach patrolling by Aqaba Marine Park rangers (AMP)
- 2) Sea side patrolling at all fishing areas by AMP
- 3) Public awareness and outreach activities to local fishermen and sea users
- 4) Out reach to public at schools and at the AMP lecture room
- 5) Through signs fixed along the beaches commonly used for public

The main threats to stable turtle populations range from opportunistic capture to global threats such fishing mortality and threats from pollution incidents. Actions include:

- a) Reducing threats to turtle populations from commercial fisheries, land development operations, and human interference;
- b) Pan direct capture in turtles; and
- c) Promote turtle rescue and rehabilitation by dissemination of adequate information about turtles to public and beach users of all sectors
- d) Promote out reach programs along with public awareness activities.

It is recognized however that reducing the threats to marine turtle populations alone will be insufficient to guarantee their survival. However, the Jordan's NAP has considered a further set of actions and recommendations. It include the importance of protecting turtle feeding habitat, research and monitoring, community participation in conservation activities, the capacity of national agencies to carry out the necessary management activities and to enforce legislation.

**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]**

Together with participation of local communities, NAP is now is under implementation by governmental institutions and NGOs in Jordan. At the same time efforts are undertaken to coordinate these activities with other global initiatives for turtles conservation. On tope of that the initiative of biodiversity conservation directed by the regional organization of Red Sea and Gulf of Aden (PERSGA). The JSCTT is now active to take the lead in organizing programs devoted mainly for turtles conservation at Jordan's territorial waters. It coordinates work with IUCN office in Jordan and primarily will approach the IOSEA MoU secretariat and get engaged on its programs. Two publications are so far available in this direction;

- 1- The National Action Plan; An Approach to Prioritize Acts Related to the Conservation of Marine Turtles at Jordan's Gulf of Aqaba. Journal of Environmental Science and Engineering A2: 364-372, 2013
- 2- Population status and conservation of marine turtles at Jordan's Gulf of Aqaba, Red Sea. Journal of British Chelonia group (Testudo), Vol. 6 No. 4, 58-66, 2008
- 3- Jordan's national Strategic Action Plan for the Conservation of Marine Turtles and their Habitats in the Red Sea and Gulf of Aden. The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA), 45 PP, 2005
- 4- Cultural and socioeconomic structure of the fisherman community and fishing industry in the Jordan's Gulf of Aqaba, Red Sea. A report prepared for UNESCO Office – Education Division- Amman-Jordan. 50pp, 2003

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

- High prices earned from turtle products relative to other commodities
- Lack of affordable alternatives to turtle products
- Ease of access to the turtle resource (eg. by virtue of proximity or ease of land/water access)
- Low cost of land near nesting beaches

**■ Low penalties against illegal harvesting**

- Other1: Policies in relation to fishery resources management
- Other2: Rapid urbanisation along the coast mainly for tourism, ports and industry
- Other3: Ship traffic, boating, sport fishing and sea trade
- None of the above or Not Applicable

The major threats to in water habitats in Jordan include industrial activities, fishing practices and other forms of marine pollution, including persistent marine debris and to some extent oil spills

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

- YES  NO  NOT APPLICABLE (no adverse economic incentives exist)

Implementing Environment Impact Studies (EIA) for all enterprise projects along the coast.

Enforcement of new legislation for marine conservation measures and fisheries which took effect in the last few years.

Engagement of other official authorities such as Coast Guards, local government and Aqaba marine park rangers on beach patrolling, as well as some NGOs.

Fishers are encouraged to join the Aqaba Fishermen Society and the JSCTT to be as stewards of coasts and best fisheries management.

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

**a) Shrimp trawls:**  YES  NO

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

It is the most commonly used method with artisan fishery. Almost all the 120 fishermen are using gillnets. They are operating about 60 small boats and utilizing mostly the entire coastal area that extends for about 27 km. This limitations in the fishery ground is in effect since the last decade and mainly due to some political constraints with countries surrounding the Gulf such as Egypt, Saudi Arabia and Israel.

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

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

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

Some fishermen utilize this method but at certain periods of the year - mainly during summer. Deep water is the preferred fishing area because of the limitation of coastal fishing grounds. Fishermen have recently started to utilize deep-sea fishing using this method. Nevertheless, productivity is very limited and it does not make any real threat either to fishery stock or other marine animals including marine turtles.

f) *Driftnet*:  YES  NO

g) *Other1*:

This also very common but became recently limited due to area limitation mainly along the coastal line.

h) *Other2*:

None of the above

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

a) *Shrimp trawls*

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source:

b) *Set gill nets*

**Fishing effort:**

RELATIVELY HIGH  MODERATE  **RELATIVELY LOW**  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  **RELATIVELY LOW**  NONE  UNKNOWN

Source: A study on fishery status along the Jordanian coast of Aqaba Gulf was conducted by the Marine Science Station "The fishery status in Jordan's Gulf of Aqaba, Red Sea. Dirasat, pure sciences. 33(1), 127-141, 2006"

c) *Anchored Fish Aggregating Devices (FADs)*

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source:

d) *Purse seine (with or without FADs)*

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source:

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

**Fishing effort:**

RELATIVELY HIGH  MODERATE  **RELATIVELY LOW**  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  **MODERATE**  RELATIVELY LOW  NONE  UNKNOWN

Source: Interview with fishermen and the fishermen society and research literature in the area together with reports from ASEZA.

***f) Driftnet***

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source:

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

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source:

***h) Other2 (from 1.4.1):***

**Fishing effort:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

**Perceived Impact:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source:

**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]**

Since fisheries in Jordan is artisanal in nature, fishing gears are limited to the use of hook and line and gill nets. However, most of fishing activities are directed now to deep water. The use of cages has been banned completely on coastal water as well as construction of special pathways along the coast to be used for beach visitors and users. In waters adjacent to Jordan's territorial boundaries, information are extremely scarce with almost no details.

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

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

YES  NO  **NOT APPLICABLE**

However, this has been exposed to all fishers in the area and we believe they are considering it now.

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

YES  NO  **NOT APPLICABLE**

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

YES  NO  **NOT APPLICABLE**

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

YES  NO  **NOT APPLICABLE**

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

YES  NO  **NOT APPLICABLE**

f) **Net retention and recycling schemes**

YES  NO  **NOT APPLICABLE**

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

YES  NO  **NOT APPLICABLE**

h) **Effort management control**

YES  NO  **NOT APPLICABLE**

Other (list and explain):

None of the above

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

**Onboard observer programmes**

YES  NO  **NOT APPLICABLE**

**Vessel monitoring systems**

YES  NO  **NOT APPLICABLE**

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

YES  NO  **NOT APPLICABLE**

Or by incidents with no specialized programs

**Training programmes / workshops** to educate fishers

**YES**  NO  NOT APPLICABLE

- ASEZA department for community services organize frequently educational programs to different sectors in the city including Aqaba fishers
- Aqaba marine park authority collaborate closely with NGO's to provide help and information to fishers.
- MSS provide scientific and technical assistance to administrations that help in the education process for all beach and sea users.

**Informative videos, brochures, printed guidelines** etc.

**YES**  NO  NOT APPLICABLE

- Many of these materials are produced and disseminated

**Other (list and explain):**

YES  NO  NOT APPLICABLE

None of the above

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

YES  NO  UNSURE

**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 proposal is under evaluation in order to do extensive investigation on all issues related to turtle conservation and protection, the proposal was submitted for JEF for possible funding. The title selected for research is "MONEY TALKS; ECONOMIC ASPECTS OF MARINE TURTLE USE AND CONSERVATION IN JORDAN'S GULF OF AQABA"

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

YES  NO  UNSURE

**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]**

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

YES  NO  UNSURE

For turtles in particular

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

**USES /  
VALUES**

**Meat consumption**

YES  NO

**RELATIVE PREVALENCE /  
IMPORTANCE**

HIGH  MODERATE  LOW  UNKNOWN

**Egg consumption**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Shell products**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Fat consumption**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Traditional medicine**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

specialy during the past period before 20 years ago.

**Eco-tourism programmes**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Cultural / traditional significance**

YES  NO

HIGH  MODERATE  LOW  UNKNOWN

**Other**

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

**Level of harvest:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

**Impact of harvest:**

RELATIVELY HIGH  MODERATE  RELATIVELY LOW  NONE  UNKNOWN

Source of information:

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

YES  NO  UNKNOWN

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

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

MEASURES	RELATIVE EFFECTIVENESS
<b>Monitoring/protection programmes</b>	
<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> EXCELLENT <input type="checkbox"/> GOOD <input type="checkbox"/> LOW <input checked="" type="checkbox"/> UNKNOWN
<b>Education/awareness programmes</b>	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	<input type="checkbox"/> EXCELLENT <input checked="" type="checkbox"/> GOOD <input type="checkbox"/> LOW <input type="checkbox"/> UNKNOWN
<b>Egg relocation/hatcheries</b>	
<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> EXCELLENT <input type="checkbox"/> GOOD <input type="checkbox"/> LOW <input type="checkbox"/> UNKNOWN
<b>Predator control</b>	
<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> EXCELLENT <input type="checkbox"/> GOOD <input type="checkbox"/> LOW <input type="checkbox"/> UNKNOWN
<b>Vehicle / access restrictions</b>	
<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> EXCELLENT <input type="checkbox"/> GOOD <input type="checkbox"/> LOW <input type="checkbox"/> UNKNOWN
<b>Removal of debris / clean-up</b>	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> EXCELLENT <input type="checkbox"/> GOOD <input type="checkbox"/> LOW <input type="checkbox"/> UNKNOWN
<b>Re-vegetation of frontal dunes</b>	
<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> EXCELLENT <input type="checkbox"/> GOOD <input type="checkbox"/> LOW <input type="checkbox"/> UNKNOWN

**Building location/design regulations**

YES  NO  N/A

EXCELLENT  GOOD  LOW  UNKNOWN

**Light pollution reduction**

YES  NO  N/A

EXCELLENT  GOOD  LOW  UNKNOWN

**Other (list and rate them)**

YES  NO  N/A

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

YES  NO  NOT APPLICABLE

**OBJECTIVE II. PROTECT, CONSERVE AND REHABILITATE MARINE TURTLE HABITATS**

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

Aqaba Special Economic Zone Authority (ASEZA) declared a national Marine Protected Area (MPA) as part of the master plan of the coastal resources embodying the coral reserve in Jordan. The MPA was established to conserve and manage the natural near-shore marine environment of the Aqaba South Coast with its rich biodiversity while allowing certain tourist uses on sustainable manner. Aqaba MPA also support efforts to conduct research and monitoring programs on the physical, chemical, and biological properties of the northern Gulf of Aqaba and the near shore coral reef environments. Aqaba MPA project has significant role in strengthening the regional capability for information exchange and resource management in Gulf of Aqaba and around Red Sea.

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

YES  NO  NOT APPLICABLE

ASEZA with the help of MSS are implementing a yearly monitoring program on water quality, benthos and fish fauna along the entire coast of Gulf of Aqaba. This program was commenced before 10 years and still implemented under the name, National Monitoring Program of Jordanian Sector of Gulf of Aqaba.

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

YES  NO  NOT APPLICABLE

Water quality is monthly monitored along the entire coast. All possible sources of pollution are strictly considered in the water quality assessment. Research on the water quality specially the microbial counts (coliforms and fecal coliforms) at certain locations were conducted. In addition, investigation on fish diseases and parasites was also undertaken on fish stocks. Links between microbes and parasites that are of heteroxenous and monoxenous origin have been identified which could harm turtles population in the area.

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

YES  NO  NOT APPLICABLE

According to the existing laws and regulations (environment law No. 21 and 22 in ASEZA vicinity) regarding the marine environment all means of the use of poisons or explosives in fishery are strictly prohibited. Measures are implemented through various agencies, marine park rangers, beach patrollers, coast guard forces, port authorities and certain NGOs.

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

YES  NO  NOT APPLICABLE (no degraded coral reefs)

Coral reef habitats are continuously monitored visually. Underwater cleaning campaign of solid wastes is often implemented. Recently, construction of settling substrata for the initiation of artificial reef habitat has been completed. The location is at the northern public beach and two new locations were also used, in front of marine park and the MSS site. ASEZA, MSS with the help of PERSGA are undertaken this responsibly. In addition, trials were made in these new two locations to rehabilitate corals by re-arranging the broken colonies of corals and/or re-transplanting them.

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

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

There are no mangroves along the coast of Jordan. However, grass beds are under continuous observation. Areas that witnessed heavy fishing efforts were impacted by such activities. Recently, complete ban of fishing was enforced five years ago. Recent observations suggest a good well-being of these habitats.

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

YES  NO  NOT APPLICABLE (no degraded sea grass habitats)

However, debris removal is routinely made along the entire coast through the programs to keep beaches clean. Clean up campaigns are continuously undertaken either by Department of environment at ASEZA or by various NGOs with full coordination with clean up the world organization.

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

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

Through the Strategic Action Plan (SAP) implemented by PERSGA for the regional countries, we have started to collect some preliminary information on turtle stocks that live in or head to Jordan's territorial waters. Some information was gathered on the population size and kind. In addition, currently a program for tagging the by-catch of turtles is under way. A study on feeding habits of the Hawksbill turtle is being proposed and hopefully within a short period will be commenced.

Literature cited for some works in Aqaba was presented in items of objective I

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

YES  NO  UNSURE

This has been suggested to the environment department of ASEZA in order to ask all diving centers in the city of Aqaba to continuously fill a special underwater sheet about each diver observation on turtle population. Volunteer divers locally and from outside the country have started to fill in this sheet and will continue on a sustainable manner.

The long term monitoring program is titled as Environmental appraisal of the Jordanian coast of Gulf of Aqaba, yearly since 1999.

in addition to Gulf of Aqaba Environmental Action Plans #21060-IS and 21059-EGT. (2000), ASEZA, Aqaba

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

YES  NO  UNSURE

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

**Tagging**  YES  NO

With the help of local fishermen, a tagging program (Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden - PERSGA) was also implemented on animals found in their catch.

**Satellite tracking**  YES  NO

Other

None of the above

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

YES  NO  UNSURE

The Black Rock showed the highest abundance of turtles, while Moon valley, Seven Sisters, and Oliver Canyon showed the lowest. Black Rock and Gorgon I are highly developed coral reef habitats while the other sites also contain grass beds and sandy bottoms. CPUE also showed higher values at sites with high abundance of turtles. However, the fluctuation in CPUE values between the different sites was a function of changes in the number of dives as well as divers during the survey period that lasted for about 9 months.

- Temporal variations in coral reef health at a coastal industrial site on the Gulf of Aqaba, Red Sea. OCEANOLOGIA, 49(8), 1-14, 2008

- Population status and conservation of marine turtles at Jordan's Gulf of Aqaba, Red Sea. Journal of British Chelonia group (Testudo), Vol. 6 No. 4, 58-66, 2007

- Money talks; economic aspects of marine turtle use and conservation in Jordan's Gulf of Aqaba, 2013

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

YES  NO  UNSURE

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

YES  NO  UNSURE

**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]**

A national action plan was prepared for Jordan. Jordan's National Action Plan for the Conservation of Marine Turtles and their Habitats (NAP) addresses a number of key objectives and obligations to reduce threats to marine turtle populations. It considers the importance of protecting and conserving marine turtles and their feeding habitat, research and monitoring, community education and participation in conservation activities.

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

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

For gene flow studies, samples from turtle population in Jordan will be collected and incorporated with samples from other PERSGA regional countries for genetic analysis. However, calls are still open to widen areas for this kind of studies.

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

Development of the NAP for each country of PERSGA has been launched, through which conservation measures between countries are in progress.

**c) Migrations**  YES  NO  NOT APPLICABLE

Tagging programme is under progress for turtles population in the Red Sea and Gulf of Aden region in order to tag each individual turtle caught either through by-catch or any other means.

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

Food and feeding habits mainly for the Hawksbill turtle. In addition, studies on the status of coral reef and sea grass habitats -- being major feeding grounds and important for development of turtles in the region.

**Other**

We are proposing to establish a marine turtle observatory through which trials will be made to examine adults' potential for artificial reproduction.

**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]**

Five species of marine turtles are found in the Red Sea, of which the Hawksbill turtle, *Eretmochelys imbricata*, are probably the most abundant in the area. Two major species are currently appearing in Jordan's waters (Hawksbill turtle and green) both of which need actions for conservation. The trend of such population indicates scarcity in their abundance over time. Efforts and being undertaken to attract others to the area.

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

**YES**    NO    UNSURE

All forms of reports are continuously reviewed for further evaluation and development. Monitoring activities in particular are continuously evaluated and reviewed by the specialized staff at MSS. Modifications and comparisons between previous and the newly generated data are compared.

**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]**

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

**YES**    NO    UNSURE

PERSGA has developed methods for conservation through monitoring and research. The methods that are used so far in Jordan are standardized by PERSGA.

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

OFTEN (SYSTEMATICALLY)       **OCCASIONALLY**       RARELY       NEVER

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

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

YES  NO  UNSURE

Regional database of PERSGA countries

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

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

School syllabus from the Ministry of education showing the importance of the marine environment and the different habitats as well as the necessity to conserve the endangered marine species. ASEZA and marine park generated material for public awareness, including brochures and posters as well as signs along the entire coast aimed at beach users.

NGOs' activities include organizing a cleaning campaign each time and specialized workshops of conservation mitigation for turtles (organized by MSS and ASEZA).

Educational programs on threatened marine species targeting fishermen in the area was introduced by MSS and ASEZA.

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

**Policy makers**

Fishing industry

**Local/Fishing communities**

Indigenous groups

**Tourists**

Media

**Teachers**

**Students**

**Military, Navy, Police**

**Scientists**

Other:

None of the above

Workshops, presentations and interviews with all of the above through pre-organized programs.

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

YES  NO

Aqaba Marine Park has been recently established. It belongs to the department of Environment at ASEZA. The Center is fully staffed with rangers on both marine and coastal areas. Their duty is to provide advice and guidance when needed to coast users as well as patrolling the entire coastal line agaisned any envornmental violence.

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

This has been focused on fishermen communities through the engagement of some of them to become rangers at ASEZA for coastal areas and boat observers. In addition, some fishermen have been incorporated in other jobs at the marine park or other departments of ASEZA as an alternative for their incomes.

Ecotourism groups were also established recently and employed by some of the new resorts along the coast. Duties are to guide divers to sites of attraction as well as provide details on the beauty and the importance of conserving the marine environment.

**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]**

Beach clean up and underwater cleaning campaigns.

Private diving centers are encouraged to collect data on turtles.

Various NGO activities, such as social events, are directed at environmental conservation issues.

Exposing the historical and heritage importance of Aqaba town through organizing yearly festival.

**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]**

Public acknowledgement and certificates. In addition, during major events related to marine environmental protection; hats, medals and T-shirts are distributed to the public. However, incentives devoted especially for turtle conservation are under evaluation and hopefully will result in something that might help in this direction.

**OBJECTIVE V. ENHANCE NATIONAL, REGIONAL AND INTERNATIONAL COOPERATION**

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

YES  NO  NOT APPLICABLE

As a member state of CITES, Jordan is complying all items of the agreement accordingly in a strict manner. Trade in live turtles or turtle products is strictly prohibited.

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

YES  NO  NOT APPLICABLE

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

YES  NO  **NOT APPLICABLE**

**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]**

**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 existing legislation clearly demonstrates that it is illegal to trade in most of the marine organisms which are scarcely available at the Jordanian coast. This certainly includes alive or dead coral colonies, coloured coral fish and many other invertebrates for ornamental use such as Giant clams, anemones and sponges in addition to marine turtles and marine mammals.

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

**YES**  NO

NAP is already sent to officials at the ministry of environment. Coordination of activity between the ministry and ASEZA is being initiated with the hope that ASEZA will take the lead to implement the NAP in collaboration with other authorities in the town as well as the NGO's.

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

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

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

- Identification of turtle populations**  ESSENTIAL  **IMPORTANT**  LIMITED  NOT AT ALL
- Identification of migration routes**  ESSENTIAL  **IMPORTANT**  LIMITED  NOT AT ALL
- Tagging / satellite tracking**  ESSENTIAL  **IMPORTANT**  LIMITED  NOT AT ALL
- Habitat studies**  ESSENTIAL  **IMPORTANT**  LIMITED  NOT AT ALL
- Genetics studies**  ESSENTIAL  **IMPORTANT**  LIMITED  NOT AT ALL

Maintain sustainability of marine resources and indicate the importance of marine habitats between countries. Migratory species, such as turtles, do not recognize the political boundaries between countries.

Monitoring of water quality against pollution.

Early warning on oil spillage between neighboring countries.

Communication and smooth flow of environmental information is essential.

**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]**

The regional action plan (RAP) for marine turtles in the regional countries of the Red sea and Gulf of Aden is useful tool to strengthen cooperation. Although, Egypt and Saudi Arabia are part of this RAP, any real cooperation between these countries and Jordan is still in its infancy stage.

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

YES  **NO**  NOT APPLICABLE

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

**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]**

Rangers and coast patrollers in addition to coast guard forces are well oriented for the protection of the marine environment in general. However, people who have received special training in marine turtle conservation are increasing. MSS is the only research center for marine sciences in the country and is capable of conducting basic studies on turtle populations including tagging and habitat assessment. Preliminary study is already available but due to the rarity of turtles and limited coastal line the need for extensive work is still under debate.

In terms of knowledge, experts at MSS are mainly oriented to studies in the field of fisheries and oceanography. Therefore, generalized knowledge through contribution in various workshops is available but there is an obvious need to improve such knowledge.

**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]**

- 1- National Workshop on Public Awareness and Outreach Concerning Marine Turtles, The University of Jordan - Aqaba Branch Aqaba, December 30th,2012
- 2- Workshop on marine turtle conservation in the western Indian ocean, 18-22 Nov. 2000, United Arab Emirates
- 3- Workshop on regional action plan for the conservation of marine turtles and their habitats in the Red Sea and Gulf of Aden, PERSGA, 29-30/9/2003 Saudi Arabia
- 4- Two rangers from Aqaba attended the training course organized by PERSGA in Yemen in 2002
- 5- Manual and data sheets describing survey methods on marine turtles
- 6- Set of metallic tags prepared and supplied by PERSGA
- 7- Field measuring devices for length and weight of marine turtles
- 8- Eco club at schools provide extensive number of lectures at schools of different levels.

**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. [\[BPR\]](#)**

ASEZA with its relevant staff for environmental and conservation issues are being coordinated with Marine Science Station in Aqaba. Experts in different fields of marine sciences are contributing to research and knowledge provision for the students and ASEZA staff. The experts are also cooperating with several NGOs in Aqaba region and with other universities in the country.

PERSGA contributed in the capacity building. Jordan participated in all training courses held by PERSGA who also provide special tags to help in turtle monitoring and conservation.

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

- Jordan's environment law, 1073 - environment law, 21,22 2001, ASEZA - Agriculture law, 1982

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

YES  NO  UNSURE

I believe ASEZA and the ministry of environment are now working to review the overall regulation concerning marine environmental protection and among these there will be items especially devoted for endangered species of which turtles are part.

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

YES  NO  UNSURE

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

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

- 9th International Symposium on SEASTAR2000, Kyoto, Japan, March 17-19/2013

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

YES  NO  NO VIEW

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

YES  NO  NO VIEW

Strengthen the link with all of its instruments regarding turtle protection measures.

## **6.2 Secretariat and Advisory Committee**

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

Not yet discussed

**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]**

- Scientific research fund, ministry of research and higher education of Jordan
- Higher council of science and engineering
- Abdel latif Jamil foundation, Saudi Arabia

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

YES  NO

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

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

YES  NO

Discussions are in process among ASEZA, MSS, Ministry of Environment and some NGOs to develop initiatives in this direction. Generally, ASEZA will be the lead agency in this regard after implementing the NAP of Jordan

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

YES  NO  UNSURE

The Jordanian coast is limited to the northern most portion of Gulf Aqaba. Responsibilities are mainly restricted to the ASEZA departments. All these responsibilities are well coordinated with other government agencies such as the Ministry of Environment and the Ministry of Agriculture and coast guard forces.

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

YES  NO  UNSURE

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

**Additional information not covered above:**