



CMS

IOSEA Marine Turtles Memorandum of Understanding - National Report 2024

INSTRUCTIONS FOR COMPLETING THE NATIONAL REPORTING QUESTIONNAIRE:

The main purpose of completing the National Reporting Questionnaire (NRQ) is to provide information on your country's implementation of the IOSEA Marine Turtle MOU, including its Conservation and Management Plan (CMP) and the IOSEA Work Programme adopted by the 8th Meeting of Signatory States. Please include activities undertaken by the government, non-governmental organizations, private sector and other relevant stakeholders.

The IOSEA Secretariat will analyze national reports and use the provided information to facilitate marine turtle conservation work using the resources at its disposal, as well as in fundraising efforts. The information will also be used to raise any issues, as mandated by IOSEA Signatories, at relevant political fora, such as CMS, CITES, or Regional Fisheries Management Organizations.

Most importantly, collecting information of relevance to marine turtle conservation in the NRQ can help national decision makers to plan marine turtle conservation activities within countries and sub-regions, and guide national and international project planners and donors.

The NRQ is structured to reflect progress in implementation of the six objectives of the CMP: There are two modalities of the NRQ: it can be accessed via the online reporting system (ORS) or filled out using an MS Word file. However, the Word version should be used only if using the online questionnaire is not possible for technical reasons (e.g. the internet connection is too unreliable).

Please answer all questions as fully and as accurately as possible. Wherever possible, please indicate the source of information used to answer the question, particularly if a published reference or report is available. Comprehensive responses to the questions posed in Section 1.4 should also satisfy many of the reporting requirements of the 2009 FAO Guidelines to Reduce Sea Turtle Mortality in Fishing Operations, thereby avoiding duplication of effort.

When working on the online version of the NRQ, 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. If additional information is available (e.g. published reports, maps) please attach it to this questionnaire. If working on an offline MS Word file, please submit the completed NRQ by email to the IOSEA Secretariat (iosea@un.org); with a copy to the Coordinator (heidrun.frisch-nwakanma@un.org), as a Word attachment.

GENERAL INFORMATION

Signatory State:

>>> Pakistan

List any other agencies, institutions, or NGOs that have provided input:

>>> Sindh Wildlife Department, Balochistan Forest and Wildlife Department, Ministry of Maritime Affairs, Zoological Survey of Pakistan, WWF-Pakistan, IUCN Pakistan

Memorandum in effect in Signatory State since (dd/mm/yyyy):

>>> 01/03/2005

This report was last modified: (dd/mm/yyyy):

>>> 02/20/2018

Designated Focal Point (and full contact details):

>>> Name: Muhammad Samar Hussain KHAN,

Designation: Conservator Wildlife,

Organization: Ministry of Climate Change & Environmental Coordination, Government of Pakistan,

Address: LG & RD Complex, G-5/2, Islamabad,

Tel #: +92-51-9245743

Fax #: +92-51-9245589

Email: samar_baloch@yahoo.com

Other relevant contacts:

>>> 1. Ms. Zona Zaidi, Deputy Conservator
(Wildlife), Ministry of Climate Change,
Government of Pakistan, Email:
zaidizona1@gmail.com;

2. Ms Mahvish Rauf, Assistant Secretary
(Wildlife), Ministry of Climate Change,
Government of Pakistan, Email:
mahvishrauf95.mr@gmail.com

MARINE TURTLE SPECIES AND HABITATS

Provide sources of information supporting the responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources, and attach digital files if necessary.

0.1 Overview of marine turtles and their habitats in the IOSEA MOU Signatory States within the IOSEA region.

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

a) Please list marine turtle species and genetic stocks in your country, give a general population estimate and trend for your country and indicate where they occur.

	Population trend (increase, decrease, stable, unknown)	Number of egg clutches per year	Species, genetic stock	Type of habitat (nesting, feeding developmental)?	Geographic area
	Increase	Unknown	Chelonia mydas	Nesting	Astola Island
	Unknown	Unknown	Chelonia mydas	Nesting	Jiwani
	Unknown	Unknown	Chelonia mydas	Nesting	Hawks Bay
	Unknown	Unknown	Chelonia mydas	Nesting	Gwadar Bay
	Unknown	Unknown	Chelonia mydas	Nesting	Pishukan beach
	Unknown	Unknown	Chelonia mydas	Nesting	Ormara turtle beach

b) Do government agencies and/or scientific institutions submit data on the occurrence and population numbers of marine turtles to an international database?

NO

c) Does your country have index nesting beaches in the IOSEA region?

NO

d) Does your country have an IOSEA Network site?

NO

OBJECTIVE I: REDUCE DIRECT AND INDIRECT CAUSES OF MARINE TURTLE MORTALITY

1.1 BEST PRACTICE APPROACHES TO MINIMIZING THREATS

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

1.1.1. Are there any best practice protocols relating to the protection of marine turtles and their habitats used in your country that you would like to share with other IOSEA Signatories? Please name the protocols and describe briefly, providing references or links to more detailed reports or online texts.

If more rows are required, please contact the secretariat at iosea@un.org

	References and links	Has the effectiveness of this approach been evaluated? What was the result?	What does this approach/ protocol help to achieve	Title of best practice protocol or approach
	1. Balochistan (Wildlife Protection, Preservation, Conservation and Management) Act, 2014: https://www.cms.int/huemul/sites/default/files/document/cms_nlp_pak_act_XV_2014.pdf 2. Sindh Wildlife Protection, Preservation, Conservation and Management Act, 2020: http://sindhlaws.gov.pk/setup/Publications/PUB-20-000055.pdf 3. Balochistan Sea Fisheries Ordinance, 1971 and Balochistan Sea Fisheries Rules, 1971 4. Sindh Fisheries Ordinance, 1980	No	It prohibits killing, capturing and trade in species.	Legal protection to species
	Important habitats of marine turtles are protected including; Hingol National Park, Astola Island Marine Protected Area and other coastal areas.	No	It provides safe habitats for the species.	Designation of protected areas in habitats
	https://tribune.com.pk/story/2441337/seafood-exports-linked-to-saving-turtles#:~:text=KARACHI%3A,Harbour%20conference%20hall%20on%20Sunday.	No	Communities have been involved in various awareness raising activities to reduce turtles mortality.	Engagement of local communities in conservation
		No	It creates awareness about the species	Conducting turtle watch activities on the nesting sites
		No	Fishers have been involved to reduce turtles mortality.	Safe handling and release guidebook
		No	Fishers have been involved to reduce turtles mortality.	Safe handling and release 3D video for turtles

1.2 REDUCTION OF INCIDENTAL CAPTURE AND MORTALITY

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

1.2.1 Indicate, and describe in more detail, the main fisheries occurring in the waters of your country (including territorial waters and the EEZ), as well as any high seas fisheries in which flag vessels of your country participate and interact with marine turtles within the IOSEA region.

For each of the different fisheries listed below, please indicate whether the fishery is present and use the text box below to provide more detailed information. Please include information on what marine turtle species are affected and number of reported interactions, if known.

1) Bottoms trawls (including shrimp trawls)

a) Fishing effort:

PRESENT

Please provide the information below:

Number of vessels:

>>> Shrimp trawling is main fishery in Pakistan (about 2500 trawlers). The operation is mainly carried out in coastal water. Turtles entanglement is low and due to short operation duration mortality is very low and the entangled specimens are immediately released. Moreover use of TED in these gears has also reduced the bycatch.

b) Methods used by your country to minimise bycatch of marine turtles in this fishery

- Safe handling (as per existing protocols e.g., FAO guidelines) of incidentally caught turtles (e.g. resuscitation or release by fishers using equipment such as de-hooking, line cutting tools and scoop nets)
- Devices that allow the escape of marine turtles (e.g. turtle excluder devices (TEDs))
- Spatial and temporal control of fishing (e.g. seasonal closures of fishing activities)

Details:

>>> WWF Pakistan in collaboration with government departments have been working with local fisher communities on safe release of entangled turtles. Use of TED is mandatory under the Federal and Provincial Fisheries law

If applicable, the measures are mandatory under the following regulation:

>>> The Exclusive Fishery Zone (Regulation of Fishing) Act, 1975: <https://faolex.fao.org/docs/pdf/pak4811.pdf>
Exclusive Fishery Zone (Regulation of Fishing) Rules, 1990:
https://www.ajne.org/sites/default/files/document/laws/6971/exclusive_fishery_zone_regulation_of_fishing_rules_1990.pdf

You have attached the following documents to this answer.

[MFD_Notification_July_2005_TED.pdf](#)

c) Programmes to promote implementation of measures to minimise bycatch of turtles. Please tick the boxes that apply in your country and provide details in the text boxes below.

- Onboard observer programmes
- Inspections (i.e. at sea, in port, at landing sites)
- Training programmes / workshops to train fishers on the use of bycatch reduction methods
- Informative videos, brochures, printed guidelines etc.

Onboard observer programmes

The measure is voluntary:

>>> Yes

Details/future plans:

>>> WWF-Pakistan in collaboration with government department has been working with fisher communities to monitor by catch through onboard observers.

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

The measure is mandatory under the following regulation:

>>> 1. Balochistan Sea Fisheries Ordinance, 1971 and Balochistan Sea Fisheries Rules, 1971 2. Sindh Fisheries Ordinance, 1980 3. Pakistan Fish Inspection and Quality Control Act, 1997

Training programmes / workshops to train fishers on the use of bycatch reduction methods

Details/future plans:

>>> 1. Under the Sustainable Fisheries Entrepreneurship Project (SFEP) Phase-III 20 training sessions were organized which were attended by 432 young fishers. In total, 479 fishers have been trained, and there are 20 Master Trainers who are trained to deliver the training sessions. It has been a crucial step in promoting sustainable fishing practices, minimizing post-harvest losses and safe handling and releases of ETP species, and reducing the negative impact of overfishing on marine ecosystems.

2. One-day training workshop was organized for fishers on use of TED:
<https://tribune.com.pk/story/2441337/seafood-exports-linked-to-saving-turtles>

2) Pelagic trawling

a) Fishing effort:

UNKNOWN

Details:

>>> N/A

3) Set nets

a) Fishing effort:

UNKNOWN

4) Driftnet

a) Fishing effort

UNKNOWN

Please provide the information below:

Number of vessels:

>>> Around 21,000 fishing boats operate in coastal Pakistan – 13,000 in Sindh province and 8,000 in Balochistan. Most use gillnets, seine nets and a few longline

Boat size (range or average):

>>> Less than ~18 m

Number of trips per year:

>>> ~ 9 to 12

Mesh size used:

>>> ~45 mm to 380 mm

Geographic distribution:

>>> Coastal and off shore waters of Pakistan within EEZ

If known, turtle species affected:

>>> Mostly Green and olive, some incidents of leatherback, loggerhead, and hawksbill were also reported.

Number of bycaught turtles per year:

>>> Can not be determined since the fisheries is dynamic and seasonal where different gears are used In different months and seasons. Also, there is challenge of limited and no coverage on the monitoring and reporting from different vessels which operate within costal area, buffer zone and offshore EEZ water. - in January 2023, However, A questionnaire-based survey was conducted successfully in Gwadar, Pasni, and Kharo

Chan over five days in each location. The survey achieved interview coverage from three to 11 villages while interviewing 150 gillnet fishermen across Thatta, Sujawal, and Gwadar districts, providing insights into demographics, bycatch knowledge, and attitudes towards cetacean conservation. Based on this survey, in most of the interactions of marine turtles, 60% responded in Monofilament nets and 40% in the multifilament fishing nets in coastal fisheries that range from one-day fishing to two weeks fishing trips respectively. In addition, most of the responses were to answer with the equal or less than 30 marine turtles' interactions during their fishing operations. In terms of respondents percentage of maximum number of interactions in the marine turtles district was 45% Gwadar, 35% Thatta, and 9% Sujawal. - Monitoring from August to December 2023: The bycatch analysis indicates that Dolphin, Porpoise, and Turtle species were inadvertently captured during fishing activities. Squid gillnets and Bottom Fishing methods contributed significantly, total of 16 incidents each, while Large pelagic gillnets and Surface Fishing methods had a lesser impact, each accounting for three incidents. The overall bycatch incidents during fishing operations recorded 19, involving three cetacean species. Notably, large pelagic gillnets, surface fishing, and squid gillnets were a total of 13 incidents, with squid gillnets being the predominant method. - Diverse megafauna sightings encompassed dolphins, Seabird, Seabirds, Turtle, Whales, and Whale Shark species. Squid gillnets and Bottom Fishing methods exhibited the highest megafauna sightings, recording 22 each, with October standing out as a key month, contributing to a total of 17 megafauna sightings

b) Methods used by your country to minimise bycatch of marine turtles in this fishery

- Safe handling (as per existing protocols e.g., FAO guidelines) of incidentally caught turtles (e.g. resuscitation or release by fishers using equipment such as de-hooking, line cutting tools and scoop nets)
- Spatial and temporal control of fishing (e.g. seasonal closures of fishing activities)

Details:

- >>> - Improving gillnet vessels into longline vessels;
- Promoting subsurface gear settings;
- Training in safe handling and release on our developed guidebook

c) Programmes to promote implementation of measures to minimise bycatch of turtles. Please tick the boxes that apply in your country and provide details in the text boxes below

- Onboard observer programmes
- Vessel monitoring systems
- Inspections (i.e. at sea, in port, at landing sites)
- Training programmes / workshops to train fishers on the use of bycatch reduction methods
- Informative videos, brochures, printed guidelines etc.
- Other (list and explain)

Onboard observer programmes

The measure is mandatory under the following regulation:

>>> N/A

The measure is voluntary:

>>> Yes

Details/future plans:

>>> The crew-based observer program for coastal and offshore monitoring and reporting at least 5% of the vessels is part of the plan, which is focused to secure funding for such activities for long run.

Vessel monitoring systems

The measure is voluntary:

>>> Yes

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

The measure is mandatory under the following regulation:

>>> Yes

Details/future plans:

>>> To regularize the small landing sites through fisheries departments.

Training programmes / workshops to train fishers on the use of bycatch reduction methods

Details/future plans:

>>> To scale up this activity to cover and train the fishers for the data collection and reporting and safe handling and releases during fishing operations .

5) Purse seine (with or without FADs)

a) Fishing effort

UNKNOWN

6) longline

a) Fishing effort

UNKNOWN

7) Artisanal fishing gear

a) Fishing effort

UNKNOWN

8) Other types of fisheries

a) Fishing effort

UNKNOWN

1.2.3 Are the bycatch mitigation measures described above (in 1.2.1) periodically reviewed and evaluated for their efficacy?

UNSURE

1.2.4 Has your country provided technical assistance (formally or informally) to other Signatory States of the IOSEA MOU to promote the activities to mitigate incidental catch of marine turtles in fisheries?

NO

1.2.5 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?

Details:

>>> N/A

1.2.6 Describe illegal unreported and unregulated (IUU) fishing that is known to occur in the territorial waters of the exclusive economic zone of your country that may impact marine turtles. Does IUU fishing occur in your country?

UNKNOWN

b) Countries of origin of IUU fishing, if known?

Details:

>>> N/A

c) Is there enforcement in place to deter these practices? Please indicate area covered and challenges.

Details:

>>> Yes by Pakistan Navy and Pakistan Maritime Security Agency.

1.3 ADDRESSING HARVEST OF, AND TRADE IN, MARINE TURTLES

Provide sources of information supporting the above responses, include reports (governmental, departamental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

1.3.1 Are marine turtles and/or their eggs harvest in your country? Please indicate which species are harvested.

UNKNOWN (no studies exist)

1.3.2 Which types of consumptive use of turtles are practiced in your country?

Use the text boxes below each rating to explain or clarify your responses.

a) Meat consumption

NO

b) Egg consumption

UNKNOWN

c) Fat and oil consumption

UNKNOWN

d) Traditional medicine

UNKNOWN

e) Shell

UNKNOWN

f) Making of tortoise shell products (bekko)

UNKNOWN

h) Which type(s) of consumptive use of marine turtles are the most common in your country?

Please list the most common types of consumption:

>>> N/A

1.3.3 Does your country have active legislation to prohibit direct harvest and domestic trade in marine turtles, their eggs, parts and products?

YES

If yes, please provide details (title/date) of the relevant legislation, as well as any exemptions (e.g. for traditional use) under that legislation and comment on effectiveness of the legislation in terms of enforcement.

If more rows are required, please contact the secretariat at iosea@un.org

	What are the challenges?	Is the legislation enforced?	Is traditional use allowed under this legislation?	Legislation date	Legislation title
	Financial constraints and capacity issues.	Yes	No	2014	The Balochistan Wildlife (Protection, Preservation, Conservation and Management) Act, 2014.
	Financial constraints and capacity issues.	Yes	No	2020	The Sindh Wildlife Protection, Preservation, Conservation and Management Act, 2020
	Financial constraints and capacity issues.	Yes	No	2015	The Khyber Pakhtunkhwa Wildlife and Biodiversity (Protection, Preservation, Conservation and Management) Act, 2015.
	Financial constraints and capacity issues.	Yes	No	2007	The Punjab Wildlife (Protection, Preservation, Conservation and Management) Act, 2007
	Financial constraints and capacity issues.	Yes	No	2014	The Azad Jammu and Kashmir Wildlife (Protection, Preservation, Conservation and Management) Act, 2014.

1.3.4 Please describe the LEGAL traditional harvest of marine turtles, their parts and products in your country by answering the questions below.

NOTE: If there is no legal harvest of marine turtles in your country, please skip question 1.3.4 and 1.3.5.

a) Please provide the regulation, which allows traditional harvest of marine turtles in your country.

Details:

>>> N/A

Details:

>>> N/A

c) Does your country have a harvest quote for traditional use of marine turtles?

NO

Details:

>>> N/A

e) Please list the specific locations where harvest is allowed.

Note: please provide a reference to any reports or documents, which give the background for the management of turtle harvest in your country.

Details:

>>> N/A

f) Where does traditional harvest occur, and which species are affected?

Details:

>>> N/A

g) How is the compliance with the existing regulations on traditional harvest monitored?

Details:

>>> N/A

1.3.5 List any management agreements between your country and other States in the IOSEA region to ensure that legal harvest of marine turtles has no negative effects on the population size. Please provide references and links to published documents.

Details:

>>> N/A

1.3.6 Please describe the ILLEGAL harvest of marine turtles and eggs in your country by answering the questions below.

a) Does illegal harvest of marine turtles occur in your country?

UNKNOWN

c) What is the impact of this illegal harvest on the populations of marine turtles? In case of illegal egg collection, what is the impact on marine turtle recruitment?

Details:

>>> Unknown as no data is available.

1.3.7 Which of the following adverse economic incentives are encouraging illegal take of marine turtles in your country?

Not Applicable

Please use the text box below to explain your response(s) including 'Not Applicable'.

Details:

>>> Illegal trade in species is reported but its volume is low as per available information.

1.3.8 Has your country taken any measures to try to correct these adverse incentives?

NOT APPLICABLE (no adverse economic incentives exist)

1.3.9 Are there touristic activities linked in marine turtles in your country?

YES

If yes, please indicate which type:

	N o	Ye s
Other (please describe)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Swimming/ snorkeling activities	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Hatching releases	<input type="checkbox"/>	<input type="checkbox"/>
a) Nesting turtle observation	<input type="checkbox"/>	<input type="checkbox"/>

Details:

>>> Turtle watching activities are arranged to raise awareness about the species.

1.3.10 Are there any standard and government-certified protocols to ensure that touristic activities do not harm turtles and/or hatchlings?

NO

Please briefly describe the type of protocols used, references or links, if available.

Details:

>>> As such no protocols are available however, activities are organized by wildlife department and NGOs and carried out in supervision of field staff.

1.3.11 Does your country have mechanisms in place to identify domestic and international illegal trade routes (for illegally traded marine turtles, eggs and derivatives)?

Please provide references to any published reports (e.g. already prepared for CITES purposes) that give a more ample explanation.

NOT APPLICABLE

1.3.13 Has you country submitted the annual illegal trade report to CITES, including information relevant for marine turtles?

Please provide a copy of this report or a link to the published report online, if possible.

YES

Details:

>>> <https://cites.org/eng/parties/country-profiles/pk/reports>

References and links:

>>> <https://cites.org/eng/parties/country-profiles/pk/reports>

1.3.14 Are there any compliance and/or trade issues (either domestic or international) that your country would like to raise at the upcoming IOSEA MOS or otherwise through the IOSEA Secretariat?

NO

1.4. MINIMIZING MORTALITY THROUGH NESTING BEACH PROGRAMMES

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include

appropriate links to these information sources and/or attach documents to this report.

1.4.1 Tick the boxes that apply to indicate whether your country has any of the following measures in place to minimise the mortality of eggs, hatchlings and/or nesting females.

Please indicate if these measures are being implemented at the IOSEA Network sites and index beaches that you described in question 0.2.

Measures

a) Nesting beach monitoring (eggs and nesting females)

YES

Details:

>>> At important nesting sites.

b) Nesting beach protection (patrolling)

YES

Details:

>>> At important nesting sites.

c) Predator control

YES

Details:

>>> At important nesting sites.

d) Nest screening (placing wire screens over the buried nests)

YES

Details:

>>> At important nesting sites.

e) Vehicle access restrictions

YES

Details:

>>> At important nesting sites.

f) Regular removal of debris / clean-up programmes

YES

List recent clean-up programmes/references and links:

>>> Such activities are carried out at important nesting sites from time to time.

g) Has re-vegetation of dunes at nesting beaches been carried out, using native vegetation?

NO

h) Building location design regulations (coastal protection)

YES

Details:

>>> Such activities are regulated at important nesting sites.

i) Light pollution reduction (direct lights visible from the beach)

YES

Details:

>>> Control measures are in place at important nesting sites.

k) Are these measures in place in protected areas only, or also outside of established protected areas?

In protected areas only (list the measures above e.g. a, b, c, etc.):

>>> At all important nesting sites.

1.4.2 To what extent is egg relocation practiced in your country (including relocation to hatcheries)?

Egg relocation is practiced on 5-49% of nesting beaches

1.4.3 Has your country undertaken an evaluation of the effectiveness of its nesting beach management programmes in terms of maximizing the recruitment of marine turtle hatchlings?

NO

OBJECTIVE II: PROTECT, CONSERVE AND RESTORE MARINE TURTLE HABITATS

2.1 MEASURES TO PROTECT AND CONSERVE MARINE TURTLE HABITATS

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

2.1.1 Please list Protected Areas (PAs), sanctuaries or temporary exclusion zones that were created to protect marine turtle habitat. Please provide the official name and date of establishment.

Details:

- >>> 1. Hingol National Park, Balochistan, 2010
- 2. Khurkhera Wildlife Sanctuary, Balochistan, 2013
- 3. Buzi Makola Wildlife Sanctuary, Balochistan, 2013
- 4. Astola Island Marine Protected Area, Balochistan, 2017
- 5. Kalamat Khor Mangroves Protected Forest, Balochistan, 2022
- 6. Shabi & Ankra Creeks Mangroves Protected Forest, Balochistan, 2022
- 7. Jiwani Mangroves Protected Forest, Balochistan, 2022
- 8. Sawar Khor Mangroves Protected Forest, Balochistan, 2022
- 9. Shahidi Khor Mangroves Protected Forest, Balochistan, 2022
- 10. Sonmiani Khor (Miani Horr) Mangroves Protected Forest, Balochistan, 2022
- 11. Marho Kotri Wildlife Sanctuary, Sindh, 1977
- 12. Runn of Kutch Wildlife Sanctuary, Sindh, 1980
- 12. Keti Bunder North Wildlife Sanctuary, Sindh, 1977
- 13. Keti Bunder South Wildlife Sanctuary, Sindh, 1977

2.1.2 Has your country developed any incentives to encourage protection of marine turtle habitat outside of protected areas?

Details:

>>> No

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.

YES

Details:

>>> Water quality is monitored by Provincial Environmental Protection Agencies and academia on case to case basis however; there is no arrangement for regular monitoring and remedial measures.

2.1.4 Are measures in place to prohibit the use of poisonous chemicals and explosives in the marine environment?

YES

Use the text box to elaborate on your response.

Details:

>>> Provincial Environmental Protection Agencies enforce their Environmental Protection Acts in their jurisdiction to control such activities.

2.2 RESTORATION OF DEGRADED MARINE TURTLE HABITATS

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

2.2.1 What efforts are being made to recover degraded coral reef habitat? Give details (location, how long efforts have been carried out, effectiveness, lessons learned, future plans, etc).

YES see below

Details/future plans:

>>> Corals are found in patches in some restricted locations mainly around Churna and Astola Islands. However, no true coral reefs have been found in Pakistan. Astola Island has been designated as country's first marine protected area to provide protection to marine ecosystem including corals.

2.2.2 Are efforts being made to recover degraded mangrove habitats that are important for turtles?

YES see below

If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.)

Details/future plans:

>>> Pakistan has achieved remarkable success in restoration of mangrove ecosystems. Mangrove cover has increased at an annual growth rate of 3.74%, making Pakistan the only country in the region with an expanding mangrove cover. National mangrove cover has increased from 47722 ha in 1990 to 146359 ha in 2020, as per satellite-based assessment.

2.2.3 What efforts are being made to recover degraded seagrass habitats? Give details (location, duration, effectiveness, lessons learned, future plans etc.).

NO efforts to recover degraded seagrass habitats

b) Satellite tracking

No

Details (e.g. species, genetic stock):

>>> 15 female green turtles were tagged with Telonics A1010 transmitters during 2009- 2012.

References and links:

>>> <https://www.iotn.org/iotn17-07-pakistan-wetlands-programmes-marine-turtle-conservation-efforts-on-daran-beach-jiwani-pakistan/>

c) Genetic studies

NO

Details (e.g. species, genetic stock):

>>> N/A

d) Other (list and provide details)

Details (e.g. species, genetic stock):

>>> N/A

e) None of the above

Explain briefly:

>>> The genetic studies for the green turtles from nesting sites and in water has not been carried out. Yet we do encourage this study and looking for the funding opportunities.

3.1.4 Have the studies mentioned in 3.1.3 helped to identify foraging and migration areas of marine turtles in your country?

NO

Details, examples:

>>> N/A

3.1.5 Is the use of traditional ecological knowledge in research being promoted?

UNSURE

Explanation/examples:

>>> The traditional ecological knowledge is promoted specially for the conservation of the green turtles at nesting sites of Hawks Bay. Based on this knowledge the conservation is being supported by the community led conservation during the nesting sites. And, the traditional knowledge / experiences (about species) are incorporated in the safe handling and release of the sea turtles and used in-house capacity building workshops at fisher communities level, the national level and regional level (CMS and IOTC) Yet the full extent of the traditional knowledge in research need to be explore.

References and links:

>>> https://www.bmis-bycatch.org/system/files/zotero_attachments/library_1/9WDALSML%20-%20IOTC-2020-WPEB16-26_Rev1.pdf
https://www.researchgate.net/publication/377085343_Title_Safe_Handling_release_for_Gillnet_Fisheries_for_W_hale_Shark_Manta_Devil_Rays_and_Sea_Turtles

3.1.6 Give a list of relevant literature that includes information from studies carried out in your country on marine turtle populations and their habitats, sorting them by topic.

a) Bycatch mitigation measures

Details (e.g. numbers and species of released turtles, type of fishery and gear used, method for monitoring survival, result):

>>> - More than 280,000 green and olive turtles were released in tuna gillnet fisheries by a crew-based observer program from 2012 to 2019. The post-release survival and recapture rates were not monitored.
- 8 green entangled in LED trials in coastal gillnet fisheries by the coastal crew-based observer program from 2018 to 2019;
- <https://sharks.panda.org/stories-from-the-field/fostering-sustainable-fishing-in-pakistan>;

References and links:

>>> <https://sharks.panda.org/stories-from-the-field/seeing-the-light-in-reducing-wildlife-bycatch>
<http://www.iotc.org/meetings/12th-working-party-ecosystems-and-bycatch-wpeb12>
<https://www.thethirdpole.net/en/food/bycatch-almost-eradicated-pakistan-fishers-embrace-longline-fishing/>
Qureshi, M. T. Sea Turtles of Pakistan.
<https://www.seaturtlesofindia.org/wp-content/uploads/2019/07/ch17.pdf>
Salm, R. V. (1976). Marine turtle management in Seychelles and Pakistan. *Environmental Conservation*, 3(4), 267-268.
<https://www.cambridge.org/core/journals/environmental-conservation/article/abs/marine-turtle-management-in-seychelles-and-pakistan/311E688E4363B0B0DC765B77D23DE30B>
Groombridge, B., Kabraji, A. M., & Rao, A. L. (1988). Marine turtles in Baluchistan (Pakistan). *Marine Turtle Newsletter*, 42, 1-3.
<http://www.seaturtle.org/mtn/archives/mtn42/mtn42p1>
Groombridge, B. (1989). Aerial survey of the Baluchistan coast (Pakistan). *Marine Turtle Newsletter*, 46, 6-9
<http://www.seaturtle.org/mtn/archives/mtn46/mtn46p6>
Firdous, F. (1991). A turtle's journey from Pakistan (Karachi) to India (Gujarat). *Marine Turtle Newsl*, 53, 18-19.
<http://www.seaturtle.org/mtn/archives/mtn53/mtn53p18.shtml>
Asrar, F. F. (1999). Decline of marine turtle nesting populations in Pakistan. *Marine Turtle Newsletter*, 83, 13-14
<http://www.seaturtle.org/mtn/archives/mtn83/mtn83p13.shtml?nocount>
Firdous, F. (2006). Status of leatherback turtles in Pakistan. Indian Ocean-South-East Asian Leatherback Turtle Assessment IOSEA Marine Turtle MOU-2006.
<https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=2f63b272448e69d080909d51a30b905ea5fae10f>
Firdous, F. STATUS OF MARINE TURTLES ON KARACHI COAST.
<https://ijbbku.com/assets/custom/journals/2007/SI/STATUS%20OF%20MARINE%20TURTLES%20ON%20KARACHI%20COAST.pdf>
Firdous, F., Barkati, S., & Rahman, S. (2009). Hatching and rearing of two species of marine turtles from Karachi, Pakistan. *Records of Zoological Survey of Pakistan*, 19, 1-7.
https://www.researchgate.net/profile/Solaha-Rahman/publication/233186068_Hatching_and_Rearing_of_Two_Species_of_Marine_Turtles_from_Karachi_Pakistan/links/5cdfca3892851c4eabaa5e68/Hatching-and-Rearing-of-Two-Species-of-Marine-Turtles-from-Karachi-Pakistan.pdf
Khan, M. Z., Ghalib, S. A., & Hussain, B. (2010). Status and new nesting sites of sea turtles in Pakistan. *Chelonian Conservation and Biology*, 9(1), 119-123.
<https://meridian.allenpress.com/ccb/article-abstract/9/1/119/26897/Status-and-New-Nesting-Sites-of-Sea-Turtles-in>
Firdous, F., Barkati, S., & Rahman, S. (2010). STUDIES ON NESTING AND TAGGING OF TWO SPECIES OF MARINE TURTLES OF KARACHI COAST. *Pakistan Journal of Oceanography*, 6(1), 1-14.
https://www.researchgate.net/profile/Solaha-Rahman/publication/233186068_Studies_on_nesting_and_tagging_of_two_species_of_marine_turtles_of_Karachi_coast/links/02e7e51a462aa104a3000000/Studies-on-nesting-and-tagging-of-two-species-of-marine-turtles-of-Karachi-coast.pdf
Groombridge, B. (2010). Using Google earth to confirm marine turtle nesting: the Makran Coast (Pakistan) & The Hadramout (Yemen). *Mar Turt Newsl*, 129, 17-19.
<http://www.seaturtle.org/mtn/archives/mtn129/mtn129p17.shtml?nocount>
Khan, A. (2010). Records of loggerhead turtles on the Makran Coast, Pakistan. *Indian ocean turtle NewsLeTTER*, 12, 13.
<https://www.iotn.org/wp-content/uploads/2015/09/IOTN12.pdf#page=15>
Waqas, U., Hasnain, S. A., Ahmad, E., Abbasi, M., & Pandrani, A. (2011). Conservation of green turtle (*Chelonia mydas*) at Daran beach, Jiwani, Balochistan. *Pakistan Journal of Zoology*, 43(1).
[https://www.zsp.com.pk/85-90%20\(14\)%20PJZ-167-09.pdf](https://www.zsp.com.pk/85-90%20(14)%20PJZ-167-09.pdf)
Firdous, F., Barkati, S., & Rahman, S. (2011). Studies on Transplantation of Marine Turtle Nests at Karachi Coast (Sindh), Pakistan: Transplantation of Marine Turtle Nests. *Biological Sciences-PJSIR*, 54(1), 29-33.
KHAN, A. (2013). Pakistan wetlands programme's marine Turtle conservation efforts on Daran Beach, Jiwani, Pakistan. *Indian Ocean Turtle Newsletter*, 17, 26-30.
<https://www.iotn.org/wp-content/uploads/2015/10/17-7-PAKISTAN-WETLANDS-PROGRAMME%E2%80%99S-MARINE-TURTLE-CONSERVATION-EFFORTS-ON-DARAN-BEACH-JIWANI-PAKISTAN.pdf>
Iffat, F. Disorientation of hatchlings of marine turtle: An overview. *International Journal of Biology and Biotechnology (Pakistan)*.

<https://ijbbku.com/assets/custom/journals/2014/4/Disorientation%20of%20hatchling%20of%20marine%20turtle%20An%20overview.pdf>

Nawaz, R., & Moazzam, M. (2014). An assessment of cetacean mortality in the tuna fisheries of Pakistan (IOTC-2014-WPEB10-INF25 Final Report).

Khanum, F., Kazmi, S. J. H., & Shaikh, S. (2014). A spatio-temporal assessment of green turtle habitat at Hawkes Bay, Karachi through geo-informatics techniques. *Journal of Basic & Applied Sciences*, 10, 377
[https://d1wqtxts1xzle7.cloudfront.net/34715585/JBASV10A49-Khanum-libre.pdf?1410581696=&response-content-](https://d1wqtxts1xzle7.cloudfront.net/34715585/JBASV10A49-Khanum-libre.pdf?1410581696=&response-content-disposition=inline%3B+filename%3DA_Spatio_Temporal_Assessment_of_Green_Tu.pdf&Expires=1702053153&Signature=g-HUFk0J42YYccp8iThK5Pi0Fb4p9orvo35W52mDcTi2ERzVGJ1sQhgFvxiS60Gin0h8IRKFlsPCLrNTWxzK-b5tkOLp37D5qgXxVcL2DMu6Jc86kYf5WQG3Zz6P59J6iAqjp~hZK4RFaDLMxGaEaPpQoexFn9oAOy~EbZpYpr4cR~aOBCp5vI7vyUo3mymtvE85UCPgXhUpvBgXPSd~uR~GfU~N6z1ci77NxfstiXBNH83YBQmtVN96TG4Hyi~lp2caC63blsBtb9cDZOB5dvvkbsGqeVleOCFAPMtTV51JlOtTNRdJLae09r0FRE3X4qVM~S0fD2RXZ4giuZBaCA__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA)

[disposition=inline%3B+filename%3DA_Spatio_Temporal_Assessment_of_Green_Tu.pdf&Expires=1702053153&Signature=g-HUFk0J42YYccp8iThK5Pi0Fb4p9orvo35W52mDcTi2ERzVGJ1sQhgFvxiS60Gin0h8IRKFlsPCLrNTWxzK-b5tkOLp37D5qgXxVcL2DMu6Jc86kYf5WQG3Zz6P59J6iAqjp~hZK4RFaDLMxGaEaPpQoexFn9oAOy~EbZpYpr4cR~aOBCp5vI7vyUo3mymtvE85UCPgXhUpvBgXPSd~uR~GfU~N6z1ci77NxfstiXBNH83YBQmtVN96TG4Hyi~lp2caC63blsBtb9cDZOB5dvvkbsGqeVleOCFAPMtTV51JlOtTNRdJLae09r0FRE3X4qVM~S0fD2RXZ4giuZBaCA__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA](https://d1wqtxts1xzle7.cloudfront.net/34715585/JBASV10A49-Khanum-libre.pdf?1410581696=&response-content-disposition=inline%3B+filename%3DA_Spatio_Temporal_Assessment_of_Green_Tu.pdf&Expires=1702053153&Signature=g-HUFk0J42YYccp8iThK5Pi0Fb4p9orvo35W52mDcTi2ERzVGJ1sQhgFvxiS60Gin0h8IRKFlsPCLrNTWxzK-b5tkOLp37D5qgXxVcL2DMu6Jc86kYf5WQG3Zz6P59J6iAqjp~hZK4RFaDLMxGaEaPpQoexFn9oAOy~EbZpYpr4cR~aOBCp5vI7vyUo3mymtvE85UCPgXhUpvBgXPSd~uR~GfU~N6z1ci77NxfstiXBNH83YBQmtVN96TG4Hyi~lp2caC63blsBtb9cDZOB5dvvkbsGqeVleOCFAPMtTV51JlOtTNRdJLae09r0FRE3X4qVM~S0fD2RXZ4giuZBaCA__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA)

Shahid, U., Moazzam, M., Ayub, K., Razzaque, S. A., & Nawaz, R. (2015). Sea turtle bycatch in the tuna driftnet fishery; seasonal variations and catch rates. *ISTS, Dalaman, Turkey*.

Moazzam, M., & Nawaz, R. (2015). Turtle mortality in fishing operations in Pakistan. In *Proceedings of the Regional Symposium on Sea Turtle Conservation in Asia* (pp. Paper 4). Karachi, Pakistan: WWF-Pakistan.

Shahid, U., Razzaque, S. A., Nawaz, R., & Moazzam, M. (2016). Bycatch analysis of tuna gillnet fisheries of Pakistan: An analysis of bycatch data from 2013-2015. *IOTC - WPEB16, Seychelles*.

Moazzam, M., and Nawaz, R. (2017). Occurrence and distribution of leatherback turtle (*Dermochelys coriacea*) in the coastal and offshore waters of Pakistan. *Rec. Zool. Surv. Pakistan*, 23, 4-8.

Moazzam, M., and Nawaz, R. (2017). By-catch of tuna gillnet fisheries of Pakistan: A serious threat to non-target, endangered and threatened species. *Journal of Marine Biology Association of India*, 56, 85-90.

Phillott, A. D., Firdous, F. E. H. M. I. D. A., & Shahid, U. M. A. I. R. (2018). Sea turtle hatchery practices and hatchling production in Karachi, Pakistan, from 1979-1997. *Indian Ocean Turtle Newsletter*, 27(7)

<https://www.iotn.org/wp-content/uploads/2018/12/27-02-SEA-TURTLE-HATCHERY-PRACTICES-AND-HATCHLING-PRODUCTION-IN-KARACHI-PAKISTAN-FROM-1979-1997.pdf>

Moazzam, M., & Nawaz, R. (2019). Distribution and abundance of loggerhead turtles (*Caretta caretta* L.) from Pakistan. *International Journal of Biology and Biotechnology*, 16(2), 495-504.

[https://www.ijbbku.com/assets/custom/journals/2019/2/Distribution%20and%20abundance%20of%20loggerhead%20Turtles%20\(Caretta%20caretta%20L.\)%20from%20Pakistan.pdf](https://www.ijbbku.com/assets/custom/journals/2019/2/Distribution%20and%20abundance%20of%20loggerhead%20Turtles%20(Caretta%20caretta%20L.)%20from%20Pakistan.pdf)

Moazzam, M., & Nawaz, R. DISTRIBUTION AND ABUNDANCE OF HAWKSBILL TURTLES (*ERETOCHELYS IMBRICATA RÜPPELL, 1835*) FROM PAKISTAN.

[https://www.researchgate.net/profile/Muhammad-Khan-](https://www.researchgate.net/profile/Muhammad-Khan-1106/publication/337185338_DISTRIBUTION_AND_ABUNDANCE_OF_HAWKSBILL_TURTLES_ERETOCHELYS_IMBRICATA_RUPPELL_1835_FROM_PAKISTAN/links/5dca592e92851c818046eb30/DISTRIBUTION-AND-ABUNDANCE-OF-HAWKSBILL-TURTLES-ERETOCHELYS-IMBRICATA-RUEPPELL-1835-FROM-PAKISTAN.pdf)

[1106/publication/337185338_DISTRIBUTION_AND_ABUNDANCE_OF_HAWKSBILL_TURTLES_ERETOCHELYS_IMBRICATA_RUPPELL_1835_FROM_PAKISTAN/links/5dca592e92851c818046eb30/DISTRIBUTION-AND-ABUNDANCE-OF-HAWKSBILL-TURTLES-ERETOCHELYS-IMBRICATA-RUEPPELL-1835-FROM-PAKISTAN.pdf](https://www.researchgate.net/profile/Muhammad-Khan-1106/publication/337185338_DISTRIBUTION_AND_ABUNDANCE_OF_HAWKSBILL_TURTLES_ERETOCHELYS_IMBRICATA_RUPPELL_1835_FROM_PAKISTAN/links/5dca592e92851c818046eb30/DISTRIBUTION-AND-ABUNDANCE-OF-HAWKSBILL-TURTLES-ERETOCHELYS-IMBRICATA-RUEPPELL-1835-FROM-PAKISTAN.pdf)

Manzoor, U., Khan, M. Z., & Iqbal, M. A. (2019). Distribution, status and conservation of reptilian fauna in the coastal areas of Karachi with special reference to marine turtles. *JAPS: Journal of Animal & Plant Sciences*, 29(6).

[https://www.researchgate.net/profile/Muhammad-Iqbal-](https://www.researchgate.net/profile/Muhammad-Iqbal-594/publication/337146758_DISTRIBUTION_STATUS_AND_CONSERVATION_OF_REPTILIAN_FAUNA_IN_THE_COASTAL_AREAS_OF_KARACHI_WITH_SPECIAL_REFERENCE_TO_MARINE_TURTLES/links/5dc722ca92851c81803e5d5a/DISTRIBUTION-STATUS-AND-CONSERVATION-OF-REPTILIAN-FAUNA-IN-THE-COASTAL-AREAS-OF-KARACHI-WITH-SPECIAL-REFERENCE-TO-MARINE-TURTLES.pdf)

[594/publication/337146758_DISTRIBUTION_STATUS_AND_CONSERVATION_OF_REPTILIAN_FAUNA_IN_THE_COASTAL_AREAS_OF_KARACHI_WITH_SPECIAL_REFERENCE_TO_MARINE_TURTLES/links/5dc722ca92851c81803e5d5a/DISTRIBUTION-STATUS-AND-CONSERVATION-OF-REPTILIAN-FAUNA-IN-THE-COASTAL-AREAS-OF-KARACHI-WITH-SPECIAL-REFERENCE-TO-MARINE-TURTLES.pdf](https://www.researchgate.net/profile/Muhammad-Iqbal-594/publication/337146758_DISTRIBUTION_STATUS_AND_CONSERVATION_OF_REPTILIAN_FAUNA_IN_THE_COASTAL_AREAS_OF_KARACHI_WITH_SPECIAL_REFERENCE_TO_MARINE_TURTLES/links/5dc722ca92851c81803e5d5a/DISTRIBUTION-STATUS-AND-CONSERVATION-OF-REPTILIAN-FAUNA-IN-THE-COASTAL-AREAS-OF-KARACHI-WITH-SPECIAL-REFERENCE-TO-MARINE-TURTLES.pdf)

Razzaque, S. A., Shaikh, A., Shaikh, N., Shahid, U., Rasheed, T., Cornish, A., & Khan, F. (2021, December 3). Improving data collection mechanism and identification of marine wildlife CITES-listed bycatch species through e-log and artificial technologies in Pakistan. *IOTC-2021-WPDCS17-INF13* . [Web link]

Razzaque, S. A. (2021, August 24). Guidelines on the safe handling and release of ETP species in gillnet fisheries. *IOTC-2021-WPEB17(AS)-23* . [Web link]

WWF Pakistan. (2020, August 25). Safe handling and release guide for gillnet fisheries: Whale sharks, manta & devil rays, sea turtles. *IOTC-2020-WPEB16-26_Rev1* . [Web link]

Sikandar, A., Noreen, M., & Nasir, I. (2022). The status and nesting sites of the marine turtles of Pakistan at Karachi and Makran coast: a literature review. *International Journal of Biology and Biotechnology*, 19(2), 259-264.

<https://www.ijbbku.com/assets/custom/journals/2022/2/THE%20STATUS%20AND%20NESTING%20SITES%20OF%20THE%20MARINE%20TURTLES%20OF%20PAKISTAN%20AT%20KARACHI%20AND%20MAKRAN%20COAST%20A%20LITERATURE%20REVIEW.pdf>

Ullah, A., Ahmed, S., Umrani, A. M., Ahmed, M., Nasim, S. Y., Ahmed, N., ... & Huma, Z. (2022). Green turtle (*Chelonia mydas*) nesting area and hatchlings released at Daran Beach, Jiwani District, Gwadar, Balochistan with some recommendations for its conservation. *International Journal of Aquatic Biology*, 10(6), 474-477.
<https://ij-aquaticbiology.com/index.php/ijab/article/view/1761/711>

Abid, S., Ahmed, S., & Razzaque, S. A. (2023, August 9). The hidden dangers of synthetic fishing nets threaten the health of marine turtles in Pakistan and beyond. *CMS Int. IOSEA-Turtles*. [Web link]

Abid, S., & Razzaque, S. A. (2023, August 9). Guardian of the Green Turtles: The Unwavering Devotion of Abdullah Mirbahir for Marine Conservation in Pakistan. CMS Int. IOSEA-Turtles. [Web link]

b) Effect of bycatch mitigation measures on non-target species

Details (e.g. type of fishery and gear used, mitigation method assessed, result):

>>> <https://sharks.panda.org/stories-from-the-field/seeing-the-light-in-reducing-wildlife-bycatch>
<https://www.thethirdpole.net/en/food/bycatch-almost-eradicated-pakistan-fishers-embrace-longline-fishing/>
<https://www.bmis-bycatch.org/mitigation-techniques/sub-surface-gillnets>

c) Frequency and pathology of disease in marine turtles

Details (disease, incidence, species and genetic stock):

>>> N/A

d) Genetic studies

Details (species and genetic stock):

>>> N/A

e) Socio-economic studies within communities that interact with marine turtles and their habitats

Details (aim of study, methods, results):

>>> N/A

f) Evaluation of the efficacy of conservation activities for marine turtles and their habitats

Details (types of activities assessed, participation of local communities in the evaluation, methods, results):

>>> N/A

g) Other

Details (aim of study, results):

>>> - Seasonal based turtle watch activity is carried out in each nesting season of green turtles on Hawks bay beach by WWF-Pakistan from 2001 onwards with the developed protocols and in control environment. This activity is being replicated by the Sindh Wildlife department from last two years. This activity involves local communities for conducting this activity for the visitor for awareness raising through in-house conservation workshop on green turtles, adult green turtle observer and safe release of the hatchlings and in beach cleaning activities on the beach.

- launching of a project ceremony on the 15th of December, 2022. The ceremony was attended by 120 participants including relevant Government Departments, NGOs, think tanks, academia, corporate sector, individual experts, and media personnel. The event was started by the launching of the Coastal Cleanup Project followed by a Beach Cleanup Activity at Sea View, Karachi. Around 2.2 tons of litter are removed from the beach.

- Research paper on (Assessment of Plastic Pollution in Coastal Areas of Karachi) has been published in the journal "Marine Pollution Bulletin" (Impact Factor: 5.8)

- A formal Inauguration Ceremony of the litter boom trap and initiation of the 15-day Cleanup drive was held on the 14th of July. PepsiCo associates along with relevant stakeholders from key government organizations including Sindh Environmental Protection Agency, National Institute of Oceanography, Marine Fisheries Department, Sindh Fisheries, Karachi Fisheries Harbour Authority, and the Pakistan Fisherfolk Forum. The litter boom trap consists of 180m PVC/PET floats.

- 15-days cleanup drive was also initiated at the inauguration ceremony which successfully lifted 2500 tons of marine litter, majority contribution of plastics majorly LDPE and MLP. To ensure the long-term sustainability of the project and the regular execution of cleanup drives, the responsibility for the Litter Boom Trap has been transferred to the pertinent authority, namely "Karachi Fish Harbour".

References and links:

>>> <https://tribune.com.pk/story/1960984/volunteers-collect-garbage-bags-karachi-beach-cleaning>
Link: <https://www.sciencedirect.com/science/article/abs/pii/S0025326X23009359>

3.2 COLLABORATIVE RESEARCH AND MONITORING

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

3.2.1 Does your country participate in any regional or sub-regional action plans that identify regional priorities in terms of research and monitoring needs?

YES

Please specify:

If more rows are required, please contact the secretariat at iosea@un.org

	Links	Identified research and monitoring needs	Regional or sub-regional action plan
	CMS-MTTF regional 4th meeting report		NIO Marine Turtle Task Force

3.2.2 On which of the following themes have regional 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.

a) Reproductive biology (including any of the following: nesting data, hatchling survival, nest protection, recruitment, etc.)

NO

b) Genetic characterization

NO

c) Migratory and dispersal routes

NO

d) Other biological and ecological aspects

NO

3.3 DATA ANALYSIS AND APPLIED RESEARCH

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

3.3.1 Describe how research results are being applied to improve management practices and mitigation of threats.

Details:

>>> N/A

3.3.2 Is traditional knowledge on marine turtles and their habitats being used for conservation and management?

UNSURE

3.4 INFORMATION EXCHANGE

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

3.4.1 Has your country undertaken any initiatives (nationally or through collaboration with other IOSEA Signatory States) to standardise methods of data collection?

NO

3.4.2 Has your country taken part in producing IUCN regional status reports for red list

assessments?

YES

Details (year when more recent collaboration took place, project name, links):

>>> In 2023 - which is ongoing and the team of IUCN and other members will present abstract of the assessment at ISTS meeting.

3.4.3 How often does your country share information on marine turtle populations of regional interest with other IOSEA Signatories?

never

Details:

>>> Reports are submitted to the CMS secretariat as and when required.

3.4.4 Since 2019, has your country taken part in any workshops or other events with participation of other countries, scientific institutions, non-governmental or international organisations in order to develop and implement best practice approaches for marine turtle conservation?

YES

Details (name of the event, year, main objective of the event):

>>> - Virtual call meeting on Gillnet multitaxon bycatch mitigation. Ultimately reporting to the working party of IOTC.: The World Wide Fund for Nature (WWF) held a technical workshop on multi-taxa bycatch mitigation focusing on drift/gillnets in collaboration with the Indian Ocean Tuna Commission from 29 - 31 August 2022, virtually via Zoom platform. WWF-Pakistan shared the developed guidelines for the safe release of ETP species in gillnet fisheries, ensuring the protection of ETP species and the sustainability of marine ecosystems.

- Participated in CMS-MTTF meeting: Coordinating and reporting the marine turtle conservation work from WWF-Pakistan, with the national stakeholders of marine turtles, including ghost gear and plastic pollution drives, working with fisher communities on the reducing bycatch of the marine turtles from fisheries to CMS-Marine Turtle Task Force (MTTF) of the Indian Ocean-South-East Asian (IOSEA) Marine Turtle memorandum of understanding (MoU). Presented country updates in the meetings of the CMS-MTTF of IOSEA from 2021 to date. Presented in the meeting of CMS-MTTF as a marine expert on the safe handling and release of marine turtles as bycatch from tuna and coastal fisheries and the use of LED lights for reducing turtle bycatch from coastal gillnet fisheries in Pakistan.

- Supporting WWF-Mozambique for safely handling and releasing ETP species for gillnet fisheries and translation into African languages: By sharing their expertise and knowledge with WWF-Mozambique, WWF-Pakistan has helped promote best practices for safely handling and releasing ETP species in gillnet fisheries. The support provided for collaboration in translating the guidebook into African languages. Translating these guidelines into African languages is also crucial in promoting their accessibility, acceptability, and use by local fishing communities, who may not be fluent in English or other commonly used languages.

- Virtual meeting on introducing future-sea with Shellcatch team for bycatch projects- Low-cost tech on data collection on bycatch: Based on the experiment of the Shellcatch technology for two months, WWF-Pakistan has facilitated a virtual call for the collaboration between Future Sea and Shellcatch Inc. for bycatch projects and low-cost tech on data collection on bycatch and fisheries operations using innovative marine conservation technologies to enhance monitoring and provide valuable insights into the impact of fishing activities on marine biodiversity and help to develop effective conservation strategies for addressing ETP/ CITES-listed species bycatch and other environmental challenges.

- Results Sharing and Low-cost Data Collection Workshop- Low-cost tech on data collection on a small scale and bycatch species in South Africa: WWF-Pakistan has participated and shared its learnings and experiences in socializing with fisher communities for the data collection and the conservation of marine biodiversity in two workshops;

I. WWF workshop on low-cost data collection and MCS tools for improved management of small-scale fisheries in the South West Indian Ocean held in Garden Court Hotel Cape Town from 14-17th November 2022.

II. The 4th World Small-scale Fisheries Congress - Africa "Leading by examples: leaderships in sustainable small-scale fisheries." held in the Lagoon Beach Hotel, cape town, from 20- 23 November 2022.

- The interviews with the virtual university Pakistan on climate change and its impacts on our oceans and with FM91 on World Oceans Day- protecting priority species in Pakistan raising awareness on marine turtle population among other marine biodiversity.

- The project team appeared on a TV interview for the conservation of Wildlife species in a morning show.

- One interview aired with FM91 and SUNO TV to celebrate World Ocean Day and raise awareness about marine biodiversity conservation and pollution impacts while emphasizing the threats and their impacts on

cetaceans and marine turtles.

- Project team invited as Guest speaker to the conservation efforts of ETP species (including marine turtles) to celebrate World Biodiversity Day with NED University.

- Online info session on Underwater Conservation Robot DAO to Embark on Marine Life Monitoring and Conservation: The recent event on December 15, 2023, marked a significant milestone for Kambria, the open innovation platform dedicated to Deep Tech. The project team was invited for two sessions of the Guest Talks and Spark Sharing My Stories. His talk, "A decade journey to safeguard Pakistan's marine ecosystems and small-scale fisheries," added substantial value to the discourse, offering profound insights and experiences for participatory approaches while conserving endangered megafauna species including marine turtles, whale sharks, and marine cetaceans with the context of the ongoing project.

- Environmental awareness: More than 2500 Youth/children engaged through organizing world marine significant days (ocean day/world sea turtles day/ fisheries day), nature walks, tree plantation, beach cleaning, football match, classroom sessions, and awareness campaigns.

- Master Trainers: 20 Master Trainers who were trained under SFEP-Ph2 by organizing a 3-day training in which Master Trainers performed their training skills on sustainable fishing practices with local fishermen.

- Training Component: 3-day sessions; master trainers conducted 3-day training and trained more than 1300 young fishers on sustainable fishing practices and built their capacity to minimize post-harvest losses and safe handling and releases of ETP species, and reducing bycatch the negative impact of overfishing on marine ecosystems.

- A national consultative workshop was conducted for the officials from the Provincial Sindh Fisheries Department, the federal Marine Fisheries Department, the academia of marine sciences, and link-minded NGOs such as ORP representatives. The workshop aimed to introduce the mobile application to the national stakeholder, build capacity on the fisheries data collection and reporting, rapid interactive SOWT exercise on the fisheries data collection and reporting, and assist in data collection and report on fisheries and associated bycatch of the ETP/CITES-listed species from onboard and remote areas/ landing areas. The workshop participants were also taken on a cruise for real hands-on exercises for collecting data using mobile applications

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

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

4.1.1 Are education/awareness programmes in place at/near nesting beaches?

YES

Please indicate at which sites, described in question 0.2 these programmes are being implemented.

Details:

>>> 1. Information centers established by WWF Pakistan at important turtles habitats (Sandspit Karachi and Jiwani) are playing important role in raising awareness
2. Marine Turtle Laboratory of Sindh Wildlife Department at Hawke's Bay, Karachi carryout awareness raising activities; turtle watching tours and display of publicity material etc.

4.1.2 Describe the educational materials, including mass media information programmes that your country has collected, developed and/or disseminated.

Details/future plans:

>>> Awareness material attached.

You have attached the following documents to this answer.

[DOC-20231018-WA0000..pdf](#)

[Marine_turtles_ZSP.pdf](#)

4.1.3 Which of the following groups have been the targets of focused education or awareness programmes?

- Fishing industry
- Communities that interact with marine turtles and their habitats
- Local/Fishing communities
- Indigenous groups
- Tourists
- Media
- Teachers
- Students
- Scientists
- NGOs
- Enforcement personnel

4.14 Have any community learning centres or information centres been established in your country?

YES

Details/future plans:

>>> 1. Information centers established by WWF Pakistan at important turtles habitats (Sandspit Karachi and Jiwani) are playing important role in raising awareness
2. Marine Turtle Laboratory of Sindh Wildlife Department at Hawke's Bay, Karachi carryout awareness raising activities; turtle watching tours and display of publicity material etc.

4.2 STAKEHOLDER PARTICIPATION

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

4.2.1 Are there public participation programmes in place at nesting beaches to involve local stakeholders in activities to conserve marine turtles?

YES

If yes, which stakeholders are being involved?

- Fishing industry
- Communities that interact with marine turtles and their habitats
- Local/Fishing communities
- Indigenous groups
- Tourists
- Media
- Teachers
- Students
- Scientists
- NGOs
- Enforcement personnel

Please indicate at which sites, described in question 0.2 these programmes are being implemented.

Details/future plans:

- >>> 1. Information centers established by WWF Pakistan at important turtles habitats (Sandspit Karachi and Jiwani) are playing important role in raising awareness
- 2. Marine Turtle Laboratory of Sindh Wildlife Department at Hawke's Bay, Karachi carryout awareness raising activities; turtle watching tours and display of publicity material etc.

4.2.2. The role of local communities. Please answer the questions below, giving examples of activities that took place since 2019.

a) Is traditional knowledge used in the development of education and awareness programmes in your country?

- N/A

b) Do local communities participate in the development and implementation of conservation measures?

Details, examples:

- >>> Yes, local fisher communities are involved in conservation activities for marine turtles through projects.

4.2.3 Describe initiatives undertaken or planned since 2019 to involve and encourage the cooperation of Government institutions, NGOs and the private sector in marine turtle conservation programmes.

Details/future plans:

- >>> WWF-Pakistan in collaboration with corporate sector has implemented the project titled, 'Sustainable fisheries entrepreneurship: a citizen-based approach to saving Pakistan's unique marine environment' in three phases: Phase-I 2016-2019, Phase-II 2019 - 2021 and Phase-III 2022-24. The project is being funded by Engro Corporation Pakistan

References and links:

- >>> <https://www.engrofoundation.com/publication/engro-foundation-and-wwf-pakistan-enter-into-a-community-development-and-fishery-improvement-partnership-in-port-qasims-coastal-areas>

OBJECTIVE V: ENHANCE NATIONAL, REGIONAL, AND INTERNATIONAL COOPERATION

5.1 COOPERATION NEEDS

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

5.1.1 Please indicate, the extent to which the following local management issues require regional and/or international cooperation in order to achieve progress.

In other words, how important is **regional/international** cooperation for addressing the issues listed below?

a) Illegal fishing in territorial waters

IMPORTANT

b) Incidental capture by foreign fleets in territorial waters

IMPORTANT

c) Enforcement/patrolling of territorial waters

IMPORTANT

d) Illegal fishing in EEZ

IMPORTANT

e) Incidental capture by foreign fleets in EEZ

IMPORTANT

f) Enforcement/patrolling of EEZ

IMPORTANT

g) Harvest exploitation of turtles and eggs

IMPORTANT

h) Illegal trade in turtle parts and products

IMPORTANT

i) Development of gear technology to reduce bycatch of marine turtles

IMPORTANT

j) Marine pollution, including oil spills and marine debris

IMPORTANT

k) Training / capacity-building

IMPORTANT

l) Alternative livelihood development

IMPORTANT

m) Characterisation of turtle populations/genetic stocks

IMPORTANT

n) Identification of migration routes

IMPORTANT

o) Tagging / satellite tracking

IMPORTANT

p) Habitat studies

IMPORTANT

q) Genetic studies

IMPORTANT

5.2 COOPERATION AND INFORMATION EXCHANGE

5.2.1 Regional cooperation to enhance marine turtle conservation and management

a) Which regional/bilateral agreements for marine turtle conservation and management does your country participate in?

Details:

>>> N/A

b) Please list the organizations that your country cooperates with to enhance regional collaboration on marine turtle conservation in your subregion.

Details:

>>> N/A

5.2.2 Has your country encouraged Regional Fishery Management Organizations (RFMOs) in the Indian Ocean to adopt marine turtle conservation measures within Exclusive Economic Zones (EEZs) and on the high seas? Please describe the interventions made by your country in this regard in the last 5 years, referring to specific RFMOs.

Details/future plans:

>>> N/A

5.2.3 Please describe any additional efforts of your country to enhance sub-regional turtle conservation.

Details/future plans:

>>> Pakistan has participated in the NIO Marine Turtle Task Force activities during the reporting period.

5.3 CAPACITY-BUILDING

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

5.3.1 Describe your country's needs in terms of human resources, knowledge and facilities, in order to build capacity to strengthen marine turtle conservation measures in the IOSEA region.

Details:

>>> 1. Training and capacity building on: identification, monitoring, population estimation, reporting and wildlife enforcement,

2. Training and capacity for data collection and research on the impact of fisheries on marine turtles.

5.3.2 Describe any training your country provided in marine turtle conservation and management in the last 5 years (e.g., workshops held, training manuals produced etc.), and indicate your plans for the coming year.

Details/future plans:

>>> 1. Under the Sustainable Fisheries Entrepreneurship Project (SFEP) Phase-III 20 training sessions were organized which were attended by 432 young fishers. In total, 479 fishers have been trained, and there are 20 Master Trainers who are trained to deliver the training sessions. It has been a crucial step in promoting sustainable fishing practices, minimizing post-harvest losses and safe handling and releases of ETP species, and reducing the negative impact of overfishing on marine ecosystems.

2. One-day training workshop was organized for fishers on use of TED:

References and links:

>>> <https://tribune.com.pk/story/2441337/seafood-exports-linked-to-saving-turtles>

5.3.3 Specifically in relation to capacity-building for the conservation of marine turtles and

their habitats, describe any partnerships with universities, research institutions, training bodies and other relevant organisations, national, regional, and/or international.

Details/future plans:

>>> N/A

5.4 STRATEGY AND LEGISLATION

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

5.4.1 Development of a national action plan

a) Is there a national action plan for the conservation of marine turtles and their habitats in your country?

NO

b) If there is no action plan yet, has a set of key management measures been identified that could eventually serve as a basis for a more specific action plan at a national or local level?

YES

Details:

Title of the documents, year, link:

>>> The species are declared protected which prohibits their killing, capturing and trade. A system of protected areas has been established in the key habitats. Communities have been involved in conservation through awareness and capacity-building activities.

c) List the genetic stocks (marine turtle populations) identified as priorities in the national action plan or in other action plans for conservation of biodiversity in your country.

Details/future plans:

>>> Following habitat areas are important for conservation of marine turtles:

In Sindh Province; Hawke's Bay, Sandspit and Hub River Estuary, Cape Monze area.

In Balochistan Province; Omara Turtle Beaches, Jiwani Turtle Beaches (Dharan, Rodini and Taak), Hingol National Park Beaches, Astola Island's Turtle Beach and Coral Reef, Gwadar Turtle Beach, Ras Malan Beach, Coral Reef of Ganjabad.

5.4.2 Which are the main threats to marine turtles in your country per species and the most urgent management activities to address them?

Please list up to 5 corresponding activities from the IOSEA Conservation and Management Plan (CMP).

- >>> 1. Incidental entanglement in fishing gears
2. Habitat degradation
3. Disturbance on nesting beaches
4. Eggs and juvenile depredation by feral dogs and other predators

5.4.3 Has your country conducted a review of policies and laws to address any inconsistencies in relation to the conservation of marine turtles and their habitats?

NO

Details, future plans:

>>> NBSAP of Pakistan is being revised to be aligned with Kunming-Montreal Global Biodiversity Framework. It will include conservation of important species including marine turtles.

5.4.4 Which of the threats to marine turtles are not currently addressed by any policy or law in your country?

Details:

>>> Nil

5.4.5 Does your country have legislation that explicitly requires marine and coastal development projects and natural resource extraction projects to be accompanied by an Environmental Impact Assessment (EIA) in relation to marine turtles and their habitats?

YES

a) If yes, please provide references to legal texts, date of adoption and briefly describe such legislation.

Details:

>>> EIA is mandatory in all such projects under the Federal and Provincial Environmental Acts:

1. Pakistan Environmental Protection Act, 1997
2. Balochistan Environmental Protection Act, 2012
3. Sindh Environmental Protection Act, 1990

References and links:

>>> Pakistan Environmental Protection Act, 2012:

<https://na.gov.pk/uploads/documents/Pakistan=Environmental-Protection-Act-1997.pdf>

Balochistan Environmental Protection Act, 2012:

https://pabalochistan.gov.pk/pab/pab/tables/alldocuments/actdocx/2021-03-30_08:36:38_7dd9a.pdf

Sindh Environmental Protection Act, 1990:

https://www.sindhhighcourt.gov.pk/downloads/source_files/Sindh%20Environmental%20Protection%20Act,%202014-Final.pdf

b) Which measures are in place to ensure compliance with this regulation?

References and links:

>>> Field staff of the department ensure compliance.

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

6.1 IOSEA MARINE TURTLE MOU MEMBERSHIP AND ACTIVITIES

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

6.1.1 What has your country already done in the past 5 years to encourage other States to sign the IOSEA MOU?

Details/future plans:

>>> N/A

6.1.2 Is your country currently favourable, in principle, to amending the MOU to make it a legally binding instrument?

NO VIEW

6.2 RESOURCES TO SUPPORT IMPLEMENTATION OF THE MOU

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

6.2.1 What programmes has your country funded for domestic implementation of marine turtle conservation activities related to the IOSEA Marine Turtle MOU?

Please refer to the IOSEA CMP and IOSEA Work Programme.

Name of the funded programme, corresponding CMP activity or IOSEA Work Programme measure:

>>> 1. Ten Billion Tree Tsunami Programme (Upscaling Green Pakistan Programme) 2019-2023.

2. 'Sustainable fisheries entrepreneurship: a citizen-based approach to saving Pakistan's unique marine environment'

6.2.2 In the last 5 years, what funding sources have been available for your country to support marine turtle conservation?

YES

Details: (national, other governments, international organisations, donor organisations, industry, private sector, foundations)

>>> 1. An umbrella project titled Ten Billion Tree Tsunami Programme (Upscaling Green Pakistan Programme) was implemented during 2019-2023. It has two components; Forestry Component and Wildlife Component. The Wildlife component with total cost of PKR 15.59296 was focused on revival of wildlife resources through building capacity of the wildlife departments of the country. Balochistan component of the project includes activities for conservation of turtle nesting beaches.

2. The Sustainable Fisheries Entrepreneurship Project (SFEP) Phase-III has significantly promoted sustainable fishing practices in Pakistan. The project has contributed remarkably to raising awareness among fishermen about sustainable fishing practices and reducing accidental catches of megafauna, including marine turtles.

3. WWF-Pakistan in collaboration with corporate sector has implemented the project titled, 'Sustainable fisheries entrepreneurship: a citizen-based approach to saving Pakistan's unique marine environment' in three phases: Phase-I 2016-2019, Phase-II 2019 - 2021 and Phase-III 2022-24. The project is aimed to promote sustainable fishing practices in Pakistan. The project has contributed remarkably to raising awareness among fishermen about sustainable fishing practices and reducing accidental catches of megafauna, including marine turtles.

6.2.3 In accordance with CITES decisions on marine turtles, has your country attempted to raise funds for the activities listed below through CITES?

YES

a) If yes, please indicate the number of the activity (or activities) in the text box below. Was this effort successful?

1. Training and capacity building and training on the implementation and enforcement of national and international regulations that apply to marine turtles, and on identification, monitoring, reporting and wildlife enforcement capability;

2. raise awareness on conservation status and compliance with national legislation and cites in relation to marine turtles;

3. research into the socioeconomics of harvest of marine turtles, its effect on conservation and sustainability of

alternative livelihoods;

4. cooperative international/regional research to establish population estimates to evaluate the impact of illegal trade;

5. research into the impact of fisheries on marine turtles and its linkages to illegal trade.

>>> The projects referred in the Section 6.2.2 included activities which contributed directly and indirectly for the conservation of marine turtles including; capacity-building of field staff, aware raising activities and research.

b) Does your country require assistance in raising funds for any of these activities? Which ones? (provide numbers of the activities in the box)

>>> Yes assistance is require in the following areas:

1. Training and capacity building and training on the implementation and enforcement of national and international regulations that apply to marine turtles, and on identification, monitoring, reporting and wildlife enforcement capability;

4. cooperative international/regional research to establish population estimates to evaluate the impact of illegal trade;

5. research into the impact of fisheries on marine turtles and its linkages to illegal trade.

6.3 COORDINATION AMONG GOVERNMENT AGENCIES

Provide sources of information supporting the above responses, include reports (governmental, departmental, university, NGO, etc.) as well as published articles (scientific or online articles); also include appropriate links to these information sources and/or attach documents to this report.

6.3.1 List government agencies that play a role in the conservation and management of marine turtles and their habitats in your country. Please indicate their responsibilities in relation to protecting marine turtles and their habitats.

If more rows are required, please contact the secretarat at iosea@un.org

	Role in the conservation of marine turtles and their habitats	Name of the agency
	Policy formulation, coordination, implementation of MEAs and regulate international trade.	Ministry of Climate Change & Environmental Coordination, istry of Maritimes Affairs
	Conservation and management of species in field.	Provincial Wildlife Departments.
	Research and education	University of Karachi
	Support government organization in conservation of species through implementation of projects.	NGOs (WWF and IUCN)
	Regulation of fisheries in Pakistan.	Ministry of Maritimes Affairs, Government of Pakistan
	Research and surveys of species	Zoological Survey of Pakistan

OTHER REMARKS

Feel free to include additional information not covered above:

>>> Nil