



# National Marine Turtle Action Plan

Government of India
Ministry of Environment, Forest & Climate Change

(2021-2026)



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मंत्री पर्यावरण, वन एवं जलवायु परिवर्तन, सूचना एवं प्रसारण और भारी उद्योग एवं लोक उद्यम भारत सरकार





MINISTER
ENVIRONMENT, FOREST & CLIMATE CHANGE,
INFORMATION & BROADCASTING AND
HEAVY INDUSTRIES & PUBLIC ENTERPRISES
GOVERNMENT OF INDIA

प्रकाश जावडेकर Prakash Javadekar



#### **MESSAGE**

India is blessed with its rich and varied biodiversity. We have always taken pride in conserving this natural heritage. Our marine biodiversity is no exception to this. Marine Turtles have always captured our imagination and has been conserved since the ages. Marine Turtles are considered to be flagship species in various marine habitats such as coral reefs, sea grass meadows, sandy beaches, etc.

Besides being home to one of the largest congregations of nesting of the Olive Ridley Turtles, five species of marine turtles are found in India. These species found in Indian waters have been listed in the Schedule-I of the Wild Life (Protection) Act, 1972 and therefore, accorded very high protection status. Considering the importance of conservation of marine turtles, the Ministry had included marine turtles as one of the 22 species for taking up focussed conservation programme under the Centrally Sponsored Scheme- Development of Wildlife Habitats.

I am happy to note that the Ministry has now prepared a 'National Marine Turtle Action Plan' through an extensive consultative process with relevant stakeholders. This Action Plan focuses on reducing threats, conserving critical habitat, exchanging scientific data, increasing public awareness and most importantly emphasizes on a participatory approach in conservation of marine turtles and its habitats. The Action Plan will enable the stakeholders to perform their roles in a coordinated manner and take effective measures for the conservation of marine turtles.

I am confident that this 'National Marine Turtle Action Plan' will provide a fresh impetus to work towards conserving these magnificent species and their habitats and provide them with safe havens for their future and for a healthy planet.

With best wishes.

Date: 19.01.2021

(Prakash Javadekar)

## Rabul Supriyo

Union Minister of State

Ministry of Environment, Forest & Climate Change Government of India



पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार



#### MESSAGE

Marine turtles play a variety of ecological roleslike controlling prey populations, supporting coastal vegetation through their hatchlings etc.in maintaining healthy marine habitats. They are key indicators of healthy marine habitats.

Numerous direct and indirect pressures arising from various factors adversely impact marine turtle populations and their habitat. This includes man made factors such as pollution, habitat destruction, bycatch, etc. and also includes natural disasters such as tsunamis, cyclones, hurricanes and storms. With a view to conserve marine turtles, associated species and their habitats, the Ministry of Environment, Forest and Climate Change, Government of India has prepared this "National Marine Turtle Action Plan, 2021-2026" with a vision to create a viable and healthy marine ecosystem for marine turtles and associated species through a coordinated and participatory mechanism to ensure long term survival of marine turtles.

The National Marine Turtle Action Plan, 2021-2026 would be implemented at the National and State Government level with the following objectives:

- a. Reduce direct and indirect causes of marine turtle mortality;
- b. Protect, conserve and rehabilitate marine turtle habitats;
- c. Improve understanding of marine turtle ecology and populations through research, monitoring and information exchange;
- d. Increase public awareness of the threats to marine turtles and their habitats, and enhance public participation in conservation activities;)

e. Enhance national, regional and international cooperation.

I wish all the best for the successful implementation of the National Marine Turtle Action Plan, 2021-2026". Feder.

(Babul Supriyo)

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#### Background

India has a vast coastline of more than 7,500 km, of which, about 5,400 km belong to Peninsular India and about 2,000 km to the Andaman, Nicobar, and Lakshadweep Islands, and with an EEZ (Exclusive Economic Zone) of 2.02 million sq. km. Five species of sea turtles are found in Indian waters. The marine biodiversity including marine turtles in India is one among the richest in the Indian Ocean.

Marine turtles have a major influence on the structure and function of marine biodiversity and play an important role in shaping the behavior and life history traits of prey species and predators that is critical for the sustainability of fisheries in the region. Factors like climate change, unsustainable resource use, marine litter and pollution affect marine turtles and their habitats.

Constitution of India recognizes the need to protect wildlife that include marine life and their environment. The provision under Article 48 A mandates the state to protect, safeguard and improve the environment with the corresponding duty under Article 51 A (g) to the citizen to protect and improve the natural environment. This clearly supports the need to carry out all necessary steps to not only protect but also improve the marine environment.

Marine turtles play a variety of ecological roles for maintaining healthy marine habitats like controlling prey populations, supporting coastal vegetation through their hatchlings etc. Their presence is an indicator of healthy marine ecosystems and provide a source of revenue for local communities through tourism. Marine turtles thus present themselves as a key indicator of healthy marine habitats and an opportunity for conservation of associated species.



#### Goal

- **1. Conserve** Species, their habitat and reduce negative impacts on survival of marine turtles;
- **2. Improve** the understanding of marine turtles and their habitats, through a coordinated mechanism;
- **3. Promote** Awareness and Education on conservation of marine turtles and their habitats;
- **4. Enhance** livelihoods of coastal communities through promoting sustainable ecotourism;
- **5. Increase** national, regional and international cooperation on marine turtle conservation.

#### Vision

Create a viable and healthy marine ecosystem for marine turtles and associated species through a coordinated and participatory mechanism to ensure long term survival of marine turtles.

#### Mission

The Action Plan aims to conserve marine turtles and their habitats for maintaining a healthy marine ecosystem.













Clockwise: Hawksbill turtle, Olive ridley turtle, Green turtle, Loggerhead Sea Turtle (Wikimedia commons), Leatherback turtle (Dakshin foundation)

#### **Marine Turtle Action Plan**

The Indian coastal waters supports five species of sea turtles found worldwide. These are the Olive ridley (Lepidochelys olivacea), Green (Chelonia mydas), Hawksbill (Eretmochelys imbricata), Leatherback (Dermochelys coriacea) and Loggerhead (Caretta caretta). These five species of sea turtles that occur in Indian coastal waters are protected under Schedule I of the Wildlife (Protection) Act, 1972.

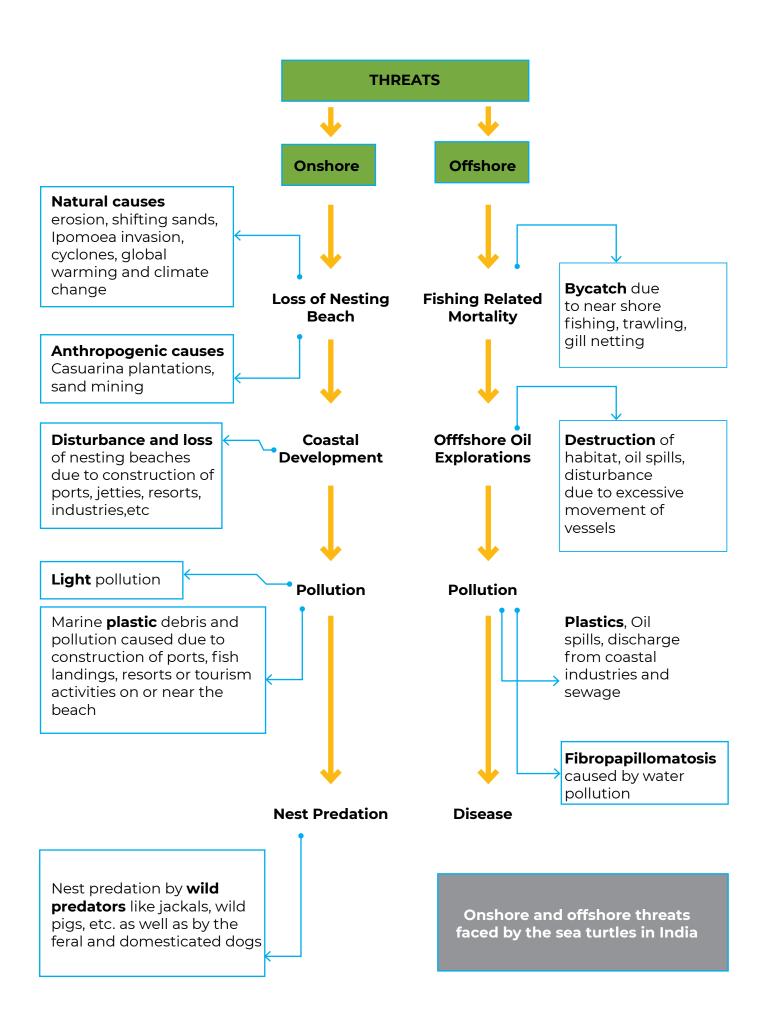
India is home to the largest known nesting population of olive ridley turtles. Except Loggerhead turtles, the remaining four species (Leatherback, Hawksbill, Green and Olive ridley turtles) nest along the Indian coastline and islands of India. About 40,000 to 11,00,000 turtles nest every year on the beaches of India. Number of turtles nesting varies between years and the success of sporadic nests have been observed to decline due to predations and habitat degradation.

Numerous direct and indirect pressures arising from various factors adversely impact marine turtle populations and their habitat. This also includes natural disasters such as tsunamis, cyclones, hurricanes and storms.

With a view to conserve marine turtles in India, various measures have been adopted by the Ministry of Environment, Forest and Climate Change, Government of India, the coastal State/UT Governments, civil society organizations, experts and local communities. India has identified all its important sea turtle nesting habitats as 'Important Coastal and Marine Biodiversity Areas' of India and included in the Coastal Regulation Zone (CRZ) -1.

With a view to conserve marine turtles, associated species and their habitats, the following action plan is proposed to be adopted at the National and State Government level.

**a.** To reduce direct and indirect causes of marine turtle mortality, the possible threats to marine turtle populations and their habitats are to be identified, documented and best practice approaches to mitigate those threats to be implemented. It is proposed to undertake management of oceanic marine plastic debris and coastal clean-up for enabling the survival of marine turtles.



- **b.** Protection, conservation and rehabilitation of marine turtle habitats is key for long term survival of marine turtles. Towards meeting this objective, areas of critical habitat such as migratory corridors, nesting beaches, inter-nesting and feeding areas to be identified and managed, while degraded marine turtle habitats are to be rehabilitated.
- c. In order to improve the understanding of marine turtle ecology and populations, studies on marine turtles and their habitats targeted towards conservation and management through research, monitoring and information exchange to be taken up through involvement of scientific institutes and universities. It is proposed that proper exchange of scientific and technical information and expertise among scientific institutions, civil society and other agencies is ensured, in order to develop and implement best practice approaches to conservation of marine turtles and their habitats.
- d. People's participation is imperative for successful conservation interventions. It is therefore envisaged to increase awareness of marine turtles and their habitats, conservation needs and threats, amongst the wider public to enhance public participation in conservation activities. Setting up of turtle conservation clubs at taluk or district or state levels, declaration of marine turtle day, conduct special events related to marine turtle conservation are few activities proposed in this direction. In addition, developing alternate livelihood opportunities and better fishing practices for local communities to be encouraged for active participation in conservation efforts that also generate livelihoods like eco-tourism (e.g. turtle tourism). All relevant stakeholders, including local communities should be involved in planning and implementation of conservation and management measures.
- e. National, regional and international cooperation is an integral part of marine turtle conservation. The existing mechanisms for cooperation at the sub-regional level to be strengthened to enhance coordination in management of turtle habitats. A web-based information resource for marine turtle conservation to be developed, besides creating networks for cooperative management of shared populations, within or across sub-regions, and, where appropriate. Adequate and regular training on marine turtle conservation and management techniques to relevant agencies, individuals and local communities to be provided through identified scientific institutes.
- **f.** To strengthen law enforcement activities, a coordinated effort to be taken up amongst relevant stakeholders

### Important Marine Turtle Habitats in India

State	Important Turtle Habitats (Catchment District)	Remarks / Clarification	Major Threats
Odisha	Rushikulya river (Kandhamal and Ganjam)	Mass nesting ground of Olive Ridley	Erosion, Nest predation, plastic pollution, light pollution and bycatch
Odisha	Gahirmatha river (Kandhamal and Ganjam)	Mass nesting ground of Olive Ridley	Erosion and Nest predation, bycatch
Odisha	Devi River (Jagatsinghpur, Puri)	Sporadic mass nesting ground of Olive ridley	Nest predation, plastic pollution, light pollution, plantation and bycatch
Andaman & Nicobar Islands	Galathea bay, Indira point, Hingloi, Alexandria, Dagmar, and Renhongbeaches (Great Nicobar Island)	Largest Leatherback turtle nesting ground in India	Nest predation
Andaman & Nicobar Islands	Bahua, Muhincohn and Kiyang beaches (Little Nicobar Island)	Leatherback, Green, Hawksbill and Olive ridley	Nest predation and bycatch
Andaman & Nicobar Islands	West Bay, Jackson Creek beaches (Little Andaman Island)	Leatherback nesting ground, currently largest in the Andaman group	Nest predation and bycatch
Andaman & Nicobar Islands	Cuthbert Bay, (Middle Andamans)	Leatherback, Green, hawksbill, and Olive ridley	Nest predation
Andaman & Nicobar Islands	South Reef Island, (Middle Andamans)	Best hawksbill turtle nesting ground in India	Nest predation
Lakshdweep Islands	Lagoons of Lakshdweep Islands (Agatti, Kadmat, Kavaratti and other islands)	Foraging ground of Green turtle	Erosion, over grazing, conflict with fishermen, nest predation and bycatch
Lakshdweep Islands	SuheliIsland, (Lakshadweep)	Olive ridley / Hawksbill / Green turtle nesting ground (sympatric habitat for three species)	Erosion and bycatch
Andhra Pradesh	Godavari River Mouth (Sacramentoshoal, East Godavari)	Very high sporadic nesting of Olive ridleys (approx. 500 to 1000/year),	Nest predation, plastic pollution, light pollution, habitat degradation and bycatch
Andhra Pradesh	Kapasukuddi (Bahuda river mouth), Nagavali, Bamsadhara (Srikakulam)	High sporadic nesting of Olive ridleys	Nest predation, plastic pollution, light pollution, habitat degradation and bycatch
Andhra Pradesh	Beaches along Krishna River and Penneru river mouth (Nellore)	Moderate sporadic nesting of Olive Ridley	Nest predation, plastic pollution, light pollution, habitat degradation and bycatch

### Important Marine Turtle Habitats in India

Puducherry	Nallavadu,Pannithittu, Narambi and Moorthikuppam villages (Puducherry) and beaches around Arasalar River (Karaikal)	High sporadic nesting of Olive Ridley	Nest predation, by- catch, erosion, habitat degradation, planta- tion, plastic and light pollution
Tamil Nadu	Gulf of Mannar Biosphere Reserve (Thoothukkudi and Ramanathapuram)	Foraging ground of green and Olive ridley, good seagrass beds	Nest predation, plastic pollution, habitat deg- radation, poaching, bycatch
Tamil Nadu	Chennai coast, (northern Tamil Nadu)	Sporadic nesting ground of Olive ridley turtles with conservation programmes from 1973	Nest predation, by- catch, plastic pollu- tion, light pollution, egg poaching, habitat degradation
Gujarat	Western Saurashtra coast, Gujarat (Junagadh, Jamnagar and Porbandar)	Green and -Olive ridley turtle nesting grounds	Nest predation, by- catch, plastic pollution, habitat degradation
Maharashtra	Sindhudurg Coasts (Raigad and Ratnagiri)	Sporadic nesting of Olive ridley and Green	Nest predation, bycatch, plastic pollution, habitat degradation
Goa	Galgibaga beach (South Goa)	Sporadic nesting of Olive Ridley	Nest predation, by- catch, plastic pollution, lighting, tourism, habi- tat degradation



#### **Marine Turtle Action Plan**

Objective 1. Reduce direct and indirect causes of marine turtle mortality

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
1.1 Identify and document the threats to marine turtle populations and their habitats	a) Collate and organise existing data on threats to marine turtle populations b) Establish baseline data collection and monitoring programmes to gather information on the nature and magnitude of threats c)Determine those populations affected by incidental capture in fisheries, and other sources of mortality	MoEF&CC, State/UT Forest and Fisheries Departments, WII, ZSI, CMFRI, NCSCM, IISC, FSI, NIOT, ICMAM, ANCOST, Universities, State level research institutions, NGOs etc.	All coastal States and UTs	To be initiated in 2021; to be repeated every 5 year thereafter
1.2 Determine and apply best practice approaches to minimising those threats to marine turtle populations and their habitats	1.2 Determine and apply best practice approaches to minimising those threats to marine turtle populations and their habitats	Erosion and Nest predation, bycatch State/ UT Forest and Fisheries Departments  MoEF&CC and MoES, WII	All coastal States and UTs	To be initiated in 2021 and to be continued thereafter



Objective 2. Protect, conserve and rehabilitate marine turtle habitats

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
2.1 Establish necessary measures to protect and conserve marine turtle habitats	a) Identify areas of critical habitat such as migratory corridors, nesting beaches, inter-nesting and feeding areas. b) Designate and manage protected/conservation areas, sanctuaries or temporary exclusion zones in areas of critical habitat, or take other measures (e.g. modification of fishing gear, restrictions on vessel traffic) to remove threats to such areas c) Develop incentives for adequate protection of areas of critical habitat outside protected areas d) Undertake assessments of the environmental impact of marine and coastal development and other human activities that may affect marine turtle populations and their habitats e) Manage and regulate within each jurisdiction the use of beaches and coastal dunes, for example location and design of buildings, use of artificial lighting, and transit of vehicles in nesting areas f) Monitor and promote the protection of water quality from land-based and maritime pollution, including marine debris, that may adversely affect marine turtles g) Strengthen the application of existing bans on the use of poisonous chemicals and explosives in the exploitation of marine resources. h) Mainstream the turtles and their habitats conservation into the production sectors with active participations of industrial sectors including financial supports from their CSR Fund.	State/UT Forest and Fisheries Departments and MoEF& CC	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
2.2 Rehabilitate degraded marine turtle habitats	a) Re-vegetate, where appropriate, frontal dunes at nesting beaches, with indigenous flora as far as possible, in order to provide visual barriers to coastal development and to restore appropriate beach temperature regimes  b) Remove casuarinas from the important nesting beaches  c) No plantation on Sand Dune  d) Remove debris that impedes turtle nesting and hatchling production  e) Enhance recovery of degraded coral reefs  f) Enhance recovery of degraded mangrove and seagrass habitats	MoEF&CC, State/UT Forest Departments, NGOs etc	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in FY 21-22 and to be continued thereafter



## Objective 3.Improve understanding of marine turtle ecology and populations through research, monitoring and information exchange

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
3.1 Conduct studies on marine turtles and their habitats targeted to their conservation and management	a) Conduct baseline studies or gather secondary information on marine turtle populations and their habitats b) Initiate and/or continue longterm monitoring of priority marine turtle populations in order to assess conservation status c) Characterise genetic identity of marine turtle populations d) Identify migratory routes through the use of tagging, genetic studies and/or satellite tracking e) Carry out studies on marine turtle population dynamics and survival rates f) Conduct research on the frequency and pathology of diseases of marine turtles g) Promote the use of traditional ecological knowledge in research studies h) Review periodically and evaluate research and monitoring activities	MoEF&CC, State/UT Forest and Fisheries Departments, ICMAM, WII, IISC, NIOT,/ANCOST, ZSI, CMFRI, CMLRE, NIO, SAC, Universities, NGOs	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and end by 2022
3.2 Conduct collaborative research and monitoring	a) Identify and include priority research and monitoring needs in National and sub-regional action plans b) Conduct collaborative studies and monitoring on genetic identity, conservation status, migrations, and other biological and ecological aspects of marine turtles	MoEF&CC, State/UT Forest and Fisheries Departments, ICMAM, WII, IISC, IISER, NIOT,/ ANCOST, ZSI, CMFRI, CMLRE, NIO, SAC, NGOS	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
3.3 Analyse data to support mitigation of threats and to assess and improve conservation practices	a) Prioritise populations for conservation actions b) dentify population trends c) Use research results to improve management, mitigate threats and assess the efficacy of conservation activities (e.g. hatchery management practices, habitat loss, etc.)	MoEF&CC, State/UT Forest and Fisheries Departments, ICMAM, WII, IISC, IISER, NIOT,/ ANCOST, ZSI, CMFRI, CMLRE, NIO, SAC, NGOS	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter
3.4 Exchange information	a) Standardise methods and levels of data collection and adopt or develop an agreed set of protocols for inter alia monitoring of nesting beaches, feeding ground studies, genetic sampling, and collection of mortality data  b) Determine the most appropriate methods for information dissemination  c) Exchange at regular intervals scientific and technical information and expertise among nations, scientific institutions, nongovernmental and international organisations, in order to develop and implement best practice approaches to conservation of marine turtles and their habitats  d) Disseminate traditional knowledge on marine turtles and their habitats for conservation and management  e) Compile on a regular basis data on marine turtle populations of regional interest	MoEF& CC, State/UT Forest and Fisheries Departments, IOSEA, BOBP, ICMAM, CSIR, WII, IISC, IISER, NIOT,/ ANCOST, ZSI, CMFRI, CMLRE, NIO, SAC, NGOS	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter

## Objective 4. Increase public awareness of the threats to marine turtles and their habitats, and enhance public participation in conservation activities

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
4.1 Establish public education, awareness and information programmes	a) Setting up of turtle clubs at taluk or district or state levels b) Declaration of National Marine Turtle Day may be coinciding with mass nesting season c) Collect, develop and disseminate education materials d) Establish community learning / information centres e) Develop and implement accurate mass media information programmes f) Develop and implement guidelines for hatchery programmes for conservation and environmental education g) Develop and conduct focused education and awareness programmes for target groups (e.g. policy makers, teachers, schools, fishing communities, media) h) Encourage the incorporation of marine turtle biology and conservation issues into school curricula i) Organise special events related to marine turtle conservation and biology (e.g. Turtle Day, Year of the Turtle, symposia, Track-a-turtle)	MoEF&CC, State/UT Forest and Fisheries Departments and NGOs	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
4.2 Develop alternative livelihood opportunities for local communities to encourage their active participation in conservation efforts	a) Identify and facilitate alternative livelihoods (including income generating activities) that are not detrimental to marine turtles and their habitats, in consultation with local communities and other stakeholders. Undertaking turtle based tourism programme like Turtle Festival  b) Bring in ecotourism (turtle tourism) and interpretation centres in an organized fashion.	MoEF& CC, State/UT Forest and Fisheries Departments, ICSF, NGOs	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter
4.3 Promote public participation	Involve stakeholders, and local communities in particular, in planning and implementation of conservation and management measures  Encourage the participation of Government institutions, nongovernmental organisations, the private sector and the general community (e.g. students, volunteers, fishing communities, local communities) in research and conservation efforts  Implement, where appropriate, incentive schemes to encourage public participation (e.g. T-shirts for tag returns, public acknowledgement, certificates)  National Marine Turtle Seminar needs to be conducted annually to review the entire issues related to conservation of marine turtles in India.	MoEF&CC, State/UT Forest and Fisheries Departments, NGOs	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter

Objective 5. Enhance national, regional and international cooperation

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
5.1 Enhance mechanisms for cooperation and promote information exchange	a) Develop regional database of relevant information in relation to marine turtles conservation and management b) Identify and strengthen existing mechanisms for cooperation at the sub-regional level c) Develop/strengthen a website and/or newsletter to facilitate networking and exchange of information d) Develop/strengthen a webbased information resource for marine turtle conservation (including data on populations, nesting, migration, on-going projects) e) Create a directory of experts and organisations concerned with marine turtle conservation f) Develop networks for cooperative management of shared populations, within or across subregions, and, where appropriate, formalise cooperative management arrangements g) Cooperate where possible in the establishment of transboundary marine protected areas using ecological rather than political boundaries h) Develop a streamlined format for reporting and exchanging information (through the IOSEA MoU) on the state of marine turtle conservation at the national level i) Creation of network of NGO's in supporting forest departments marine turtles conservation. For example, coordination with Turtle Action Group (TAG) etc.	MoEF&CC, State/UT Forest and Fisheries Departments and NGOs	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter

Programme	Activity	Implementation Agencies	Sites/ States	Timeline
	j) Encourage IOSEA MoU signatory States that have not already done so to become Parties to the Convention on Migratory Species (CMS)  k) Establish relationships with regional fisheries bodies with a view to obtaining data on incidental capture and encourage them to adopt marine turtle conservation measures within EEZs and on the high seas	MoEF&CC, State/UT Forest and Fisheries Departments and NGOs	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter
5.2 Strengthen and improve enforcement of conservation legislation	a) Review domestic policies and laws to address gaps or impediments to marine turtle conservation  b) Cooperate in law enforcement to ensure compatible application of laws across and between jurisdictions (including through bilateral/multilateral agreements and intelligence sharing)  c) Include turtle breeding/foraging habitats as important marine habitat.  d) Constitution and Periodic review on the National Marine Turtle Action Committee  e) State Level Marine Turtle Action Committee under the chairmanship of the Chief Secretary.  f) Development of compensation schemes for loss of fishing gear due to incidental capture of marine turtles.  g) Promotion of TED and by-catch reduction policy and smart gear use.  h) Establishment Marine Biodiversity Cell to implement various conservation action plans related to marine biodiversity including marine turtles  i) Mapping and monitoring of important turtle nesting sites in context with CRZ	MoEFCC, State/ UT Forest and Fisheries Departments	All coastal States and UT especially those important sites mentioned in this action plan.	To be initiated in 2021 and to be continued thereafter

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