

COUNTRY REPORT : INDIA
Sea-turtle Status, Conservation and Management in India

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INTRODUCTION :

Five of the seven species of sea turtles found worldwide reportedly occur in the Indian coastal waters and the Bay islands - the Olive ridley (*Lepidochelys olivacea*), Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Leatherback (*Dermochelys coriacea*) and Loggerhead (*Caretta caretta*), with only the Loggerhead not known to nest in the coasts off mainland India and Bay islands. All are endangered species, included in Schedule I of the Indian Wildlife Protection Act (1972), as well as listed in Appendix I of Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) which prohibits trade in turtle products by signatory countries.

1. Status and Distribution :

	Species Recorded	Nesting Confirmed	Known nesting beaches
WEST COAST (Gujarat, Maharashtra, Goa, Karnataka and Kerala)	Green turtle olive ridley and Leatherback	Olive ridley and Green	Gujarat : Mandvi in Kutch, Sea beach between Okha and Okha Madhi, Bhaidar, Beyt, Nora and Chank Islands. Maharashtra : Olive ridley nest near Gorai, Kihim, Manowrie and Versova.
EAST COAST : (West Bengal, Orissa, Andhra Pradesh and Tamil Nadu)	Olive ridley, Green, Hawksbill, Leatherback and Loggerhead	Olive ridley	Tamil Nadu : Nest in Gulf of Mannar, Point Calimere, and 50 km coast line south of Madras. Andhra Pradesh: Kakinada coast, sea beach near the mouth of Godavari and Krishna and near Visakhapattanam Orissa : All along the coast south of Dhamra river mouth. Two mass nesting beaches at Gahirmatha and Rushikulya. West Bengal : In the sandy beaches of Sunderbans.
INLANDS : (Andaman & Nicobar Islands and Lakshadweep)	Olive ridley, Green, Leatherback, Hawksbill and Loggerhead.	Olive ridley, Green, Hawksbill and Leatherback.	Great Nicobar, Little Andaman, Rutland, Middle Andaman, Katchal, South Sentinel, south Reef and Teris Islands.

Paper presented at the IUCN/SSC Marine Turtle Specialist Group and Convention of Migratory Species (CMS) Secretariat, organised "Northern Indian Ocean Sea-turtle Conference held during 13-18 January, 1997 at Bhubaneswar, India.

2. EXPLOITATION :

All the five species of sea turtles that occur in Indian coastal waters are legally protected. All the five species are included in the schedule I of the Indian Wildlife Protection Act, 1972. At present there exists no commercial or international trade of marine turtles or turtle products in India. However, local fishermen communities near the sea turtle nesting beaches along Tamil Nadu. Andhra and Orissa coast do consume the turtle eggs.

3. THREATS :

- (i) **Non Human Predation :** A significance proportion of sea turtle nests laid along the Indian coast are subjected to heavy predation. Studies on the population dynamics and reproductive biology of the olive ridley at Gahirmatha rookery along the northern Orissa coast have indicated that a large percentage of eggs laid during a particular nesting season are destroyed (Dash and Kar 1990). This results from a number of factors such as destruction of nests by subsequently emerging nesting females during an arribada, nest destruction by non-human predators such as wild pigs, jackal, feral dogs etc. and by beach erosion (Pandav *et al.* 1994).
- (ii) **Loss of nesting habitats :** Developmental activities very close to the coast line such as construction of roads and tourist resorts result in the loss of nesting habitats. Besides this, plantation of Casuarina very close to some of the major sea turtle nesting beaches along the Indian coast has resulted in drastic decline in the nesting population. Plantation of Casuarina neat the sea turtle rookeries reduces the space available for the turtles to nest and once it grows up it changes the entire beach topography by deposition of litter and by its root growth (Pandav *et al.* 1994).
- (iii) **Incidental Capture in fishing nets :** Near shore mechanised fishing results in the mortality of large number of sea turtles along the Indian coast. More than 5,000 dead olive ridley sea turtles were counted along the 480 km long orissa coast during a six month survey in 1994 (Pandav *et al.* 1994). These deaths were due to accidental capture in trawl nets. However, details of the incidental capture of marine turtles in fishing nets along rest part of Indian coast are yet to be documented.
- (iv) **Artificial lighting :** Both the Indian sea turtle rookeries of Olive ridley sea turtle. Gahirmatha and Rushikulya are now subjected to bright illumination because of developmental activities and has resulted in disorientation of nesting sea turtles as well as sea turtle hatchlings.

4. LEGISLATION :

All the five species occurring in India are legally protected by the Wildlife (Protection) Act 1972 being in the Schedule I. No trade, hunting or capture of any species or their part is permitted. being a signatory of the CITES and all marine turtles are Appendix I. India prohibits import and export of turtle products.

To protect the nesting beaches in India, all maritime states have been asked to define the Coastal Regulatory Zone (CRZ) under the Environmental protection Act 1986 (29 of 86) where Coastal developmental activity can be regulated (See Annexure 1).

In consultation with the Department of Commerce and Industry, Govt. of India is developing an Act to make it compulsory the use of TED in vessels which are to operate in the off-shore waters in the vicinity of known minor and major sea turtle breeding grounds.

5. MANAGEMENT STRATEGIES :

- (i) **Protected area status for sea turtle nesting and breeding habitats :** The world's largest known sea turtle rookery of Gahirmatha has been declared as a marine protected area. Besides Gahirmatha, marine protected area such as Gulf of Mannar and Gulf of Kutch provide protection to some of the major sea turtle habitats.
- (ii) **Research Activities :** Most of the research activities on marine turtles along the Indian coast have largely been confined to the world's largest known sea turtle rookery of Gahirmatha in Orissa and the Andaman and Nicobar Islands.

Majority of the Indian beaches are still unsurveyed. In a recent survey of sea turtle nesting beaches along the Orissa coast. India's second largest sea turtle mass nesting beach was discovered in march 1994 near the mouth of river Rushikulya along the southern Orissa coast.

Ongoing research activities : "An ecological analysis of critical sea turtle nesting habitats along the Orissa coast for the development of a scientific sea turtle management strategy" by the Wildlife Institute of India, Dehra Dun in collaboration with Orissa Forest Department and M.S. Swaminathan Research Foundation, Madras.

Monitoring of sea turtle nesting in Andaman and Nicobar Islands by the Madras Crocodile Bank.

Monitoring of the sea beach near Madras for sea turtle nesting by the Students Sea Turtle Conservation Network, Madras.

6. FURTHER ACTION NEEDED TO CONSERVE MARINE TURTLES :

- (i) **Habitat Protection :** Designation of conservation areas to places having intense sea turtle activity, such as the Rushikulya rookery along the southern Orissa coast.

Artificial lighting near major sea turtle nesting beaches are to be stopped.

- (ii) **Basic Protection measures :** Off-shore patrolling to put a check on the near shore mechanized fishing to minimize the incidental capture in fishing nets.

Public awareness and education programmes to involve the local communities in sea turtle conservation programme.

- (iii) **Management-related research** : Regular monitoring of important sea turtle nesting beaches to get the population trend.

Tagging programme to study the distribution of sea turtles and other related biological aspects.

Determining the impact of off-shore fishing operations on marine turtles.

ANNEXURE I

Coastal Regulation Zone

Under Sub-Section (1) read with clause (V) of sub-section (2) of section (3) of the Environmental Protection Act, 1986 (29 of 86), the Central Government after considering the need for protecting the coastal areas and to ensure the use and activities in the coastal areas consistent with the principles and requirements of environmental conservation has declared the following areas as Coastal Regulation Zone.

The coastal stretches of sea, estuaries and creeks which are influenced by tidal action (in the land-ward side) upto **500 metres from the high-tide line and the land between the low-tide line and high-tide line as Coastal Regulation Zone.**

This Coastal Regulation Zone has been classified into four categories for regulating developmental activities. These are :

Category-I (CRZ-I) : Areas that are ecologically sensitive and important such as National Parks, Sanctuaries, Reserved Forests, Mangroves, Estuaries, Corals, areas close to breeding grounds of fish and other marine life, areas of outstanding natural beauty.

Category-II (CRZ-II) : The areas that have already been developed upto or close to the shore-line. For this purpose, developed area is referred to as that area within the municipal limits which is already substantially built up and which has been provided with drainage and approach road and other infrastructural facilities, such as water supply and sewerage mains.

Category-III (CRZ-III) : Areas that are relatively undisturbed and those which do not belong to Categories - I & II. These will include coastal zone in the rural areas (developed and undeveloped) and areas within municipal limits where substantial development has not taken place.

Category-IV (CRZ-IV) : Applies to Andaman and Nicobar Islands only.