

MARINE TURTLES OF LAKSHADWEEP ISLANDS, ARABIAN SEA OF INDIA

- A STATUS SURVEY -

Interim Report

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&
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भारतीय वन्यजीव संस्थान
Wildlife Institute of India

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1. Study background

Except for beaches like Gahirmatha and species such as Olive ridley, no information is available on the distribution and conservation status of other species that occurs and nests in Indian beaches. Four of the seven species of marine turtles found to occur in Indian Ocean and its islands viz. the Olive ridley (*Lepidochelys olivacea*), Green turtle (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*) and Leatherback turtle (*Dermochelys coriacea*) and are also reported to nests along the mainland and island beaches of India (Kar & Bhaskar, 1982). The only survey conducted in Lakshadweep islands was in 1976 (Bhaskar, 1978). Besides, stray record by the team of CMFRI (Silas 1984, Lal Mohan 1987) also indicates four species of marine turtles that occurs and nests in the Lakshadweep group of islands but no information is available on the status of sea turtles in this part of India. The Lakshadweep islands being lies on the 2500 km. long North-South aligned submarine Chagos laccadive ridge and as the Laccadive, Maldives and Chagos Archipelagoes form a continuous submarine bank, there is more likely of the migration of turtles to this area from Seychelles, Maldives and Madagascar for nesting and feeding or vice versa.

In the light of the major lacunae, the Government of India & United Nations Development Programme's sea turtle Project felt it as appropriate time to conduct a detailed survey of the Lakshadweep group of islands and document the problem and prospects of sea turtles of Lakshadweep. The Wildlife Institute of India, ^{Proposed to} ~~conducted~~ a survey of sea turtles in the islands from July 2001 to February 2002.

2. Introduction

Of the world's seven species of sea turtles five are known to inhabit Indian coastal waters and Bay islands including the Lakshadweep islands. The olive ridley (*Lepidochelys olivacea*) is abundant and nesting beaches of this species are wide spread along the mainland coast of India. The other three species viz. leatherback turtle (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*) and green turtle (*Chelonia mydas*) known to nests mainly in the island coast beaches where as the loggerhead turtles (*Caretta caratta*) have been reported in offshore waters, but nesting has not been confirmed (Kar & Bhaskar, 1982). All species are included in the schedule I of the Indian Wildlife (protection) Act 1972, as well as listed in Appendix I of the Convention of International Trade in Endangered species of Wild Fauna and Flora (CITES) which prohibit trade in turtle products by signatory countries and are therefore protected by law. All these species, barring the loggerhead, have been reported to

in the Lakshadweep islands (Bhaskar 1978 a, b, c, 1979, 1984, Kar & Bhaskar 1984, Lal Mohan 1987).

CMFRI (Silas 1984, Lal Mohan 1984) has stray records of occurrence and turtles in Lakshadweep. The last survey in Lakshadweep was undertaken by from Madras Crocodile Bank in 1976 and there after no status report is the sea turtles of Lakshadweep. The coral reef marine habitat of Lakshadweep is an important foraging and feeding area for the marine turtle population in the Arabian and Indian Ocean region. Genetically Lakshadweep marine turtles are believed to be related to the Maldives, Madagascar, Seychelles and Gulf Sea population of marine turtles. Lakshadweep islands being lies on the 2500 km. long North-South aligned Laccadive ridge and as the Laccadive, Maldives and Chagos Archipelagoes and its submarine bank there is more likely of the migration of the turtles to this region from the Maldives, Maldives and Madagascar or inward migration for nesting and feeding. In the major lacunae, the Government of India & United Nations Development Programme Sea Turtle Project felt it as appropriate time to conduct a detailed survey of the group of islands and document the problem and prospects of sea turtles of Lakshadweep. The Wildlife Institute of India conducted a survey of sea turtles in the Lakshadweep islands.

Literature

The Lakshadweep islands have attracted attention of many naturalists, one being that of J.S.Gardiner (1903 – 06) who worked on the fauna and geography of the Laccadive Archipelago. During the last ten decades, several surveys have been conducted in the waters and on the islands by scientists from NIO, CMFRI, ZSI, and other researchers. The Zoological Survey of India carried out extensive surveys and published a volume on the fauna of Lakshadweep (State fauna series 2). Like the Marine Fisheries Research Institute carried out a survey in 1987 (CMFRI 1987). Research teams from Madras Naturalists Society (Menon *et.al.* 1991) Goa (Rigues, 1996) and National Institute of Oceanography (Shankaranarayana, 1996) reported nesting and slaughter of turtles in the islands of Lakshadweep. Available information on the nesting season of any of the species that nest in Lakshadweep is limited. Rajagopalan *et.al.* (1998) mentioned different season for each species of sea turtles in Lakshadweep islands. A study of the literature however reveals that most of the

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available information is stray in nature and there is no published quantitative data for any meaningful assessment of the sea turtle occurrence and nesting in and around the islands of Lakshadweep.

The sea turtle reports in India dates back to 1930 but the landmark comes after the discovery of mass nesting beaches of Orissa in 1976 after the FAO/UNDP discovery of the Gahirmatha beach in Orissa. After few years scientists from different organizations start surveying the coastal stretch of mainland and bay islands (Bhaskar 1981, Kar & Bhaskar 1982, Biswas 1984) and the Lakshadweep islands was surveyed in 1976 by the Madras Crocodile Bank Trust (Bhaskar, 1978a,b). But no status survey was carried out since 1976 and therefore become a neglected area for sea turtle conservation and management.

In addition to this scientific information on sea turtles, in recent years the local press media took some interest from time to time and releasing short news on the conservation and management of sea turtles of Lakshadweep (*Lakshadweep Times* 1999, 2001).

2. Objectives

The marine turtle survey in Lakshadweep was conducted with the following objectives;

- I. Documentation of occurrence and nesting of different species of Sea turtles in Lakshadweep group of Islands.
- II. Documentation of nesting intensity of sea turtles in different Inhabited and uninhabited Islands of Lakshadweep.
- III. Assessment of threats to the sea turtle population in Lakshadweep Islands.
- IV. To create a network which provide updated information on the above and can help in designing and implementing conservation and management strategies for marine turtles of Lakshadweep.
- V. Formulation of conservation measures for the marine turtle population of the Lakshadweep Island.

3. Study area

The Lakshadweep islands

A roughly circular ring reefs surrounding a lagoon is an atoll, a low lying island, common in the Indian and South Pacific Oceans. These atolls rise steeply from great depths ranging from 500 to 3000 m. The only atolls in Indian territorial waters are found in the Lakshadweep.

The Lakshadweep Archipelago, the smallest union Territory of India, is located on the 2500 m Laccadive-Chagos ridge presume to be a hotspot trace resulting from the northward migration of the Indian plate (Morgan, 1981). There are 36 islands including 12 atolls, 3 reefs and 5 submerged banks out of which 10 are inhabited and covering an area of 32 km² and while the 10 inhabited islands have a total land area of 28.5² km, the remaining 17 uninhabited islets are only 3.45 km. Thus, although the gross land area of this archipelago is quite small, these islands are scattered over a vast stretch in the sea with about 4200 km² of lagoon, 20000 km² of territorial waters and 40000 km² of Exclusive Economic Zone.

1. Survey work during the months of July 2001 to October 2001

In the first phase of the survey programme, which begins from July 2001 to October 2001, four inhabited islands viz. Kavaratti, Agatti, Kadmat and Minicoy were visited and along with this the uninhabited islands Kalpitti, Bangaram, Pareli and Tinnakara all near Agatti, and Viringili adjacent to Minicoy were also surveyed for sea turtles occurrence and nesting. Information were collected from secondary sources from the Environment wardens in the Environment and Forests department, Deputy Director and Technical assistants of the Department of Science and Technology and Director/Assistant Director and Fisheries Inspector of Fisheries department of the respective islands. Local fishermen and inhabitants were also interviewed regarding occurrence and nesting of sea turtles in the island beaches and nearby uninhabited islands. Occurrence and nesting of different species of sea turtles were confirmed from them by showing colour photographs of all four species of turtles. Besides all these a preliminary observation made in the surrounding lagoons in the islands for sighting of turtles.

Detailed report of the work

6th August 2001 – 15th August 2001

At Kavaratti island, on 8th August 2001 a nest was located near the Navy point where nesting took place on 7th August night. Egg could not be located because of pebbles and hard sand. The nesting track was 103-cm. widths. The nest was presumed to be a green turtles nest. On 13th August, a green turtles was observed close to the reef in the lagoon while snorkeling.

16th August 2001 – 21st August 2001

At Agatti, a total of six days were spent during the month of August 2001. A total of 56 old nests were observed in the seaward side of the airport of Agatti. The area spread for a distance of near 2 km and beach substratum was sandy, backed with cunny(*Scaviola*) and chonam(*Phemphis*) plants. The beach width is very less and in most places encroached by the airport authority. There are rocky patches also in between which are also exposed during low tides. Most of the nests found were under the scaviola and phemphis plants. Except here few old nests were also located in the northern side of the island near the light house. The beach is sandy here but human habitations are very close to the beach. The beach width donot exceed 10 mts. Two turtle hatchlings were also found kept in a house, must have hatched before two three days only. One of them was a green turtle hatching and other was a hatchling of hawksbill turtle. Local people reveals that monsoon months are favourable time for sea turtle nesting and by August-September, hatchlings comes out from the nests during night. The lagoon beach is sandy, wide and with less human habitations, but no nests were located in the stretch of 5-6 km. lagoon beach. On 21st August 2001, while in a shore seine operation by the fishermen in the Agatti lagoon, three green turtle found caught in the net. Later on they were released back to the sea.

The Kalpitti island is just few meters away from the southern tip of the Agatti island separated the island by a narrow channel. Most part of the island is rocky, except at few places where sandy patches exist. Only one old nest located at this island.

22nd August – 26th August 2001

A total of 5 days spent at Kadmat island. The island extends from north to south for a distance of apprx. Eleven kilometers. Except at the southern end, the beach of Kadmat is rocky, with intertidal rocks at many places. In between sandy beaches present, but no nests recorded either side of the island. The southern tip of Kadmat is sandy, with *Spinifex* and *Ipomea* creepers covered the beach for almost 10-15 mts. The beach width is 15-20 mts. and the tourism department beach resort and helipad are situated close to the beach. During the visit 5 nests were located in a distance of nearly 1 km. Local people told that mirighum (Green turtle) nesting takes place in this area during the full moon night of monsoon months. In the lagoon, there is dense growth of sea grasses observed and islander told that this growth is with in two three years only. One green turtle sighted from the jetty, swimming in the lagoon.

Parali I and Parali II are situated in the same lagoon of Tinnakara. These two islets are small and less than 0.5 km length. The western side of the island is sandy where as the eastern side is completely rocky. There were 6 old nests recorded at Parali I and 8 old nests seen at Parali II island. Besides this one male green turtle and one juvenile green turtle was also caught in the Tinnakara lagoon.

Workplan for the Period November 2001 to February 2001

During this period the remain inhabited and uninhabited islands of Lakshadweep will be surveyed for documenting sea turtle nesting, feeding ground. Besides this lagoon survey will also be done for sighting sea turtles and assessment of feeding grounds by surveying the sea grass beds of the lagoon of various islands. Data on species and nesting intensity will be collected from uninhabited and inhabited islands of Lakshadweep. Developmental activities will be taken into consideration for assessing the threats on the marine turtle population of Lakshadweep.