

PRELIMINARY REPORT ON THE STATUS AND DISTRIBUTION OF
SEA TURTLES IN INDIAN WATERS

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Sea turtles of five of the seven species in existence are known from Indian seas. Their frequency of occurrence, as is presently known, ranges from 'rare' (e.g. the leatherback (*Dermochelys coriacea*) and the loggerhead *Caretta caretta*) to 'common' (the outstanding example being the Ridley, (*Lepidochelys olivacea*)).

As a first step towards delineating the geographical areas where Indian sea turtles occur and are worthy of study (the prime object being their conservation and rational exploitation), the following locales may be considered individually.

- (1) The entire western coast of India, which extends from the Pakistan border at Kutch, to Kanyakumari.
- (2) The entire eastern shoreline of India, extending from Kanyakumari to the Bangladesh border in the Ganges delta.
- (3) The Andaman and Nicobar Islands.
- (4) The Lakshadweep Islands.

The West Coast, Kutch to Kanyakumari: In the Gulf of Kutch are present above 15 coral islands, most devoid of permanent inhabitants. There is the likelihood of at least some of these island being rookeries for turtles. Sea grasses, which are known to exist in the area, constitute feeding pasture for Green turtles. Green turtles are known to nest on some beaches on India's west coast.

These known nesting beaches extend from Kerala upto at least as far north as Bombay. As yet, prolific nesting has not been recorded from any beach on this coast, but methodical surveys have yet to be conducted. No reliable data as to the numbers of turtles that nest, their nesting seasons, and the commercial exploitation they suffer is available for the west coast. Initial reports quote year-round nesting by green turtles on the Kerala coast, with a peak during September-November. On the beach at Calicut, eggs are seasonally collected for local consumption and for sale. Turtle meat is reportedly not eaten in this region, but is probably consumed elsewhere in Kerala.

Information regarding other sea turtle species is scanty. The Leatherback is said to have nested in substantial numbers on Tangasseri reef near Quilon, Kerala, at the turn of the century. Even in those times their decline (probably due to indiscriminate collection

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of their eggs) was evident. The last instance of a Leatherback nesting at Tangasseri was recorded in 1928 (JBNHS). Many small islands that lie adjacent to the west coast require investigation, to locate possible nesting beaches thereon.

The Ridley has been observed nesting in November at Kihim beach near Bombay. In Bombay itself, turtles occasionally come up to lay on heavily urbanized Chowpatty beach (Hornbill Oct. '77). Green turtles have been netted in this area.

The East Coast, Kanyakumari to West Bengal: Five species are known from this area, two (*Dermochelys* and *Caretta*) being extremely rare, as far as is known presently.

Unlike the West coast on which rocky shores often occur, the East coast of India is predominantly sandy. *Lepidochelys olivacea* nests along practically the entire stretch; a large nesting population exists in Gahirmata, Orissa. On this nesting beach, 158161 nesting Ridelys were reportedly marked by the Forest Department in 1976. The following year, no arribada was recorded at this site—but 478 turtles, males and females, were found dead on a 14 km stretch of beach, many with their flippers tied together with wire. It is reported that mechanized boats ply their nets immediately offshore and that enormous numbers of turtles are caught, transported while alive and sold for human consumption at markets in West Bengal and possibly elsewhere (Davis and Bedi 1978). The nesting season is reported to be January through March. This tallies with the nesting season for *Lepidochelys* on the Tamil Nadu coast further south, which is mid-December to the end of March (Valliappan and Whitaker, 1974). There are big gap in our knowledge of the exact distribution of *Lepidochelys* and of other species along the East coast. For example, no data at all exists regarding turtles in the Sunderbans of West Bengal, areas along the Andhra Pradesh coast and in the region south of Manapped in Tamil Nadu.

In the Gulf of Mannar and belonging to Tamil Nadu State, there exists a chain of 19 islands and islets that lie, on the average, about 8 km off the mainland coast. The islands stretch from Pamban in the north to Tuticorin in the south seagrass and coral reefs occur abundantly in the region. Green turtles and Hawksbills were until lately netted and slaughtered in numbers in this area for their meat and shell (Whitaker, 1975). With the inclusion in October, 77 of all sea turtles in Schedule I of the Indian Wildlife Protection Act, this commerce which has existed since time immemorial (Kuriyan, 1950) is no more legal. A preliminary survey by the Madras Snake Park failed to establish the occurrence of turtles nesting on the islands on any scale other than sporadic. The majority of the Gulf of Mannar islands are uninhabited, though not undisturbed by man (fishermen, coral and seaweed harvesters).

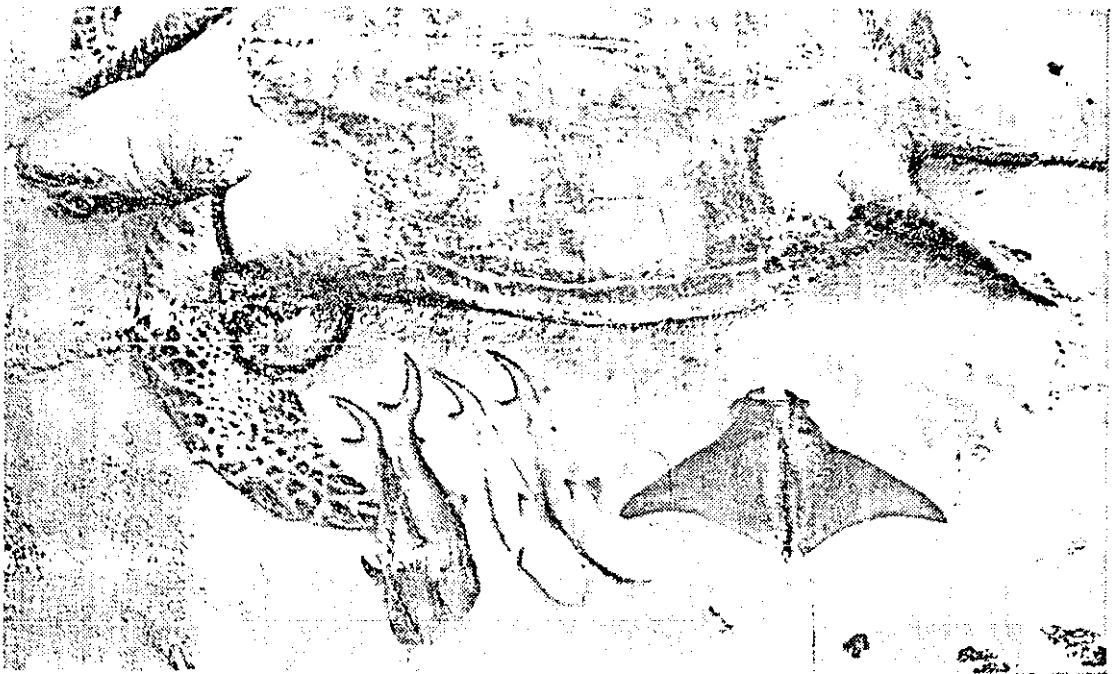
Sea grass occurs in stretches from Tuticorin to Point Calimere but green turtles have been caught in shore seine nets even further north, at Madras, in February. The possibility that some green turtles that feed in the rich sea grass beds in the Gulf of Mannar nest on as yet unidentified beaches far to the north must be looked into. For example Green turtles are also found offshore along the Puri coast of Orissa, where in some seasons about 40-50 are caught every day by local fishermen. Both adult and juvenile Greens and Hawksbills are found in the Gulf of Mannar. The status and distribution of the Hawksbill and the Green turtle on the rest of the East coast (excluding Tamil Nadu) is

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1. Orissa Forest Department staff with female Ridleys found dead at Cahirmatha beach, Feb., 1976. Note front flippers wired together.



2. Lakshadweep. The male green turtle was harpooned for its oil. Dec., 1977.



3. Captive rearing of sea turtles at Madras Crocodile Bank.



4 North end of Minicoy Island the major visible sea turtle population in the Lakshadweep Island group

unclear. The same may be said of the leatherback and the loggerhead both of which are only very rarely seen in the Gulf of Mannar.

Andaman and Nicobar Islands: From several visits for herpetological collection and crocodile survey work that Madras Snake Park staff have made to the islands a few facts have been gathered. *Chelonia mydas*, *Eretmochelys imbricata*, *Lepidochelys olivacea* and very rarely, *Dermochelys coriacea* are reported to feed and nest in the islands. Killing of Greens for meat, Hawksbills for shell and (rarely) Leatherbacks for oil, and some collection of eggs is reported from all inhabited areas. Daily capture and slaughter of Green turtles takes place at Wandur, near Port Blair for meat supply to this, the main port. Much of the coast of the larger islands in the two groups has a mangrove or rocky shore. There are several major beach stretches but some smaller beach ringed and sandy islands appear to be the main nesting areas. Several different season surveys will help reveal the distribution and abundance of nesting in these islands. Already several small islands have been identified by us as important rookeries. Follow up work is planned later in 1978. It is surmised that one of the world's large intact sea turtle populations exists in the Andaman and Nicobar islands.

Lakshadweep Islands: Sea turtles of 3 species—*Lepidochelys olivacea*, *Chelonia mydas* and *Eretmochelys imbricata* commonly nest on the 10 inhabited and 16 seasonally uninhabited coral islands in Lakshadweep. On Minicoy, the southern most of the group, only Greens and Hawksbills occur and nest. Turtles of both species ranging from 25 cm length to adult size are often seen from shore at Minicoy, as they surface for air. A substantial amount of nesting by Green turtles occurs on the two seasonally uninhabited islands of Suheli, evidently during the southern monsoon (May-September). Over 200 old body pits made by nesting greens were found in October on the island of Suheli Valiyakara. Sporadic nesting by Green turtles occurs on most islands the year round. Ridleys nest mainly in December-January, and in other months sporadically on Androth, Kadmat, and other islands. Hawksbill nests were also found during this period but the main nesting season of this species could not be ascertained. On rare occasions, leatherback turtles are encountered at sea and harpooned; they are reported to nest on occasion at Minicoy and on other islands. Two Leatherbacks were harpooned in Lakshadweep during the investigators survey in late 1977.

All turtle species are killed for commercial purposes—the Green, the Ridley and the Leatherback for their fat, which is used as a sealant for the local country boats, and the Hawksbill for the laminae on its shell which is sold to dealers on the mainland. Eggs are occasionally collected, but turtle meat is rarely eaten by Lakshadweep islanders.

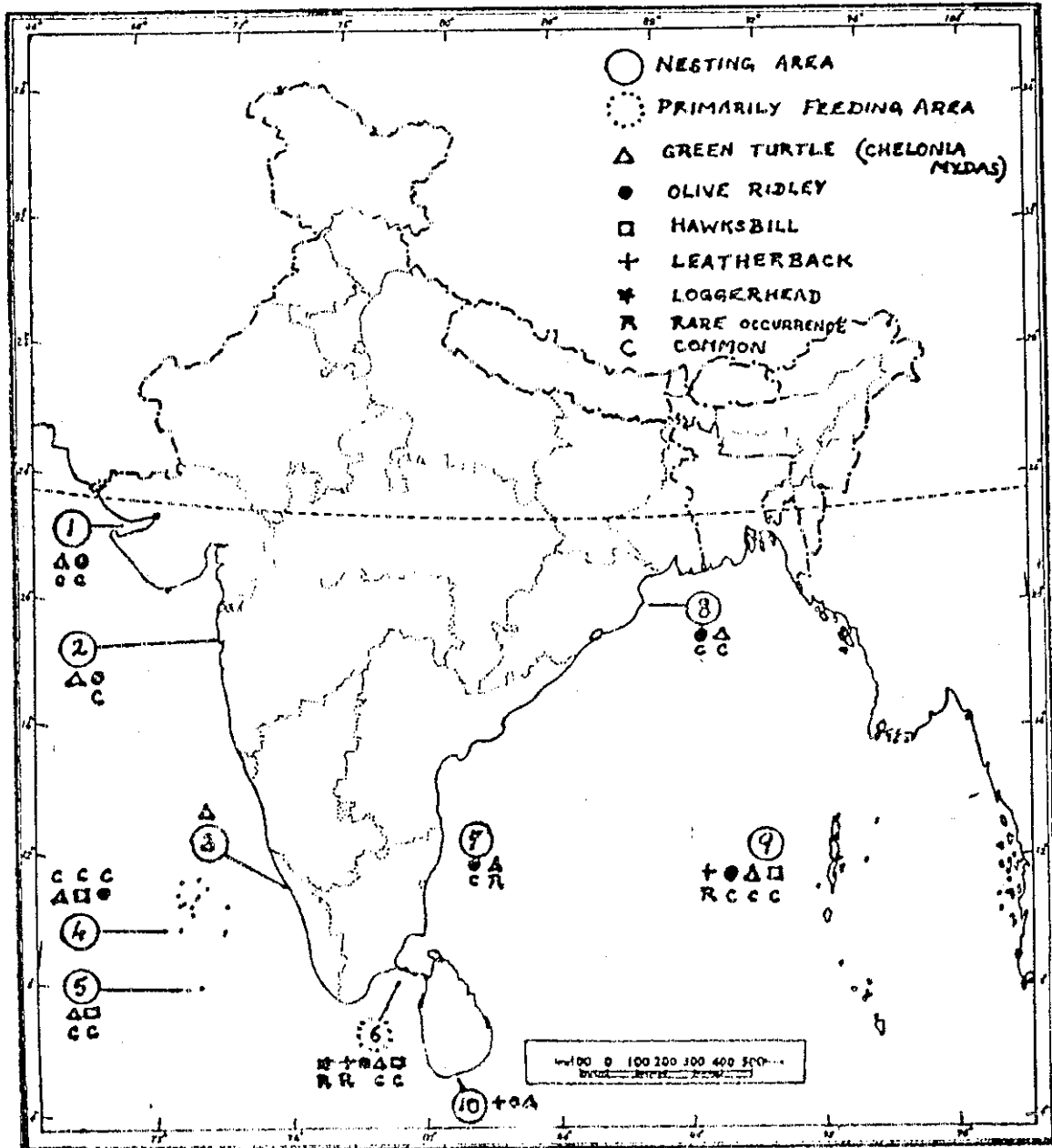
Turtles are said to occur abundantly on the reefs at Cherbaniani, which is the northern most land in the Lakshadweep group. The intensity of nesting that occurs on the uninhabited sandbanks there is unknown.

The following suggestions for the conservation, study and rational exploitation of turtle are offered.

1. Intensive and methodical surveys are required in order to pinpoint nesting beaches and feeding areas hitherto unknown.

SEA TURTLES: THEIR PRESENTLY KNOWN DISTRIBUTION IN INDIA AND SRI LANKA

- (1) GULF OF KACHCHH INCLUDING BHAI DAR AND OTHER ISLANDS ALSO OKHA TO OKHA MADHI
- (2) BOMBAY (KIHIM)
- (3) CALICUT.
- (4) LAKSHADWEEP: SUHELI AND OTHER ISLANDS.
- (5) MUNICOY ISLAND.
- (6) GULF OF MANNAR AND PALK BAY.
- (7) TAMIL NADU AND ANDHRA COASTS.
- (8) ORISSA COAST INCLUDING IMPORTANT NESTING BEACH AT GAHIRMATA.
- (9) ANDAMAN AND NICOBAR ISLANDS.
- (10) HAMBANTOTA DIST. (+) GALLE AND KALUTARA DIST. (●)



Based upon Survey of India map with the permission of the Surveyor General of India.

The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.
The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern Areas (Reorganisation) Act, 1971.

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2. Follow-up detailed survey at specific areas of interest should be undertaken, with a view to formulate precise estimates of nesting/feeding populations, nesting seasons, migration routes and possible exploitation levels. The biology of sea turtles, their food preferences, nesting cycle, frequency etc. must be studied. Based on survey findings, relevant steps to safe-guard turtle populations, or to boost them if necessary, must be taken.

3. All the major nesting beaches known to exist (i.e. Gahirmatha) and the sea off shore must be immediately and totally protected from interference by man, until quotes for egg collection consistent with non-depletion of turtle stocks are set by experts.

4. The capturing or killing of juveniles and adult turtles must be effectively checked. As a deterrent measure, violation of the law protecting turtles must be dealt with severely.

5. The construction or maintenance of turtle pens (these are also illegally used to "shore" the endangered dugong for the market) should be banned.

6. Efforts to "develop" some of the islands and coastal areas important to nesting turtles should be carefully examined. For example light house construction and coconut plantations may be threatening Lakshadweeps most important nesting beaches.

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