Current marine turtle situation in the Andaman and Nicobar Islands – An urgent need for conservation action

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Introduction

The four species of marine turtles that occur in the Andaman and Nicobar Islands are the Leatherback (*Dermochelys coriacea*), the Hawksbill (*Eretmochelys imbricata*), the Green sea turtle (*Chelonia mydas*) and the olive ridley (*Lepidochelys olivacea*). Blyth in 1863 in Monat's paper first reported only three species, the olive ridley, Green and Hawksbill to occur in the Andaman and Nicobar Islands. In the late 1970's and up to early 1980's, there were several reported of Loggerheads nesting on these islands. However there is absolutely no evidence of this species nesting in the Andaman and Nicobar Islands now.

Status surveys and studies in the Andaman and Nicobars have recorded India's best nesting beaches for three species, the Leatherback, Green and Hawksbill sea turtles. The presence of Green turtles and Hawksbills feeding grounds are also confirmed (Bhaskar, 1993). Evidence of the decline of sea turtles in the islands has been reported (Bhaskar, 1993) and the need for conservation and recommendations has also been discussed (Bhaskar, 1993, Bhaskar and Andrews, 1993 and Sivasunder, 1996). In 1978 the notification of 94 islands in the Andamans as sanctuaries includes 30 islands as confirmed sea turtle nesting sites. There are at least 24 sites reported for the Nicobar group of islands (Bhaskar, 1993 and Tiwari, 1991). Currently all the best viable nesting sites are either in Tribal Reserves or in uninhabited islands. This report reviews literature and includes new nesting sites and observations made during crocodile and wetland surveys over the past seven years.

Leatherback* (*Dermochelys coriacea)

This unique animal, the largest marine reptile, occurs only in the Andaman and Nicobar group of islands and in Sri Lanka for the Northern Indian Ocean region. There are sixty four known nesting sites in the world and 23 sites have been reported for these islands and currently only 21 sites are utilised by these large reptiles for nesting (Andrews and Whitaker 1996, Bhaskar, 1993 and Tiwari, 1991). The last reported nesting on Karamatang No. 9 beach in Middle Andaman Island was in 1974 and the last nesting at Cuthbert Bay also in Middle Andaman was in 1978 (Bhaskar, 1993). There are incidents of one or two turtles nesting in Cuthbert Bay during some years and the last report was in 1997 of one female nesting. These two areas were the northern-most distributional range for this species in the Andamans. This is a typical example where too much human disturbance on the beach such as sand mining, cattle, predation of eggs by humans and feral dogs, and settlements and camps on the beach, can affect nesting intensity and deter females from nesting. These causes and examples must be considered for management planning. Most of the Leatherback rookeries in the Nicobars were found only in 1990 (Bhaskar 1993 & Tiwari, 1991) and nesting on the east coast of Rutland only in 1997 when nests were found in May.

Leatherback sea turtles nest 4.9 times on an average, per season, ranging from 1 to 7 times depending on the female's reproductive status for that year (Bhaskar, 1993). During the 1991 – 92 season 166 females nested in the Great Nicobar island. This may be an under-estimate, being for only 8 of the 9 nesting sites, and of these 8, some

sites were surveyed well after the nesting season in March (Bhaskar,1993). However, this was the first time that a figure for the Leatherback nesting population on Great Nicobar Island was reported and possible only through tagging females after they came up to nest. In 1981, 10 nests in South Bay in Little Andaman island was reported by Bhaskar and in 1984 he counted 84 nests on the West Bay beach of Little Andaman Island. During mid March 1999, 34 nests were counted on the West Bay beach during a crocodile survey and no nests or tracks were found on the South Bay beach. Juvenile leatherbacks have been observed off the southern coast of North Sentinel Island, an island north west of Little Andaman island.

Australian tagged Leatherbacks have been observed to nest on the Galatha beach in the Great Nicobar Island on the South-East coast. However, no information has been reported for these turtles which is a loss of extremely valuable data on the biology of the species.

The estimated nesting population for Andaman and Nicobar Islands is 198 females (Bhaskar, 1993) and there has been no other effort to estimate populations. Nesting season for this species has been discussed by Bhaskar, (1993) and Sivasunder, (1996). The nesting season for the Nicobars, from observations at the Galatha beach, starts in November, peaks in late December and January. In some years, it spills into April and there are records of turtles nesting in October in some years. Maximum nesting in South Andaman on Rutland Island is from September through December. Bhaskar (1993) has reported nesting all year round except in May. However there are records of Leatherbacks nesting in May on Rutland island as per the Forest Department records and from observations in May 1997 on the east coast of Rutland.

Threats to nesting populations, nests and nesting beaches has been discussed by several authors, Bhaskar, (1993); Bhaskar and Andrews, (1993); Misra, (1993); Sivasunder, (1996) including the evidence of decline in populations. The various threats for the leatherbacks are mainly predation of eggs by humans and feral dogs at the Galathea in Great Nicobar Island, South bay in little Andaman Island, Jahazi beach and the east coast of Rutland Island. Currently Jahazi beach on Rutland is under immediate threat due to tourism development plans and a road leading to this beach. This area is a part of the Mahatma Gandhi National Park. The other main threat which cannot be quantified is the amount of plastics floating around the Andaman and Nicobar Islands. This is mainly due to the direction of currents and wind that brings plastics from close by South Eastern countries and a large amount of plastic has been generated within the Islands over the past six years. It is known that leather back turtles swallow plastics mistaking it for jelly fish and deaths have been reported world wide.

***Hawksbill Turtle* (*Eretmochelys imbricata*)**

The Andaman and Nicobar has been recorded as the best nesting beach for this species in India (Bhaskar,1993) and hawksbill favour small isolated island beaches for nesting. There are twelve reported hawksbill nesting sites in the Nicobar group, three beaches on little Andaman Island and 27 nesting sites on 26 islands in the Andaman group of Islands. South Reef Island in middle Andamans and North Brother and Snark Islands in the south are considered the most important hawksbill nesting sites (Bhaskar 1993 & 1996). Although there are no records of hawksbills nesting on the west coast of Middle and South Andaman Islands, these areas come under the Jarawa Reserve and can not be surveyed. Hawksbills have been observed year around in the sea and in the bays along the west coast and Bluff Island seems to have a perfect hawksbill nesting beach. Hawksbill feeding grounds are found all around the Andaman and Nicobar Islands.

The nesting population for the Andaman Islands is estimated as 205 and for the Nicobars, 45. However this requires further surveys and assessments with a big team of researchers considering the number of sites in both the island

groups and the logistics. It is near impossible to land on several islands during the monsoons which happens to be the main nesting season for several species. Previous records have reported nesting through out the year except in June, the start of the season being July and peaking from September to October and tapering off in December. Hawksbills turtles nest 2.85 times within a season and renesting intervals for this species on South Reef Island has been reported as 12-17 days, averaging 14.06 (Bhasker,1996).

The main threats to this species in the Andaman Islands is poaching by settlers for meat and eggs. This species is the most commonly hunted turtle, mainly because it is found in shallow reefs or in the reefs during low tide and can be easily speared. Feral dogs are a major threat to turtles in the Andaman and Nicobar Islands, where they not only dig up nest for eggs but also kill nesting turtles. Interviews with fishermen indicate that an estimated of 50- 80 turtles on an average are killed annually by drowning in shark and gillnets. The south western corner of Rutland Island had one of the best hawksbill nesting beaches in the Andamans until the early 1980's after which sand mining destroyed the beach. Currently Smith and Ross Islands off North Andaman Island are under severe threat due to tourism and related developments. The amount of plastics could also pose a major treat to this species.

Green turtle* (*Chelonia mydas)

This is the most common species found along the Andaman and Nicobar coasts and they also nest year around. However main nesting occurs from June to November, peaking in July and this species nests four times within a season. Bhaskar (1993) had reported 37 nesting sites for green turtles in the Andamans including Little Andaman Island and 12 sites for the Nicobar group of islands. During crocodile surveys in march 1997, three nesting sites were found on the east coast of Baratang Island in Horsford, Rawlen's and Grieve Bays, besides other sites such as north of Outram Island, Long and North passage Islands on the east coast. The new sites on the west coast are Petri and Bluff Islands and a beach in Robert bay in Middle Andaman Island. During March 1998, a total of 58 nests were counted on South Sentinel Island. 33 turtles nested between a ten day period and in one night 13 turtles nested on three different beaches. This island has been reported as important for green turtle nesting (Bhaskar, 1993) and other authors too have reported nesting on this island in 1973 and 1974 (Davis and Altevogt, 1975). During March 1997, 19 nests were counted on a beach north of the Jarawa creek in Rawlin's Bay on the east coast of Baratang Island.

Previous assessments and nest count for his species were mostly carried out just before the main nesting season or just after. This clearly indicates that we still do not have a proper estimate of the nesting population for this species. There are indications that turtles from other regions can some times be found in the Andaman waters. In September 2000, some fishermen found a U.S. tagged turtle in their shark net, south of Little Andaman Island.

Feeding grounds for the green turtle are all around the Andaman and Nicobar Islands and some of these sea grass beds are under threat mainly due to degradation through siltation. Other threats to this species are poaching for meat and eggs, drowning in nets, impact of tourism and sand mining. Sand mining is definitely going to effect nesting grounds of this species in Madhuban on the south east of South Andaman Island, Rutland and Baratang Islands. Tourism and related development will have an impact in Long, North Passage, Rutland, Smith, Ross and Havelock Islands. Havelock already has very few turtles nesting due to extensive poaching, tourism, drowning in nets, and predation of nests by humans and dogs. Lack of turtles nesting in Corbyn's Cove, south of Port Blair in South Andaman Island and North Cinque Island has been due to the development of infrastructure for tourism and lights on these beaches.

***Olive ridley* (*Lepidochelys olivacea*)**

This species nests both in the Andamans and the Nicobars during October to April, the peak season being January to February. Ridleys nest only on the east coast of the Andaman Islands and 12 sites have been confirmed besides three sites in the Nicobar group. The main sites for this species are Madhuban in South Andaman Island, Cuthbert Bay and Karamatang in Middle Andaman, Ramnagar and Coffeedera beaches in North Andaman Island, Smith, Trlby and Hump Islands. The major site however is Cuthbert Bay, where annually most number of ridley turtles nest at the beaches on either side of the Betapur creek. In 1988/1989, 338 nests were reported (Misra, 1990). It is an area where mini arribadas occur, 60-125 turtles nesting in one night (Sajan Paul pers. comm.). This phenomenon however needs to be recorded and quantified through two seasons at least. The other sites are three beaches on the west coast of Little Andaman island. The major ridley nesting location is Great Nicobar Island which has four nesting beaches and 280 nests were found on three sites during the 1991-1992 survey (Bhaskar, 1993). The other island in the Nicobars is Teressa. The nesting population for this species in the Andaman and Nicobar Islands has been reported as 445 with females nesting on an average of 1.5 times per season (Bhasker,1999). There is a possibility that olive ridleys nest on North Passage and Long Islands and this needs to be investigated.

The main threats to this species are drowning in shark nets, poaching for meat and large scale nest predation by humans and dogs on most major beaches. Sand mining in Madhuban, Karamatang and Cuthbert Bay is affecting nesting as well.

Discussion

The current trend of tourism development activities on Smith, North passage, Long and Rutland Islands will, in the next two or three years, have an impact on sea turtle nesting. Rutland has already lost one very important leatherback and hawksbill turtle nesting beach due to sand mining in the 1980s. The peak leatherback nesting season is also the tourist season and tourism is going to have a major effect on Jahazi beach in Rutland Island. Leatherback turtles stopped nesting in Karamatang and Cuthbert Bay due to sand mining and other human activities. In the near future tourism will impact green and olive ridley nesting on these two beaches.

Sand mining on the east coast of Little Andaman Island and Madhuban beach in South Andaman Island is going to effect green and ridley nesting in another years time. There is a possibility that leatherback sea turtles nest on Madhuban beach and it could also be a major ridley nesting site. This beach has never been previously surveyed for sea turtles and requires immediate assessment. Several beaches on the east and west coast of Little Andaman island need to be surveyed.

Impact of fisheries on sea turtles in the Andaman and Nicobars Islands requires a very urgent assessment. The feral dog problem in the Andaman and the Nicobars requires urgent action because they not only destroy nests, but they also kill and eat nesting turtles. These dogs in most areas do not belong to any person and can be shot systematically.

The remoteness and inaccessibility of most sea turtle nesting islands and beaches during the start of the nesting season makes it difficult for monitoring, surveys and protection.

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