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## NESTING BEACHES IN THE ANDAMAN AND NICOBAR ISLANDS: A PROFILE

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We present information from our 15 years of sea turtle surveys and research in the Andaman and Nicobar islands. We present consolidated information on the geography and habitat range across the islands of the Andaman and Nicobar archipelago that include sea turtle nesting beaches. This work has brought in additional information on species that use similar habitat, as well as beach preference by the four species of sea turtle (*Eretmochelys imbricata*, *Chelonia mydas*, *Dermochelys coriacea*, and *Lepidochelys olivacea*) that nest in the Andaman and Nicobar Islands. Along this geographic range we elucidate factors that influence sea turtle arrivals to nest at beaches as well as the management problems at hand. We briefly discuss our involvement in environment education and issues we grapple with in regard to sea turtle conservation in the archipelago.

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## THE RECOVERY OF NESTING HABITAT: CONSERVATION CHALLENGES FOR OLIVE RIDLEY SEA TURTLES (*LEPIDOCHELYS OLIVACEA*) ON ORISSA COAST

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Sea turtles have evolved a variety of remarkable strategies for their survival and have flourished for millions of years. They use a wide range of habitats (sandy beaches, coral reefs, sea grass beds, etc.). Today, their numbers show tremendous decreases, such that all species have been assigned status ranging from ‘threatened’ to ‘critically endangered’. Disturbances that these turtles face include human activities such as pollution, fishing and incidental capture, and habitat loss. These occurrences have been found to impact every stage of their life cycle. The olive ridley is indeed affected by all of these stresses but in particular it is affected by the loss of nesting habitat. The three mass nesting and sporadic olive ridley nesting sites are challenged by both unnatural and natural forms of habitat loss. Within the past century, humans have modified the beach by reducing the amount of native vegetation. Reduction of intact vegetation has contributed to habitat loss through coastal erosion, further complicating the turtle's ability to successfully nest. Erosion is becoming a significant problem in Orissa. Planting of indigenous species has been designed as an instrumental conservation measure to return critical native flora and preserve existing sandy beaches and sand dunes that are essential to nesting success. This has been created as a tool to integrate critical habitat needs of the olive ridley with human economic and developmental needs. Implications for sandy beach habitat restoration will be examined through an analysis of alterations in nesting distributions along with nesting beaches before and after the planting of the vegetation. An understanding of successful restoration attempts will help in the formulation of effective conservation measures for olive ridley nesting habitats in Orissa.

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## \*TURTLE NIGHT WATCH NATURE TOURISM: SHARING BENEFITS TO SUSTAIN THE LOCAL COMMUNITY AND SEA TURTLES IN REKAWA, SRI LANKA

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The Turtle Conservation Project (TCP) selected Rekawa village for the implementation of the TCP's community based in-situ marine turtle nest protection programme in association with the Department of Wildlife Conservation (DWC). Rekawa is one of the Sri Lanka's most important marine turtle nesting sites as all five species of turtles which nest in Sri Lanka are found here nesting throughout the year. The TCP employs former turtle egg poachers as turtle nest protectors and provides them compensation in appreciation of their work. Later these nest protectors were grouped to form a community based organization called ‘Nature Friends of Rekawa (NFR)’. In 1996, TCP introduced a nature tourism programme in Rekawa called ‘Turtle Night Watch’ as a self sustainability event. The

aim of turtle watch is to create an additional income to support the local community in Rekawa, to continue TCP's community based conservation efforts and to support the Department of Wildlife Conservation. In 1998, with the assistance of Sri Lanka Tourist Board (SLTB) and Sri Lanka Hotel School, TCP trained a selected group of local people as "Tourist Guides", which resulted in them receiving their Guide Licenses. These guides were then employed on the beach and visitors paid a fee to experience the turtle watches in Rekawa. The profit of the 'Turtle Night Watch' nature tourism initiative has been shared by the stakeholders of the project. 10% of the tourism income has been allocated to the Rekawa community tourist guides and another 35% to a "Turtle Conservation Fund" that will cover the future salaries of the nest protectors when funding gaps occur. In addition, 25% was allocated to the NFR, 10% to the community welfare fund, 10% to the DWC and lastly 10% to the TCP to continue their conservation and other community programmes in Rekawa. In 1998 TCP started to collaborate with the Sri Lanka Tourist Board on a training programme for the local guides. During the tourism period of 2002-2003 (during the cease fire period), a sum of Rs 10,5000.00 has been raised from the Rekawa Nature tourism programme. This programme has won several global awards in the appreciation of services provided to the community, environment, and economy and to the visiting tourists.

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## **REGULATION TO RESTORE ECOSYSTEMS – MARRYING FISHERMEN'S LIVELIHOODS AND TURTLE CONSERVATION IN ORISSA COAST**

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This paper illustrates how a participatory and constructive approach can combine conservation with development, as is being attempted on the Orissa coast regarding olive ridley turtles, an endangered species. Five species of sea turtle inhabit Indian waters, of which the olive ridley is the most famous with high concentrations in Gahirmatha beach, a marine sanctuary area. Mating, mass nesting and hatching occur from November to May, peaking from January to March every year. In India, all five species of sea turtle are completely protected and included in the 1972 Wild Life (Protection) Act, Schedule-I and CITES Appendix I, both of which ban their capture and killing. An average of 700,000 to 800,000 olive ridleys nest every year in Orissa in three sites (Gahirmatha Marine Sanctuary, Rushikulya and Devi rookery) while the other four species nest periodically all along the Indian coast. In order to ensure further conservation and safety of the olive ridley, at present there is a temporary ban on fishing during the entire breeding migration period from November 1 to May 31. Imperiled livelihoods have agitated the fishing community into protesting prohibition on marine fishing along the Orissa coast, sometimes even resorting to violence. Loss of employment following the ban of marine fishing has led fisher people to migrate to other areas to live, and even some suicides in Gahirmatha. Trawlers were required to use Turtle Excluder devices (TEDs) but this has been mostly unimplemented and hence ineffective, like the recommendations of the Centrally Empowered Committee (CEC). Governmental efforts to compensate fishers for the loss of livelihood are still slow and inadequate while industries have recently been invited to set up SEZ or port or polluting ship wreckages and oil spills near Paradip. Such ad hoc regulatory mechanisms are causing confusion and conflict between fisher people, trawlers, industry, and government, further fuelled by the media. On the other hand, the CELL project, a consortium of NGOs and CBOs, is trying to promote an eco-restoration approach with the community and even Government participation as viable. It is establishing artificial reefs using hollow cement blocks in shallow near shore water. It is known to have increased coastal productivity 5–6 times, as in Tamilnadu under the CELL and TN Government project in the last two years. The reef permits use of mostly hook and line and traps, these gears do not catch turtles so turtle mortality is totally avoided. The commercial value of fish caught is high due to its high quality and freshness. Hence, the revival of the fishermen's livelihoods is ensured. It benefits the traditional fishermen by keeping trawlers away to avoid damage to the net by entanglement. Marine ecotourism can also be promoted as an alternative livelihood option with scuba diving and snorkeling facilities, as is done in Lakshadweep Island.