

## An Urgent Need: Coastal Zone Management Plan to Recover Ridley Mass Nesting sites of Odisha

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### Introduction

The Indian coasts fall within the tropics. Including the coast of Lakshadweep and Andaman and Nicobar Islands, the coastline of India measures about 7516.6 km, which is distributed among 9 coastal states and four Union Territories of which 4,210 sq. km is sand beach.

Five of the seven species of sea turtles found worldwide are reported to occur in Odisha coastal waters. These are the Olive ridley (*Lepidochelys olivacea*), Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Leatherback (*Dermochelys coriacea*) and Loggerhead (*Caretta caretta*). Significant proportion of World's olive ridley populations migrate from south east coast of Sri Lanka every winter to Odisha coastal waters for nesting on beaches in Odisha, as well as along other parts of East coast of Indian coast. Turtles of south and western Sri Lanka migrate toward the west coast of India and this was well studied by Wildlife Institute of India. Therefore, this study confirms there are at least two different populations of sea turtles that exploit Sri Lankan waters. One population moves towards Odisha coast (India) for mass nesting and another population moves towards Maldives and Lakshadweep Islands for sporadic nesting or foraging.

The highest congregation of olive ridley found on the offshore water of Odisha state, the principle nesting beaches are Gahirmatha, Rushikulya, and Devi. Gahirmatha is one among largest sea turtle rookery of the world, where mass nesting had taken place twice a year in a beach stretch of 35 km, Ekkakula nasi. This was fragmented during 1999 super cyclone. After this super cyclone which hit the Odisha coast had significant geo-morphological changes due to which turtles profuse this nesting site and preferred to nest in the nearby wheel island to lay their eggs. The Gahirmatha rookery mainly comprises of Nasi-I, Nasi-II, Babubali and Ekakulanasi islands. But both the nesting the islands have shrunk considerably and the process of fragmentation of the beach has assumed alarming proportion in 1999 year due to nearby developmental activities. Nasi-II otherwise called outer-Wheeler's island was reduced to less than 1 km during 2010 mass nesting season and after 2013 super cyclone 'Philine' these two Islands was fully inundated and hardly the nesting beach was available for the turtles to nest.

After 2013 Phailin, significant changes occurred in the geomorphologic structure of the Rushikulya rookery the 6 km beach stretch. This rookery received turtles from 1994 to 2010 except few instance but the geomorphology became highly dynamic after 2011

where a long sand bar was formed in front of mouth which was 4.16 km and the nesting took place for two years in this rookery 2011-12, 2012-13. The spit development in the Rushikulya estuary mouth regions is correlated with the long shore transportation of sediments and the dominant influence the southwest monsoon which is elicited by nearby developmental activities along the coast. Soon after the Philine this long sand spit was totally submerged and during the mass nesting period it was in inundated stage which obstructed the turtles to move in the main land beach and during 2013-14 only 1.8 km beach was available and used for the nesting by olive ridley turtles.

Among three principal sea turtle rookeries situated along the Odisha coast, Gahirmatha, Rushikulya and Devi. The two are now in a decisive and urgent position of conservation. Gahirmatha which had been facing a heavy pressure of erosion and significantly reduced within a decade (2003-13). But in Rushikulya sea turtle rookery an opposite phenomenon that is accretion, playing the key role to change the geomorphology of the beach due to which Olive ridley of Odisha are not getting appropriate site to nest in the coming years.

The increasing pressure on the coastal zone due to concentration of population, development of industries and ports, discharge of waste effluents and municipal sewage and spurt in recreational activities have adversely affected the coastal environment. Coast Regulation Zone (CRZ) Act, 1991 was enacted by the Government of India to protect Indian coast from degradation. The CRZ-I zone includes ecologically sensitive areas, mangroves, coral reefs area close to breeding ground of fish and other marine life including marine turtles nesting and migratory areas, areas of outstanding natural beauty and Marine Protected Areas. This zone is qualified for strict protection.

Under a public litigation in the Supreme Court of India, the court has directed all the states to prepare and implement the CRZ plan. Most of the states have prepared their plans for implementation to protect coastal zones from degradation. India initiated action through state governments to create network of MPAs under Wildlife (Protection) Act, 1972 to provide protection to critical and important marine ecosystems. But the CRZ plan for Odisha is still on the way. It is for most important to consider this key species, Olive ridley. How much area should we conserve for future ridley of Odisha? As the impact of developmental activities along with other climatic factors had started to concern these important coastal and marine biodiversity areas of Odisha.