

Mass mortality of *Lepidochelys olivacea* observed at Kottapeta beach in Srikakulam along the east coast of Andhra Pradesh, India

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The coastline of Andhra Pradesh is one of the important sporadic nesting habitats of olive ridley turtles (*Lepidochelys olivacea*). The species is known to nest on the northern Andhra Pradesh coast (Rajasekhar & Subba Rao, 1993; Priyadarshini, 1998) which encompasses three districts namely Srikakulam, Vizianagaram and Visakhapatnam. Olive ridley turtles are categorised as Vulnerable on the IUCN Red List (IUCN, 2010) and are included in Schedule I of the Indian Wildlife (Protection) Act, 1972. This coast may also serve as an intermediate developmental habitat for sub-adult ridley turtles and for juvenile and sub-adult green turtles *Chelonia mydas* (Tripathy *et al.*, 2003).

About 154 carcasses of *Lepidochelys olivacea* that were entangled in fishing trawlers were washed

ashore at Kottapeta coast, near Bhavanapadu Fishing Harbour in Srikakulam district (18°16'37.17"N & 83°53'47.62"E) along the coastline of north coastal Andhra Pradesh (Figure 1) on 17th March 2011. The local fisher folk claimed that the big trawl nets used by the adjacent harbour located at Visakhapatnam city were responsible for these deaths.

A team comprising Forest Department officials, local wildlife conservation NGOs and volunteers visited the spot and examined the carcasses. All the dead turtles were adults. The beached turtles were sexed using external characteristics. Of the dead turtles that were sexed, 86% were females, 6% were males and 8% were unidentified carcasses. Curved carapace length (CCL) and curved carapace width (CCW) were measured for all dead turtles.

Table 1. Size measurements of male and female olive ridley turtles stranded on Kottapeta beach in Srikakulam

Sex (n)	Curved carapace length (cm)		Curved carapace width (cm)	
	Average	Range	Average	Range
Males (9)	69.3	61.3 – 77.4	68.9	63.4 – 74.5
Females (132)	70.1	63.2 – 77.0	68.7	61.6 – 75.8
Unknown (13)	68.5	62.4 – 74.7	67.8	61.6 – 74.0

These turtles were probably migrating towards their mass nesting grounds in Orissa (some of them may also include the resident nesting population) as the coastline of Andhra Pradesh is believed to form part of the migratory route of the turtles that nest in Orissa (Tripathy *et al.*, 2003). The fact that there are many gravid females amongst the dead ones supports the theory (Figure 2). It is evident that non-use of Turtle Excluder Devices (TEDs) in mechanised fishing trawlers was the main reason

for these deaths. Depredation of eggs by humans and feral animals is also widespread in the region. In a similar incident, several olive ridley carcasses were found washed ashore in January 2008 at Thikkavanipalem in Parawada mandal, about 45 km from Visakhapatnam city (Rajasekhar & Murthy, 2008).

Incidental capture in trawl and gill nets is a major cause of marine turtle mortality along the east coast

of India (Rajagopalan *et al.*, 1996). In fact, fisheries related mortality is usually higher along the northern coast of Andhra Pradesh, which is probably due to the higher density of turtles in the region.

The indigenous TED developed by the Central Institute of Fisheries Technology (CIFT), Kochi is being promoted in Andhra Pradesh by the State Institute of Fisheries Technology, Kakinada (Bhavani Sankar & Ananth Raju, 2003). However, fisher



Figure 1. *Lepidochelys olivacea* carcasses washed ashore near Srikakulam. Photo: K.L.N. Murthy

folk have not been using TEDs and the operation of mechanised trawlers in the offshore waters during the nesting and breeding season is rampant. Apparently, violation of Coastal Regulation Zone (CRZ) regulations and failure of the authorities to keep a tab on the perpetrators caused this ecological mishap. Besides, breeding olive ridley turtles are also threatened by *Casuarina* plantations, beach erosion, artificial illumination, depredation of eggs and hatchlings along this coastline.



Figure 2. Eggs gushed down the oviducts of this dead gravid female. Photo: K.L.N. Murthy

The control measures which can be taken up by the authorities to reduce fisheries related mortality include:

- Declaration of no fishing zones during the nesting season in areas where the concentration of marine turtles is high, especially near river mouths (Godavari and Vamsadhara).
- Enforcement of laws: CRZ Rules, the Andhra Pradesh Marine Fishing (Regulation) Rules, 1995.

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Although awareness campaigns in the form of ‘turtle walks’ and community education programmes in fishing villages are organised every year by Green Mercy (a local NGO and a member of Turtle Action Group), involvement of all stakeholders in sea turtle conservation on a larger scale is vital for securing the long term survival of the species and their coastal nesting habitats in the region.

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Government orders mast lights to be switched off!

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Chennai has seen what is possibly a first in India – Mast lights along the eight kilometer stretch of beach from Neelangarai up to the Adyar estuary will now be switched off during the turtle season to prevent disorientation of olive ridley hatchlings emerging from nests laid on the beach.

Volunteers from the Students' Sea Turtle Conservation Network (SSTCN) have monitored nesting and hatchling emergence along this stretch of beach since 1988. In recent years, 6 powerful mast lights had been put up on this stretch of beach and were kept on every night through the year.

While SSTCN volunteers patrol the beach throughout the season locating and monitoring nests, they still miss a few because the turtle nested very early or late, between patrols or the large number of people using the beach obscured the turtles' tracks. Hatchlings from these 'wild nests' are of particular concern. Each year, at the tail end of the season, volunteers painstakingly scour the beach for any hatchlings that may have been disoriented by the lights and are straying towards the light and away from the water. Each year they rejoice over the successful release of several dozen 'wild' hatchlings, but also mourn unknown numbers of hatchlings that have emerged

from 'wild' nests and headed for the huge mast lights. Frustrated volunteers followed hatchling tracks that ended abruptly among dog or crow tracks or went right up to the tar roads and disappeared.

For years, SSTCN volunteers made representations to officials in the forest department and the Chennai Corporation. However, promises to change the direction of the lights or reduce their intensity or brightness never amounted to action. In the 2010 season, however, Mr. Sundararaju took charge as the Chief Wildlife Warden. He arranged a meeting with the Secretary for Environment and Forests, the Corporation Commissioner and a representative of the Fisheries Department. He gave SSTCN the opportunity to make a presentation highlighting the problems the olive ridley turtles face on this coast with particular emphasis on the damage caused by the bright mast lights.

Concerned by the situation, the Secretary, Mr. Sarangi, suggested that turtles also have a right to safely access the beach, and directed the Corporation Commissioner to arrange to switch off the lights with immediate effect as the hatchling season was already underway – a significant achievement and a real step in the right direction.