Spindling Beaches - Raising Threat for Olive Ridley Sea Turtles (*Lepidochelys olivacea*) in Coastal Maharashtra, India

Milind D. Patil*

Introduction

In 2002, Sahyadri Nisarga Mitra (SNM), an NGO, started its pioneering work to protect the rookeries of Olive Ridley Sea Turtles (*Lepidochelys olivacea*) in Maharashtra state (Sahyadri Nisarga Mitra 2013). Velas was the first village in Ratnagiri district scheduled for this activity. SNM's efforts successfully protected 50 nests along 3km beach of Velas in the season 2002-03 (Sahyadri Nisarga Mitra 2013). Henceforth, villagers are involved in daily patrolling activity and nests get protected by the *ex-situ* technique of hatchery management. Till 2013 more than 21,000 hatchlings of Ridley Turtles have been released safely into the sea from the coast of Ratnagiri District (Sahyadri Nisarga Mitra 2013). However, now this place is at stake of gradual tapering of Ridley's breeding grounds.

Photo 1. Turtle track running parallel to the vertical ridge

Observations and discussion

I visited this place on 12/01/2014. Around 0700 hrs, I observed a turtle track (17°57'48.8" N, 73°01'45.7"E) runs parallel to a vertical ridge which formed a thick and compact structure of sand (Photo-1), followed for 78 meters! Flipper marks looked feeble to climb a meter height of the ridge to reach the breeding ground. At a point, where she turtle returned to the waters without laying eggs, trail was blocked by sixteen toppled trees of *Casuarina equisetifolia* (Photo-2). After discussing this observation with Mr. Mohan Upadhye, a local turtle activist, portrayal started revealing.

Photo 2. Toppled trees of *Casuarina*

Long shore transport (LST) of sand is always being part of natural disturbances at sea shore. Any obstacle in the path of LST ultimately form structures, built perpendicular to the coast e.g. groins and jetties (Chaudhari *et al.* 2009). Additionally, increasing global see level makes picture more abrasive. Roaring surfs incessantly eroded the sand from the base of *Casuarina* plantations raised near to the high tidal line. Since it possesses shallow root system, stormy winds along with high tidal forces expose the roots of *Casuarina equisetifolia* and the tree gets collapsed. The average distance measured between plantations of Casuarina and high tidal line was less than 10 meter.

***College of Forestry, Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli, India.**
Email: milindp771@gmail.com

Photo 3. *Casuarina* saplings fenced with barbed wire for protection

humans have set minimum through regular patrolling of nesting beaches, this place is prone to the frequent hits of Jackal (*Canis aereus*), Stripped Hyena (*Hyena hyena*), Indian Grey Mongoose (*Herpestes edwardsii*) and dogs (*Canis familiaris*). Combined effect of all above factors can make this rookery an inhospitable place in near future. From 2012, forest department has raising new plantations of *Casuarina* at Velas coast. Alas…these saplings are fenced with barbed wire for protection (Photo-3). Now who will dare to cross them?

Of Velas, it's a second incident observed since last year as females are being failed to climb the vertical sand mounts. Costs of Dabhol village had seen 5 females similarly abandoning the breeding grounds without laying eggs due to the fallen *Casuarinas* in 2004-05 (Sahyadri Nisarga Mitra 2013). Formation of jetties together with uprooting *Casuarinas* made beaches narrower to look after the Ridley hatchlings. As a result, this year forest department has recorded only ten nests from the Velas coast. If a female nests too close to the sea shore, there is a risk of egg loss and mortality due to salt water inundation as observed by Mr. Kumbhar, Forest guard, (Dapoli) at Velas (25/01/2014). This is the first report from the western coast of India as Ridley females moving off from the rookeries due to the above said Barriers.

Village panchayat of Velas is overlooking this situation. Fallen trunks are never been removed since last monsoons, after all it is the property of state forest department. Whereas forest officials replied that they have to go through the procedures of auctioning the timber. Though the instances of poaching eggs by

Photo 4. Velas Beach

Conclusive remarks

Mass nesting sites of sea turtles should keep free from *Casuarinas* (Tripathi & Rajasekhar 2009). Central Empowered Committee constituted by the Honourable Supreme Court of India (2004), regarding protection of Olive Ridley Sea Turtles in Orissa, recommended the removal of *Casuarina* plantations that interfere with the turtle nesting sites together with their root stock, and restoration of beaches in their natural condition. Or otherwise plantations should be raised minimum at a distance of 50 – 100 m from the high tide line (Chaudhari *et al.* 2009). In fact, *Casuarina* does not seem to provide effective storm protection, the purpose for which it has been planted in coastal areas of India under various coastal shelterbelt schemes (Das & Sandhu 2014), besides it reduces biological diversity and beach integrity (Awale & Phillott 2014).

At the end of the day, SNM has handed over this Marine Turtle Conservation Project to the Maharashtra state forest department from the season 2013-14. Now it's a time re-boost the tumbling figures of turtle nesting sites through re-establishing their traditional breeding grounds.

Acknowledgements:

I am thankful of Mr. Mohan Upadhye for sharing his experiences and Mr. Kumbhar and all the officials from Dapoli range forest office for providing departmental records and other information.

Literature cited:

Awale, D. and A.D. Phillott (2014). A Review of the Adverse Effects of *Casuarina* spp. on Coastal Ecosystems and Sea Turtle Nesting Beaches, *Indian Ocean Turtle Newsletter*, 19: 15-19.

Central Empowered Committee, Government of India, New Delhi, India. (2004). Civil No. 202/95 & 171/96.

Chaudhari, S.A., K.V. Devi Prasad, and K. Shankar (2009). Impact of Casuarina plantations on Olive Ridley Turtle nesting along the Northern Tamil Nadu coast, India. ATREE, Bangalore and MCBT, Mamallapuram, India, 44pp.

Das, S. and H. Sandhu (2014). Role of exotic vegetation in coastal protection- An investigation into the ecosystem services of Casuarina in Odisha. Economic & Political Weekly, XLIX: 42–50.

Sahyadri Nisarga Mitra (2013). Marine Turtle Conservation in Maharashtra (2002 to 2006). http://www.snmcpn.org/index.php/documentation/project-reports/marine-turtle-conservation-in-maharashtra-2002-to-2007. Accessed on March 14, 2014.

Tripathi, B. and P.S. Rajasekhar, (2009). Natural and anthropogenic threats to Olive Ridley Sea Turtles (Lepidochelys olivacea) at the Rushikulya rookery of Orissa coast, India. *Indian Journal of Marine Sciences,* 38: 439–443.