

## Biological Studies on Sea Turtles on the Coast of Orissa

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Several turtle biologists have studied the olive ridley turtle in Orissa over the last decade and have developed strategies towards turtle conservation. Summarised below are some relevant findings of these studies:

- An increase in mortality was documented from a few thousands in the early 1990s to more than 10,000 per year by the mid 1990s (Pandav, 2000). A review of data suggested that this population may be on the verge of a decline, based on evidence from the failure of arribadas in recent years, a decline in adult sizes and high fishery related mortality (Shanker *et al.*, 2004a).
- Nearshore surveys have shown that sea turtles occur in discrete areas which have been named as 'reproductive patches'. These reproductive patches have been located off the coasts of Gahirmatha (Pandav, 2000; Ram, 2000) and Rushikulya (Tripathy, 2004), and are expected to occur in the offshore waters of other mass nesting beaches such as Devi River mouth. The patches are about 50 – 75 km<sup>2</sup> in size, and extend to a distance of about 5 – 6 km offshore.
- The Wildlife Institute of India tagged 10,000 nesting turtles and 1600 mating pairs in offshore waters from 1995 – 1999. Results showed that olive ridley turtles migrate between mass nesting beaches (Pandav, 2000). Tagged turtles were recovered from southern Tamil Nadu and Sri Lanka, indicating that at least some of the olive ridleys that nest in Orissa migrate to these areas.
- In satellite telemetry studies conducted in 2001, 3 of 4 turtles remained in the offshore waters of Orissa between April and July, 2001, moving within 50 and 200 km of the coast. A fourth turtle migrated to the coast of Sri Lanka in August 2001.
- Genetic studies confirmed the results of tagging and showed that there is no genetic difference between nesting populations in each of the

mass nesting beaches. More significantly, the results revealed the distinctiveness of the population on the east coast of India, and suggested that they may be ancestral to populations in the Atlantic and Pacific oceans (Shanker *et al.*, 2004b).

- Satellite imagery studies suggest that the failure of mass nesting at Gahirmatha in 1997 and 1998 is due to natural causes such as erosion and reduction in the nesting habitat due to the impacts of successive cyclones (Prusty *et al.*, 2000).

### Conservation recommendations

- There should be more effort to identify and monitor reproductive patches. Identification and protection of these reproductive patches from trawling and other harmful fishing practices will significantly reduce turtle mortality.
- Protection of the reproductive patches (rather than the entire marine sanctuary) is a more effective and efficient way of utilising the limited manpower resources of the state, and can involve local fishing communities.
- Monitoring of turtle nesting and mortality should also be carried out by independent agencies to evaluate success of management measures.
- While reducing current mortality, turtle conservation strategies should be effective in the long term.
- The nesting habitat of sea turtles must be protected; adverse impacts of *Casuarina* plantations and beach lighting need to be mitigated.
- Rigorous assessments of various developmental activities on coastal and offshore habitats of olive ridley turtles are required
- Satellite telemetry studies will provide important information about migration and offshore distributions of turtles during breeding and non-breeding seasons.

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## Views of Fishworker Support Organisations on Turtle Conservation Measures in Orissa

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The International Collective in Support of Fishworkers has been involved in researching the interaction between fisheries and turtle conservation in Orissa. While several of the views in our note overlap with those of other groups such as the traditional fishworker groups and those of turtle biologists, certain others are exclusive opinions. Our views on turtle conservation measures and the highlights of our note are presented below:

- There should be strict implementation of the 5-km near-shore 'non-trawl zone'.
- Protection of reproductive patches is an efficient and cost effective conservation method.
- Regulating the use of certain gear: There should be no blanket proscription of all forms of gillnets, which is the mainstay of the fishers of Orissa.
- Compensation should be given for livelihood opportunities foregone. A compensation package for fishing opportunities foregone should be worked out, including provisions for earning an

alternative livelihood. Incentives to switch to more selective gear should also be considered.

- Recognising and protecting the rights of safe passage: In the implementation of turtle conservation measures, right of safe passage through the marine sanctuary and 'no-fishing zones' should be better recognized and protected. This is an important issue for several communities living in the vicinity of the marine sanctuary, who have to cross the core area of the Gahirmatha sanctuary to fish beyond, and face harassment on a regular basis.

### Turtle Conservation Measures Useful in the Medium and Long Term

- Review of legislation: There is need for considerable improvement of the scope of legislation for turtle protection, especially with regard to turtle-fisheries interactions. Instead of total protection regimes for turtles, it may be