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Behaviour of olive ridley turtles (*Lepidochelys olivacea*) prior to *arribada* at Gahirmatha, Orissa, India

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The olive ridley turtle (*Lepidochelys olivacea*) is well known for its synchronous nesting behaviour, also known as *arribada* in which several hundreds of thousands of female ridleys nest *en-masse* (see Bernardo and Plotkin, 2007). The major nesting aggregations for olive ridleys occur in a few beaches of Costa Rica and Mexico in the east Pacific (Pritchard 1997), and in Orissa on the east coast of India (Bustard 1976; Kar and Bhaskar, 1982; Pandav et al., 1994). From the time of its discovery, Gahirmatha (a locality in Orissa), has been reported as the world's largest sea turtle rookery (Bustard, 1976). The estimates of mass nesting in Gahirmatha have ranged between 100,000 to 800,000 in different years (Pattanaik et al., 2001) although the census number has been debated recently (Tripathy, 2002; Shanker et al., 2003). Turtles arrive on the Orissa coast during early November and remain in the near shore waters for more than six months forming breeding congregations. The breeding season for olive ridley in Orissa spreads from November to April during which mating, egg-laying and hatching take place. As part of the DGH Turtle Telemetry Project of the Wildlife Institute of India, the breeding congregation of olive ridley turtles at Gahirmatha was monitored during 2009-2010 seasons. In general, the mass nesting taking place at Gahirmatha has been between the month of January and March. During the months of December-January, the offshore reproductive patch of turtles was observed 6 km south-east of the *arribada* beach at Gahirmatha. As the nesting season approaches, the reproductive patch gradually shifts towards the northern end of the beach. However, previous to any such kind of aggregation, the congregation was observed away from the *arribada* nesting beach. All turtles were facing towards the beach and against the wind direction. The congregation of turtles was observed in front of Wheeler Island (*arribada* beach) during the first week of February 2010 and it was restricted to 2 km from the shore. Hundreds of aggregated female olive ridleys were observed in the third breaker zone of the near shore water of the mass nesting beach and stationed themselves prior to the day of *arribada*. Many of the turtles were standing still with their head against the waves until they approached the beach for egg-laying. This is corroborated with the information from other rookeries (Plotkin et al., 1991; Plotkin et al., 1995). The reason for such behaviour prior to the *arribada* could be to preserve body energy to be used during egg-laying. Turtles did not responded to any external disturbances *viz.* movement of fishing boats and trawlers, wildlife patrolling vessels etc. and remained in the vicinity of the nesting beach for the entire *arribada* duration (5-7 days) (Satyaranjan Behera, Personal Observation). Similar observations have been made by Plotkin et al. (1991) at Nancite beach in Costa Rica. Many of the turtles were observed entering the lagoon that was formed on the south-western side between the *arribada* beach and Wheeler Island. Also the behaviour of remaining in a shallow water region before approaching the nesting beach could be due to the need to acquire and save as much energy, which they may require during egg-laying. Many of the behavioural aspects of olive ridley turtles of Gahirmatha are still unknown or adequately studied and need further investigation for a better understanding on the biology of the species.

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References

Bernardo, J, Plotkin, P.T. (2007): An evolutionary perspective on the arribada phenomenon and reproductive behavioural polymorphism of olive ridley sea turtles (*Lepidochelys olivacea*). In: P.T. Plotkin (Ed.). Biology and Conservation of Ridley Sea Turtles. Johns Hopkins University Press, Baltimore pp. 59-87.

Bustard, H.R. (1976): World's largest sea turtle rookery? Tiger paper **3**: 25.

Dash, M.C., Kar, C.S. (1990): The turtle Paradise – *Gahirmatha*. Interprint, New Delhi, p. 295.

Kar, C.S., S.Bhaskar. (1982): The status of sea turtles in the Eastern Indian Ocean. In: Bjorndal, K. (Ed.): The Biology and Conservation of Sea Turtles. Smithsonian Institution Press, Washington, D.C., pp: 365-372.

Pandav, B., Choudhury, B.C., Kar, C.S. (1994): A status survey of olive ridley sea turtle (*Lepidochelys olivacea*) and their nesting beaches along the Orissa coast, India. Unpublished Report. Wildlife Institute of India, Dehradun. 48pp.

Pandav, B. (2000): Conservation and Management of olive ridley sea turtle (*Lepidochelys olivacea*) along the Orissa Coast. Unpublished PhD Thesis, Utkal University, Orissa.

Patnaik, S.K., Kar, C.S., Kar, S.K. (2001): A quarter century of sea turtle conservation in Orissa. Wildlife Wing, Forest Department, Government of Orissa, Bhubaneshwar. pp: 1-34.

Plotkin, P, Polak, M., Owens, D.W. (1991): Observations on olive ridley sea turtle behaviour prior to an *arribada* at Playa Nancite, Costa Rica. Mar. Turtl. Newsl. **53**: 9-10.

Plotkin, P. T., R.A. Byles, Rostal, D.C. Owens, D.W. (1995): Independent versus socially facilitated oceanic migrations of the olive ridley, *Lepidochelys olivacea*. Mar. Biol.**122**: 137-143.

Shanker, K., Pandav, B., Choudhury,B.C. (2003): An assessment of the olive ridley turtle (*Lepidochelys olivacea*) nesting population in Orissa, India. Biol. Conserv. **115**: 149-160.

Tripathy, B. (2002): Is Gahirmatha the world's largest sea turtle rookery? Curr. Sci. **83**: 1299.

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