

- Tripathy, B. 2001. Preliminary report on the survey of sea turtles along Andhra Pradesh coast. *Kachhapa* 4: 22-24.
- Tripathy, B., K. Shanker & B.C. Choudhury. 2006. Sea turtles and their nesting habitats along the Andhra Pradesh coast. In: *Marine Turtles of the Indian Subcontinent* (eds. Shanker, K. & B.C. Choudhury). Pp. 68-87. Universities Press, Hyderabad, India.
- Valliappan, S. & R. Whitaker. 1974. Olive ridleys on the Coromandel coast. Madras Crocodile Bank Trust. Pp. 14. Available at: <https://www.seaturtlesofindia.org/library/bibliography/>.
- Velusamy, T. & R. Sundararaju. 2009. Olive ridley turtle conservation activities along the Nagapattinam coast, Tamil Nadu, India. *Indian Ocean Turtle Newsletter* 10: 21-24.
- VSPCA (Visakha Society for Protection and Care of Animals). 2011. Olive Ridley Sea Turtle Report for 2010-11. Available at: <http://vspca.org/programs/seaturtles.php>.
- VSPCA (Visakha Society for Protection and Care of Animals). 2012. Olive Ridley Sea Turtle Report for 2011-12. Available at: <http://vspca.org/programs/seaturtles.php>.
- VSPCA (Visakha Society for Protection and Care of Animals). 2013. Report on the Olive Ridley Sea Turtle Protection Programme 2012-2013. Available at: <http://vspca.org/programs/seaturtles.php>.
- VSPCA (Visakha Society for Protection and Care of Animals). 2015. Olive Ridley Sea Turtle Protection Programme 2014-2015. Available at: <http://vspca.org/programs/seaturtles.php>.
- VSPCA (Visakha Society for Protection and Care of Animals). 2016. Sea Turtle Protection Programme 2015-2016. Available at: <http://vspca.org/programs/seaturtles.php>.
- VSPCA (Visakha Society for Protection and Care of Animals). 2017. Sea Turtle Report 2016-2017. Available at: <http://vspca.org/programs/seaturtles.php>.
- Whitaker, R. 1979. Captive rearing of marine turtles. *Journal of the Bombay Natural History Society* 76: 163-166.

## A REVIEW OF SEA TURTLE HATCHERIES IN BANGLADESH

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Two species of sea turtle have been recorded to nest regularly in Bangladesh, olive ridley turtles in greater numbers than green turtles, with additional reports of rare nesting events by hawksbill turtles and a single nesting event by a leatherback turtle (Islam, 2002a). Nesting occurs on the mainland of Cox's Bazar district, including Bordal, Inani, Kochopia and Monkhal beach of Teknaf Peninsula, and coastal islands in Cox's Bazar and Chittagong districts, including Hatiya, Kutubdia, Moheskhal, Sandweep, Sonadia and St. Martin's Islands (Islam 2002a, 2002b; Hossain *et al.* 2013a, 2013b). Nesting also occurs on additional areas of the Bangladesh coastline and islands in the Sundarbans mangrove forest (Islam, pers.comm.), but has not yet been published.

Sea turtles that nest in Bangladesh are included in Schedule-I of the Bangladesh Wildlife Act (Preservation and Protection) of 2012. Historically, nests and hatchlings on island and mainland beaches have been threatened by poaching of eggs for consumption by communities in the Chittagong Hill Tracts, predation of nests by wild

dogs (Islam, 2002a) and monitor lizards (Islam, 2002b), disorientation caused by beachside lighting, and man-made obstructions on nesting beaches, and alteration of the nesting beach by stands of *Casuarina* sp. (Islam *et al.*, 2011). In contrast to other locations (cf. India, Pakistan and Sri Lanka; this issue of IOTN) both governmental (GO) and non-governmental (NGO) organisations, including Centre for Advanced Research in Natural Resources & Management (CARINAM) (Rashid & Islam, 1999), Center for National Resource Studies (CNRS), Coastal and Wetlands Biodiversity Management Practices (CWBMP), MarineLife Alliance (MLA) and Sundarbans Management Project (SMP), have previously operated hatcheries in Bangladesh to reduce the loss of turtle nests to poaching and predation (Hossain *et al.* 2013a, 2013b). The NGO MarineLife Alliance has been the sole operator of sea turtle hatcheries in Bangladesh since 2013, with up to 33 hatcheries in five areas on the southwestern coast (Figure 1; Islam, pers.comm.) in any given year.

MarineLife Alliance has either relocated turtle nests to

**Figure 1. Location of sea turtle hatcheries in Bangladesh, 2015/16.**



a position within 5-10m of the original nest location or to a more distant hatchery. The short-distance relocation of eggs on the nesting beach resulted in a hatch success of 92% ( $\pm 5.2$  SD) for 43 olive ridley turtle nests in 2009/10 (Islam *et al.*, 2011). Reports of nests relocated to hatcheries also demonstrate a high hatch success of ~85% from 17,852 eggs (132 olive ridley and four green turtle nests) in 1996 (Islam *et al.*, 1999), ~88% from 31,853 olive ridley eggs (260 nests) (Islam & Mollah, 2015), and 76% from 738 olive ridley and green turtle nests in 2016 (Islam, pers.comm.). Apart from this limited data available on number of eggs and/or nests collected and hatch success, there is a paucity of information about hatcheries in Bangladesh. However, the hatching success reported above indicate that practices used in collection, transport,

and incubation of eggs in hatcheries in the past have been successful and should be continued. It would be helpful for other hatcheries in the region if relevant protocols could be published or otherwise shared. Potential areas for future work in Bangladesh include a comparison of hatchling sex ratios among those *in situ* and or relocated to hatcheries or elsewhere on the beach, and monitoring of environmental conditions within nests in these locations.

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#### Literature cited

- Hossain, M.A., M.S.E. Mahfuj, S.M.A. Rashid, M.I. Miah & M.N. Ahsan. 2013a. Present status of conservation and management of sea turtle in Cox's Bazar district, Bangladesh. *Mesopotamian Journal of Marine Science* 28: 45-60.
- Hossain, M.A., M.I. Miah, K.R. Hasan, J.J. Bornali & M. Shahjahan. 2013b. Present status of conservation and management of sea turtle in Cox's Bazar district of Bangladesh. *Bangladesh Journal of Animal Science* 42: 131-138.
- Islam, M.Z. 2002b. Marine turtle nesting at St. Martin's Island, Bangladesh. *Marine Turtle Newsletter* 96: 19-21.
- Islam, M.Z. 2002a. Threats to sea turtles in St Martin's Island, Bangladesh. *Kachhapa* 6: 8-12.
- Islam, M.Z., F. Ehsan & M.M. Rahman. 2011. Nesting sea turtles at Sonadia Island, Bangladesh. *Marine Turtle Newsletter* 130: 19-22.
- Islam, M.Z., M.S. Islam & S.M.A. Rashid. 1999. Sea turtle conservation program in St. Martin's Island by CARINAM: A brief review. *Tigerpaper* 26: 17-22.
- Islam, P.K.M.M.N. & M.A.R. Mollah. 2015. Conservation of sea turtle in Cox's Bazar- Teknaf Peninsula and Sonadia Island Ecologically Critical Area (ECA) of Bangladesh. 17th International Conference on Earth Science and Climate Change. May 11-12, 2015, Montreal, Canada.