

## Observations of juvenile green and hawksbill turtles along the southern Orissa coast, India

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Studies on sea turtle life history suggest that individual turtles occupy a series of different habitats during different ontogenetic stages. Based on ontogenetic stages these are broadly categorised into the oceanic stage of the early juveniles and the neritic stage of the larger juvenile and adult stages (Bolten, 2003). Far less is known about the oceanic habitats of the early juvenile stages than about adult foraging and breeding habitats.

Five of the world's seven species of sea turtles have been reported in Indian waters: the olive ridley (*Lepidochelys olivacea*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), loggerhead (*Caretta caretta*) and leatherback (*Dermochelys coriacea*) (Kar & Bhaskar, 1982). With the exception of the olive ridley that nests throughout the region, other species nest on select beaches (Shanker & Choudhury, 2006). The hatchlings that originate from these beaches are thought to occur in epipelagic waters of the region, though there are only few records of such occurrences and little information on juvenile habitats. In this note we report on the sightings of juvenile green and hawksbill turtles off the Rushikulya mass nesting beach on the Orissa coast of the Bay of Bengal. The nearest known nesting sites for the two species are at least about 1000 km distant across the Bay of Bengal to the southeast in the Andaman and Nicobar Islands, or about 1200 km to the south in Sri Lanka. The following observations were made along the southern Orissa coast to determine the offshore distribution of olive ridley turtles.

On 3<sup>rd</sup> March 2007, while on a routine survey of the offshore waters about three km off the Rushikulya mass nesting beach, we sighted what appeared to be mating pair of olive ridley turtles about 150 m distant. We approached within 20 m and to our

surprise found instead an adult ridley swimming with a juvenile green turtle. The juvenile turtle was one-third the size of the adult ridley (approx. 30 cm in curved carapace length [CCL]). The smooth reddish brown scutes on the carapace and head were distinct and identified the smaller individual as a green turtle. Interestingly, the ridley turtle floated at an angle with part of the carapace and one flipper held above the water surface. We observed the green turtle repeatedly biting something from the carapace of the ridley as the latter drifted gradually in a circle. It appeared that the green turtle was removing epibionts growing on the neck and carapace of the ridley, and that the latter appeared fully aware of it. We observed the green turtle perform this for a few more minutes but then the green turtle dived and disappeared while the ridley continued to float on the surface. This observation is unique for there is no report of such an interaction between the two species of turtles.

On the 24<sup>th</sup> of March one of our local assistants spotted a juvenile green turtle in the area not very far from the coastline. On 19<sup>th</sup> April 2007, one of the local fishers brought a juvenile turtle to us that he caught in a shore seine net while fishing at the Rushikulya river mouth. This turtle was unlike the juvenile green turtle that we had earlier seen; it had a dark brown carapace with overlapping scutes and a distinct, protruding beak typical of a hawksbill turtle. On detailed examination the presence of two pairs of frontal scutes and two claws present in each forelimb clearly showed this to be a hawksbill. Measuring just 13.5 cm in CCL (mass estimated at about 250 gm) this turtle appeared to be in its early juvenile stage, and was possibly a yearling. The centre of the plastron was depressed all along the length and appeared not fully calcified. After a day in captivity

the turtle was released back at the river mouth. The occurrence of a sub-adult hawksbill in the State has previously been reported from the Gahirmatha Marine Sanctuary (Kar, 1986), which is about 300 km north of the Rushikulya river mouth.

Later the same year, on 23<sup>rd</sup> August, a local fisherman brought to us yet another juvenile turtle, which was caught in his shore-seine net when fishing at the Rushikulya river mouth. This turtle appeared to be a juvenile measuring 44.0 cm in CCL and weighed 9.5 kg. It was identified as a green turtle from the

smooth reddish brown scutes and from the single pair of frontal scutes. After detailed examination the turtle was released near the capture site. This record confirms our earlier observations of the species occurring in the near-shore waters off the Rushikulya rookery. Previously, a juvenile green turtle was reported captured in a monofilament gill net in the Rushikulya waters (Pandav & Choudhury, 2000), while sub-adult green turtles were reported near Visakhapatnam in northern Andhra Pradesh (Tripathy & Choudhury, 2002), which is about 200 km south of the Rushikulya river mouth.



**Figure 1:** The juvenile hawksbill turtle captured off the ‘Rushikulya Olive ridley mass nesting beach’ in southern Orissa, India  
 Photos: R. Suresh Kumar



**Figure 2:** The juvenile green sea turtle captured off the ‘Rushikulya Olive ridley mass nesting beach’ in southern Orissa, India  
 Photos: R. Suresh Kumar

The following year no juvenile turtles were seen while during the subsequent year, (2009) on February 11<sup>th</sup> a juvenile turtle was spotted swimming at the surface. The turtle was located about one km offshore and about two km north of the river mouth. On approaching closer the carapace of the turtle was found covered with a thick growth of algae. And, it appeared to be struggling to swim and possibly injured. Using a sweep net the turtle was quickly captured and brought onboard. The turtle had no external injuries and the carapace was cleaned of the algae. The turtle was identified as a hawksbill. This turtle also appeared to be an early juvenile stage whose CCL measured 16 cm (mass estimated at 250 g). The turtle was released back at the place of capture after a few hours in captivity even though it appeared unhealthy as there was no facility to treat it. Later, in April the same year two dead hawksbill turtles (size not available) were recorded near the Devi river mouth, which is located about 200 km north of Rushikulya (*pers. comm.* Subrata Behera).

The repeated sightings of the green and hawksbill turtles in the Rushikulya waters across the years suggest that this area may represent a juvenile developmental habitat for these two species. Moreover, local fishermen know of the occurrences of these juvenile turtles and say that they arrive in the area with the southerly currents during February-March each year. All juvenile sea turtles

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except flatback turtles *Natator depressus* are said to spend time drifting within circular current systems, leading a largely pelagic life for the first few years, and at a later stage are known to move into more localised neritic developmental habitats (reviewed by Musick & Limpus, 1997). One such area in the form of a submerged beach ridge is reported off the Gopalpur coast at a depth of 25 to 30 m, supporting extensive live sedentary fauna such as sponges, gorgonians, soft and hard corals (Rao *et al.*, 2001). This submerged beach ridge is only about 25 km south of the Rushikulya river mouth and may possibly be a feeding ground for juvenile green and hawksbill turtles.

Interestingly, we did not observe any juvenile olive ridley turtles in the Rushikulya area, though there are records of the occurrence of sub-adult ridleys in the near-shore waters of the Gahirmatha Marine Sanctuary (Pandav & Choudhury, 1995), and from northern Andhra Pradesh (Tripathy *et al.* 2003).

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## Notes

### **Kharg DOE officers rescue two green turtles**

#### **Mahmood Moghimi & Reza Namdar**

On 25 November 2009 the officers of Iran's Kharg Department of Environment of Bushehr Province (Persian Gulf) rescued two green sea turtles (*Chelonia mydas*) from the Kharg Petrochemical reservoir located in the south part of Kharg Island. They released the turtles to the sea from the north part of the island (Fig.1).

Multi-lateral conservation efforts are needed within Kharg and Kharko islands to protect sea turtles, coral reefs and their habitats. We hope to speed up the development of this by enlisting support from the private sector such as oil and gas companies on Kharg Island.



**Figure 1:** Green turtles rescued from the Kharg Petrochemical reservoir  
Photo: Moghimi, 2009