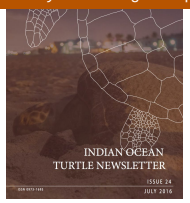

HATCHING OF OLIVE RIDLEY TURTLE TWIN HATCHLINGS

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OBSERVATION

A clutch of 126 olive ridley (*Lepidochelys olivacea*) turtle eggs was laid at Palapetty Beach, Thrissur District, Kerala on 15th January 2016 and relocated by members of the Kanyakumari Turtle NEWS Club to the hatchery at Palapetty. On 02nd March 2016, after 46 days of incubation, 58 hatchlings emerged from the nest unaided in the early morning. The nest was excavated three hours after emergence of the first hatchling, at which time 14 more hatchlings emerged from the exposed eggs including two pairs of twins (Table 1; for example see Figure 1) which emerged from the eggshells on their own. The hatchlings were transported to a holding tank 15min post-hatching. The twin hatchlings were unable to remain afloat and their movement on land was also impaired as they remained connected by the respective yolk sacs. The first pair of twin hatchlings died half an hour after hatching, while the second pair of twins survived for six hours. Four other hatchlings which emerged from the exposed eggs died before being introduced to the holding tank. The surviving hatchlings were released to sea approximately nine to thirteen hours after hatching.

DISCUSSION

Twinning is a rare phenomenon amongst sea turtles, and aberrant embryos usually die before the pipping stage or even if they pip, seldom emerge (Miller, 1985). This is the first published report of twin sea turtle hatchlings being alive at pipping, although Hewavisenthi (1989) described a single hatchling leatherback turtle (*Dermochelys coriacea*) that emerged live from the egg after its smaller twin died prior to term. Twin embryos that did not reach the pipping stage have been recorded in olive ridley (Hewavisenthi, 1990), green (*Chelonia mydas*; Fowler, 1979; Kaska & Downie, 1999; Diong *et al.*, 2003), hawksbill (*Eretmochelys imbricata;* Junchompoo *et al.*, 2013), leatherback (Deraniyagala, 1930, 1932; Hughes *et al.*, 1967; Chan, 1985; Eckert, 1990) and loggerhead (*Caretta caretta*; Caldwell, 1959; Fujiwara, 1964; Blanck & Sawyer, 1981; Limpus, 1985, Peters *et al.*, 1994; Piovano *et al.*, 2011) turtles.

The twin hatchlings found in this study were of nearly equal size, but much smaller in comparison to the other hatchlings in the clutch, perhaps the result of having to share the resources available in the egg. No external developmental abnormalities were observed.

Fertilisation of sea turtle eggs occurs in the oviduct, with the deposition of albumin and formation of egg shell beginning within 72 hours of ovulation. Over the successive seven days, the zygote undergoes discoidal meroblastic cleavage to form a gastrula by Day 9; embryonic development is suspended at middle gastrulation until after the eggs are laid (Miller, 1982). Whether the formation of twins took place by the inclusion of two zygotes in one eggshell in the oviduct post-fertilisation and pre-oviposition, or due to cleavage of one zygote into two within an egg post-fertilisation is beyond the scope of this study and would require parental DNA investigations to ascertain.

Table 1. Morphometric measurements of twin olive ridley hatchlings

		Straight Carapace Length (mm)	Straight Carapace Width (mm)
First pair of twins	Hatchling 1	28.6	28.7
	Hatchling 2	27.4	26.9
Second pair of twins	Hatchling 1	28.1	27.8
	Hatchling 2	28.9	28.1
Individual hatchlings	Av. of 10	41.3	33.7

Both pairs of twin hatchlings were deposited in the National Designated Repository of the Central Marine Fisheries Research Institute, Kochi, Kerala, India and have been assigned the accession number *Lepidochelys olivacea* Misc.38.

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