

Emergence success and sex ratio of natural and relocated nests of Olive Ridley turtles from Alas Purwo National Park, East Java, Indonesia

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ABSTRACT

The nest environment, in particular sand temperature, is critical to the breeding ecology of sea turtles which lack parental care during their early stages of life. We investigated the effects of sand temperature on emergence success and sex ratio of Olive Ridley *Lepidochelys olivacea* hatchlings in *in situ* and relocated nests in Alas Purwo National Park (APNP), East Java, Indonesia. Over two years of observation no *in situ* nests survived due to predation while emergence success in relocated nests varied between the years. Temperatures above 34°C experienced by the nests over at least 3 consecutive days during incubation (T3dm) had decreased emergence success in both years. These high temperatures occurred as a result of metabolic heating of developing embryos combined with high sand temperatures. The indirect method of determining sex ratios from nest temperature profiles indicated that the hatchery at APNP generated more male hatchlings than female. Our study provides justification for on-going egg relocation to the hatchery as a conservation management strategy. Therefore the nest environment inside the hatchery needs to be carefully managed so that temperatures do not exceed the viable limit nor unnaturally skew the sex ratio of embryos.

Key words: *Lepidochelys olivacea*, nest temperatures, relocated nests, hatchery, lethal incubation temperatures, temperature sex determination.