

Temperature Influence on Emergence Success and Swimming Speed for In-Situ Nesting for Chelonia mydas in Penang Island, Malaysia

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Abstract

The study was performed in Penang Island, Malaysia from October 2013 to March 2015. This is the first study performed by using the in-situ incubation method, and the eggs were incubated naturally at Kerachut. As the in-situ procedure is not advisable to be performed due to risk from eggs poachers and predator disturbance, only nine nests were incubated. Three objectives were formulated: First, to determine the influence of sand temperature on the hatching success and emergence success. Second, to evaluate the effects of sand temperature on hatchlings swimming speed, and third, to observe the pattern of hatchling emergence between day-time and night-time. The result shows that there is significant correlation between hatching success and emergence success on the sand temperature, and also a significant correlation between sand temperature and swimming speed. Furthermore, the study identified that the hatchling emerges during night-time rather than day-time, and the percentage was 94.18%, 80.67% and 78.05%, based on observation from Day 1 until Day 3. The overall mean hatchlings straight carapace length was 40.80 mm +/- 5.08, mean hatchlings straight carapace width was 31.78 mm +/- 4.55, and mean hatchlings weight was 20.5 g +/- 1.22. For future conservation, first, the sample size of in-situ nests is suggested to be increased because the result from the study provides a new knowledge, and widens the scope of the research by including the study on hatchlings locomotors performance (crawling performance and self-righting performance). Second, additional study on the relationship between surroundings water temperatures on the swimming speed performance is also suggested. This paper provides basic knowledge for the first research of in-situ nesting in Penang Island, and the recommendation may benefit the management of the Kerachut Turtle Conservation Centre.

Keywords

Author Keywords: Emergence Success; Green Turtle; Swimming Speed; Temperature

KeyWords Plus: TURTLE ERETMOCHELYS-IMBRICATA; LOGGERHEAD CARETTA-CARETTA; HAWKSBILL SEA-TURTLE; GREEN TURTLES; HATCHLINGS; PERFORMANCE; PREDATION; BEHAVIOR; RATIOS

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