TEMPORAL PATTERN OF NOCTURNAL EMERGENCE OF GREEN TURTLE (*Chelonia mydas*) HATCHLINGS FROM NATURAL NESTS IN CHAGAR HUTANG, PULAU REDANG

BY

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ABSTRACT

A total of 24 nests were monitored on the beach of Chagar Hutang in Pulau Redang, Terengganu, to determine the emergence time of green turtle (*Chelonia mydas*) hatchlings. Nests were intensively monitored from the month of July to October 2002. Time of emergence for each trapped nest was recorded and the sand temperature at 15 cm below sand surface was monitored from 1800 to 0800 hours the next morning. A total of 1223 hatchlings emerged during this study with mean straight carapace length of 46.00 ± 1.42 mm. Generally, most of the emergence events (82.14%) occurred between 2000-0300 hours with peaks between 2100-2200 hours. This nocturnal emergence mechanism is an adaptation to avoid high temperature during daytime and to escape daytime active predators. Mean sub-surface temperature generally declined steadily throughout the course of this study. A steep decrease was observed to occur in the time span of 2100-2200 hours which coincided with the peak hour of emergence activities. Emergence of green turtle hatchlings appeared to occur at a threshold temperature of 27.1 °C and ceased at temperatures higher than 33.8 °C. 96.43% of all emergence events occurred below 33 °C as the inhibitory emergence temperature cited before. Rate of sand cooling prior to emergence and decreases of sand temperature were not likely to be the main cue controlling the emergence of hatchlings due to the randomness of emergence time shown with the same amount of thermal gradient. Thus, a conclusion can made that threshold emergence temperature is the most relevant controlling factor of hatchling emergence. Information from this study may suggest appropriate times for monitoring hatchling emergence and release from hatcheries.

ABSTRAK

Sejumlah 24 sarang di Chagar Hutang, Pulau Redang, Terengganu dipantau untuk menentukan masa kemunculan anak penyu agar (*Chelonia mydas*) dari sarang. Sarang-sarang dipantau intensif dari bulan Julai sehingga Oktober 2002. Masa kemunculan anak penyu bagi setiap sarang yang diperangkap direkodkan dan suhu pasir di bawah 15 cm dari permukaan pasir dipantau dari jam 1800 hingga 0800 pada keesokan harinya. Jumlah anak penyu yang muncul sepanjang kajian ini ialah 1223, dengan purata keseluruhan panjang karapas tegak 46.00 ± 1.42 mm. Secara umumnya, kebanyakan peristiwa kemunculan anak penyu (82.14%) berlaku di antara jam 2000-0300 dan memuncak di antara jam 2100-2200. Mekanisme kemunculan waktu malam ini adalah satu adaptasi untuk mengelak suhu tinggi dan menghindarkan diri daripada pemangsa yang aktif pada waktu siang. Suhu sub-permukaan purata pada amnya menyusut secara berterusan sepanjang kajian ini. Penyusutan mendadak diperhatikan dalam jangka masa di antara jam 2100-2200 dan ini secara kebetulan bertembung dengan puncak aktiviti kemunculan anak penyu. Kemunculan anak penyu agar diperhatikan berlaku pada nilai suhu ambang 27.1 °C dan aktiviti kemunculan berhenti pada suhu yang melebihi 33.8 °C. 96.43% peristiwa kemunculan berlaku di bawah suhu ambang kemunculan, 33 °C yang dicatatkan sebelum ini. Kadar penyejukan suhu sebelum kemunculan dan pengurangan suhu pasir bukan isyarat yang utama untuk anak penyu muncul atas sebab kerambangan masa kemunculan dengan nilai termal yang sama. Maka, boleh disimpulkan bahawa suhu ambang kemunculan anak penyu adalah faktor pengawalan kemunculan yang paling releven. Informasi daripada kajian ini boleh mengesyorkan masa yang sesuai untuk pemantauan kemunculan anak penyu dan pelepasan dari pusat penetasan.