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ABSTRACT

Leatherback sea turtles (*Dermochelys coriacea*) utilize the waters between Australia and Indonesia for feeding and migration (Benson et al., 2011), with the primary nesting site of western Pacific leatherbacks located along the northern coast of the Bird's Head Peninsula, Papua Barat, Indonesia ((Tapilatu et al., 2013, Tapilatu, 2014, Tapilatu et al., 2017). Hatching fitness can significantly affect the survival of sea turtles, and has been shown to be influenced by nest temperatures during the incubation period. During the 2016 nesting season, we monitored fitness of hatchlings in terms of crawl and swimming speeds, and incubation temperatures from both *in situ* and relocated nests of the leatherback sea turtle at Jamursba Medi (Boreal summer nesting season) and Wermon (Austral summer nesting season), Papua Barat, Indonesia. We used a drone as a video platform for monitoring hatchlings during their movements down the nesting beach and through the surf. Crawl speed was documented for an average of 10m prior to the hatchling entering the surf. During the current study, the hatchlings had a mean crawl speed of 0.04 ± 0.009 m/s at Jamursba Medi and a mean crawl speed of 0.05 ± 0.07 m/s at Wermon. Swimming speed was documented for 30 – 300m during hatchling movements through the surf. Hatchlings had a mean swimming speed of 0.55 ± 0.13 m/s at Jamursba Medi and a mean swimming speed of 0.57 ± 0.08 m/s at Wermon. We also monitored beach and nest temperatures throughout the incubation period at both beaches. Mean beach and nest temperatures were warmer at Wermon (31.3 ± 0.8°C; 31.7 ± 1.6°C, respectively) than at Jamursba Medi, where beach temperatures averaged 30.3 ± 0.8°C and mean nest temperatures were 30.9 ± 1.3°C. The results of this study provide base-line data for utilizing drone technology for evaluating hatchling fitness relative to crawl speed, swimming speed, and beach-nest incubation temperatures. Monitoring hatchling crawl speed and swim speed at the natural nesting beaches provides useful metrics

for evaluating hatchling fitness relative to factors such as nest incubation temperature and other ecological aspects of the nesting beaches.

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