

## ABSTRACT

### **The Value of Long-Term, Community-Based Monitoring of Marine Turtle Nesting: A Study in the Lamu Archipelago, Kenya**

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Monitoring of nesting beaches is often the only feasible and low-cost approach for assessing sea turtle populations. We investigated spatio-temporal patterns of sea turtle nesting activity monitored over 17 successive years in the Lamu archipelago, Kenya. Community-based patrols were conducted on 26 stretches of beach clustered in five major locations. A total of 2,021 nests were recorded: 1,971 (97.5%) green turtle *Chelonia mydas* nests, 31 (1.5%) hawksbill *Eretmochelys imbricata* nests, 8 (0.4%) olive ridley *Lepidochelys olivacea* nests and 11 (0.5%) unidentified nests. Nesting occurred year-round, increasing during March–July, when 74% of nests were recorded. A stable trend in mean annual nesting densities was observed in all locations. Mean clutch sizes were  $117.7 \pm \text{SE } 1$  eggs (range 20–189) for green turtles,  $103 \pm \text{SE } 6$  eggs (range 37–150) for hawksbill turtles, and  $103 \pm \text{SE } 6$  eggs (range 80–133) for olive ridley turtles. Curved carapace length for green turtles was 65–125 cm, and mean annual incubation duration was  $55.5 \pm \text{SE } 0.05$  days. The mean incubation duration for green turtle nests differed significantly between months and seasons but not locations. The hatching success (pooled data) was 81.3% ( $n = 1,841$ ) and was higher for in situ nests ( $81.0 \pm \text{SE } 1.5\%$ ) compared to relocated nests ( $77.8 \pm \text{SE } 1.4\%$ ). The results highlight the important contribution of community-based monitoring in Kenya to sustaining the sea turtle populations of the Western Indian Ocean region.

**Keywords:** Clutch size, community-based monitoring, green turtle, hatching success, hawksbill turtle, incubation duration, sea turtles, Western Indian Ocean