
The effects of coastal erosion on nesting ecology of leatherback sea turtles were studied at Playa Gandoca on the Caribbean slope of southeastern Costa Rica; a high-energy beach which undergoes heavy erosive processes. The relationship between erosion and leatherback nest selection and its potential effects on nest temperature, role of slope in nest site selection, effects of nest relocation on incubation temperature, and how dynamic beach processes change suitable nesting locations at Playa Gandoca were investigated. Sand temperatures at mid-berm and vegetation line positions at 0.7-0.2 m depths in 0.10 m intervals were taken with thermocouples. Selected beach slopes were measured with a clinometer and nest position on the berm recorded within 14 hours of a nesting being laid and retaken every 14 days. Beach surveys took place every 18 days and relationships between changes in beach structure and nest site selection examined. Leatherbacks selected nesting locations which were undergoing accretion processes (P = 0.0019) and a 7.6° beach slope at nesting sites. Sand temperature at nest depths was cooler at positions on the beach where relocated nests are placed than natural sites (P < 0.0001). Playa Gandoca is highly dynamic and areas of the beach which meet nesting criteria vary highly during and between nesting seasons. Therefore, proper management of Playa Gandoca in its entirety is necessary. Erosion and changing abiotic nest conditions by relocation merits further study to ensure proper conservation practices.