FATE AND EMERGENCE SUCCESS OF HAWKSBILL (*ERETMOCHELYS IMBRICATA*) NESTS IN THE COMARCA NGÖBE-BUGLÉ AND BOCAS DEL TORO PROVINCE, PANAMA

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There is a long history of both commercial and subsistence use of hawksbills (*Eretmochelys imbricata*) in Bocas del Toro Province and the Comarca Ngöbe-Buglé, Panama. Extraction of hawksbills from beaches in the area to support the international trade in hawksbills led to a precipitous decline in nesting. In 2003, a consortium of interested individuals and organizations, including the Wildlife Conservation Society and the Sea Turtle Conservancy, established a standardized monitoring and protection program at Playa Chiriquí, Isla Escudo de Veraguas and Cayos Zapatillas in Parque Nacional Marino Isla Bastimentos. Playa Roja and Playa Larga were subsequently added to the program. During the 2009, 2010 and 2011 nesting seasons, daily track surveys were conducted at each of the five study sites. At all localities, the presence of eggs was confirmed and the nest was marked using flagging tapes; triangulation was used to subsequently locate the nest for evaluation. Nests were evaluated using a standardized protocol three days (72 hrs) after signs of emergence were observed or after 70 days if no signs of emergence were reported. Data from the evaluations were used to determine emergence success (hatchlings successfully exiting the nest) using the following formula: ((# egg shells – # hatchlings encountered in the nest) / total # eggs)) * 100 %. During the three-year period, over 3,500 hawksbill nests from five study sites were evaluated. Across the five beaches, the average number of nests that were intact at hatching was 83.8% (68.5 - 92.8%). The lower value (68.5%) at Playa Chiriquí was mostly due to predation (27.1% of nests), primarily by domestic dogs. The average emergence success of intact in situ nests at the five study sites was 76.2% (66.0 - 82.1%). Over the three years, 127 nests at Cayos Zapatillas were relocated because of imminent threat of erosion. These nests had an average emergence success of 61.5% vs. 80.7% for in situ nests (n = 1047). At Playa Chiriquí, predation reduced emergence success to 12.5% for in situ predated nests (n = 377). Buried plastic-coated metal screens (30x30 cm) were used on some nests to reduce predation by dogs. However, the high density of nests and the fact that the application of the screens is very labor-intensive, meant that only a small percentage of nests could be protected. Nests that were protected had an increase in emergence success. As another measure, the communities near the beach were also asked to help control their dogs. Because of the presence of beach monitors, illegal poaching of nests has been largely eliminated on all the study beaches.