

*Presenting Author. Noemi Duran nduranroyo@llu.edu

Date Submitted: 30/09/2012

Conservation Session, Poster, Considered for student award: Yes

INFLUENCE OF TIDAL CURRENTS ON OFFSHORE MIGRATION AND SURVIVAL OF SEA TURTLE HATCHLINGS RELEASED FROM THE GULF OF FONSECA, HONDURAS

Duran, N.^{1,2}

Dunbar, S. G.^{1,2,3}

¹Marine Research Group, Department of Earth and Biological Sciences, Loma Linda University, Loma Linda, CA. 92350

²Protective Turtle Ecology Center for Training, Outreach, and Research, Inc. (ProTECTOR), Colton, CA 92324

³Protective Turtle Ecology Center for Training, Outreach, and Research (ProTECTOR) Honduras, Tegucigalpa, Honduras

Punta Raton is the main Olive ridley nesting beach on the Pacific coast of Honduras. As part of a conservation project established by the Honduran Government, more than 200,000 hatchlings have been released from Punta Raton since 1975, yet until 2011, no studies had been performed on their fate, and there were no data available on survival or mortality rates. Punta Raton is located in the eastern end of the Gulf of Fonseca, a shallow inlet of the Pacific Ocean shared by El Salvador, Honduras, and Nicaragua, and released hatchlings must swim more than 30 km towards the West before reaching the open sea. During October and November 2011, we carried out a study on aquatic predation during hatchling offshore migration. The main goal of the study was to estimate predation risk levels and survival rates of the hatchlings released from Gulf nesting beaches. Twenty-nine hatchlings were tracked during times ranging from 18 to 240 minutes, with an average of 101 min, yet no predation events were observed. However, we did observe tidal currents strongly affecting hatchling movement, going so far as to transport animals that had moved far from the beach with the outgoing tide, back to the shore during the next incoming tide. The tidal cycle in the Gulf of Fonseca is semidiurnal, changing direction every 6 hours. Due to local bathymetry characterized by shallow waters and mild slope, tidal range is high and tidal currents are strong enough to overcome hatchling swimming movements. During September 2012, we followed 15 hatchlings for up to 10 hours, releasing them one to three hours after high tide and tracking their movements until the next high tide. We plotted our data in a GIS and observed that all the hatchlings were pulled towards the North of the Gulf of Fonseca, in the opposite direction to the mouth of the Gulf, and several miles into the estuaries of this area, during incoming tidal movements. These results suggest that hatchlings released from Punta Raton beach become trapped in the tidal cycle, delaying their exit from the Gulf waters and extending their vulnerability to predation by birds, entanglement in fishing nets, and beach strandings. A possibility exists that these hatchlings are staying in the estuaries and using them as early juvenile feeding grounds, although this seems unlikely since there are currently no reports of neonates or juvenile Olive ridleys seen in the area. Further research is necessary to assess if hatchlings from Punta Raton are eventually able to leave the Gulf, the temporal scale of this exodus, and what routes they may be utilizing. Conclusions from this and subsequent studies will also have important applications to assessing and enhancing the effectiveness of the sea turtle conservation efforts currently implemented by the Honduran Government.