# The Path To The Sea:

## Leatherback Hatchling Orientation at Sandy Point National Wildlife Refuge


**Christina MacMillan[1] & Kelly Stewart[2]**

[1]JLS Middle School 480 East Meadow Dr. Palo Alto, CA 94306 USA
[2]Marine Mammal and Turtle Division, NOAA Southwest Fisheries Science Center, La Jolla, CA 92037 USA


### OBJECTIVE

To evaluate the sea-finding abilities of leatherback sea turtle hatchlings.

## Introduction

Leatherback hatchlings use cues such as a bright horizon and the slope of the beach to find their way from the nest to the water while having to navigate past various obstacles. The amount of time and route hatchlings take toward the water may determine whether or not they are successful. Artificial light sources may disorient hatchlings and cause them to spend longer on the beach than normal, which may subject them to predation. We tested the sea-finding abilities of leatherbacks leaving their nests at Sandy Point National Wildlife Refuge, St. Croix, USVI.

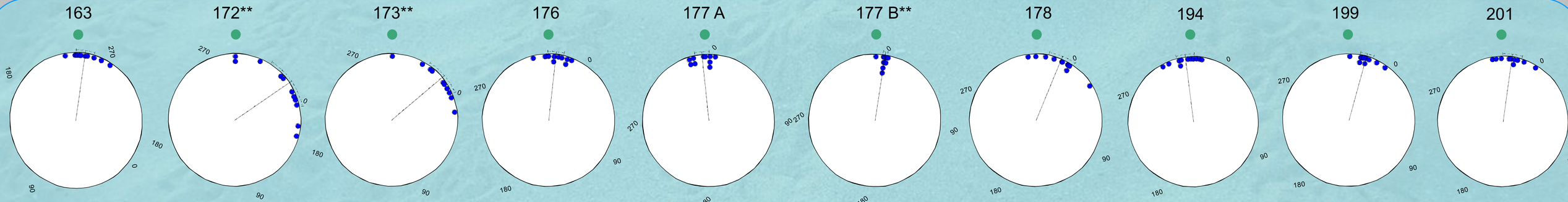


Fig. 1. Nest locations by stakeline along the beach with the most direct route to the water (green dots) and the routes hatchlings took (blue dots). The dotted lines represent the mean angles and standard deviation of the hatchling tracks.

## Methods

Ten hatchlings were collected from each of 10 natural nests at Sandy Point (Fig. 1, 2a).

Hatchlings were timed as they crossed the beach to the water's edge and collected as they reached the water; the end point of their route was marked (Fig. 2b).

All hatchling routes from nest to water were measured for distance and compass heading was recorded.

Using Oriana v4 and circular statistics, we plotted the pathways taken by the hatchlings (Fig. 1), and calculated the mean angle taken to the water ± standard deviation (Fig. 1)

Fig. 2a

Fig. 2b

Fig. 2a. Hatchlings being collected at the nest.
Fig. 2b. Marking endpoints of each hatchling route.


**Acknowledgements** A special thanks to all the volunteers working on the leatherback sea turtle hatchling project. This work was conducted under Special Use Permit 41526-2014-002 issued to P. Dutton and K. Stewart by the USFWS (SPNWR) and Endangered Species Permit STX034-13 to P. Dutton by DPNR, USVI. *This material is based upon work supported by the Chevron Corporation, Howard Hughes Medical Institute, the National Marine Sanctuary Foundation, National Science Foundation, and S.D. Bechtel, Jr. Foundation. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the funders. The STAR program is administered by the Cal Poly Center for Excellence in STEM Education (CESAME) on behalf of the California State University.*


## Results and Conclusions

On average it took hatchlings 11.7 minutes to reach the water traveling at 0.04 m/s over a distance of 26.81 m.

Three nests (172, 173 & 177 B; denoted by **) were disoriented by town lights or sky glow, however, other hatchlings took a more direct route to the water.

Currently, town lights are not a major concern for hatchling navigation except on nights when there is a lot of sky glow from town, created by light reflection on passing clouds.