



Disorientation of Loggerhead Hatchlings by Artificial Road Lighting

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HERPETOLOGICAL NOTES

DISORIENTATION OF LOGGERHEAD HATCHLINGS BY ARTIFICIAL ROAD LIGHTING.—The detrimental effects of civilization on the breeding success of sea turtles nesting on beaches adjacent to populated areas is well known. An additional factor was recently observed which apparently causes disorientation in the turtle hatchlings, often inflicting a high mortality.

The Atlantic loggerhead sea turtle, *Caretta caretta*, commonly nests on the beaches of southeast Florida. During late summer months, loggerhead hatchlings are frequently observed in large numbers on highways which parallel the beaches and many hundreds of these turtles are killed by passing automobiles. Investigation of a concentration of freshly killed turtles in such an instance produced some rather startling results. The nest was found on 2 August 1962, the turtles having emerged the preceding night. The nest was located at the northern end of the public bathing beach at Ft. Lauderdale, Florida, on North Atlantic Boulevard and Northeast 18th Street, an area of resort hotels. The nest was a scant 35 feet from the high tide line and approximately 100 feet from the highway. The clutch consisted of 130 eggs, 115 or 88.4 per cent of which had hatched. The 15 unhatched eggs included 7 which were infertile. Of the 115 hatchlings, I found one dead and two live hatchlings in the nest several inches beneath the surface; one dead (from desiccation) hatchling near the road; and 90 hatchlings which could reasonably be assigned to this particular nest dead on the adjacent highway, the majority having been crushed by automobiles.

Examination of the tracks left by the turtles as they dispersed from the nest indicated that the vast majority had proceeded westward, up the slope, to the highway, fanning out as the distance from the nest increased. Only six turtles had proceeded directly to the water a short distance away. A number of others which had initially started in the wrong direction had eventually circled and entered the water, bringing the total number of turtles which apparently reached the surf to 20.

Work with hatchlings of all the genera of sea turtles has revealed a strong and con-

sistent capacity to find the sea under a wide variety of conditions, both natural and manipulated. Loggerheads have been shown to be positively geotrophic and phototactic, repelled by a broken horizon and attracted by a low unbroken horizon (Carr and Ogren, 1960, *Bull. Am. Mus. Nat. Hist.* 121 [1]:1-48). Yet 95 per cent of the turtles which emerged from this nest were unable to orient correctly and find the surf. It appears that the combined effect of the illuminated sky over Ft. Lauderdale and a mercury vapor street light approximately 150 feet beyond the nest provided sufficient attraction to overcome normal taxes. Further investigation of 16 miles of beach along Highway U. S. A1A revealed turtles on the road at many places where they had traveled relatively great distances over concrete and asphalt between closely spaced hotels and apartments. Areas without turtles on the road had strips of scrub vegetation between beach and road. No turtles were noted at the bathing area of Pompano Beach, where there is little artificial illumination.

The disastrous effect of these rapidly developing resort areas adjacent to nesting beaches, which in this instance reduced the success of emerging hatchlings reaching the water to 18 per cent, further emphasizes the necessity of providing protected nesting areas for sea turtles. One need only travel the shorelines of these beach resorts counting the hundreds of turtle carcasses to realize that this case is not an isolated example. —ROBERT W. McFARLANE, *Dept. of Biology, University of Florida, Gainesville, Florida.*

MUSCLES IN THE REGION OF THE EUSTACHIAN TUBE OF TURTLES: TWO CORRECTIONS.—Previously, McDowell (1961, *Bull. Mus. Comp. Zool.* 125[2]:28) has described a muscle in turtles that extends downward and forward from the rear of the opisthotic to insert on the operculum tubae (a pad of densely fibrous connective tissue on the rear wall of the Eustachian tube). This muscle, termed the *musculus dilator tubae*, was stated to be "a branch of the depressor mandibulae muscle."

Further dissection proves homology of the dilator tubae with the depressor mandibulae