

Discerning Behavioral Patterns of Sea Turtles in the Gulf of Mexico to Inform Management Decisions

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Abstract

U.S. Geological Survey (USGS) and the Bureau of Ocean Energy Management (BOEM) collaborated on a study to collect spatial data and dive information for sea turtles in the Northern Gulf of Mexico. The primary objectives of this project were to determine the extent of movements and seasonal site fidelity of sea turtles captured and tagged at outer continental shelf borrow sites and to characterize dive profiles of sea turtles in sand-dominated areas throughout the year.

Fifty turtles were captured via trawling. Kemp's ridley turtles ($n=26$) ranged in size from 59.5 – 70.5 cm curved carapace length (CCL) and were satellite-tracked for 76 – 117 days. Loggerhead turtles ($n=24$) ranged in size from 78.3 – 101.0 cm CCL and were tracked for 3 – 192 days. All turtles remained in the Gulf of Mexico during tracking. Dive depth and duration varied by species and time. On average, loggerhead dive time occurred primarily in 15-30 minute bins (46%), whereas Kemp's ridley dive time occurred primarily in 0-15 minute bins (43%). Loggerhead mean time at the surface (0-2 m) was 16.0% (± 9.4 SD) and Kemp's ridley mean time at the surface was 10.0% (± 6.0 SD). This is one of the first studies to characterize sea turtle dive patterns and habitat use on shelf, particularly at shoals and other areas where frequent dredging occurs.