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SATELLITE TRACKING OF JUVENILE KEMP'S RIDLEY
SEA TURTLES NEAR SABINE PASS, TEXAS

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Hopper dredging by the U.S. Army Corps of Engineers (COE) has been identified as a notable source of mortality to sea turtles in inshore waters (Dickerson and Nelson 1990; Magnuson et al. 1990). Maintenance dredging of intracoastal waterways and about 45 ship channels in the Gulf and Atlantic, disposal of dredged materials, beach nourishment and marine construction (Thompson et al. 1990) all pose risks to sea turtles. Resolution of sea turtle/industry conflicts such as channel dredging, and implementation of proper management of existing stocks are severely compromised by the paucity of quantitative data on species composition, size distribution, spatial and temporal abundance, habitat preference, feeding grounds and nesting activity of sea turtles in nearshore and estuarine waters of the northwestern Gulf.

Texas waters provide essential habitat for Kemp's ridley and green sea turtles. Until recently, virtually no research had been conducted on sea turtle populations in Texas. Tracking and mark-recapture studies on green sea turtles in south Texas and numerous sightings by the public at jetties and channel entrances along the central and south Texas coast during the summer suggest these areas serve as developmental habitats for juvenile and subadult sea turtles. Further evidence indicates that jetties and channel entrances along the upper Texas and lower Louisiana coasts serve as developmental habitats for juvenile and subadult Kemp's ridley sea turtles.

METHODS

To learn more about the importance of these habitats, sixteen juvenile turtles (15 Kemp's ridley and 1 loggerhead) equipped with radio and sonic transmitters were released at Sabine Pass, TX and tracked intermittently during May through mid September 1993. One loggerhead and nineteen Kemp's ridleys were fitted with satellite transmitters and released near their capture site at Sabine or Calcasieu Passes.

RESULTS AND DISCUSSION

Straight carapace lengths and weights of turtles ranged from

25.9-59.5 cm and 3.0-30.5 kg. Both radio and satellite tracked turtles moved along shore during adverse weather in the direction of the prevailing winds and currents. The maximum distance moved by turtles, from their release sites, ranged 20 and 1700 km. On five occasions, three of 18 radio-tracked turtles were observed in the Sabine Pass Ship Channel, either between the jetties or off the seaward tip of the jetties. During these 12 hours of tracking, these turtles spent 24% of their time within the confines of the ship channel designated for potential biannual hopper dredging. For these three turtles, this translates into a minimum of 1.4-4.2% of their daily activities.

Since radio tracked turtles were not monitored 24 hr/day, it was mere chance that we tracked turtles that happened to use the Sabine Pass channel. Thus, it is not inconsistent to expect the remainder of the radio tagged turtles to utilize a similar amount of their of time in the channel.

Susceptibility to hopper dredging in the channel may occur when turtles 1) feed in the channel, 2) cross the channel as part of their normal movement, or 3) use the channel for passage to enter estuaries in Sabine and Calcasieu Lakes, and other bay systems of the Gulf of Mexico. Data are too sparse at this juncture to accurately identify the use of ship channels by the Kemp's ridley sea turtle.

This study increases our knowledge in movement behavior of juvenile Kemp's ridley turtles in the western Gulf of Mexico. Knowledge of the near simultaneous movements of 35 sea turtles is unprecedented. We are developing research plans to allow us to draw convincing conclusions about the utilization of nearshore nursery habitat for Kemp's ridley sea turtles. To this end, results and conclusions in this abstract should be considered preliminary.

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