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The Influence of High Temperature and Two Hurricanes on the Success of Late Season Loggerhead Nests in Broward County, Florida, in 2005

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genetic methods. In this approach major objectives are to: 1) determine natal origins of Western South Atlantic foraging groups; 2) elucidate connectivity among feeding aggregations; 3) assess subdivision among key rookeries as revealed by nuclear genetic markers; 4) examine rarely addressed aspects of intra-population genetic structure; and 5) consider processes impacting connectivity in Atlantic *C. mydas*. The study revealed that feeding aggregations in Brazil are mixed stocks, drawn primarily from Ascension Island (UK) as well as Suriname and Aves, Venezuela combined. Tortuguero, Costa Rica was an additional contributor at one study site. The Almofala and Ubatuba foraging grounds are distinct from each other, and from most other Atlantic aggregations, at mitochondrial loci. Temporal and demographic structure in mitochondrial DNA was not detected at Ubatuba or Almofala. Weak to intermediate subdivision among Atlantic rookery groups was indicated by microsatellite analysis. The research enhances basic biological knowledge of marine vertebrate population structure with applications to migratory species worldwide.

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THE INFLUENCE OF HIGH TEMPERATURE AND TWO HURRICANES ON THE SUCCESS OF LATE SEASON LOGGERHEAD NESTS IN BROWARD COUNTY, FLORIDA, IN 2005

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The success of loggerhead nests, defined as the percentage of the eggs per nest resulting in live released hatchlings, declined to unusually low levels during the latter part of the 2005 season. The mean successes were 81.1, 61.1, 32.8 and 13.4 percent for nests deposited in May, June, July and August, respectively. Many eggs from the August nests appeared to be unusually dried. There was a significant inverse relationship ($P < .0001$) between the daily air temperature anomaly on the day of nest deposition and the average daily success rate of loggerhead nests in 2005. The daily temperature anomaly is the deviation of the average air temperature each day from the daily climatological average values. There was also a highly significant inverse relationship between maximum daily air temperature and nest success rate in 2005. These relationships were not found in the previous two years. The actual average temperature during August in 2005 was 29.7°C, compared to 28.9 and 29.2°C in 2004 and 2003, respectively. The 2005 average was statistically different from the other two years (one way ANOVA, $P < .001$) and also from the climatological average temperature of 28.6°C. Mean daily success rates were less than 50 percent for nests deposited during the 50 days preceding the impact of Hurricane Katrina on August 25. Nests deposited in the first two weeks of August were also impacted by Hurricane Rita. Mean daily success rates were less than 10 percent on 7 days during this period.