ABSTRACT

Population Characteristics of foraging green turtles (*Chelonia mydas*) around Barbados, West Indies.

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The distribution, size structure, genetic composition, and carapacial colour morphology of the green turtle population in the nearshore waters of Barbados was investigated. Juvenile green turtles were found at thirteen locations around Barbados, primarily coincident with seagrass beds and algal pavement. *Thalassia testudinum*, *Syringodium filiforme* and *Halophila sp.*, mixed with green algae predominated at most seagrass sites, whilst red algae predominated on limestone rock flats. Turtles captured at two sampling locations ranged between 27.8 and 69.9 cm SCL and were of a size range typical of other Caribbean foraging populations that have been sampled. Turtles caught on the east coast were significantly larger than those caught on the south-west coast. This may be due to differences in seagrass habitat at the two sampling sites, and the position of these sites relative to prevailing oceanic currents. The feeding aggregation is of mixed stocks and is made up of eight distinct mtDNA haplotypes. Haplotype frequency analysis indicated that the Barbados foraging assemblage consists of turtles from Ascension Island (25.0%), Aves/Surinam (23.0%), Costa Rica (19.1%), Florida (18.5%) and Mexico (10.3%). Rookeries in Brazil and Guinea Bissau may also make minor contributions to the assemblage. Relative rookery contributions to the Barbados turtle population differed significantly from those previously

reported for other Caribbean foraging grounds, and again may largely be explained by differences in prevailing currents impacting the various foraging grounds. Five different pigments contribute to the overall colouration of Barbados turtles: brown, dark brown, light grey, dark grey, and black. The percentage of brown pigment was negatively correlated with the size, whilst the percentage of black pigment was positively correlated. Turtles captured on the south-west coast were typically brown and those caught on the east coast, dark grey. Thus, there is a tendency for larger turtles to have darker carapaces. Colour changes observed may be largely ontogenetic but that there may be environmental influences also.

Keywords: sea turtles, morphometrics, population genetics, control region, mitochondrial DNA, colour morphology, ontogenesis.