

Morphological and reproductive variations in loggerhead turtles (*Caretta caretta*) found ashore in southeast Brazil

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This study aims to explore and correlate biological data of loggerhead turtles (*Caretta caretta*) that were found stranded along the southern coast of São Paulo, Brazil. From 2016 to 2022, during the daily beach surveys (Santos Basin Beach Monitoring Project - PMP/BS) recovered 41 loggerhead turtles (25 males and 16 females) from Iguape (25.3S 48.1W) to Ilha do Cardoso (24.4S 47.1W), a stretch of approximately 140 km. Carcasses found in reasonably fresh condition or animals that died during rehabilitation in Cananéia Research Institute (IPeC) were necropsied. The following body measurements were obtained: curved carapace length (CCL), distance from cloaca to tail (DCT) and distance from plastron to cloaca (DPC). Age was estimated by skeletochronology and sexual maturity was determined through the histological examination of the gonads. Average body mass was 48.8 kg (range: 30 – 70 kg), average CCL was 75.6 cm (range: 64.6 – 102 cm), average DCT was 4.0 cm (range: 1.9 – 6.5 cm) and average DPC was 16.5 cm (range: 7.9 – 40 cm). Average age was estimated at 13.6 years (range: 10 – 17 years). Nine individuals (1 male and 8 females) were determined to be sexually mature, 30 individuals were immature (22 males and 8 females), and sexual maturity was inconclusive for two individuals (2 males) due to advanced autolysis. A significant difference was noted in CCL according to sexual maturity: immature males had an average CCL of 73.9 cm (range: 94.5 – 58.5 cm) and the only mature male had 88 cm of CCL. Immature females averaged 71.3 cm of CCL (range: 74.2 – 65.5 cm) and mature females 81.4 cm (range: 102 – 74.3 cm). A significant positive correlation was detected between body mass and CCL, body mass and DPC, CCL and DCT, and DCT and DPC. A significant difference was also noted in CCL according to sexual maturity. In Brazil, according to TAMAR Project, loggerhead turtles from Brazil measure up to 136 cm of CCL and 180 kg of body mass, and the average of loggerhead turtles from this study was considerably lower than these upper limits. The lack of a significant difference in morphometric variables of males and females is likely due to the fact that the

majority of individuals in this study being immature, therefore not having reached their adult body size where dimorphism is most evident.

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