SKELETOCHRONOLOGY WITH FLATBACK TURTLES: CAN WINTER AND SUMMER HATCHLING COHORTS BE DISTINGUISHED??

Anton Tucker | Larisa Avens | Jeremy Shaw | Colin Limpus | Kellie Pendoley | Mick Guinea | Scott Whiting

Western Australia Department of Biodiversity, Conservation and Atttractions, Perth Western Australia, AUS | National Oceanic Atmospheric Administration, National Marine Fisheries Service, Beaufort, North Carolina, USA | University of Western Australia, Perth, WA, AUS | Department of Environment and Heritage Protection, Brisbane, Queensland, AUS | Pendoley Environmental, | AUSTURTLE, Darwin, Northern Territory, AUS | Western Australia Department of Biodiversity, Conservation and Atttractions, Perth Western Australia, AUS

An understanding of marine turtle somatic growth is gained by size-at-age studies, growth increment analysis, or by skeletochronology studies with humerus cross-sections. Estimates of growth rates, age at maturity, and longevity are developed from the layers of arrested growth (LAG) found in vertebrate bone. However, a major knowledge gap remains for Australia's endemic flatback turtle (*Natator depressus*) because no growth curves have been produced nor skeletochronology studies conducted to date. To establish this study we reviewed all known museum specimens of flatback specimens in the Atlas of Living Australia. Preserved hatchling specimens represent 94% of the 276 specimens in Australian Museums. Carcasses of non-hatchling flatbacks are rarely found as intact beach washed carcasses to contribute new specimens. Clearly, non-hatchling animals need to be evaluated for flatback age-size relationships to be developed. We initiated a flatback skeletochronology study into 'lost years' and all size classes based on newly acquired humerus material from Western Australia, Northern Territory and Queensland. We used x-ray microcomputed tomography (micro-CT) to demonstrate intact laminar bone structure is structurally similar in appearance with LAG found in non-leatherback sea turtles. We used traditional skeletochronology to evaluate growth layers and seek patterns of age-size (curved carapace length). We report on size classes collected, and preliminary data from an ongoing skeletochronology study. Flatbacks pose a unique challenge to age estimation because tropical populations emerge to nest in the austral winter and subtropical populations emerge to nest in the summer. If LAG are deposited during slowed growth, can winter and summer hatchling cohorts be distinguished?

This book is tentative Proceedings of the 38th Annual Symposium on Sea Turtle Biology and Conservation

38th Annual Symposium on Sea Turtle Biology and Conservation Presentation Abstracts

18-23 February 2018
Kobe International Conference Center, Kobe, Japam
Main Theme: Beyond Protection of Sea Turtle