First study of the age, growth and habitat use of the tiger and bull sharks around the Reunion Island

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**Abstract for oral presentation, on the theme of Marine Biodiversity and Threatened Marine Species:**

**Background:**
The bull shark (*Carcharhinus leucas*) and the tiger shark (*Galeocerdo cuvier*) are two large coastal species regularly implied in shark-human interactions around Reunion Island. As a result, since 2012, both are targeted by a local shark control program. Yet, the effects of this directed fishing on their populations and on the functioning of local ecosystems remain unknown. To predict them, knowledge of the ecology and demographic parameters of these two apex predators is necessary.

**Methods:**
To this aim, we produced the first estimates of local ages for the two species, by counting growth bands on their vertebrae (60 for each species). Corresponding growth parameters were assessed using von Bertalanffy growth models. Microchemical analyses (LA-ICPMS) of the vertebrae centra were conducted to investigate patterns of habitat use to reveal potential differences between species or sexes.

**Results:**
For bull shark, observed sizes varied between 121 and 325 cm (average: 255.2±51.40 cm), corresponding to ages of 1.5-33.5 years (average: 18.47±8.96 years). The von Bertalanffy growth model predicted a $L_\infty$ of 356 cm. For tiger sharks, observed sizes were of 130-429 cm (average: 305±65.92 cm), corresponding to ages of 0.5-38 years (average: 17.5±8.54 years), and the predicted $L_\infty$ was 515 cm. Elementary profiles along the vertebrae highlighted inter-specific differences in habitat use, especially in terms of birth area.

**Conclusion:**
Both species have a K reproductive strategy around Reunion Island, where the individuals fished are apparently larger and older than in many study locations. Although the two species have comparable sizes at birth and similar vertebrae sizes around Reunion Island,
they exhibit different strategies for growth and habitat use in this area, which calls for different population management for reducing the risk of shark incidents.