

Otolith sampling activities and direct aging of the SBT caught by Taiwanese longliners in 2022 and 2023.

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This report updates the activities of otolith sampling and direct ageing of the Southern bluefin tuna (SBT) caught by Taiwanese longliners in the Indian Ocean. The otoliths were collected from 55 SBT by scientific observers on the longline vessels in 2022. Their fork length and age were  $93.2 \pm 16.7$  (range: 70-159 cm) and  $3.3 \pm 2.0$  (range: 2-16 years), respectively. We also collected otoliths from the fish landed in Taiwanese fishing port. We acquired pairs of head sections containing the basi-occipital plates from the tuna processing factories in Kaohsiung harbor, Taiwan. These head sections, along with plastic tags clamped on the fish at the time of catch, were sent to my lab for otolith extraction and age determination. The ID number on each tag allowed us to access the biological and sampling information of each SBT from the catch documentation scheme database. We collected otoliths from 86 and 149 SBT caught and landed in Taiwan in 2022 and 2023, respectively. Totally, 141 SBT were sampled for otoliths in 2022 with the fork length and age of  $109.5 \pm 19.1$  (range: 70-159 cm) and  $4.5 \pm 2.4$  (range: 2-16 years), respectively (Fig. 1a, b). In 2023, otoliths were sampled from 149 SBT with the fork length and age were  $113.5 \pm 9.1$  (range: 92-150 cm) and  $4.7 \pm 1.3$  (range: 3-13 years), respectively (Fig. 2a, b).

The findings show that Taiwanese longliners predominantly caught young SBT, aged between 2 to 5 years, accounting for 70-80% of the total catch. While SBT older than 10 years were occasionally caught, their numbers were scarce and reliable estimation were challenging due to limited otoliths samples from larger-sized SBT. Besides, the estimated age compositions remained consistent throughout the years 2022 to 2023. These results suggested that the fishing activities of Taiwanese longliners did not undergo significant changes over this period, and the SBT population in the central Indian Ocean appears to be stable, displaying no major shift in demography.

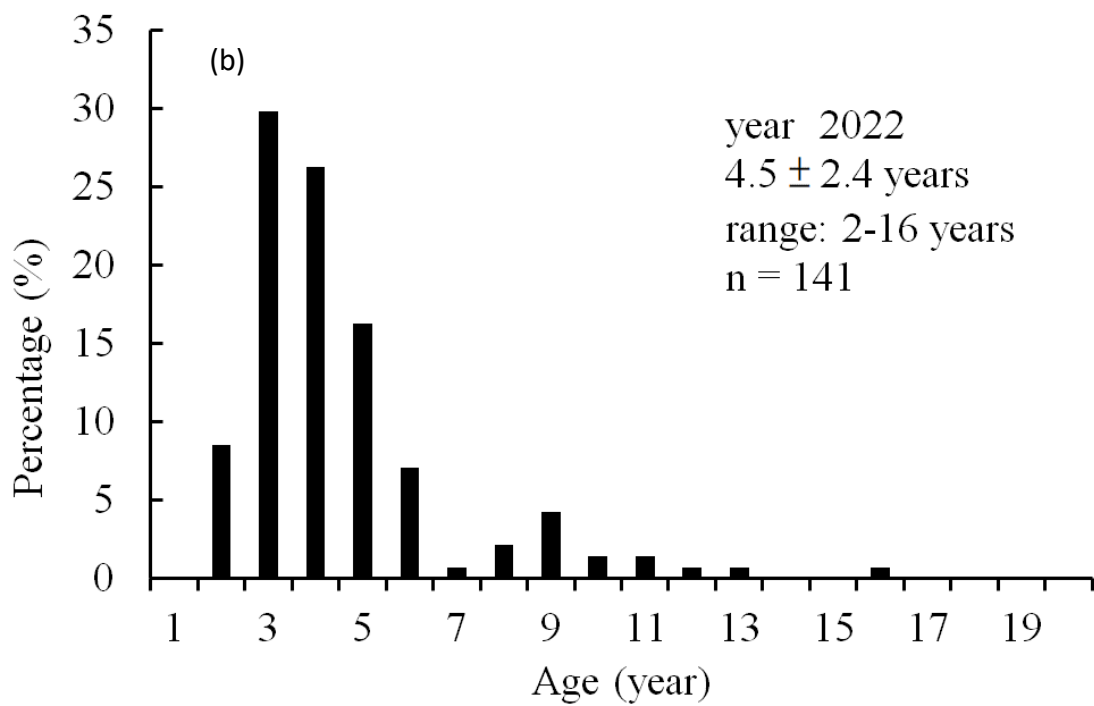
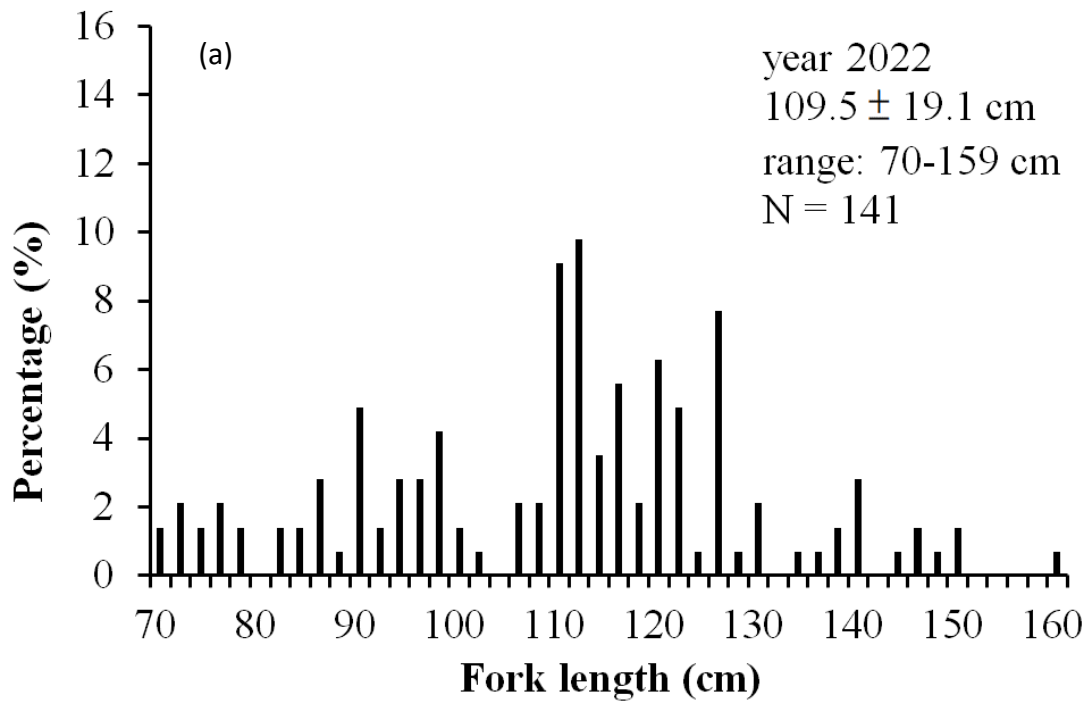


Figure 1. The length and age composition of the Southern bluefin tuna sampled for the otoliths in 2022. The ages were estimated by the otolith direct ageing.

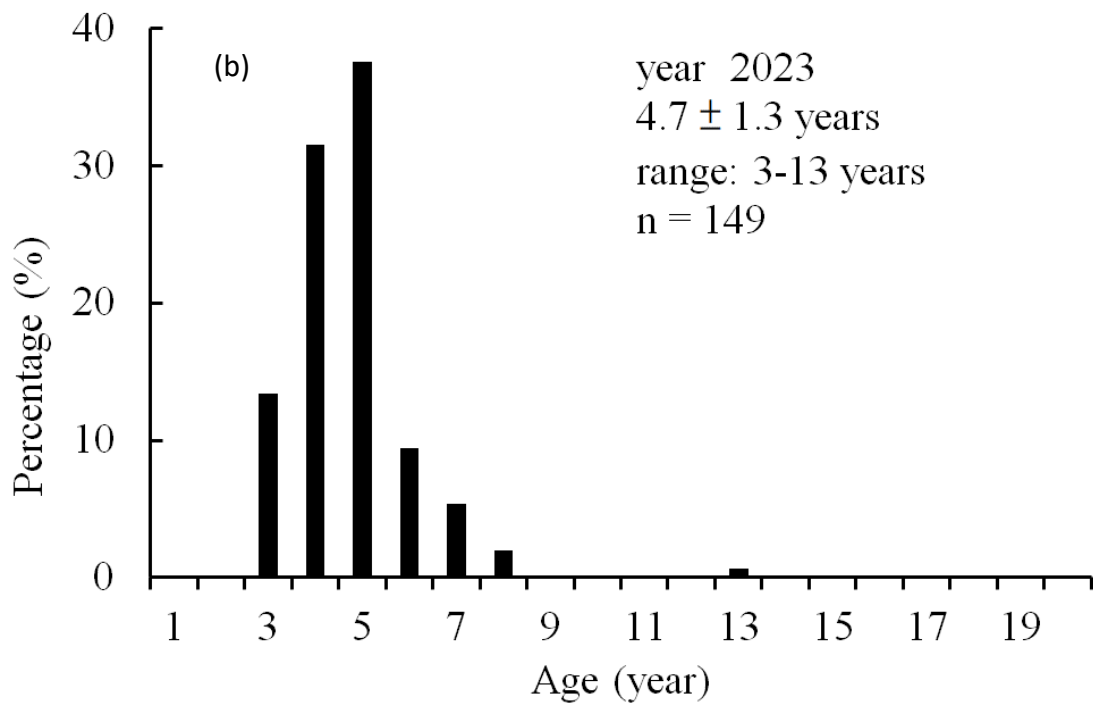
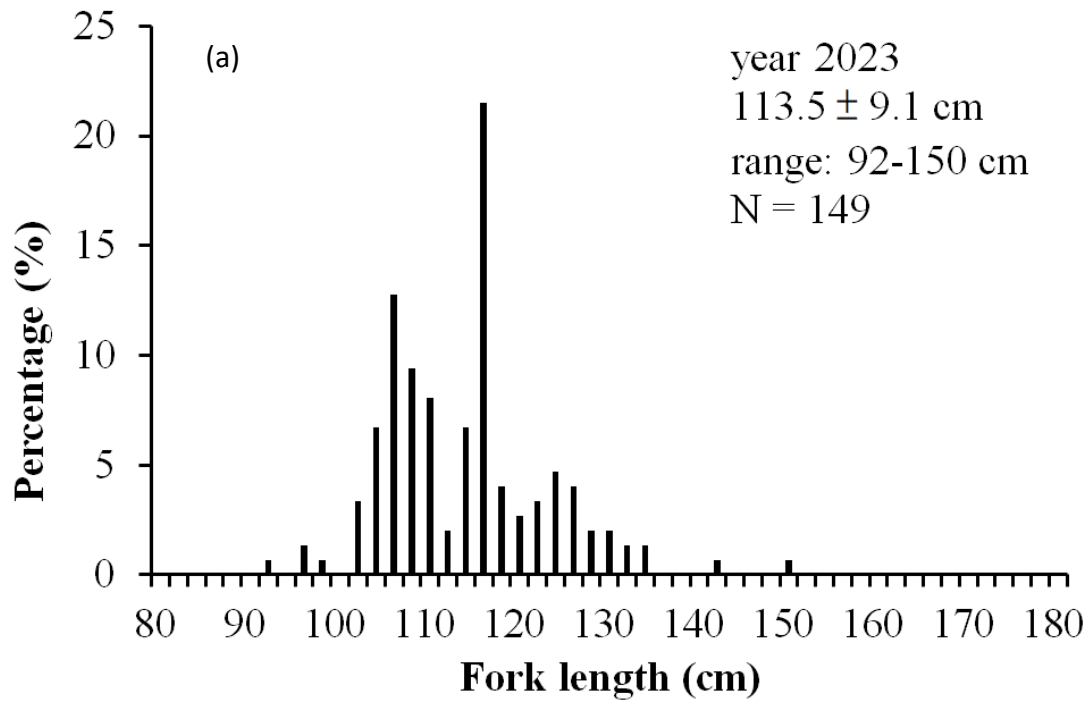


Figure 2. The length and age composition of the Southern bluefin tuna sampled for the otoliths in 2023. The ages were estimated by the otolith direct ageing.