Updated ageing data of the SBT caught by Taiwanese longliners in 2024

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This document presents updated otolith direct ageing data for the southern bluefin tuna (SBT, n = 515) caught by Taiwanese longline fishery in 2024. Ageing protocols followed the established manual (Anon 2002) and the recommendations from the 2nd CCSBT otolith workshop hold in June 26, 2025.

Samples were primarily collected during the peak Taiwanese fishing season in June (39%), July (22.7%) and August (28.5%). The remaining samples were caught in January (6.6%), April (1.4%), May (1.4%) and September (0.6%) (Figure 1).

The fish were mainly harvested in the central Indian Ocean between 30º-35ºS and 70º-90ºE (Figure 2).

The sampled SBT had a mean fork length of 103.8 ± 12.8, ranging from 77-162 cm (Figure 3). Dressed weight ranged from 7 to 68 kg, with the majority of samples weighting between 15 and 25 kg (Figure 4).

Direct ageing (Figure 5) revealed an age range of 2 to 15 years, with a mean age of 3.5 ± 1.2 years. The 3+ age group was the dominant age class (49.5%), followed by the 4+ (30.7%) and 2+ (10.7%) classes. Decimal ages were calculated according to Eveson et al. (2004), assuming a SBT birthday of January 1st and otolith opaque zone completion on September 30th. When fitted to von Bertalanffy growth function, both the discrete and decimal age data yielded similar growth parameters (Figure 6).

References

Anon (2002) A manual for age determination of Southern Bluefin Tuna, *Thunnus maccoyii*: Otolith sampling, preparation and interpretation. a product of the direct age estimation workshop of the Commission for the Conservation of Southern Bluefin Tuna, 11 – 14 June 2002, Queenscliff, Victoria, Australia, 36 pp.

Eveson JP, Laslett GM, Polacheck T (2004) An integrated model for growth incorporating tag–recapture, length–frequency, and direct aging data. Can. J. Fish. Aquat. Sci. 61: 292–306.

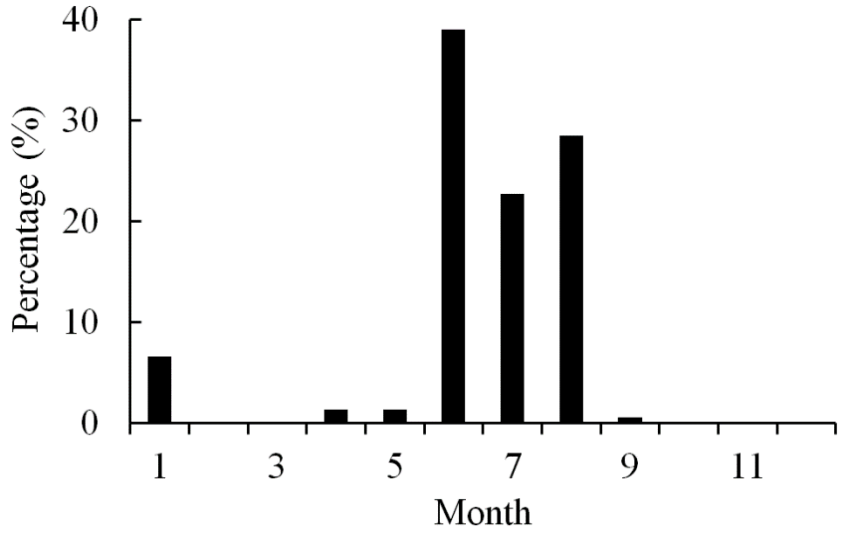


Figure 1. The percentage of the southern bluefin tuna sampled for otoliths. The majority of SBT sampled for otoliths were caught during June, July, and August, with smaller proportions in January, April, May, and September.

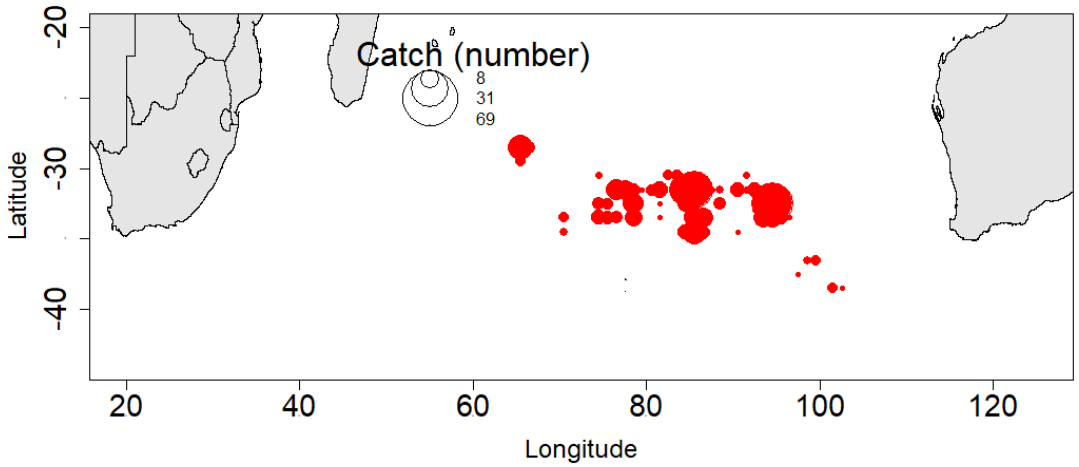


Figure 2. A scatter plot overlaid on a map, showing the spatial distribution of southern bluefin tuna sampled for otoliths. The vast majority of the catch location are clustered in a band in the central Indian Ocean, predominantly located between approximately 30-35°S and 70-95°E. There are some smaller, more scattered points further east and west within this latitudinal band, but the main concentration is quite clear.

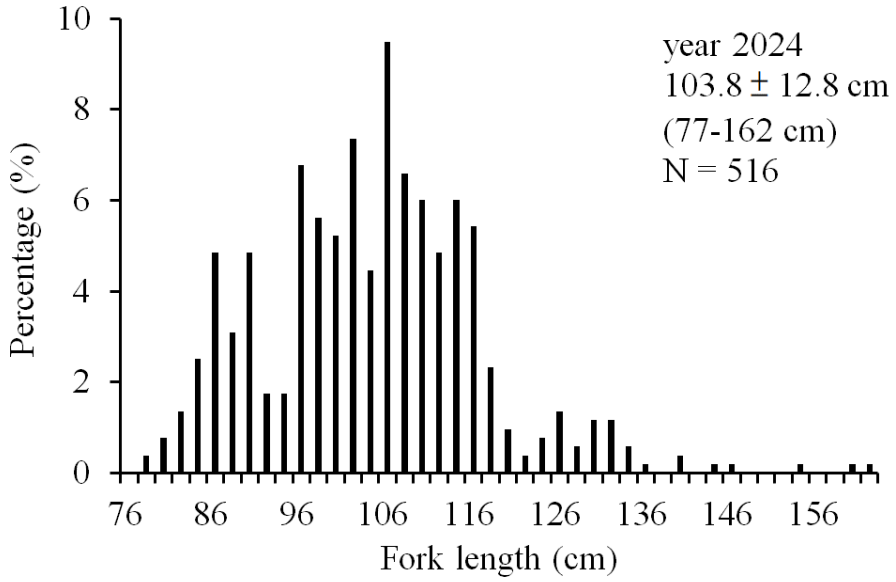


Figure 3. A histogram showing the percentage distribution of southern bluefin tuna fork lengths sampled for otoliths in 2024.

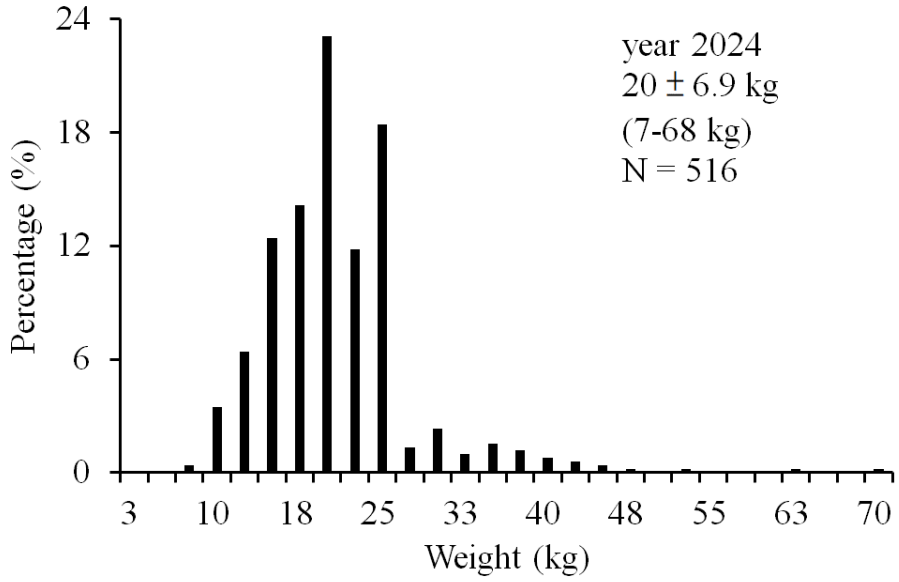


Figure 4. A histogram displaying the percentage distribution of southern bluefin tuna dressed weights sampled for otolith in 2024.

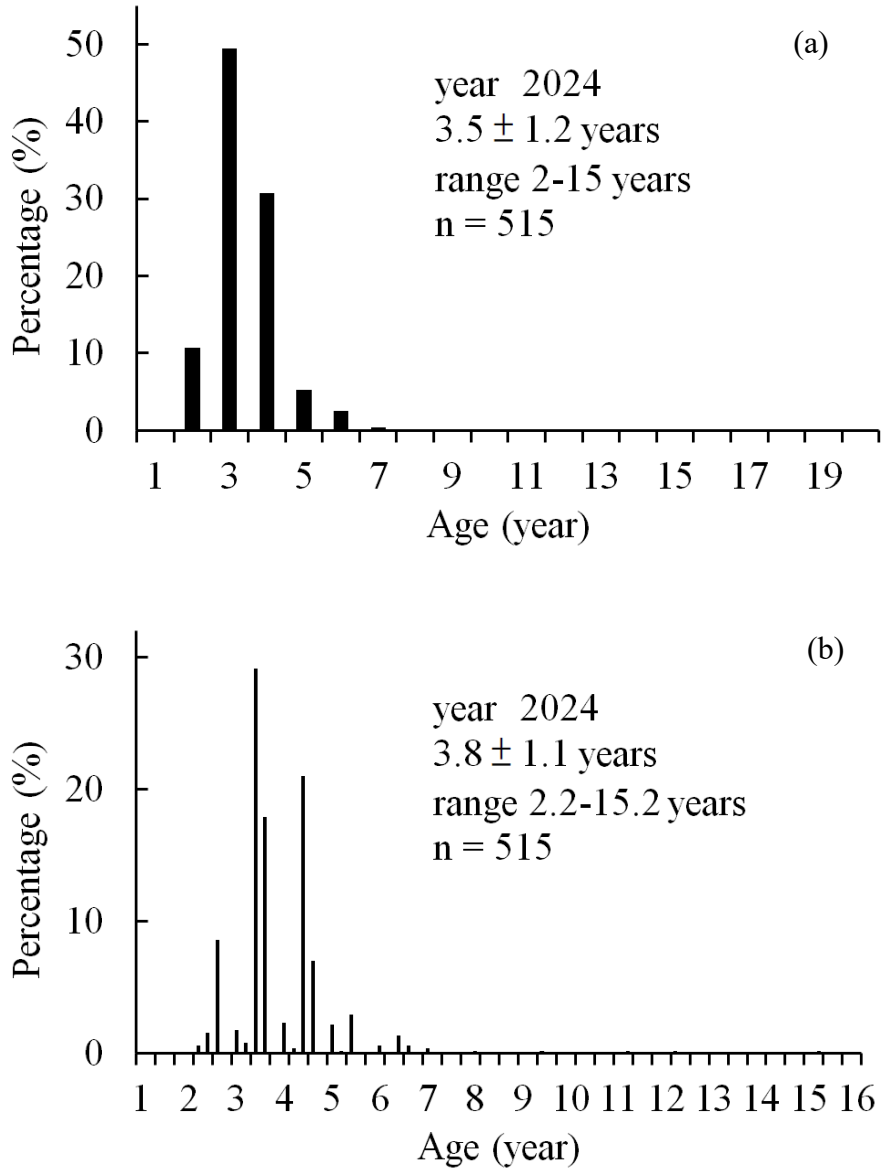


Figure 5. The histogram showing the percentage distribution of southern bluefin tuna ages determined by direct aging in 2024. Panel (a): discrete age, (b) decimal age.

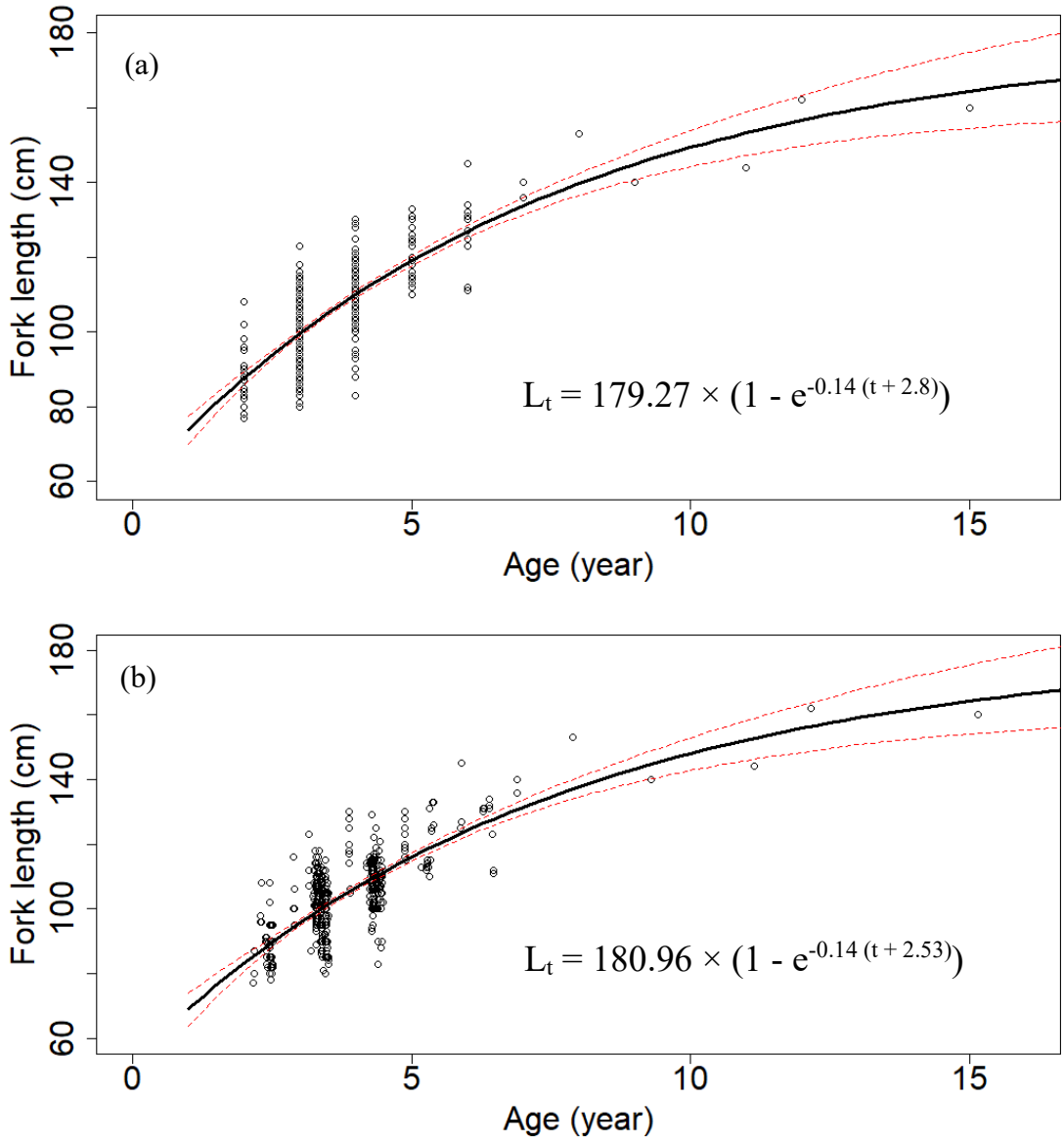


Figure 6. The scatter plots with fitted VBGF growth curves, depicting the relationship between age and fork length for southern bluefin tuna. The red dashed lines represent the confidence intervals around the fitted growth curve. Panel (a): discrete age, (b) decimal age.