

Comisión Interamericana del Atún Tropical
Inter-American Tropical Tuna Commission



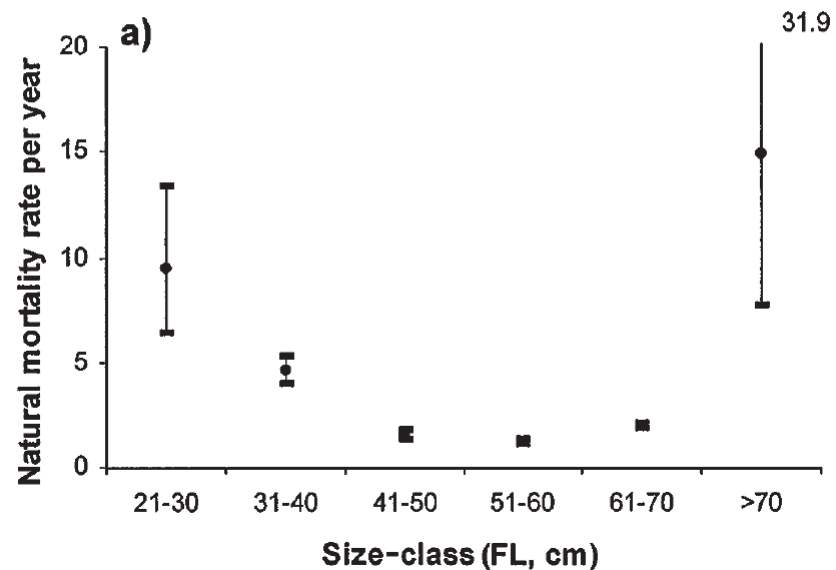
Natural Mortality

1st External Review of IATTC staff's stock assessment of skipjack tuna in the eastern Pacific Ocean
07-10 November 2022 – La Jolla CA, USA

Natural Mortality

- No maximum age
- Growth does not follow the von Bertalanffy
- Hampton (2000) estimates of M for the WCPO from tagging data

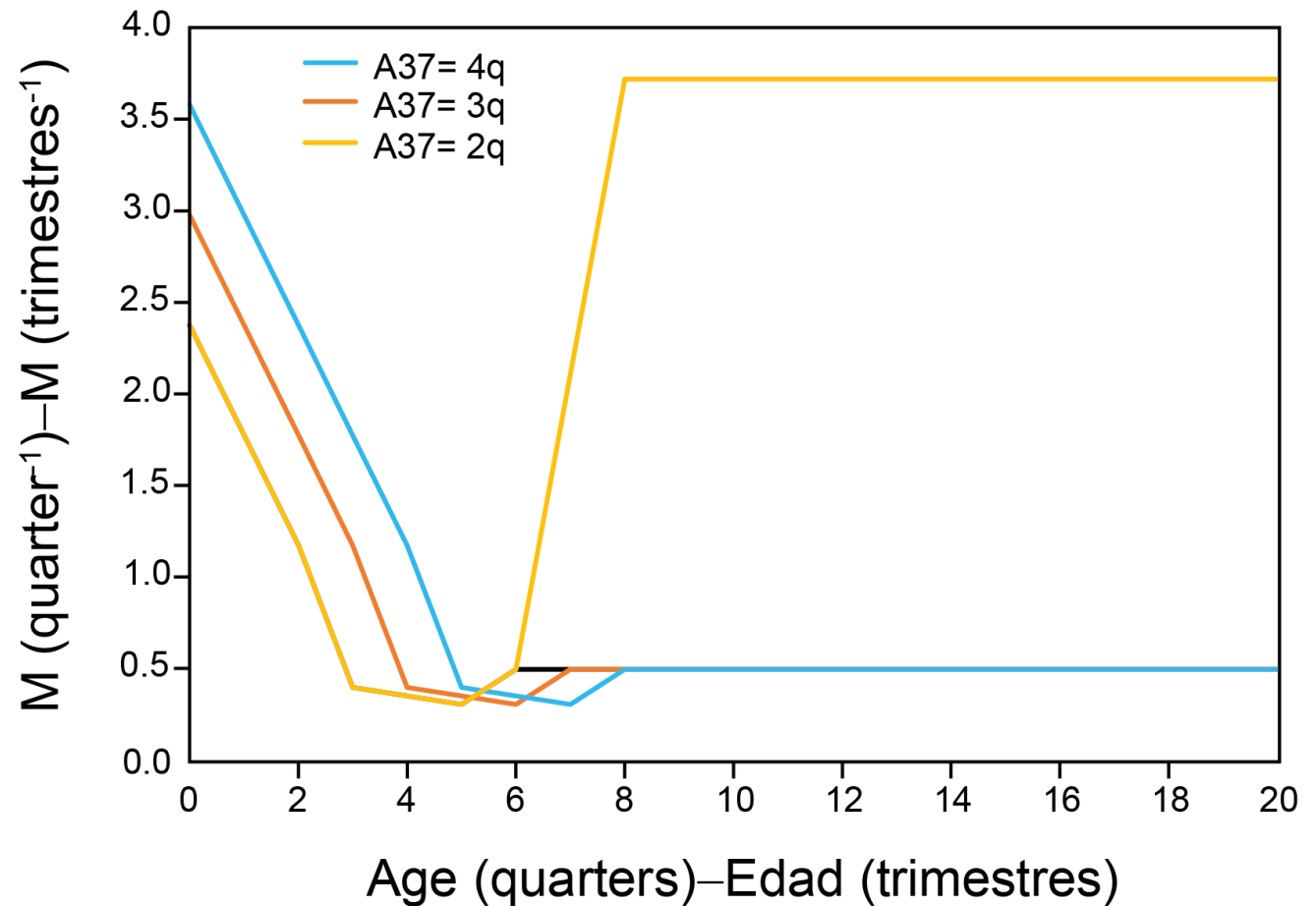
Fig. 9. Estimates of skipjack tuna (a) natural mortality rates and (b) fishing mortality rates by size-class. The circles represent the medians of 1000 bootstrap replicates; the ranges are the 2.5–97.5 percentiles.



Natural Mortality

- Convert into age
- Use growth curve based on median length

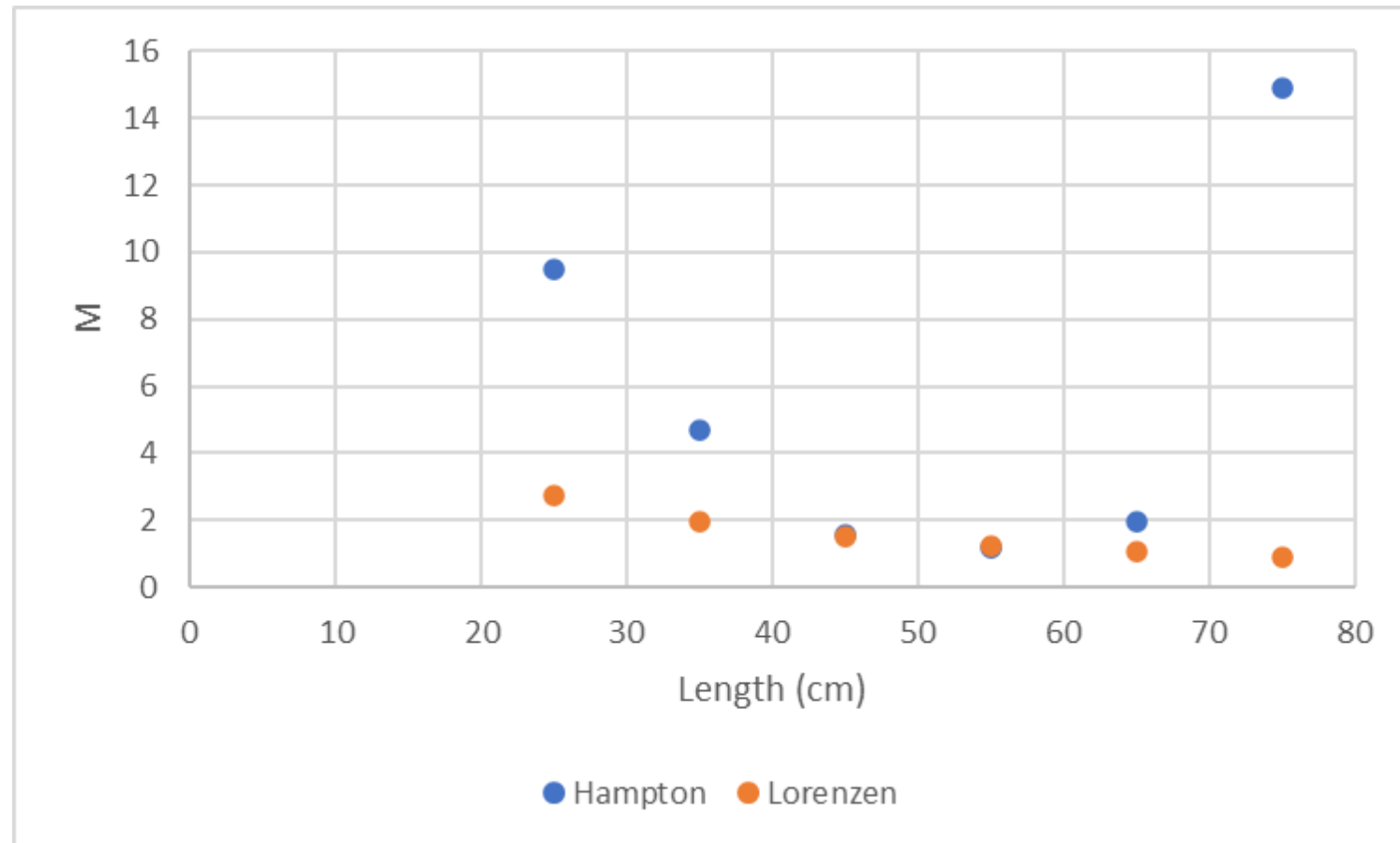
Size	M (per yr)	Year	Quarter	
21-30		25	9.495732	2.373933
31-40		35	4.68126	1.170315
41-50		45	1.582344	0.395586
51-60		55	1.2042	0.30105
61-70		65	1.974144	0.493536
>70		75	14.87969	3.719922



Natural Mortality

Lorenzen et al. (2022)

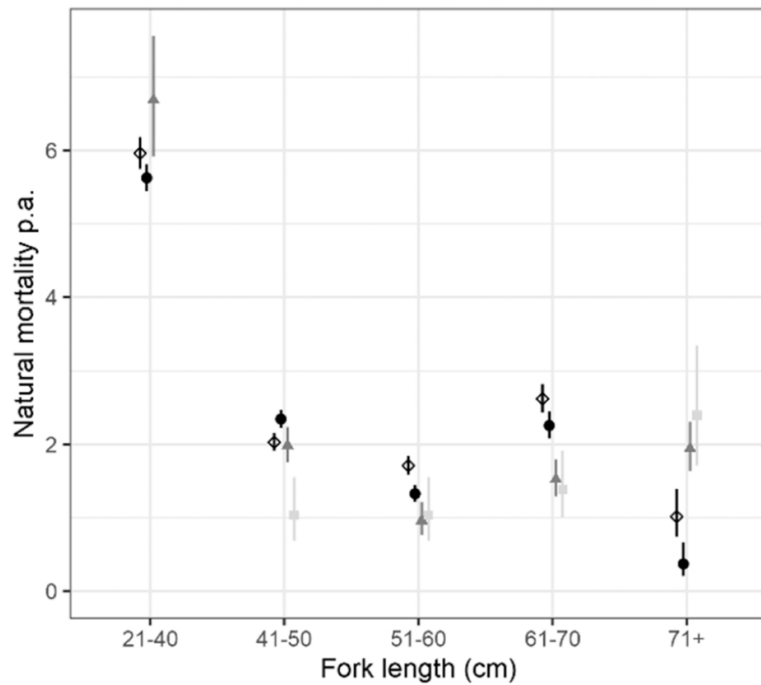
M proportional to L^{-1}



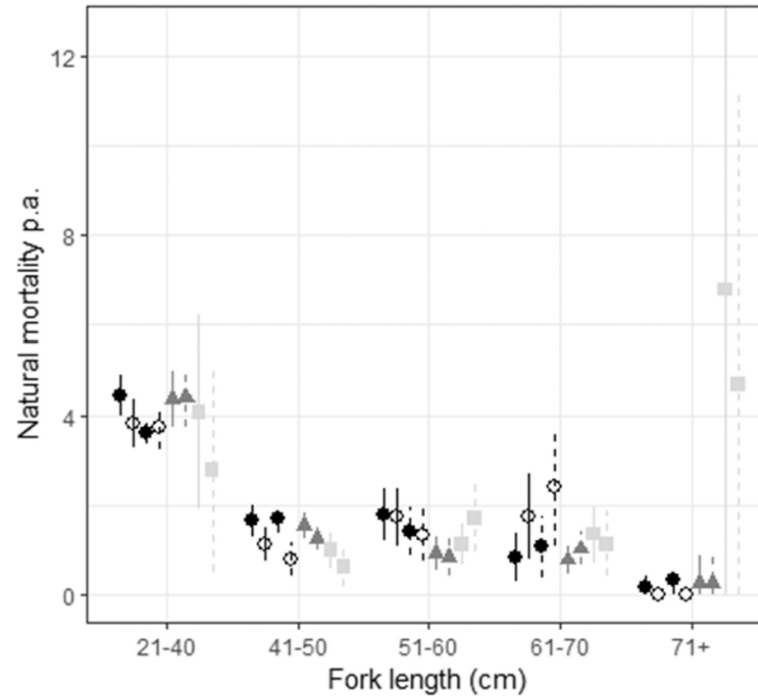
Natural Mortality

Peatman et al. (2022)

Attrition model

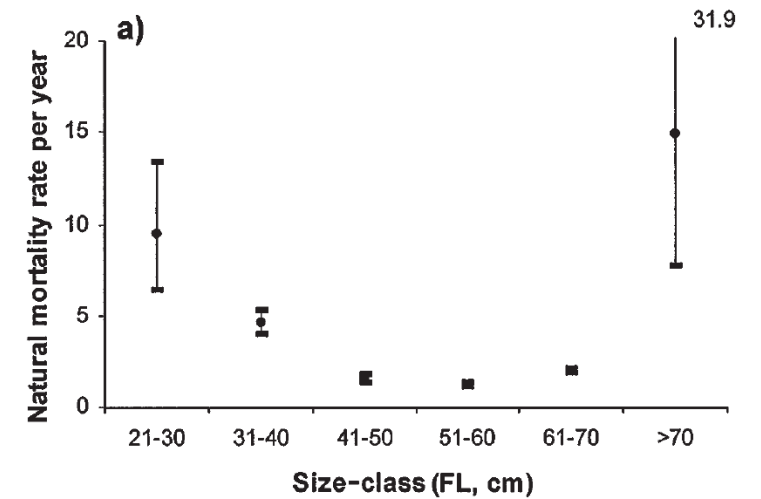


Brownie models



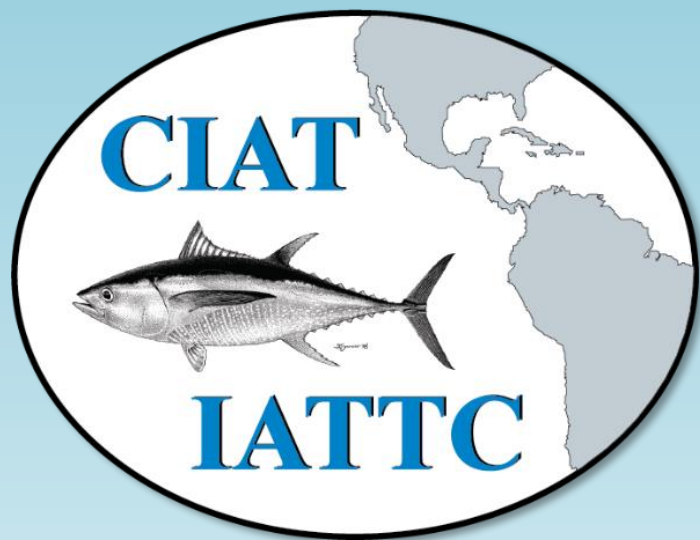
Hampton (2000)

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Natural Mortality

See Tobias' presentation for another estimate of M



Questions