



GROWTH MODEL IN RECENT WCPFC WCPO YELLOWFIN ASSESSMENTS AND FUTURE CONSIDERATIONS

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OUTLINE

- Summary of assumptions in 2017 assessment
- Estimates
- Further work

GROWTH ASSUMPTIONS

- Growth estimated within MULTIFAN-CL - largely covered in John's presentation
- Lengths-at-age normally distributed by age class
- Means follow von-Bertalanffy growth curve
- SD of length for each age class log-linear function of mean l-at-age
- Prob distributions of weight-at-age are deterministic function of the lengths-at-age and a specified weight-length relationship.
- Processes are assumed to be regionally invariant.

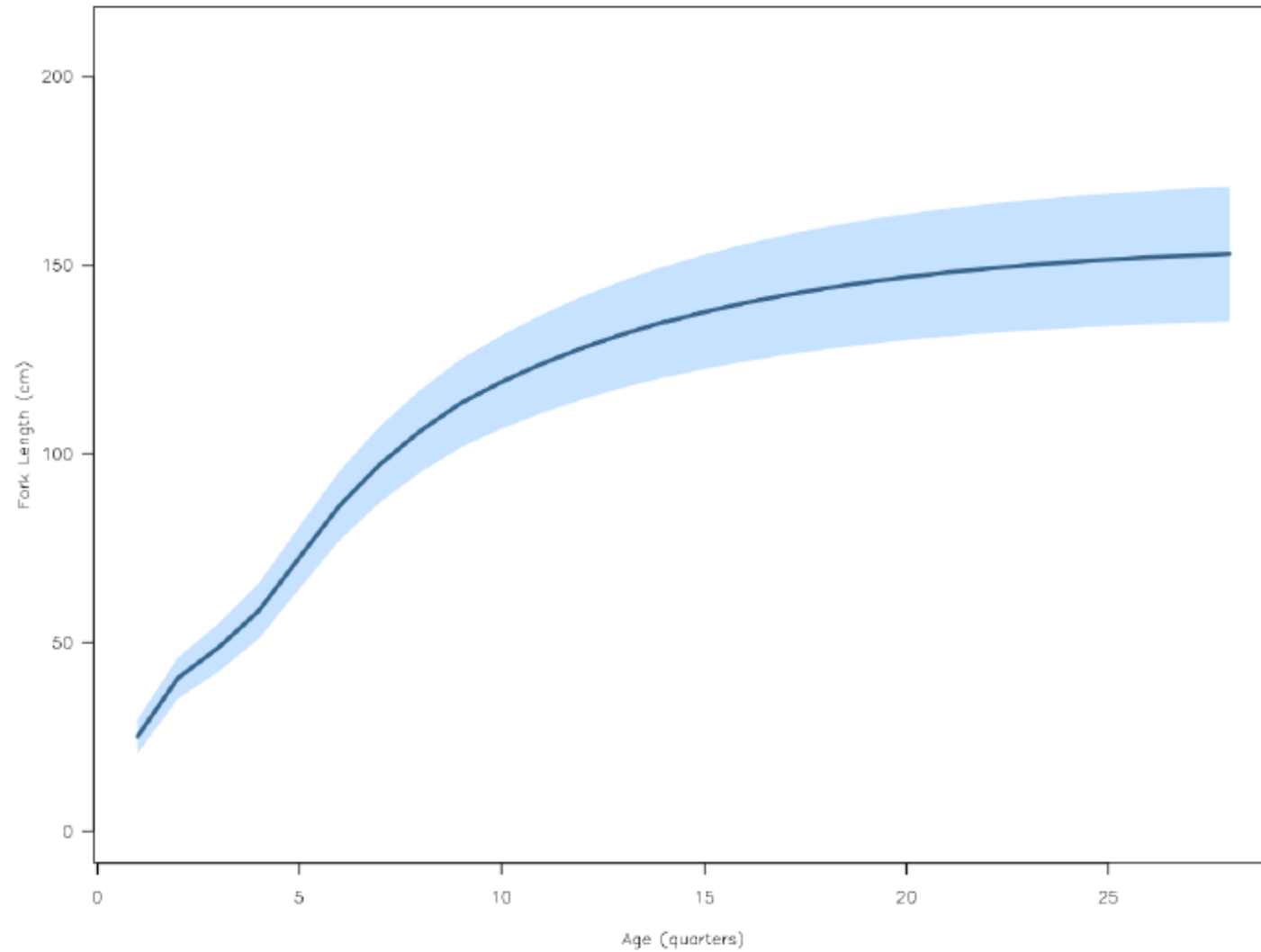
YELLOWFIN-SPECIFIC FEATURES

- Given understanding of alternative growth patterns in juveniles:
 - mean lengths of the first eight quarterly age-classes to be independent parameters
 - remaining mean lengths following a von Bertalanffy growth curve.
 - Deviations attract a small penalty to avoid over-fitting the size data.

GROWTH ESTIMATES – DIAGNOSTIC CASE

- Rapid growth for the youngest age-classes, starting from a mean length of ~ 20-30cm (youngest age-class)
- Non-von Bertalanffy growth of juvenile yellowfin estimated
 - irregular growth occurring in the 25–75 cm size range showing slower growth than predicted by the von Bertalanffy function
- The diagnostic case estimate suggests an L2 of 153 cm. Similar to that estimated in the 2014 assessment
 - similar trend of non-VB growth for earlier stages and similar mean length of the oldest age class (153.0 vs. 153.4cm).

GROWTH ESTIMATES – DIAGNOSTIC CASE



Parameter	Value
L2	153
K (qtr)	0.14

Figure 29: Estimated growth for the diagnostic case model. The blue line represents the estimated mean fork length (cm) at-age and the blue region represents the length-at-age within one standard deviation of the mean, for the diagnostic case model.

GROWTH ESTIMATES – DIAGNOSTIC CASE V PRELIM AGES

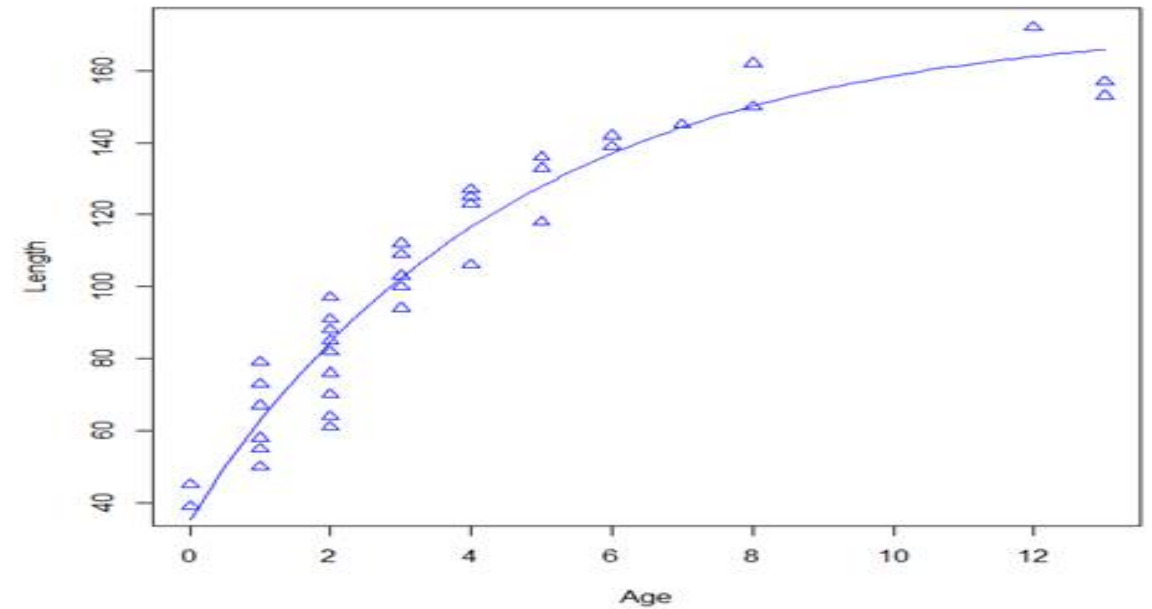
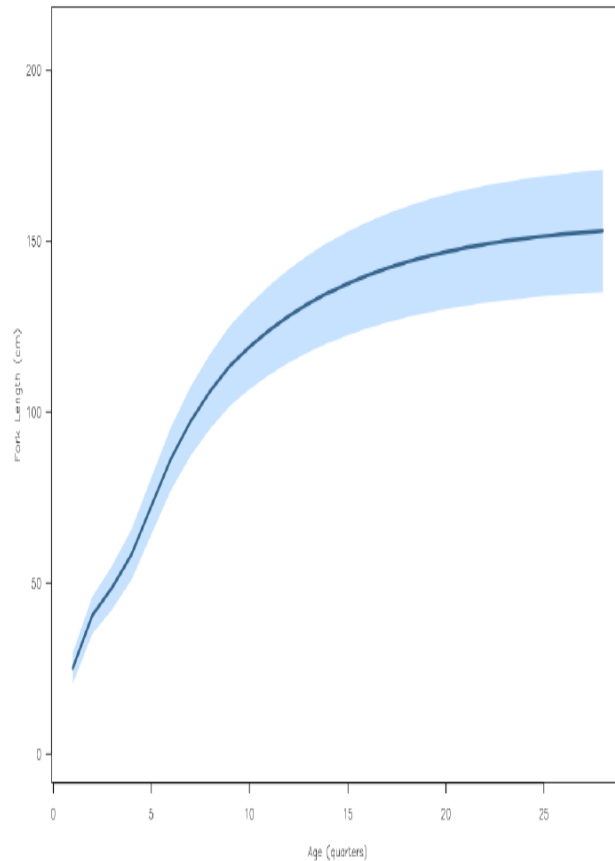


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FURTHER WORK

- Growth estimate considered reasonable
- Uncertainty remains
- Assessment report suggested further studies into growth
 - Currently underway
 - Combined with shift from maturity-at-age to maturity-at-length within MULTIFAN-CL, to internally capture changes in growth estimates