

[10.1071/MF23174](https://doi.org/10.1071/MF23174)

*Marine and Freshwater Research*

### **Supplementary Material**

#### **Are tuna always hungry? A deep dive into stomach-fullness measures in the western and central Pacific Ocean**

*Pauline Machful<sup>A,\*</sup>, Annie Portal<sup>A</sup>, Jed Macdonald<sup>A</sup>, Valerie Allain<sup>A</sup>, Joe Scutt Phillips<sup>A</sup>, Joanne Potts<sup>A</sup>, and Simon Nicol<sup>A</sup>*

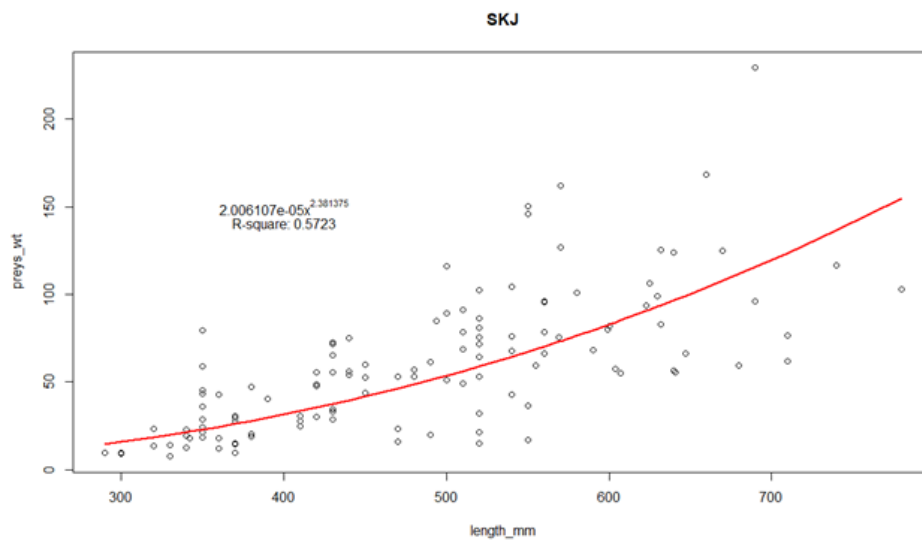
<sup>A</sup>Oceanic Fisheries Programme, Pacific Community, 95 Promenade Roger Laroque, BP D5 98848, Noumea, New Caledonia.

\*Correspondence to: Pauline Machful Oceanic Fisheries Programme, Pacific Community, 95 Promenade Roger Laroque, BP D5 98848, Noumea, New Caledonia Email: [paulinem@spc.int](mailto:paulinem@spc.int)

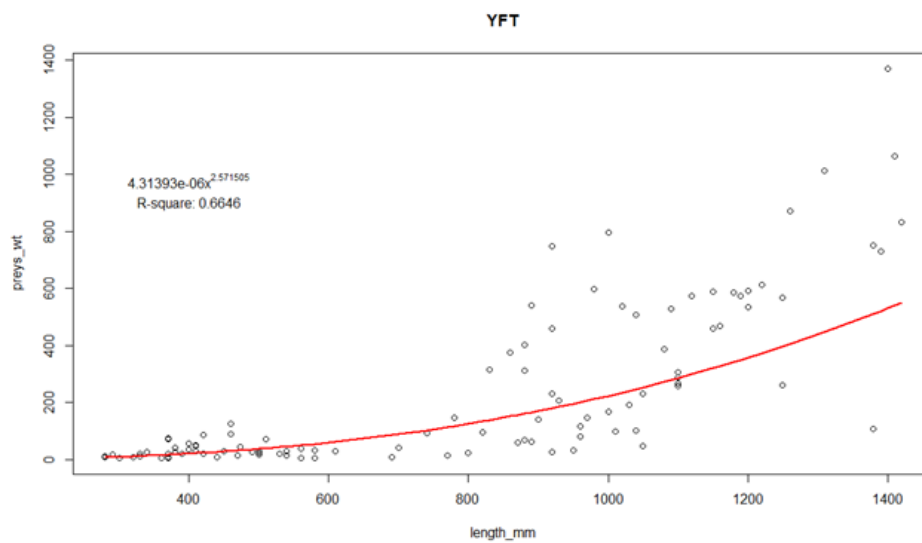
**Table S1.** Key features of our stomach fullness dataset.

Tuna species	Skipjack (SKJ) <i>Katsuwonus pelamis</i>	Yellowfin (YFT) <i>Thunnus albacares</i>	Bigeye (BET) <i>Thunnus obesus</i>
Sampling year range	2001–2021	2001–2021	2001–2019
Number of analysed stomachs	3491	3436	1302
Number of empty stomachs	1557	566	436
Number of non-empty stomachs	1934	2870	866
Length range, FL (mm)	94–920	240–1820	270–1750
Mean fullness metric	0.13	0.20	0.22
Maximum fullness metric	3.46	5.50	5.25
SD fullness metric	0.32	0.42	0.42

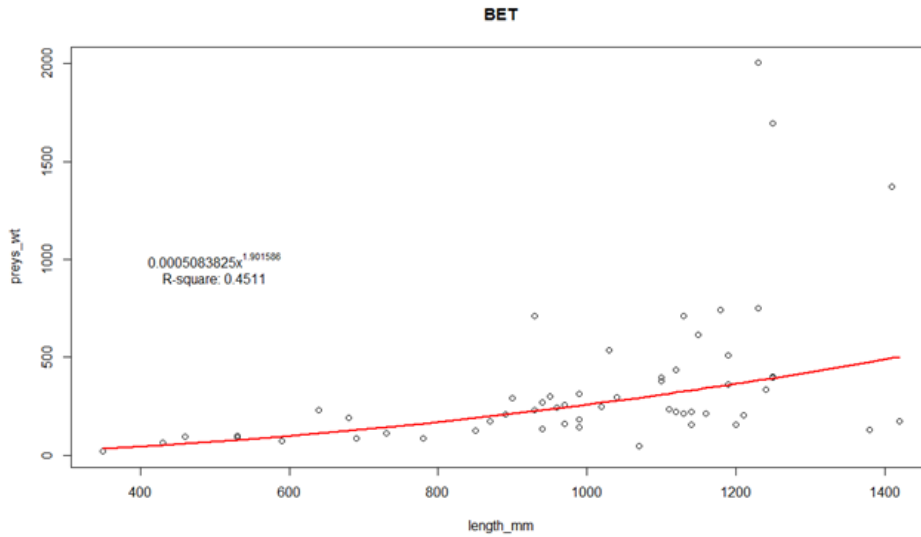
FL, fork length; SD, standard deviation



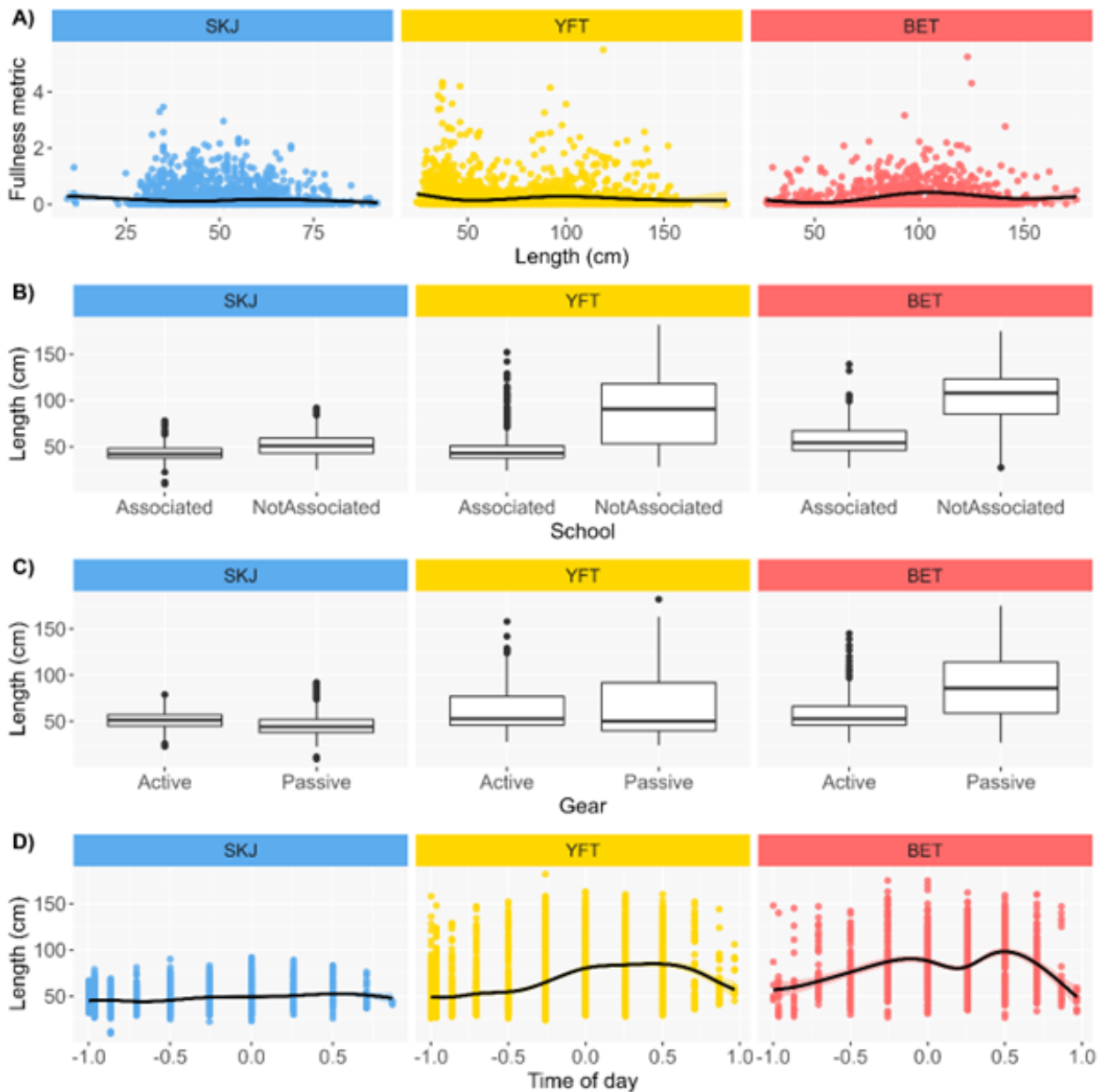
**Fig. S1.** Plot of the log–log regression between the maximum stomach content weight (g) observed for  $n = 120$  skipjack tuna (SKJ, *Katsuwonus pelamis*) considered as full with a fullness coefficient of 4 and fish fork length (mm).



**Fig. S2.** Plot of the log–log regression between the maximum stomach content weight (g) observed for  $n = 106$  yellowfin tuna (YFT, *Thunnus albacares*) considered as full with a fullness coefficient of 4 and fish fork length (mm).



**Fig. S3.** Plot of the log–log regression between the maximum stomach content weight (g) observed for  $n = 55$  bigeye tuna (BET, *Thunnus obesus*) considered as full with a fullness coefficient of 4 and fish fork length (mm).



**Fig. S4.** Plot of exploratory analysis between length and fullness metric (A), and relationship between length and each of the explanatory variables (B-D).

**Table S2.** Sample size for categorical anthropogenic covariates ‘Gear and ‘School’.

Tuna species	Skipjack (SKJ) <i>Katsuwonus pelamis</i>	Yellowfin tuna (YFT) <i>Thunnus albacares</i>	Bigeye tuna (BET) <i>Thunnus obesus</i>
<b>'Gear'</b>			
• Passive ( <i>n</i> )	2927	3008	1110
• Active ( <i>n</i> )	564	428	192
<b>'School'</b>			
• Associated school ( <i>n</i> )	1866	1837	565
• Not-associated school ( <i>n</i> )	1625	1600	737