Supplementary Material

Fig. S1. Inter- and intra-reader age-bias plots for *Carcharhinus sorrah* (*a* and *c*) and *C. tilstoni* (*b* and *d*) incorporating age-specific agreements used for Bowker's test of symmetry. Mean age-specific agreements ±2 standard errors (●) are plotted alongside the 1-1 equivalence line for comparison (---).
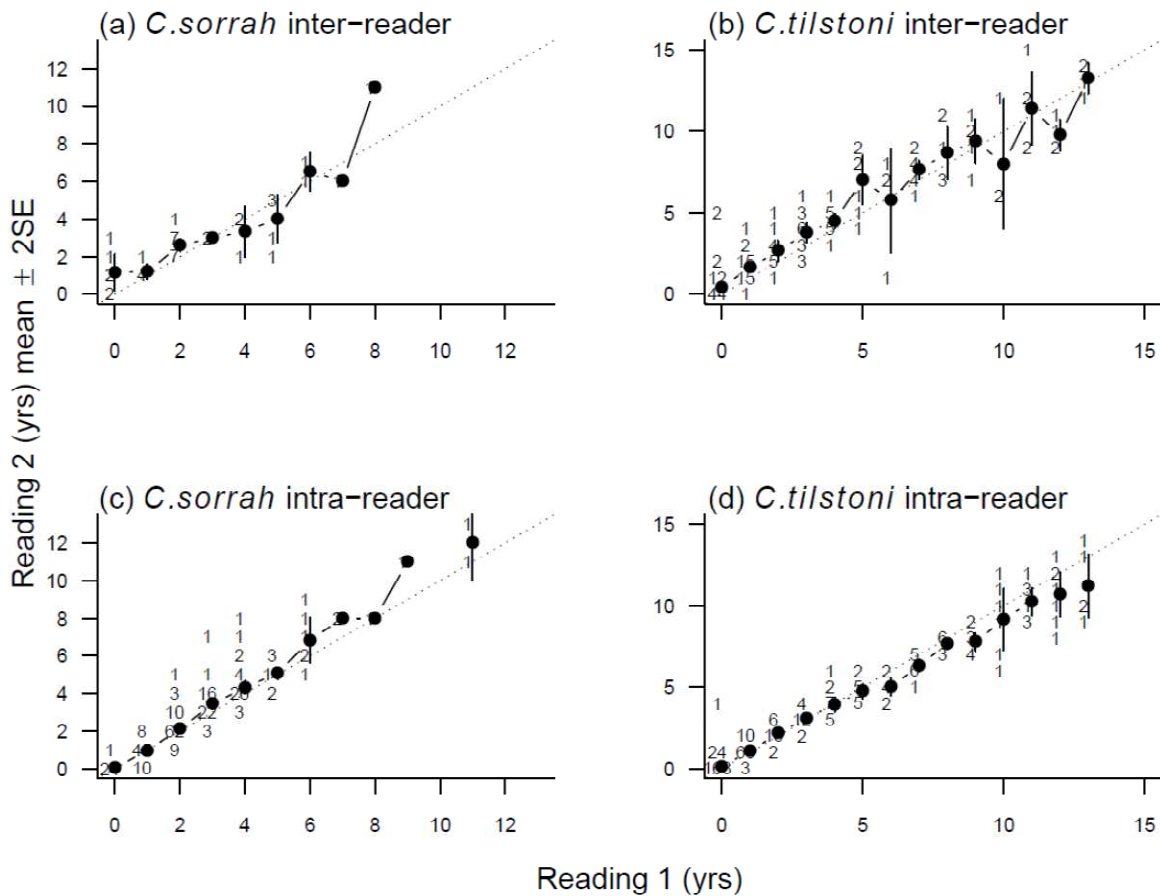
Fig. S2. Relationships between *in utero* total body mass and stretched total length of embryonic sharks. Plots are mean total body mass against STL (—), with 95% confidence intervals (– – –), 95% prediction intervals (----) and raw data (●) for (a) *Carcharhinus sorrah* and (b) *C. tilstoni*. Values of parameters and statistical quantities from linear regression analysis to derive the equation $W(l) = \beta_1 l^{\beta_2}$ are given in the following tabulation:

Species	β_1 (s.e. range) x 10^{-8}	β_2 (s.e.)	n	r^2	rmse	P
C. sorrah	1.217 (1.120 – 1.322)	2.826 (0.0147)	189	0.995	0.133	***
C. tilstoni	1.405 (1.263 – 1.565)	2.853 (0.019)	63	0.997	0.115	***

where W is body mass, l is STL, β_1 and β_2 are parameters, n is the number of individuals, r^2 is square of correlation coefficient and rmse is root mean square error for the regression $log_e\big(W(l)\big) = log_e(\beta_1) + \beta_2 l$. *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.
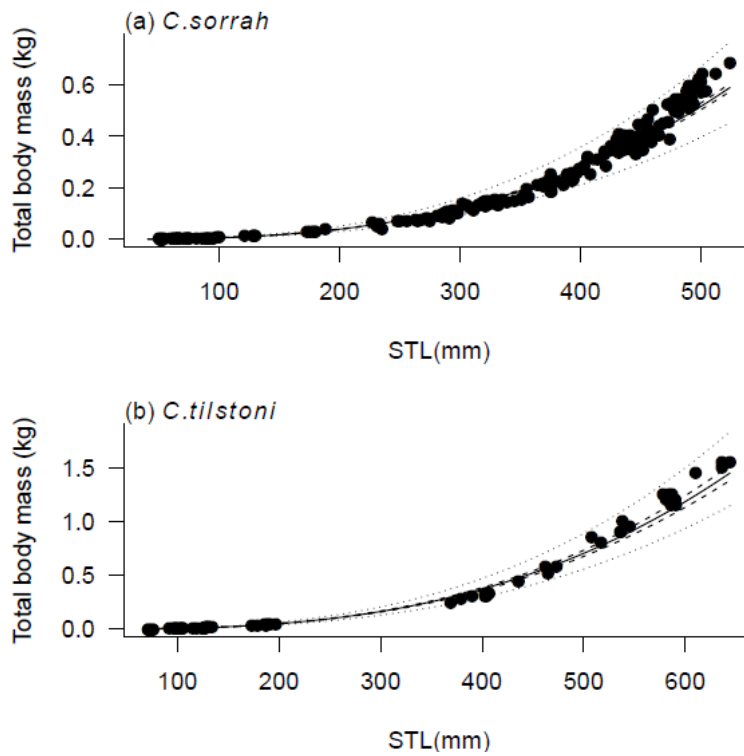

(a) C.sorrah

(b) C.tilstoni

Table S1.   Protocol used to distinguish between 1049 morphologically similar *Carcharhinus limbatus* and *C. tilstoni*.

Identification methods were applied sequentially. When an individual met the necessary conditions of one method, it was considered identified. STL is stretch total length in mm and PCV is pre-caudal vertebrae

Order applied	Identification method	Necessary conditions		Justification
		C. tilstoni	*C. limbatus*	
1.	Pre-caudal vertebrae counts	PCV in the range of 83-91	PCV in the range of 94-110	Identifications of 212 post-natal individuals using vertebral counts were consistent with differences between *C. tilstoni* and *C. limbatus* in length-at-birth, male clasper length, and male and female reproductive stage.
2.	Life history characteristics	STL <652 mm	STL > 665 mm, unhealed umbilical scar	From vertebral counts of 120 neonates. 652 mm is the empirically derived 97.5th quantile of the length-at-birth distribution for *C. tilstoni* and 665 mm is the empirically derived 2.5th quantile of the length-at-birth distribution for *C. limbatus*.
		Male, STL <1620 mm, sexually mature	Male, STL > 1300 mm, sexually immature	Based on the reproductive stage of 366 males. 1620 mm was the largest male. 1300 mm is a conservative, non-statistically derived estimate of the length at which 95% of males *C. tilstoni* are mature.
		Male, STL >1000 mm and <1300 mm, clasper length >4 % of STL	Male, STL >1200 mm and <1300 mm, clasper length <4% of STL	Based on the clasper length of 361 males. 1000 - 1300 mm is the length over which rapid elongation (and calcification) of claspers occurred in male *C. tilstoni*. Claspers of *C. limbatus* remain undeveloped (<4% STL) until at least 1600 mm.
		Female, STL < 1930 mm, sexually mature	Female, STL > 1400 mm, sexually immature	Based on the reproductive stage of 183 females. 1930 mm is the largest female measured. 1400 mm is a conservative, non-statistically derived estimate of the length at which 95% of female *C. tilstoni* are mature.
3.	Molecular analysis	PCR melt temperature within the range of 76.5 - 77.5°C with a mean of 77.0°C	PCR melt temperature within the range of 79.5 - 81.0°C with a mean of 80.3°C	Identification using a real-time, high resolution melt polymerase chain reaction species-diagnostic assay developed from the ND4 gene and validated against vertebral counts of 96 post-natal *C. tilstoni* and *C. limbatus*. This method does not distinguish between hybrid animals.

Table S2. Length-at-maturity and length-at-maternity sample sizes for *C. sorrah*

A male was classed in mature condition if the clasper was rigid and fully calcified (C=3); otherwise it was classed as immature. A female was classed in mature condition if the uterus was uniformly enlarged and tubular in structure (U ≥ 3); otherwise it was class as non-mature. A female was classed as in maternal condition if U ≥ 4 or U > 3 if the largest ovarian follicle diameter was >10 mm between January and March; otherwise it was classed as in non-maternal condition.

Length class (mm) / age class (years)	Clasper condition			Mature Condition			Uterus condition						Mature condition			Maternal Condition		
	1	2	3	No	Yes	Total	1	2	3	4	5	6	No	Yes	Total	No	Yes	Total
<600	4			4		4												
600-699	6			6		6	2						2		2	2		2
700-799	12			12		12	5						5		5	5		5
800-899	23	1		24		24	5	1					6		6	6		6
900-999	12	9	73	21	73	94	6	3	8				9	8	17	16		16
1000-1099			16		16	16			8	1	23			32	32	8	24	32
1100-1199	1		11	1	11	12			2		31	3		36	36	2	34	36
1200-1299											18			18	18		18	18
≥ 1300											2			2	2		2	2
Total	58	1	244	68	244	312	18	4	18	1	74	3	22	96	118	39	78	117
< 1	19			19		19	5						5		5	5		5
1-1.99	15	1		16		16	6	1					7		7	6		6
2-2.99	2	6	27	8	27	35	3	1	5		2		4	7	11	9	2	11
3-3.99	1		2	1	2	21			4		6			1	1	4	6	1
4-4.99			23		23	23			4	1	18	1		24	24	4	2	24
5-5.99			6		6	6					9	1		1	1		9	9
6-6.99			5		5	5					5	1		6	6		6	6
7-7.99			1		1	1					5			5	5		5	5
8-8.99			1		1	1					2			2	2		2	2
9-9.99											4			4	4		4	4
≥ 10											3			3	3		3	3
Total	37	7	83	44	83	127	14	2	13	1	54	3	16	71	87	28	57	85

Table S3. Length-at-maturity and length-at-maternity sample sizes for *C. tilstoni*

A male was classed in mature condition if the clasper was rigid and fully calcified (C=3); otherwise it was classed as immature. A female was classed in mature condition if the uterus was uniformly enlarged and tubular in structure (U ≥ 3); otherwise it was class as immature. A female was classed as in maternal condition if U ≥ 4 or U > 3 if the largest ovarian follicle diameter was >15 mm between January and March; otherwise it was classed as in non-maternal condition.

Length class (mm) / age class (years)	Clasper condition			Mature Condition			Uterus condition						Mature condition			Maternal Condition		
	1	2	3	No	Yes	Total	1	2	3	4	5	6	No	Yes	Total	No	Yes	Total
<800	65			65		65	37						37		37	37		37
800-899	33			33		33	19	1					2		2	2		2
900-999	19			19		19	17						17		17	17		17
1000-1099	9	3		12		12	3						3		3	3		3
1100-1199	6	3	2	9	2	11	2	3					5		5	5		5
1200-1299	1	3	14	4	14	18		1	2				1	2	3	3		3
1300-1399			12		12	12			3			1		4	4	2	2	4
1400-1499			13		13	13			1		5	2		8	8	1	7	8
1500-1599			5		5	5			2		5			7	7	2	5	7
1600-1699									2		9			11	11	2	9	11
1700-1799											2			2	2		2	2
≥ 1800											2			2	2		2	2
Total	133	9	46	142	46	188	78	5	1		23	3	83	36	119	92	27	119
<2	83			83		83	55	1					56		56	56		56
2-2.99	22	2		24		24	1						1		1	1		1
3-3.99	8	2		1		1	8						8		8	8		8
4-4.99	5	1		6		6	5						5		5	5		5
5-5.99	2	1	9	3	9	12		2					2		2	2		2
6-6.99			4		4	4		1	3			1	1	4	5	3	2	5
7-7.99			2		2	2		1	3		2		1	5	6	4	2	6
8-8.99		1	4	1	4	5			2		2	1		5	5	2	3	5
9-9.99			4		4	4					3	1		4	4		4	4
≥ 10			4		4	4			2		15			17	17	2	15	17
Total	12	7	27	127	27	154	78	5	1		22	3	83	35	118	92	26	118