Supplementary:

Supplementary Table S1. Measurements of *Megachasma pelagios* specimens used in the analyses. All measurements are in mm.

Specimen	**MZB12906**	**Uncatalogued Brazil specimen**	**SIO 07-53**	**BPBM 22730**	**Uncatalogued Ibaraki specimen**	**WAM P.29940-001**	**Uncatalogued Mikizaki specimen**	**NMMBP8950**	**ASIZP0071582**
Source	White et al. [27]	Amorim et al. [23]	Castillo-Géniz et al. [29]	Taylor et al. [1]; Berra and Hutchins [25]	Sawamoto and Matsumoto [30]	Berra and Hutchins [25]	Yano et al. [26]	Lee and Shao [28]	Lee and Shao [28]
Ontogenetic stage	Juvenile	Juvenile	Juvenile	Adult	Subadult	Adult	Adult	Adult	Adult
Sex	Male	Male	Female	Male	Female	Male	Female	Female	Female
Body Length	1767	1900	2265	4460	3667	5150	5440	4870	4830
Precaudal length	1144	1230	1450	3090	2536	3430	3830	3390	3235
Presecond dorsal length	893	980	1140	2530	2064	2720	2970	2830	2540
Prepelvic length	-	-	-	2270	1911	2510	3040	2540	2415
Prefirst dorsal length	536	560	730	1540	1120	1670	1860	1700	1620
Prepectoral fin length	425	453	550	1110	897	1390	1570	1270	1283
Head length	430	462	575	1180	932	1320	1560	1320	1260
Prebranchial	329	340	350	850	678	1090	1130	990	920

length									
Prespiracular length	181	199	220	450	345	935	700	500	498
Eye length (horizontal)	32.2	32	32	56	50	56	60	57	70
Preorbital length	92.2	89	110	240	197	350	460	240	240
Prenarial length	32.1	32	40	100	103	105	260	-	83
Preoral length	16.9	15	13	66	20	60	-	-	-
Mouth width	231	220	279	827	536	580	700	930	730
Internarial distance	113.9	120	145	340	274	400	450	390	420
Dorsal caudal margin	623	670	744	1443	1340	1730	1660	1690	1613
Preventral caudal margin	268	311	324	625	538	720	780	670	650
Upper postventral caudal margin	421	410	490	1220	1040	1210	1200	-	-
Lower postventral caudal margin	145	200	150	377	346	430	450	350	380
Terminal caudal lobe	33	50	50	96	90	105	170	90	104

First dorsal base	113.8	170	160	404	396	500	450	410	360
First dorsal height	87	128	141	226	220	250	270	295	252
Second dorsal base	67	73	90	191	168	255	300	220	200
Second dorsal height	87	50	50	104	102	100	140	130	105
Pectoral fin base	93	109	110	262	275	330	370	300	350
Pectoral anterior margin	337	379	390	837	736	990	1060	910	970
Pectoral fin height	315	335	350	-	626	870	940	-	-

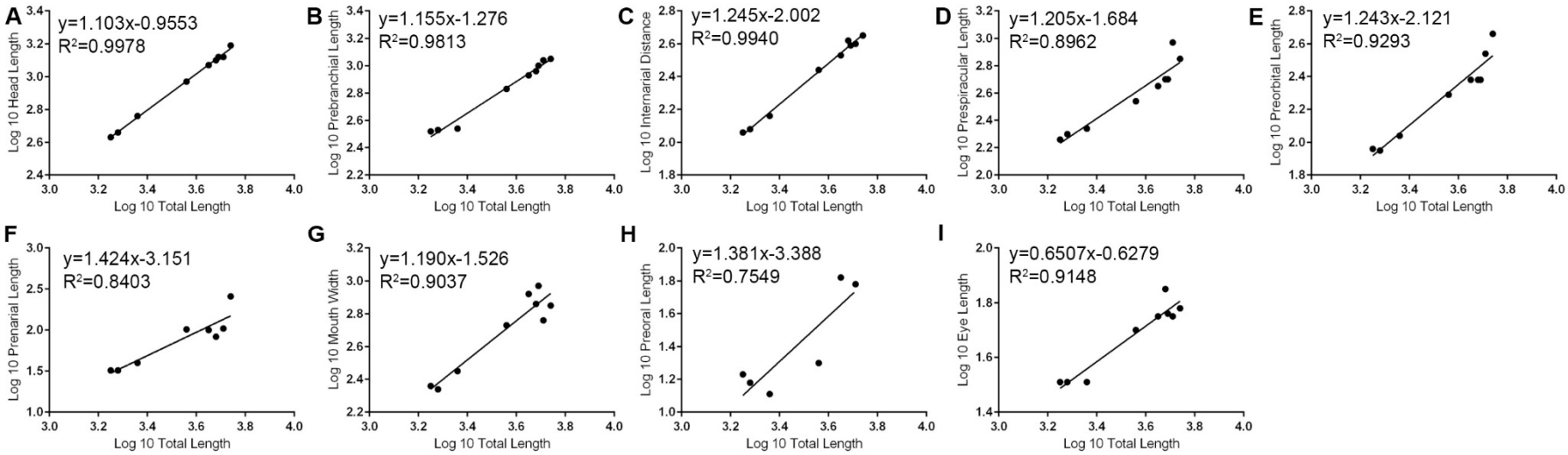
Supplementary Table S2. Slopes and associated statistics for bivariate regressions of Log_{10}-transformed trait measurements from *Megachasma pelagios*.

Comparison (x : y)	Number of specimens	Slope (m)	95% CI m	Intercept (b)	95% CI b	R^2	P-value	Growth trend
Body length : Head length	9	1.103	1.057~1.149	-0.9553	-1.118~-0.7922	0.9978	<0.0001	Positive
Body length : Prebranchial length	9	1.155	1.013~1.298	-1.276	-1.782~-0.7702	0.9813	<0.0001	Positive
Body length : Internarial distance	9	1.245	1.159~1.332	-2.002	-2.309~-1.694	0.9940	<0.0001	Positive
Body length : Prespiracular length	9	1.205	0.8384~1.572	-1.684	-2.986~-0.3819	0.8962	0.0001	Positive?
Body length : Preorbital length	9	1.243	0.9365~1.549	-2.121	-3.209~-1.033	0.9293	<0.0001	Positive?
Body length : Prenarial length	8	1.424	0.8036~2.044	-3.151	-5.342~-0.9602	0.8403	0.0014	Positive?
Body length : Mouth width	9	1.190	0.8426~1.537	-1.526	-2.759~-0.2935	0.9037	<0.0001	Positive?
Body length : Preoral length	6	1.381	0.2888~2.474	-3.388	-7.182~0.4068	0.7549	0.0247	Positive?
Body length : Eye length	9	0.6507	0.4732~0.8283	-0.6279	-1.258~0.002742	0.9148	<0.0001	Negative
Body length : Precaudal length	9	1.070	1.033~1.106	-0.4204	-0.5497~-0.2911	0.9986	<0.0001	Positive
Body length : Prefirst dorsal	9	1.114	1.050~1.179	-0.8952	-1.124~-0.6669	0.9958	<0.0001	Positive

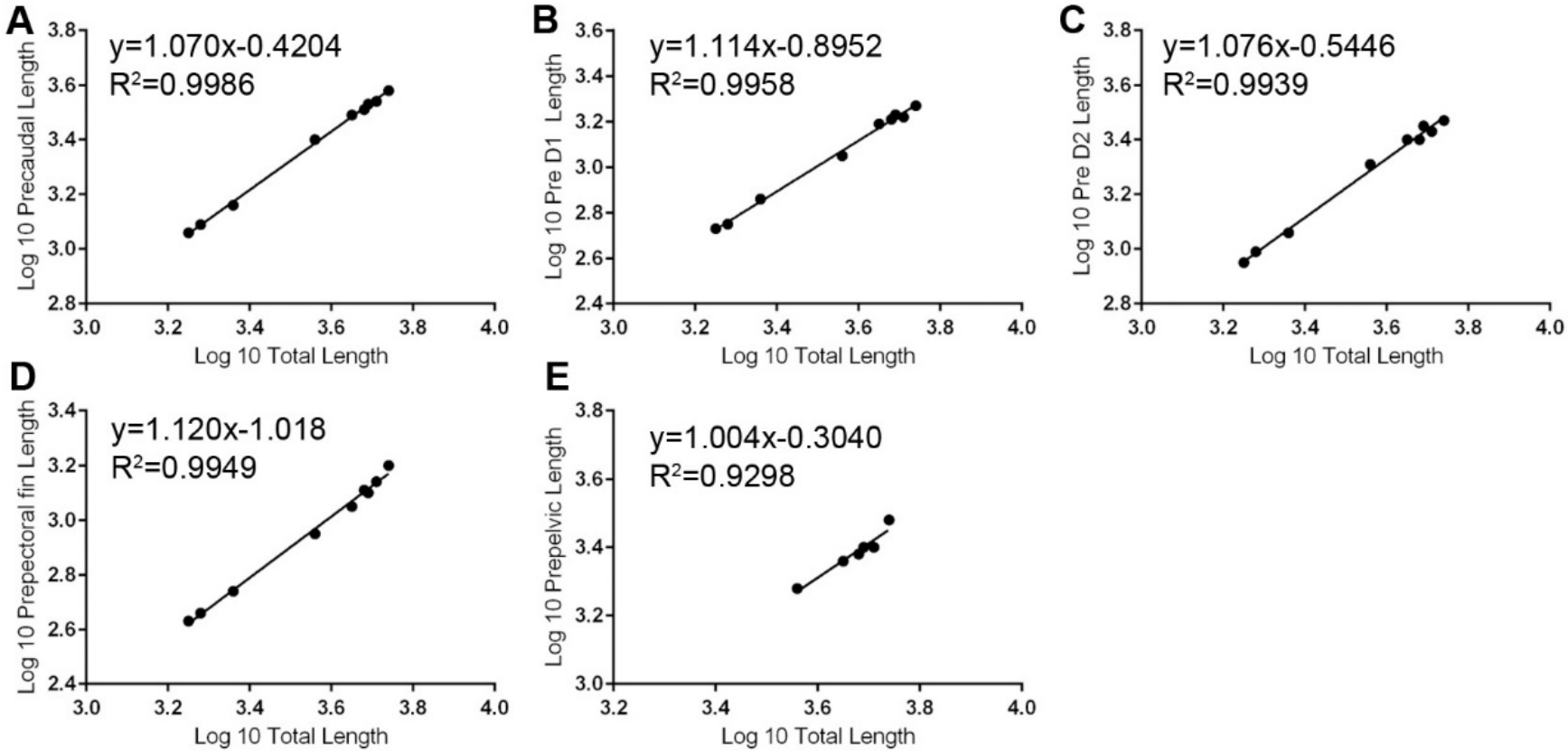
length								
Body length : Presecond dorsal length	9	1.076	1.001~1.152	-0.5446	-0.8134~-0.2759	0.9939	<0.0001	Positive
Body length : Prepectoral length	9	1.120	1.048~1.192	-1.018	-1.274~-0.7626	0.9949	<0.0001	Positive
Body length : Prepelvic length	6	1.004	0.6213~1.387	-0.3040	-1.710~1.102	0.9298	0.0019	Isometry
Body length : First dorsal base length	9	1.161	0.8637~1.458	-1.649	-2.705~-0.5929	0.9241	<0.0001	Isometry
Body length : First dorsal height	9	0.8800	0.6585~1.102	-0.8333	-1.620~-0.04657	0.9265	<0.0001	Isometry
Body length : Second dorsal height	9	0.6622	0.2332~1.091	-0.3876	-1.911~1.136	0.6558	0.0082	Isometry
Body length : Second dorsal base length	9	1.229	1.079~1.379	-2.173	-2.706~-1.640	0.9817	<0.0001	Positive
Body length : Pectoral base length	9	1.224	1.008~1.440	-2.005	-2.771~-1.239	0.9626	<0.0001	Positive
Body length : Pectoral anterior margin length	9	1.031	0.9203~1.142	-0.8263	-1.219~-0.4334	0.9858	<0.0001	Isometry
Body length : Pectoral height	6	0.9923	0.8254~1.159	-0.7432	-1.326~-0.1608	0.9855	<0.0001	Isometry

Body length : Dorsal caudal margin length	9	0.9533	0.8414~1.065	-0.3056	-0.7033~0.09203	0.9830	<0.0001	Isometry
Body length : Upper postventral caudal margin length	7	1.088	0.8133~1.363	-0.9321	-1.897~0.03324	0.9540	0.0002	Isometry
Body length : Terminal caudal lobe length	9	1.038	0.7062~1.370	-1.785	-2.964~-0.6063	0.8866	0.0001	Isometry
Body length : Preventral caudal margin length	9	0.9065	0.8343~0.9766	-0.5094	-0.7656~-0.2531	0.9921	<0.0001	Negative
Body length : Lower postventral caudal margin length	9	0.9419	0.6721~1.212	-0.8786	-1.837~0.07965	0.9069	<0.0001	Isometry

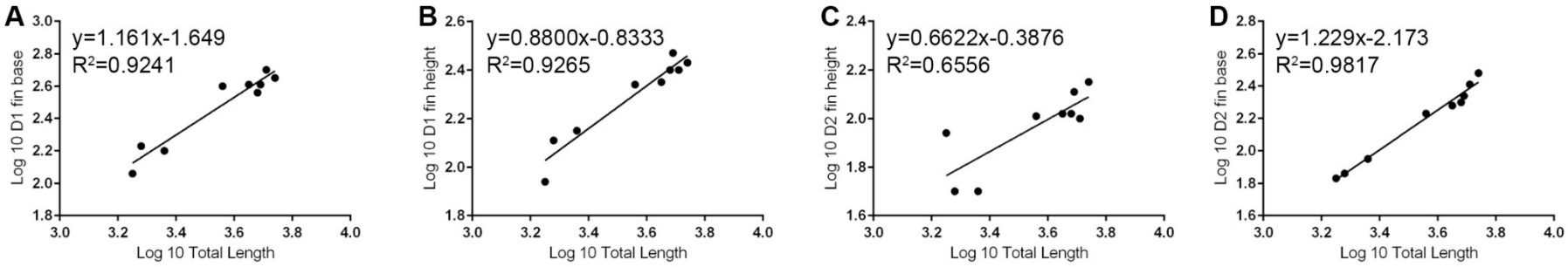
Supplementary Figure S1. Bivariate regressions of Log_{10}-transformed *Megachasma pelagios* head measurements against the Log_{10}-transformed total body length. A. Head length. B. Prebranchial length. C. Internarial distance. D. Prespiracular length; E. Preorbital length; F. Prenarial length; G. Mouth width; H. Preoral length; I. Eye length.



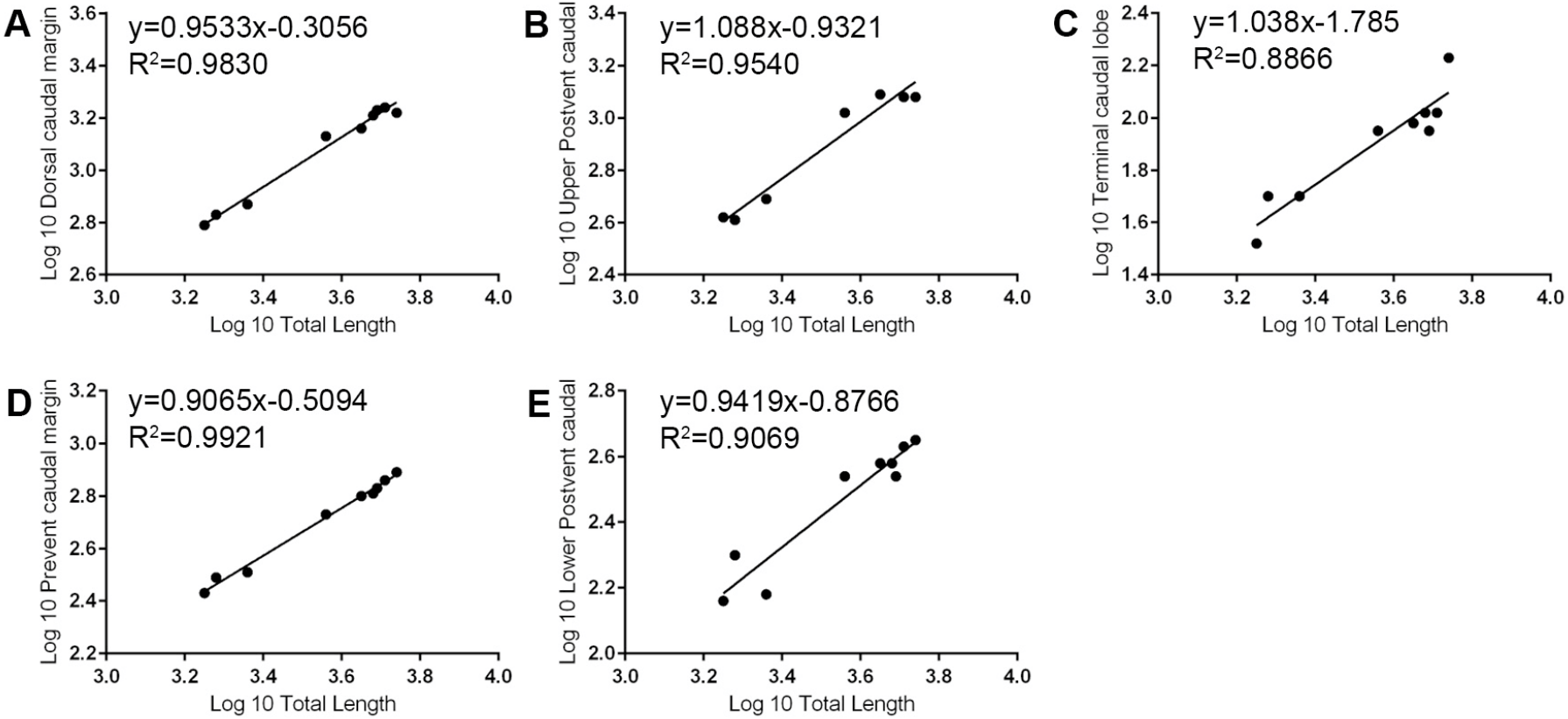
Supplementary Figure S2. Bivariate regressions of Log_{10}-transformed *Megachasma pelagios* body measurements against the Log_{10}-transformed total body length. A. Precaudal length. B. Prefirst dorsal length. C. Presecond dorsal length. D. Prepectoral length; E. Prepelvic length.



Supplementary Figure S3. Bivariate regressions of Log_{10}-transformed *Megachasma pelagios* dorsal fin measurements against the Log_{10}-transformed total body length. A. First dorsal base length. B. First dorsal height. C. Second dorsal height. D. Second dorsal base length.



Supplementary Figure S4. Bivariate regressions of Log_{10}-transformed *Megachasma pelagios* caudal fin measurements against the Log_{10}-transformed total body length. A. Dorsal caudal margin length. B. Upper postventral caudal margin length. C. Terminal caudal lobe length. D. Preventral caudal margin length. E. Lower postventral caudal margin length.



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