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Supplementary Materials for

Thermal stress reduces pocilloporid coral resilience to ocean acidification by impairing control over calcifying fluid chemistry

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Figure S1: Comparison between boron derived carbonate parameters of the calcifying fluid based different K_D formulations and independent measurements. Comparison of carbonate parameters calculated from boron proxies with different K_D (*(10)* 'M17', *(33)* 'H16', *(8)* 'new eq') and independent measurements for *S. pistillata* (**A**, **B**, **C**) and *P. damicornis* (**D, E**). Carbonate ion concentration of the calcifying fluid ($[CO_3^{2-}]_{cf}$), dissolved inorganic carbon of the calcifying fluid (DIC_{cf}), saturation state of aragonite of the calcifying fluid (Ω_{cf}). **A** and **E**: $[CO_3^{2-}]_{cf}$; **B**: DIC_{cf}; **C** and **D**: Ω_{cf}. For *S. pistillata* (**A**, **B**, **C**). The data reported here are from the control treatment (pCO_2 ~400 ppm). The carbonate parameters are in the range of independent LIX microelectrode measurements from *(32)*. For *P. damicornis*, independent measurements based on Raman spectroscopy *(61)* are consistent with data from 'M17' using $[Ca]_{cf}=[Ca]_{sw}$. Recalculating $[CO_3^{2-}]_{cf}$ with the K_D definition from *(34)* ('A17', **E**) and data from (61) yields values that are greater than in 'A17', but similar to estimates of $[CO_3^{2-}]_{cf}$ from (9). Independent measurements of $[CO_3^{2-}]_{cf}$ (e.g., via LIX microelectrode) do not presently exist for *P. damicornis* but would help refine the B/Ca proxy of $[CO_3^{2-}]_{cf}$ and identify optimal K_D formulation. Error bars represent 1 standard deviation from the mean.

Figure S2: Analytical $\delta^{11}B$ comparison between the University of Cambridge and the Alfred Wagner Institute. Two-independent measurements of $\delta^{11}B$ for *S. pistillata* carried out at the University of Cambridge ('Uni. Cambridge') and at the Alfred Wagner Institute ('AWI'). Regression comparing results from the two labs are not significantly different from the 1:1 line ($p>0.05$; Welch-t test). These results cross-validate the $\delta^{11}B$ analytical procedures of both laboratories and show that the reported $\delta^{11}B$ values are reproducible by independent laboratories at the 95% confidence level. Error bars represent 2 standard deviation from the mean.

Figure S3: B/Ca and $\delta^{11}B$ measured in this study. Analytical results relative to treatment seawater pH (pH_{sw}) (blue squares: 28°C, red triangles: 31°C). A and B: show B/Ca for *P.*

damicornis and *S. pistillata*, respectively. C and D show $\delta^{11}B$ for *P. damicornis* and *S. pistillata*, respectively. Error bars represent 1 standard error, envelops represent 95% confidence interval of the linear regressions.

Materials and methods

Measurement of calcifying fluid pH with proton-sensitive LIX microelectrodes

Microelectrode measurements of coral calcifying fluid pH were conducted by Louise Cameron, Claire Reymond, and Justin Ries at the MAREE marine experimental facility at the Leibniz Center for Tropical Marine Research (Bremen, Germany) *(7)*.

Calcifying fluid pH was measured using pH-sensitive liquid ion-exchanger (LIX) microelectrodes produced at the Max Planck Institute for Marine Microbiology (MPIMM) using the technique described in *(76)*. Briefly, green soda lime glass microcapillary tubes (*Schott* model 8516) were held in a heated coil and pulled to a target tip diameter of ca. 10 µm, yielding final diameters of 8 – 20 µm. These were then silanized to obtain a hydrophobic surface that allowed the adhesion of the LIX membrane. The microcapillary tubes were filled with ca. 300 µm of degassed, filtered electrolyte (300 mM KCl, 50 mM sodium phosphate adjusted to pH 7.0) using a plastic syringe with a 0.1-mm tip. The microcapillary tubes were then backfilled with LIX containing a polyvinyl chloride (PVC) epoxy to prevent leakage of electrolyte by submerging the tips of the microcapillary tubes in LIX and apply suction to the other end of the tube until the PVC-containing LIX was drawn into the tip of the microcapillary by 100 – 200 µm. Microcapillary tubes were encased in a Pasteur pipette for shielding, with the pulled tip of the microcapillary tube protruding ca. 2 cm beyond this casing. This casing was filled with a 0.3 M KCl solution and connected to the reference electrode with an Ag/AgCl wire to minimize electrical noise. Microelectrodes were left for 24 hours after construction to allow for stabilization of the LIX membranes.

All microelectrode equipment (millivolt meter, National Instruments DAQ Pad 6020E, laptop, cables, micromanipulator, VT80 Micos motor arm, lab stands, Zeiss Stemi SV6 binocular microscope) was set up adjacent to the experimental tanks to minimize transport stress for the corals. Two reservoirs of seawater, sourced from the corresponding experimental treatment tanks, were established next to the microelectrode system. These reservoirs were bubbled with the corresponding treatment gases and maintained at the corresponding treatment temperature using aquarium heaters or chillers. The seawater was circulated between the two reservoirs through two 5.4 L flow-through chambers (30 x 12 x 15 cm). All pH microelectrode measurements were performed within these smaller flow-through chambers. All corals were transferred to flow-through chambers filled with treatment seawater and light levels were maintained at 150 lux. All corals were acclimated to the microelectrode chamber until polyp extension was observed prior to measurements (minimum of 10 minutes). Measurements of calcifying fluid pH were perfomed on three replicate individuals per treatment. One measurement was obtained for each coral specimen.

The proton-sensitive LIX microelectrodes were used to measure both seawater and calcifying fluid pH. Before and after measurement of calcifying fluid pH, all microelectrodes were calibrated at the treatment temperature with pH 7 and 9 NBS buffers (for slope of the calibration) and a Dickson seawater CRM (for intercept of the calibration; with pH calculated from the certified values). The vertical position of the microelectrode was controlled to one-micron precision using a motorized micromanipulator. The microelectrodes were slowly inserted through the coral tissue into the upper portion of the coral calyx, between septal ridges and proximal to the thecal wall, until the skeleton was reached. A vertical pH profile was then obtained by moving the microelectrode out of the calyx into the adjacent seawater. This profile was obtained in 1 µm steps for the first 20 µm, followed by 5 µm steps out into the surrounding seawater.

The calibration and microelectrode pH data were processed by parsing scatterplots of the data into three zones, which were annotated at the time of data collection. The calibration data were parsed as pH 7 buffer, pH 9 buffer, and Dickson CRM . The microelectrode pH data were parsed as calcifying fluid, tissue, and seawater. Notes recorded during the original measurements were used to assist in identifying boundaries of adjacent zones. Measured mV within each zone of the calcifying fluid measurements were converted to pH using the calibration regression produced for each microelectrode.

Calcification rate measurements

Calcification rates were obtained using the buoyant weight technique *(77)* by Louise Cameron, Claire Reymond, and Justin Ries at the MAREE marine experimental facility at the Leibniz Center for Tropical Marine Research (Bremen, Germany) *(7)*.

Coral fragments were hung by their stands from a hook suspended from a bottom loading scale (Mettler Toledo, precision = 0.01 g). All measurements took place within a seawater bath of constant temperature and salinity. Fragments were weighed three times to obtain a mean weight, and a standard of known weight was measured every 5 samples to ensure that the scale was functioning properly (i.e. no instrumental drift). Buoyant weights were obtained during the first three days of the experimental period, and the last three days. Immediately after the final weight was taken, corals were removed from their treatment tanks and their tissue was removed using a gas duster. Corals skeletons were soaked twice in 90% ethanol to remove any salts, and were then dried in ambient air (20 °C) for two days. Dry skeletons were then weighed using the same scale. The relationship between the dry and buoyant weight of coral skeletons was empirically defined by plotting the dry weight against their final buoyant weight (Figure S1). This relationship can be defined for the species in this experiment using the following algorithms:

1) *Stylophora pistillata:* Dry weight (g) = 1.919 x Buoyant Weight + 7.677
2) *Pocillopora damicornis:* Dry weight (g) = 1.662 x Buoyant Weight + 8.777

where the precision of the buoyant weight of coral specimens as an estimator of their dry weight is equivalent to the standard error of the regression (*Stylophora pistillata:* 0.060 g; *Pocillopora damicornis:* 0.053 g). These empirically derived relationships were then used to calculate dry weight at the start of the experimental period, and net calcification was calculated as:
[dry weight (end) – dry weight (start)] / [dry weight (start)].

Geochemical analyses

Sample preparation

Cleaning was performed following *(83)*. Insoluble particles were removed after separation of clay from the sample. Due to high organic matter content, a double oxidative step was performed using H_2O_2. A weak acid leach was also performed using 0.001N HCl. Pristine carbonates were then dissolved in 1N double-distilled HCl.

Boron isotopes

B isotopes variations are expressed in conventional delta (δ) notation (eq. S1) and are reported versus the NIST SRM 951 (84).

$$\delta^{11}B\ (‰) = 1000 \times \left(\frac{^{11}B/^{10}B_{\mathrm{Sample}}}{^{11}B/^{10}B_{\mathrm{NIST\ 951\text{-}a}}} - 1\right) \tag{S1}$$

$B(OH)_3$ is enriched in ^{11}B compared to $B(OH)_4^-$ with a constant offset between the two chemical species given by the fraction factor (α). This fractionation factor (α) between $B(OH)_3$ and $B(OH)_4^-$ of 27.2 ± 0.6 ‰ has been empirically determined by *(82)* in seawater and confirmed by an independent method by *(85)*.

Boron purification was achieved via microdistillation *(78, 86, 87, 88, 89)*. The recovered distillate was diluted with 0.5% HF to a final B concentration matching the liquid standards to avoid matrix effects. Boron isotopic measurements were carried out on a Thermo Scientific ®Neptune Plus MC-ICP-MS at the University of Cambridge configured with 10^{13} Ω resistance (91).

Seawater samples were prepared using column chemistry and analyzed at the Pôle Spectrométrie Océan (PSO), Plouzané. pH of the samples was elevated to 8-9. Five mL of Amberlite IRA-743 (Rohm and Hass©, Philadelphia, PA, USA) was cleaned and conditioned using 2% HNO_3 followed by MQ water buffered at pH 9. 200µL of seawater was loaded onto the resin. The matrix was then eluted using 2ml of MQ water pH 9, 1ml $NaNO_3$ (0.6N, pH9), and 5ml MQ water of pH 9. Boron was then recovered using 2.5 mL of 2% HNO_3. Na and S was removed to avoid matrix effects. A few seawater samples were also prepared using microdistillation to allow for comparison between methods.

Data quality was controlled by analyzing external standards, the NEP internal coral standard (Porites sp., $\delta^{11}B$ = 26.12 ± 0.92 ‰, 2SD, n=33; *(35, 80),* Table S3) from University of Western Australia/Australian National University and the JCp-1 (Porites sp., $\delta^{11}B$ = 24.37 ± 0.32 ‰, 2SD, n=57 *(80),* Table S3) from the Geological Survey of Japan. The certified boron isotope liquid standard ERM© AE121 ($\delta^{11}B$ = 19.88 ± 0.3‰, certified) was used to monitor reproducibility and drift during each session.

Samples measured for boron isotopes typically ranged from 10 ppb B (~5 ng B) to 20 ppb B samples (~10 ng B). Sensitivity was 8 mV/ppb B (e.g., 80 mV for 10ppb B) in wet plasma at 50µl/min sample aspiration rate. Procedural borotn blanks ranged from 15pg B to 65 pg B and the acid blank during analyses was measured at 1mV on the ^{11}B, indicating a blank contribution of <1% of the sample signal with no memory effect within and across sessions. External reproducibility was ensured by the measurements of carbonate standard sublimated at the same time as the samples. Results for the isotopic composition of the NEP is $\delta^{11}B_{NEP}$ =25.71 ± 0.79 ‰ (2 SD, n=22, over 8 analytical sessions with each number representing an *ab-initio* processed sample). Our results are within error of published values of 25.80 ± 0.89 ‰ (35). Results for JCp-1 is $\delta^{11}B_{JCp\text{-}1}$ =24.06 ± 0.19 ‰ (2 SD, n=6, over 6 analytical sessions with each number representing an *ab initio* processed sample), within error of published values of 24.37 ± 0.32 ‰ *(80)* and 24.42 ± 0.28 ‰ *(35).*

Boron isotope ($\delta^{11}B$) analyses of *S. pistillata* specimens were also performed independently at AWI (Bremerhaven, Germany). Coral samples were washed at least six times in MilliQ water and two times in methanol, and subsequently oxidized in buffered 1% H_2O_2 to remove organic material. Samples were then leached in 0.001 N HNO_3 to remove any adsorbed contaminants, and finally dissolved 1 N HNO_3. Boron in the dissolved samples was separated from the matrix using the microdistillation technique. Boron isotope analyses were performed at AWI with a Nu Plasma II MC-ICP-MS equipped with a customized detector array including six secondary electron multipliers (SEM), where high-mass IC5 was used for ^{11}B and IC0 for ^{10}B. The standard-sample-bracketing technique was used to correct for the instrumental mass bias and drift using the boron reference material NBS 951. Boron conentrations of samples and standards were matched to within ± 5% to ensure that plasma conditions and the background contribution to the signal are similar between samples and standards. Each micro-distilled sample was analyzed in triplicate where at least two measurements were used for averaging the $\delta^{11}B_{Cc}$. Error is specified as 2 σ (2 standard errors) of the mean derived from the replicates, accounting for ~95% of the data. The long-term instrumental uncertainty is monitored by frequent analysis of a control standard (AE121) that was run six times with each batch of samples. If the 2σ from sample replicates was smaller than the long-term instrumental uncertainty of ± 0.30, the latter was reported as the measurement uncertainty. More detailed information on sample separation and analytical procedures is available in *(90).*

Unpaired t-tests with Welch's correction showed that values of seawater $\delta^{11}B$ measured by both were not significantly different amongst treatments ($p>0.05$; Table S6).

Table S1

Species	**pCO$_{2sw}$**	**T**	**pH$_{sw}$**	**[CO$_3^{2-}$] - M17**	**NS***	**S****	**DIC - M17**	**NS***	**S****	**[CO$_3^{2-}$] - H16**	**NS***	**S****	**DIC - H16**	**NS***	**S****	**[CO$_3^{2-}$] - newEq**	**NS***	**S****	**DIC - newEq**	**NS***	**S****
	(ppm)	(°C)	(total scale)	(µmol/kg)			(µmol/kg)			(µmol/kg)			(µmol/kg)			(µmol/kg)			(µmol/kg)		
P. damicornis	466	28	8.14	520	16	49	4457	114	160	325	18	49	2793	143	240	347	20	28	2971	158	96
P. damicornis	466	28	8.14	620	17	45	3894	93	130	404	20	46	2531	115	168	429	21	23	2704	121	78
P. damicornis	466	28	8.14	875	27	51	4692	129	159	706	37	67	3788	176	214	726	35	35	3893	164	91
P. damicornis	466	28	8.14	897	27	45	4244	105	134	718	33	60	3385	145	170	736	34	30	3483	142	81
P. damicornis	466	28	8.14	975	48	46	4231	112	144	812	60	61	3510	152	172	823	58	31	3565	148	80
P. damicornis	466	28	8.14	465	44	52	4509	126	172	278	39	49	2698	189	269	293	44	27	2825	248	102
P. damicornis	499	31	8.09	757	34	44	3832	104	127	558	41	54	2837	135	162	586	39	27	2967	132	74
P. damicornis	499	31	8.09	788	24	43	3831	101	129	594	30	55	2878	128	159	618	30	27	3002	129	73
P. damicornis	499	31	8.09	708	23	50	4132	115	141	518	30	56	3007	150	195	544	29	31	3173	146	80
P. damicornis	499	31	8.09	809	25	47	4126	109	137	628	33	59	3195	156	180	651	32	30	3320	143	82
P. damicornis	499	31	8.09	456	16	46	4002	107	157	270	16	45	2383	121	219	287	20	23	2517	153	91
P. damicornis	499	31	8.09	183	10	51	3455	106	410	81	7	30	1530	97	277	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
P. damicornis	925	28	7.90	262	11	57	4310	124	314	128	9	39	2106	123	321	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
P. damicornis	925	28	7.90	421	12	42	3808	85	146	224	11	37	2022	85	185	228	15	20	2069	114	88
P. damicornis	925	28	7.90	799	27	50	4363	109	146	605	34	58	3317	146	193	630	32	29	3438	144	83
P. damicornis	925	28	7.90	735	21	48	4386	103	146	538	27	58	3202	144	195	565	26	31	3368	141	85
P. damicornis	925	28	7.90	653	19	45	4283	103	147	447	23	53	2933	128	210	474	22	28	3121	135	86
P. damicornis	925	28	7.90	538	13	37	3481	72	118	315	14	38	2030	78	144	336	16	20	2170	86	70
P. damicornis	885	31	7.97	387	10	31	2814	52	101	182	8	25	1324	51	107	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
P. damicornis	885	31	7.97	356	14	51	4143	109	200	194	13	43	2261	118	264	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
P. damicornis	885	31	7.97	533	15	41	3549	74	122	321	16	40	2139	92	156	343	18	21	2285	102	75
P. damicornis	885	31	7.97	217	9	50	3425	82	269	94	6	27	1477	79	223	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
P. damicornis	885	31	7.97	668	20	55	4753	134	163	493	28	65	3507	176	253	521	27	34	3702	176	97
P. damicornis	2807	28	7.49	864	31	50	4661	125	153	694	38	70	3743	160	201	714	37	34	3868	160	90
P. damicornis	2807	28	7.49	845	24	53	4612	121	155	667	32	67	3654	161	211	690	31	32	3777	148	86
P. damicornis	2807	28	7.49	782	25	56	5124	144	175	615	32	74	4021	193	253	640	31	39	4173	195	101
P. damicornis	2807	28	7.49	811	23	46	4334	102	143	621	30	60	3313	135	186	644	27	30	3451	139	84
P. damicornis	3194	31	7.55	734	45	49	4308	111	143	546	49	59	3208	167	200	574	50	31	3357	156	85
P. damicornis	3194	31	7.55	559	17	49	4268	111	150	366	21	53	2795	140	224	392	22	29	2989	147	90
P. damicornis	3194	31	7.55	74	7	39	2266	105	633	25	3	16	766	51	224	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
P. damicornis	3194	31	7.55	113	8	44	2781	96	484	42	4	19	1018	64	243	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
P. damicornis	3194	31	7.55	14	4	*nd*	955	176	*nd*	7	1	11	507	55	353	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
P. damicornis	3194	31	7.55	511	16	48	4056	102	152	317	17	46	2516	122	212	339	19	26	2693	134	87
S. pistillata	466	28	8.14	889	33	50	4465	119	149	715	43	64	3580	163	196	732	40	32	3678	156	87
S. pistillata	466	28	8.14	919	36	51	4620	127	154	752	43	67	3787	169	196	770	42	33	3876	165	89
S. pistillata	466	28	8.14	912	35	50	4578	119	149	743	43	63	3735	171	197	763	42	35	3826	160	92
S. pistillata	466	28	8.14	659	26	42	4026	99	132	446	29	51	2729	125	179	474	31	25	2890	127	79
S. pistillata	466	28	8.14	1050	43	53	4822	142	157	920	56	73	4219	192	192	927	53	36	4243	184	97
S. pistillata	466	28	8.14	1049	38	50	4275	110	141	902	49	63	3674	152	159	908	50	32	3710	148	83
S. pistillata	499	31	8.09	551	38	66	5272	171	216	402	43	71	3814	254	367	428	43	38	4071	269	119
S. pistillata	499	31	8.09	716	22	43	3852	99	131	515	27	51	2765	127	167	545	27	28	2925	136	75
S. pistillata	499	31	8.09	934	29	49	3967	109	129	763	39	59	3252	146	165	782	39	30	3322	137	76
S. pistillata	499	31	8.09	982	31	48	4177	120	135	830	43	63	3533	157	174	846	41	33	3598	149	78
S. pistillata	499	31	8.09	853	42	57	5042	161	170	714	55	76	4188	225	239	735	52	37	4328	218	101
S. pistillata	499	31	8.09	616	22	51	4449	127	162	433	25	59	3127	164	241	461	27	31	3316	169	93
S. pistillata	499	31	8.09	728	22	45	3696	91	119	524	27	51	2660	123	155	551	27	27	2798	125	71
S. pistillata	499	31	8.09	859	29	50	4359	125	152	689	38	62	3510	176	190	712	34	33	3623	164	85
S. pistillata	925	28	7.90	976	50	56	5092	143	172	841	64	76	4387	212	221	856	59	40	4448	202	102
S. pistillata	925	28	7.90	871	37	56	4875	126	156	704	47	69	3944	190	215	725	44	37	4067	173	89
S. pistillata	925	28	7.90	798	36	53	4778	126	168	624	42	66	3704	173	232	644	41	32	3855	165	93
S. pistillata	925	28	7.90	957	39	53	4749	126	155	806	51	69	3978	175	195	819	47	36	4062	174	94
S. pistillata	925	28	7.90	854	35	48	4401	104	138	670	41	61	3463	149	199	693	41	31	3572	144	84
S. pistillata	885	31	7.97	918	54	60	5023	151	167	777	66	76	4290	225	234	801	66	38	4383	203	100
S. pistillata	885	31	7.97	350	23	42	3406	79	145	172	17	33	1667	96	168	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
S. pistillata	885	31	7.97	250	32	60	4365	216	419	134	23	46	2358	209	390	*nd*	*nd*	*nd*	*nd*	*nd*	*nd*
S. pistillata	885	31	7.97	926	56	56	5041	141	168	792	68	79	4315	223	237	809	63	38	4396	202	102
S. pistillata	2807	28	7.49	980	63	61	5616	172	185	863	72	85	4932	263	267	874	71	43	5004	236	115
S. pistillata	2807	28	7.49	967	60	64	5727	176	189	854	77	88	5022	269	274	868	73	45	5119	244	115
S. pistillata	2807	28	7.49	962	62	66	6048	198	202	865	82	92	5388	288	310	875	76	46	5461	271	129
S. pistillata	2807	28	7.49	960	62	70	6082	197	211	851	83	92	5417	309	312	864	73	49	5491	275	124
S. pistillata	3194	31	7.55	814	53	59	5088	155	173	664	65	78	4166	231	253	690	62	38	4306	212	105
S. pistillata	3194	31	7.55	905	52	55	4905	144	167	763	66	76	4122	208	221	784	64	38	4224	192	95
S. pistillata	3194	31	7.55	928	52	61	5116	155	173	799	67	78	4381	232	241	812	62	39	4465	210	102
S. pistillata	3194	31	7.55	832	50	56	4987	139	168	688	61	74	4079	222	243	705	55	38	4215	203	100
S. pistillata	3194	31	7.55	603	62	69	5877	214	245	470	64	84	4570	345	429	497	65	46	4833	352	128
S. pistillata	3194	31	7.55	774	31	51	4588	126	156	603	39	66	3568	178	221	628	36	36	3716	176	90

* NS: non systematic error (SE) calculated using a Monte Carlo simulation taking into account uncertainties associated with δ^{11}B, B/Ca, temperature and salinity

**S: systematic error (SE) calculated using a Monte Carlo simulation taking into account uncertainties associated with $\delta^{11}B_{sw,}$ fractionation α, total [B] and pKB (see *(8)*)

Table S2

Species	**pCO_2 (ppm)**	**T (°C)**	**pH_seawater (tot scale)**	**pH_{cf_light} (total scale)**	**pH_{cf_dark} (total scale)**
Pocillipora damicornis	462	28	8.08	8.31	7.90
	467	28	8.07	9.34	8.58
	467	28	8.07	8.95	7.40
		average	**8.08**	**8.87**	**7.96**
Pocillipora damicornis	923	28	7.83	8.41	8.06
	919	28	7.81	7.97	8.08
	946	28	7.83	8.71	7.41
		average	**7.83**	**8.36**	**7.85**
Pocillipora damicornis	2857	28	7.37	8.23	7.27
	2807	28	7.37	8.51	7.04
	2824	28	7.37	7.77	7.64
		average	**7.37**	**8.17**	**7.32**
Stylophora pistillata	467	28	8.07	8.58	7.54
	467	28	8.07	8.87	7.03
	462	28	8.08	8.78	7.89
	470	28	8.07	8.91	8.44
		average	**8.08**	**8.79**	**7.73**
Stylophora pistillata	923	28	7.83	8.72	8.01
	919	28	7.81	8.69	8.48
	946	28	7.83	8.16	7.26
	946	28	7.83	8.25	7.41
		average	**7.83**	**8.46**	**7.79**
Stylophora pistillata	2857	28	7.37	7.98	7.58
	2807	28	7.37	7.54	7.19
	2807	28	7.37	8.44	7.76
	2824	28	7.37	8.55	7.79
		average	**7.37**	**8.13**	**7.58**
Stylophora pistillata	497	31	7.99	8.88	8.47
	490	31	7.97	8.44	7.33
	515	31	7.97	8.45	7.79
	467	31	8.06	8.80	7.96
		average	**8.00**	**8.64**	**7.89**
Stylophora pistillata	886	31	7.85	8.16	6.68
	886	31	7.85	7.55	6.54
	889	31	7.85	8.06	6.76
	889	31	7.84	8.05	7.55
		average	**7.85**	**7.96**	**6.88**
Stylophora pistillata	3221	31	7.37	8.04	6.97
	2997	31	7.37	7.68	7.16
	3346	31	7.37	7.97	7.03
	3346	31	7.37	8.08	6.79
		average	**7.37**	**7.94**	**6.99**

Table S3

Standard	**$\delta^{11}B_1$ (‰)**	**$2SD_{AE121}$**	**n_{AE121}**	**$\delta^{11}B_2$ (‰)**	**$2SD_{AE121}$**	**n_{AE121}**
NEP1	26.08	0.10	11	26.45	0.10	11
NEP2	26.53	0.11	14	26.39	0.11	14
NEP3	24.96	0.39	9			
NEP4	25.61	0.39	9			
NEP5	25.36	0.36	11	25.32	0.36	11
NEP6	25.59	0.30	5			
NEP7	25.48	0.09	5			
NEP8	25.47	0.09	5	25.51	0.09	5
NEP9	25.80	0.09	5	25.49	0.09	5
NEP10	25.42	0.15	3	25.32	0.15	3
NEP11	25.28	0.29	8	25.34	0.29	8
NEP12	25.27	0.29	8	25.47	0.29	8
NEP13	25.54	0.22	6			
NEP14	26.16	0.22	6	26.42	0.22	6
NEP15	25.86	0.22	4	25.95	0.22	4
NEP16	25.37	0.22	4	25.46	0.22	4
NEP17	26.41	0.22	4	26.21	0.22	4
NEP18	25.88	0.25	9	25.93	0.25	9
NEP19	25.83	0.19	3	25.72	0.19	3
NEP20	25.49	0.33	8	26.03	0.33	8
NEP21	26.48	0.33	8	26.06	0.33	8
NEP22	25.82	0.27	5	25.50	0.27	5
JCP-1-1	24.07	0.10				
JCP-1-2	24.17	0.11		24.17	0.10	
JCP-1-3	24.01	0.11				
JCP-1-4	23.92	0.26				
JCP-1-5	24.03	0.26		24.05	0.39	
JCP-1-6	24.18	0.36		24.16	0.36	

Standard	**Average $\delta^{11}B$**	***2SD***	**n**	**Reference**
NEP	25.71	0.79	22	*this study*
NEP	26.20	0.88	27	*(80)*
NEP	25.80	0.89	6	*(35)*
JCP-1	24.06	0.19	6	*this study*
JCP-1	24.37	*0.32*	57	*(80)*
JCP-1	24.42	*0.28*	7	*(35)*

Table S4

Standard	**Li/Ca** µmol/mol	**B/Ca** µmol/mol	**Mg/Ca** mmol/mol	**Sr/Ca** mmol/mol	**Cd/Ca** µmol/mol	**Ba/Ca** µmol/mol	**U/Ca** nmol/mol	**Mn/Ca** µmol/mol	**Fe/Ca** mmol/mol	
CamWuel 1	17.0	201	1.27	1.31	0.30	4.7	43	73	0.04	
CamWuel 2	17.2	206	1.29	1.30	0.30	4.7	42	78	0.04	
CamWuel 3	16.8	201	1.29	1.32	0.31	4.8	43	73	0.04	
CamWuel 4	17.0	202	1.29	1.31	*0.30*	4.7	43	76	0.04	
CamWuel 5	17.2	202	1.27	1.31	0.30	4.7	43	73	0.04	
CamWuel 6	16.9	202	1.27	1.31	0.29	4.8	43	71	0.04	
CamWuel 7	17.0	200	1.26	1.32	0.30	4.7	44	68	0.04	
CamWuel 8	16.6	199	1.26	1.32	0.30	4.7	43	67	0.04	
CamWuel 9	16.5	199	1.35	1.30	0.31	5.0	45	76	0.04	
CamWuel 10	16.7	201	1.35	1.31	0.30	5.0	43	74	0.04	
CamWuel 11	16.7	201	1.35	1.31	0.31	4.9	44	75	0.04	
CamWuel 12	16.7	200	1.35	1.31	0.30	5.0	44	75	0.04	
CamWuel 13	16.7	201	1.30	1.31	0.41	4.9	43	76	0.06	
CamWuel 14	16.7	202	1.30	1.30	0.42	5.0	44	74	0.06	
CamWuel 15	16.7	198	1.13	1.31	n.d.	4.6	41	77	0.02	
CamWuel 16	16.9	202	1.20	1.30	n.d.	4.7	40	72	0.03	
CamWuel 17	16.5	196	1.18	1.30	n.d.	4.6	41	74	0.03	
CamWuel 18	16.5	197	1.20	1.30	n.d.	4.6	41	72	0.03	
CamWuel 19	16.5	197	1.20	1.31	n.d.	4.6	42	76	0.03	
CamWuel 20	16.6	197	1.21	1.30	n.d.	4.6	42	78	0.03	
CamWuel 21	16.6	196	1.20	1.30	n.d.	4.7	41	77	0.03	
CamWuel 22	16.6	197	1.21	1.31	n.d.	4.7	41	75	0.03	
CamWuel 23	16.3	187	1.26	1.31	0.28	4.7	40	74	0.04	
CamWuel 24	16.4	181	1.26	1.32	0.27	4.7	41	75	0.04	
CamWuel 25	15.9	190	1.26	1.32	0.28	4.7	40	74	0.04	
CamWuel 26	16.4	192	1.26	1.31	0.28	4.7	42	75	0.04	
CamWuel 27	16.0	190	1.26	1.31	0.28	4.8	42	76	0.04	
CamWuel 28	16.1	189	1.26	1.31	0.26	4.7	41	73	0.04	
CamWuel 29	16.3	185	1.26	1.31	0.28	4.7	41	75	0.04	
CamWuel 30	16.2	187	1.26	1.31	0.28	4.7	40	75	0.04	
CamWuel 31	16.1	188	1.26	1.31	0.28	4.7	40	72	0.04	
CamWuel 32	16.5	197	1.25	1.31	0.29	4.9	43	72	0.04	
CamWuel 33	16.6	197	1.25	1.32	0.29	4.8	44	74	0.04	
CamWuel 34	16.8	196	1.25	1.32	0.29	4.9	44	72	0.04	
CamWuel 35	17.0	198	1.25	1.32	0.28	4.9	44	71	0.04	
CamWuel 36	16.8	198	1.25	1.31	0.29	4.9	44	73	0.04	
CamWuel 37	16.5	198	1.25	1.31	0.29	4.9	43	72	0.04	
CamWuel 38	16.7	200	1.24	1.32	0.29	4.9	43	74	0.04	
CamWuel 39	16.9	202	1.24	1.31	0.29	4.9	43	74	0.04	
Average CamWuel	**16.6**	**197**	**1.26**	**1.31**	**0.30**	**4.8**	**42**	**74**	**0.04**	***This study***
2 SD	*0.6*	*11*	*0.09*	*0.01*	*0.07*	*0.2*	*3*	*5*	*0.01*	
n	39	39	39	39	31	39	39	39	39	
Published CamWuel	**16.4**	**202**	**1.23**	**1.30**	**0.29**	**4.8**	**44**	**71**		***(81)***
2 SD	*0.8*	*7*	*0.06*	*0.02*	*0.02*	*0.2*	*2*	*2*		
n	180	180	180	180	180	180	180	180		

Table S5

pCO2sw	**T**	**Tank**	**Date of sampling**	**$\delta^{11}B_{sw1}$***	**$\delta^{11}B_{sw2}$***	**$\delta^{11}B_{sw3}$****	**$\delta^{11}B_{sw4}$****	**$\delta^{11}B_{sw\ average}$**
(ppm)	(°C)			(‰)	(‰)	(‰)	(‰)	(‰)
400	28	1	14_4	41.26 ± 0.21 (2SD, nAE121 = 7)	41.29 ± 0.21 (2SD, nAE121 = 7)	41.02 ± 0.28 (2SD, nAE121=4)	41.22 ± 0.28 (2SD, nAE121=4)	41.19 ± 0.25
400	28	1	9_5	41.22 ± 0.21 (2SD, nAE121 = 7)	41.24 ± 0.21 (2SD, nAE121 = 7)			41.23 ± 0.15
400	28	1	9_6	41.14 ± 0.21 (2SD, nAE121 = 7)	41.23 ± 0.21 (2SD, nAE121 = 7)			41.19 ± 0.15
400	28	3	14_4	41.25 ± 0.21 (2SD, nAE121 = 7)	40.17 ± 0.21 (2SD, nAE121 = 7)			40.71 ± 0.15
400	28	3	9_5	41.10 ± 0.21 (2SD, nAE121 = 7)	40.45 ± 0.21 (2SD, nAE121 = 7)			40.78 ± 0.15
400	28	3	9_6	41.34 ± 0.21 (2SD, nAE121 = 7)	40.56 ± 0.21 (2SD, nAE121 = 7)			40.95 ± 0.15
400	31	1	14_4	40.73 ± 0.21 (2SD, nAE121 = 7)	39.97 ± 0.21 (2SD, nAE121 = 7)	41.21 ± 0.27 (2SD, nAE121=5)		40.64 ± 1.25
400	31	1	9_5	40.47 ± 0.21 (2SD, nAE121 = 7)	39.71 ± 0.21 (2SD, nAE121 = 7)			40.09 ± 0.15
400	31	1	9_6	40.32 ± 0.21 (2SD, nAE121 = 7)	39.78 ± 0.21 (2SD, nAE121 = 7)			40.05 ± 0.15
1000	28	1	14_4	41.56 ± 0.21 (2SD, nAE121 = 7)	41.04 ± 0.21 (2SD, nAE121 = 7)			41.30 ± 0.15
1000	28	1	9_5	41.57 ± 0.21 (2SD, nAE121 = 7)	41.12 ± 0.21 (2SD, nAE121 = 7)			41.34 ± 0.15
1000	28	1	9_6	41.79 ± 0.21 (2SD, nAE121 = 7)	41.06 ± 0.21 (2SD, nAE121 = 7)	41.92 ± 0.27 (2SD, nAE121=5)		41.59 ± 0.92
1000	31	1	14_4	42.30 ± 0.21 (2SD, nAE121 = 7)	41.78 ± 0.21 (2SD, nAE121 = 7)			42.04 ± 0.15
1000	31	1	9_5	42.27 ± 0.21 (2SD, nAE121 = 7)	41.55 ± 0.21 (2SD, nAE121 = 7)			41.91 ± 0.15
1000	31	1	9_6	42.14 ± 0.21 (2SD, nAE121 = 7)	41.54 ± 0.21 (2SD, nAE121 = 7)			41.84 ± 0.15
3000	28	1	14_4	41.11 ± 0.21 (2SD, nAE121 = 7)	40.70 ± 0.21 (2SD, nAE121 = 7)			40.91 ± 0.15
3000	28	1	9_5	41.45 ± 0.21 (2SD, nAE121 = 7)	40.66 ± 0.21 (2SD, nAE121 = 7)			41.06 ± 0.15
3000	28	1	9_6	41.24 ± 0.21 (2SD, nAE121 = 7)	40.66 ± 0.21 (2SD, nAE121 = 7)			40.95 ± 0.15
3000	31	1	14_4	41.67 ± 0.21 (2SD, nAE121 = 7)	41.04 ± 0.21 (2SD, nAE121 = 7)			41.35 ± 0.15
3000	31	1	9_5	41.60 ± 0.21 (2SD, nAE121 = 7)	40.98 ± 0.21 (2SD, nAE121 = 7)	41.89 ± 0.27 (2SD, nAE121=5)		41.49 ± 0.92
3000	31	1	9_6	41.46 ± 0.21 (2SD, nAE121 = 7)	41.36 ± 0.21 (2SD, nAE121 = 7)			41.41 ± 0.15

* Purification using columns chemistry (see text), $\delta^{11}B$ measured at the university of Brest.

** Purification using microsublimation (see text), $\delta^{11}B$ measured at the university of Cambridge.

Table S6

Temperature 28°C vs 31°C experiments

P. damicornis				***S. pistillata***			
	400	**1000**	**2800**		**400**	**1000**	**2800**
δ^{11}B	$p>0.05$	$p>0.05$	**$p<0.05$**	**δ^{11}B**	**$p<0.05$**	$p>0.05$	$p>0.05$
pHcf	$p>0.05$	$p>0.05$	**$p<0.05$**	**pHcf**	$p>0.05$	**$p<0.05$**	$p>0.05$
DICcf	$p<0.05$	$p>0.05$	**$p<0.05$**	**DICcf**	$p>0.05$	$p>0.05$	**$p<0.05$**
Ωcf	$p>0.05$	$p>0.05$	**$p<0.05$**	**Ωcf**	**$p<0.05$**	**$p<0.05$**	**$p<0.05$**

pCO_2 400 vs 2800 ppm experiments

P. damicornis			***S. pistillata***		
	28°C	**31°C**		**28°C**	**31°C**
δ^{11}B	$p>0.05$	$p>0.05$	**δ^{11}B**	$p>0.05$	$p>0.05$
pHcf	$p>0.05$	$p>0.05$	**pHcf**	$p>0.05$	$p>0.05$
DICcf	$p>0.05$	$p>0.05$	**DICcf**	$p>0.05$	$p>0.05$
Ωcf	$p>0.05$	$p>0.05$	**Ωcf**	$p>0.05$	$p>0.05$

pCO_2 400 vs 1000 ppm experiments

P. damicornis			***S. pistillata***		
	28°C	**31°C**		**28°C**	**31°C**
δ^{11}B	$p>0.05$	$p>0.05$	**δ^{11}B**	$p>0.05$	$p>0.05$
pHcf	$p>0.05$	$p>0.05$	**pHcf**	$p>0.05$	$p>0.05$
DICcf	$p>0.05$	$p>0.05$	**DICcf**	$p>0.05$	$p>0.05$
Ωcf	$p>0.05$	$p>0.05$	**Ωcf**	$p>0.05$	$p>0.05$

Comparaison δ^{11}B at university of Cambridge and AIW

S. pistillata		
	28°C	**31°C**
400 ppm	$p>0.05$	$p>0.05$
1000 ppm	$p>0.05$	$p>0.05$
2800 ppm	$p>0.05$	$p>0.05$

Comparison pH_{cf} from microprobe and δ^{11}B

P. damicornis		***S. pistillata***		
	28°C		**28°C**	**31°C**
400 ppm	$p>0.05$	400 ppm	**$p<0.05$**	$p>0.05$
1000 ppm	$p>0.05$	1000 ppm	$p>0.05$	$p>0.05$
2800 ppm	$p>0.05$	2800 ppm	$p>0.05$	$p>0.05$

Table S7

CULTURE CONDITIONS						
pCO_{2sw}	**T**	**pH_{sw}**	**Tank**	**Li/Ca***	**B/Ca***	**Sr/Ca***
(ppm)	(°C)	total scale)		(µmol/mol)	(µmol/mol)	(mmol/mol)
Pocillopora damicornis						
462	28	8.14	1	6.5 ± 0.6	472 ± 11	8.43 ± 0.01
462	28	8.14	2	6.9 ± 0.6	545 ± 11	8.59 ± 0.01
462	28	8.14	3	7.1 ± 0.6	449 ± 11	8.85 ± 0.01
462	28	8.14	4	6.4 ± 0.6	492 ± 11	8.89 ± 0.01
462	28	8.14	1	7.5 ± 0.6	489 ± 11	9.51 ± 0.01
462	28	8.14	2	6.7 ± 0.6	460 ± 11	9.16 ± 0.01
483	31	8.09	4	5.8 ± 0.6	537 ± 11	9.42 ± 0.01
483	31	8.09	4	5.8 ± 0.6	537 ± 11	9.42 ± 0.01
483	31	8.09	1	7.3 ± 0.6	501 ± 11	7.63 ± 0.01
483	31	8.09		7.1 ± 0.6	500 ± 11	9.49 ± 0.01
483	31	8.09	3	6.4 ± 0.6	504 ± 11	8.25 ± 0.01
483	31	8.09	4	5.7 ± 0.6	470 ± 11	8.87 ± 0.01
931	28	7.90	2	5.9 ± 0.6	435 ± 11	8.92 ± 0.01
931	28	7.90	1	6.1 ± 0.6	558 ± 11	9.24 ± 0.01
931	28	7.90	3	6.7 ± 0.6	492 ± 11	9.30 ± 0.01
931	28	7.90	2	6.9 ± 0.6	491 ± 11	9.10 ± 0.01
931	28	7.90	4	6.8 ± 0.6	503 ± 11	9.04 ± 0.01
931	28	7.90	1	6.2 ± 0.6	619 ± 11	8.92 ± 0.01
908	31	7.97	4	7.5 ± 0.6	743 ± 11	9.14 ± 0.01
908	31	7.97	3	6.4 ± 0.6	474 ± 11	9.13 ± 0.01
908	31	7.97	1			
908	31	7.97	3	5.8 ± 0.6	592 ± 11	9.37 ± 0.01
908	31	7.97	3	6.5 ± 0.6	524 ± 11	8.23 ± 0.01
908	31	7.97	1	7.6 ± 0.6	441 ± 11	8.73 ± 0.01
2884	28	7.49	1	6.5 ± 0.6	460 ± 11	8.92 ± 0.01
2884	28	7.49	4	7.1 ± 0.6	466 ± 11	8.76 ± 0.01
2884	28	7.49	3	7.5 ± 0.6	422 ± 11	9.26 ± 0.01
2884	28	7.49	2	9.8 ± 0.6	496 ± 11	9.30 ± 0.01
2884	28	7.49	2			
3303	31	7.55	4	9.2 ± 0.6	485 ± 11	9.29 ± 0.01
3303	31	7.55	2	7.5 ± 0.6	486 ± 11	9.21 ± 0.01
3303	31	7.55	3	6.2 ± 0.6	538 ± 11	7.21 ± 0.01
3303	31	7.55	4	6.7 ± 0.6	518 ± 11	7.16 ± 0.01
3303	31	7.55	1	6.5 ± 0.6	449 ± 11	8.19 ± 0.01
3303	31	7.55	4	6.8 ± 0.6	509 ± 11	8.46 ± 0.01
3303	31	7.55	2		523 ± 11	
Stylophora pistillata						
462	28	8.14	2	7.7 ± 0.6	4.67 ± 0.09	7.62 ± 0.01
462	*28*	*8.14*	*2*	*8.0 ± 0.6*	*4.68 ± 0.09*	*9.06 ± 0.01*
462	*28*	*8.14*	*2*	*8.1 ± 0.6*	*4.68 ± 0.09*	*9.11 ± 0.01*
462	28	8.14	4	8.6 ± 0.6	5.04 ± 0.09	7.73 ± 0.01
462	28	8.14	1	7.7 ± 0.6	5.08 ± 0.09	8.65 ± 0.01
462	28	8.14	2	8.0 ± 0.6	4.62 ± 0.09	8.62 ± 0.01
483	31	8.09	2	8.1 ± 0.6	5.81 ± 0.09	9.40 ± 0.01
483	31	8.09	4	7.3 ± 0.6	4.36 ± 0.09	9.16 ± 0.01
483	31	8.09	1	7.2 ± 0.6	4.12 ± 0.09	7.75 ± 0.01
483	*31*	*8.09*	*1*	*7.2 ± 0.6*	*4.13 ± 0.09*	*7.83 ± 0.01*
483	31	8.09	4	8.3 ± 0.6	4.78 ± 0.09	8.91 ± 0.01
483	31	8.09	3	7.9 ± 0.6	4.87 ± 0.09	9.31 ± 0.01
483	31	8.09	1	7.7 ± 0.6	4.07 ± 0.09	7.55 ± 0.01
483	*31*	*8.09*	*1*	*6.9 ± 0.6*	*4.08 ± 0.09*	*9.13 ± 0.01*
931	28	7.90	2	8.2 ± 0.6	5.06 ± 0.09	9.20 ± 0.01
931	28	7.90	4	7.6 ± 0.6	4.71 ± 0.09	8.75 ± 0.01
931	28	7.90	1	9.3 ± 0.6	7.75 ± 0.09	8.81 ± 0.01
931	28	7.90	3	7.5 ± 0.6	5.01 ± 0.09	9.24 ± 0.01
931	28	7.90	2	7.4 ± 0.6	5.86 ± 0.09	9.37 ± 0.01
908	31	7.97	3			
908	31	7.97	1	7.0 ± 0.6	4.77 ± 0.09	9.01 ± 0.01
908	31	7.97	3	7.7 ± 0.6	4.82 ± 0.09	8.63 ± 0.01
908	31	7.97	4	7.8 ± 0.6	4.57 ± 0.09	8.79 ± 0.01
908	31	7.97	1	7.7 ± 0.6	5.96 ± 0.09	9.52 ± 0.01
908	31	7.97	2	7.3 ± 0.6	5.05 ± 0.09	8.95 ± 0.01
2884	28	7.49	3	8.4 ± 0.6	5.10 ± 0.09	9.05 ± 0.01
2884	28	7.49	3	8.7 ± 0.6	5.67 ± 0.09	9.43 ± 0.01
2884	28	7.49	4	8.0 ± 0.6	4.98 ± 0.09	9.07 ± 0.01
2884	28	7.49	4	8.2 ± 0.6	5.14 ± 0.09	9.18 ± 0.01
3303	31	7.55	4	6.9 ± 0.6	4.54 ± 0.09	9.25 ± 0.01
3303	31	7.55	2	6.7 ± 0.6	4.47 ± 0.09	9.10 ± 0.01
3303	31	7.55	3	7.0 ± 0.6	4.59 ± 0.09	9.17 ± 0.01
3303	31	7.55	3	7.1 ± 0.6	4.66 ± 0.09	8.97 ± 0.01
3303	31	7.55	1	7.7 ± 0.6	5.21 ± 0.09	9.39 ± 0.01
3303	31	7.55	2	6.8 ± 0.6	4.64 ± 0.09	7.51 ± 0.01

* "Uncertainty is calculated as 2 SD of repeated measurements of the CamWuellestorfi standard.

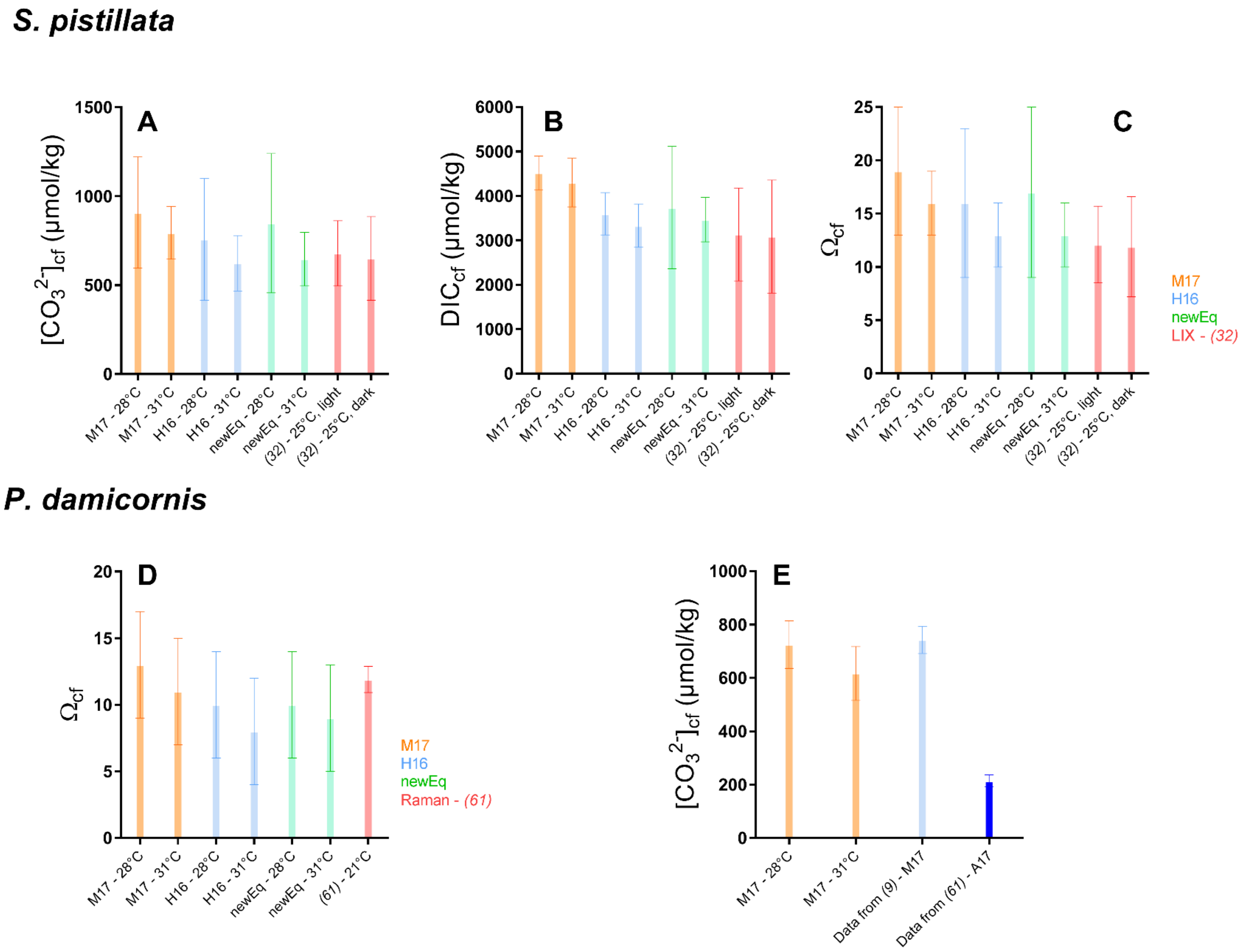

Figure S1: Comparison between boron derived carbonate parameters of the calcifying fluid based different K_D formulations and independent measurements. Comparison of carbonate parameters calculated from boron proxies with different K_D (*(10)* ‘M17’, *(33)* ‘H16’, *(8)* ‘new eq’) and independent measurements for *S. pistillata* (**A**, **B**, **C**) and *P. damicornis* (**D, E**). Carbonate ion concentration of the calcifying fluid ($[CO_3^{2-}]_{cf}$), dissolved inorganic carbon of the calcifying fluid (DIC_{cf}), saturation state of aragonite of the calcifying fluid (Ω_{cf}). **A** and **E**: $[CO_3^{2-}]_{cf}$; **B**: DIC_{cf}; **C** and **D**: Ω_{cf}. For *S. pistillata* (**A**, **B**, **C**). The data reported here are from the control treatment (pCO_2 ~400 ppm). The carbonate parameters are in the range of independent LIX microelectrode measurements from *(32)*. For *P. damicornis*, independent measurements based on Raman spectroscopy *(61)* are consistent with data from ‘M17’ using $[Ca]_{cf}=[Ca]_{sw}$. Recalculating $[CO_3^{2-}]_{cf}$ with the K_D definition from *(34)* (‘A17’, **E**) and data from (61) yields values that are greater than in ‘A17’, but similar to estimates of $[CO_3^{2-}]_{cf}$ from (9). Independent measurements of $[CO_3^{2-}]_{cf}$ (e.g., via LIX microelectrode) do not presently exist for *P. damicornis* but would help refine the B/Ca proxy of $[CO_3^{2-}]_{cf}$ and identify optimal K_D formulation. Error bars represent 1 standard deviation from the mean.

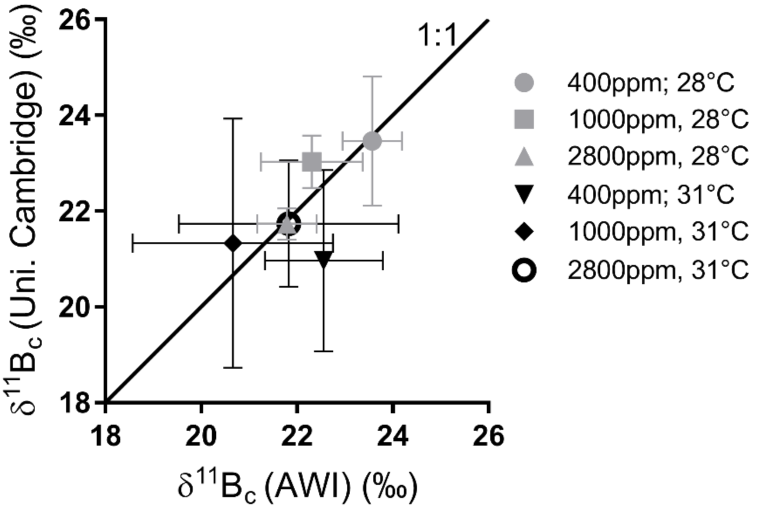

Figure S2: Analytical δ^{11}B comparison between the University of Cambridge and the Alfred Wagner Institute. Two-independent measurements of δ^{11}B for *S. pistillata* carried out at the University of Cambridge (‘Uni. Cambridge’) and at the Alfred Wagner Institute (‘AWI’). Regression comparing results from the two labs are not significantly different from the 1:1 line ($p>0.05$; Welch-t test). These results cross-validate the δ^{11}B analytical procedures of both laboratories and show that the reported δ^{11}B values are reproducible by independent laboratories at the 95% confidence level. Error bars represent 2 standard deviation from the mean.

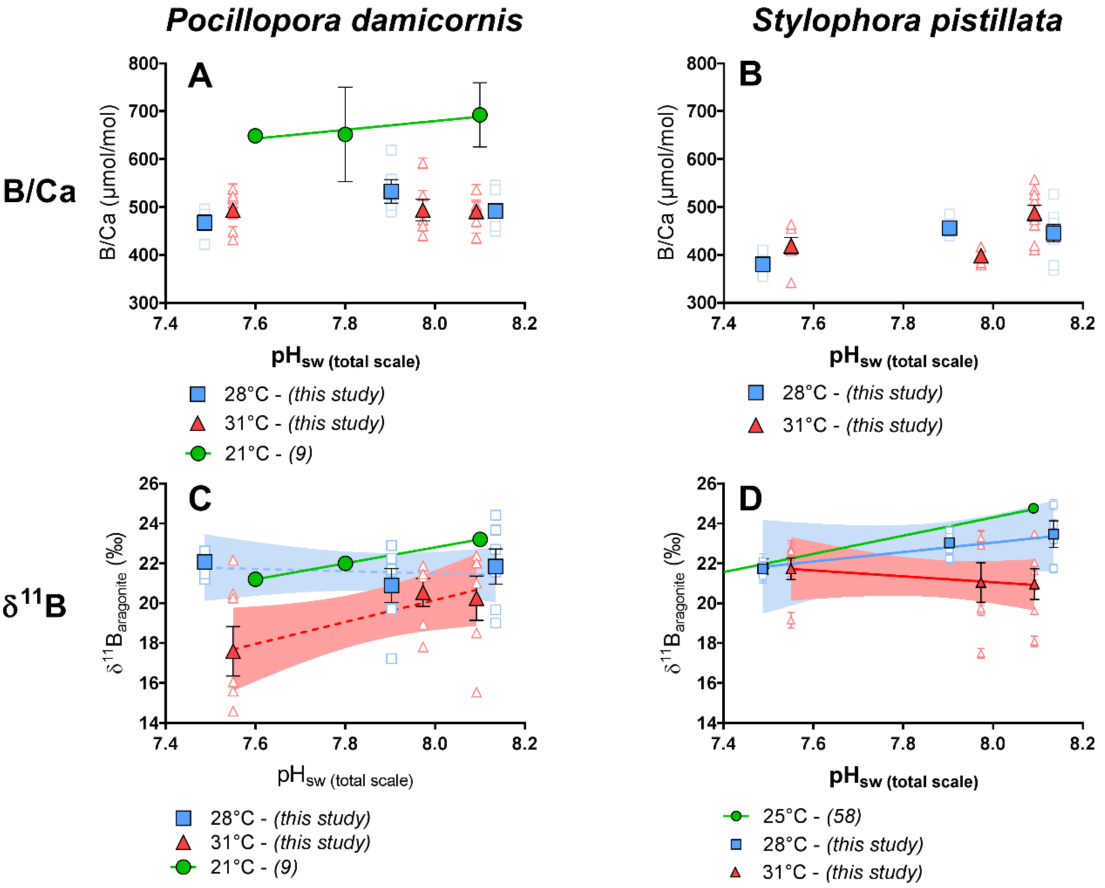

Figure S3: B/Ca and δ^{11}B measured in this study. Analytical results relative to treatment seawater pH (pH$_{sw}$) (blue squares: 28°C, red triangles: 31°C). A and B: show B/Ca for *P. damicornis* and *S. pistillata*, respectively. C and D show δ^{11}B for *P. damicornis* and *S. pistillata*, respectively. Error bars represent 1 standard error, envelops represent 95% confidence interval of the linear regressions.

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