Supplementary Material: Impacts of Warming and Acidification on Coral Calcification Linked to Photosymbiont Loss and Deregulation of Calcifying Fluid pH

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Section S1. Summary of experimental design and results

Table S1. Summary of the results of an experiment investigating the impacts of ocean acidification and warming on three tropical corals (60-days: *Stylophora pistillata*, *Pocillopora damicornis*, and *Seriatopora hystrix*) and one cold water coral (30-days: *Lophelia pertusa*). N = number of coral fragments per treatment at the start of the experiment, N_{END} = the number of coral fragments per treatment at the end of the experiment once corals that died were removed. All results are reported as the mean ± the standard deviation. Calcification rate, calcifying fluid pH, and color score were calculated for individuals that survived the full length of the experiment. NA* indicates that values are missing due to coral mortality, and NA† indicates measurements that were not taken in certain species.

pCO_2 treatment	Temperature treatment	Species	N	N_{end}	Mortality (%)	Buoyant wt start (g)	Dry wt start (g)	Dry wt end (g)	Calcification (% dry wt/day)	pH_{CF}	Color score
Ambient	Ambient	*S. pistillata*	10	5	50	1.783 ± 0.353	10.918 ± 0.690	11.010 ± 0.758	0.013 ± 0.012	8.825 ± 0.168	4.691 ± 0.198
		P. damicornis	9	9	0	5.137 ± 1.973	17.070 ± 3.318	17.289 ± 3.448	0.020 ± 0.016	8.936 ± 0.517	4.529 ± 0.945
		S. hystrix	11	8	27	1.424 ± 0.409	10.874 ± 0.702	11.010 ± 0.758	0.049 ± 0.015	8.522 ± 0.298	3.678 ± 0.197
		L. pertusa	8	8	0	7.411 ± 2.775	11.654 ± 4.363	11.676 ± 4.372	0.006 ± 0.006	9.080 ± 0.458	NA†

	High	*S. pistillata*	11	6	45	3.549 ± 5.041	11.664 ± 1.646	11.679 ± 1.663	0.002 ± 0.005	8.657 ± 0.251	3.669 ± 0.505
		P. damicornis	10	0	100	3.135 ± 1.799	NA*	NA*	NA*	NA†*	NA*
		S. hystrix	8	8	0	1.415 ± 0.633	10.859 ± 1.088	10.75 ± 1.124	0.018 ± 0.006	NA†	4.117 ± 0.241
		L. pertusa	8	8	0	8.479 ± 3.662	13.357 ± 7.119	13.361 ± 7.103	0.001 ± 0.004	NA†	NA†
Moderate	Ambient	*S. pistillata*	13	13	0	2.320 ± 1.204	12.077 ± 2.254	12.383 ± 2.547	0.037 ± 0.039	8.594 ± 0.317	5.005 ± 0.377
		P. damicornis	8	8	0	3.115 ± 2.308	13.670 ± 3.881	13.872 ± 3.879	0.025 ± 0.010	8.556 ± 0.450	5.447 ± 0.408
		S. hystrix	9	8	11	1.287 ± 0.396	10.851 ± 0.758	10.875 ± 0.763	0.032 ± 0.015	8.262 ± 0.163	3.276 ± 0.216
		L. pertusa	9	9	0	8.337 ± 2.735	13.110 ± 4.301	13.112 ± 14.288	0.002 ± 0.006	7.962 ± 0.104	NA†
	High	*S. pistillata*	10	7	30	2.270 ± 0.922	11.505 ± 1.262	11.560 ± 1.304	0.008 ± 0.007	8.164 ± 0.061	4.409 ± 0.340
		P. damicornis	18	4	78	2.522 ± 1.126	11.827 ± 1.091	11.874 ± 1.153	0.006 ± 0.008	NA†	4.080 ± 0.100
		S. hystrix	8	6	25	1.146 ± 0.445	10.046 ± 0.269	10.153 ± 0.265	0.019 ± 0.008	NA†	4.065 ± 0.267
		L. pertusa	7	5	29	8.454 ± 2.089	12.101 ± 2.214	12.123 ± 2.246	0.005 ± 0.008	NA†	NA†
High	Ambient	*S. pistillata*	10	10	0	1.721 ± 0.396	10.954 ± 0.742	11.788 ± 0.918	0.124 ± 0.043	8.395 ± 0.304	5.663 ± 0.119
		P. damicornis	9	8	11	3.692 ± 2.471	14.640 ± 4.156	15.380 ± 4.616	0.065 ± 0.022	8.240 ± 0.374	5.651 ± 0.314
		S. hystrix	8	5	38	1.283 ± 0.367	10.689 ± 0.659	11.480 ± 0.784	0.128 ± 0.178	7.906 ± 0.267	4.444 ± 0.229
		L. pertusa	8	8	0	7.401 ± 3.057	11.639 ± 4.807	11.496 ± 4.728	-0.036 ± 0.012	7.537 ± 0.015	NA†
	High	*S. pistillata*	11	11	0	2.200 ± 0.444	11.807 ± 0.858	11.904 ± 0.929	0.014 ± 0.018	7.970 ± 0.194	4.997 ± 0.233
		P. damicornis	9	4	56	6.455 ± 5.133	22.237 ± 11.836	22.219 ± 11.840	-0.002 ± 0.010	NA†	4.877 ± 0.264
		S. hystrix	8	3	63	1.223 ± 0.389	10.860 ± 0.642	10.919 ± 0.626	0.010 ± 0.005	NA†	3.789 ± 0.096
		L. pertusa	7	7	0	7.194 ± 3.298	11.313 ± 5.186	11.232 ± 5.148	-0.022 ± 0.008	NA†	NA†

Section S2. Water quality methods and summary tables

Temperature, pH, and salinity of all replicate tanks were measured three times per week using a multi-electrode probe (WTW Multi 3430 Set K). The pH electrode was calibrated prior to use at each treatment temperature with pH 4.00 and 7.00 NBS buffers traceable to NIST standard reference material. The conductivity (salinity) probe was calibrated at each treatment temperature with certified seawater reference material of 33.347 salinity (Dickson CRM batch #154). Samples for the analysis of dissolved inorganic carbon (DIC) and total alkalinity (TA) were collected weekly at midday, and used to calculate other carbonate system parameters using the program *CO_2SYS*[31]. Samples for the analysis of DIC and TA were collected in 25 mL borosilicate glass vials sealed with rubber septae and in 50 mL polypropylene centrifuge tubes, respectively. After collection, DIC and TA samples were poisoned with 10 µm and 20 µm, respectively, of saturated $HgCl_2$ solution and refrigerated until analysis. Total alkalinity was determined by open-cell potentiometric Gran titration (precision = 10 µmol/kg), and DIC was determined by coulometry using a Shimadzu DIC analyzer (precision = 10 µmol/kg), with both analytical systems calibrated with certified seawater reference material (Dickson CRM batch #154). Seawater pCO_2, pH (seawater scale), carbonate ion concentration ($[CO_3^{2-}]$), bicarbonate ion concentration ($[HCO_3^-]$), aqueous CO_2, and calcite saturation state (Ω_c) were calculated from measured TA and DIC with the program *CO_2SYS*[31], using Roy et al. (1993)[32] values for the K_1 and K_2 carbonic acid constants, the Mucci (1983)[33] value for the stoichiometric calcite solubility product, and an atmospheric pressure of 1.015 atm (Tables S1 and S2). Samples for the measurement of nutrient concentrations ($[NO_3^-]$, $[PO_4^{3-}]$, and $[NH_4^+]$) were obtained weekly

from the sumps and analyzed with a *TECAN F200 Pro* photometric fluorometric plate reader (Table S2 and Table S3).

Table S2. Average measured nutrients from tropical coral experiment (nitrate (NO_3^-), phosphate (PO_4^{3-}), and ammonium (NH_4^+). 'SE' is standard error; 'n' is number of observations.

		Control pCO_2		Moderate pCO_2		High pCO_2	
		28 °C	**31 °C**	**28 °C**	**31 °C**	**28 °C**	**31 °C**
NO_3^-	µmol/L	2.72	1.47	1.11	2.23	1.49	1.98
	SE	1.63	1.02	0.99	1.41	1.04	1.18
	Range	0.00 - 10.55	0.00 - 8.33	0.00 - 8.00	0.00 - 8.82	0.00 - 8.33	0.00 - 7.40
	n	8	8	8	8	8	8
PO_4^{3-}	µmol/L	0.48	0.27	0.19	0.19	0.12	0.14
	SE	0.21	0.08	0.04	0.03	0.02	0.02
	Range	0.07 - 1.87	0.08 - 0.81	0.07 - 0.41	0.09 - 0.32	0.07 - 0.19	0.07 - 0.23
	n	8	8	8	8	8	8
NH_4^+	µmol/L	0.74	0.40	0.12	0.22	0.28	0.16
	SE	0.53	0.28	0.10	0.21	0.17	0.10
	Range	0.00 - 3.66	0.00 - 1.94	0.00 - 0.67	0.00 - 1.49	0.00 - 0.93	0.00 - 0.55
	n	7	7	7	7	7	6

Table S3. Average measured seawater nutrients from *Lophelia pertusa* tanks (nitrate (NO_3^-), phosphate (PO_4^{3-}), and ammonium (NH_4^+). 'SE' is standard error; 'n' is number of observations.

		Control pCO_2		Moderate pCO_2		High pCO_2	
		9 °C	**12 °C**	**9 °C**	**12 °C**	**9 °C**	**12 °C**
NO_3^-	µmol/L	12.23	15.41	12.12	15.01	8.11	10.39
	SE	0.52	1.29	0.48	1.12	1.70	2.16
	Range	11.10 - 14.48	11.60 - 19.83	11.14 - 14.43	11.94 - 18.99	0.44 - 12.83	5.29 - 19.62
	n	6	6	6	6	6	6
PO_4^{3-}	µmol/L	4.07	2.79	4.30	1.90	3.40	2.47
	SE	1.44	0.85	1.51	0.53	1.26	0.98
	Range	0.35 - 9.10	0.57 - 5.29	0.27 - 9.51	0.41 - 3.46	0.23 - 7.80	0.16 - 6.43
	n	6	6	6	6	6	6
NH_4^+	µmol/L	34.56	39.92	32.13	37.63	30.14	45.53
	SE	17.35	18.03	16.07	17.34	14.68	23.27
	Range	0.00 - 92.16	0.00 - 94.00	0.00 - 83.69	0.00 - 91.74	0.00 - 77.47	0.00 - 125.08
	n	5	5	5	5	5	5

Section S3. Buoyant weight methods

Coral fragments were suspended from a bottom-loading scale (*Mettler Toledo*, precision = 0.01 g) in a seawater bath of constant temperature and salinity. Coral specimens were weighed three times to obtain a mean weight, and a standard mass 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 and last three days of the experiment. Immediately after the final weight was taken, corals were removed from their treatment tanks and their tissue was removed with compressed air. Coral skeletons were soaked twice in 90% ethanol to remove any salts and then dried at room temperature (20 °C) for two days. Dry skeletons were then weighed with the same scale. The relationship between the dry and buoyant weights of the coral specimens was empirically defined by plotting final dry weight against final buoyant weight (Figure S1). This relationship for each species is defined as follows:

Stylophora pistillata: Dry weight (g) = 1.919 x Buoyant Weight (g) + 7.677;

Pocillopora damicornis: Dry weight (g) = 1.662 x Buoyant Weight (g) + 8.777;

Seriatopora hystrix: Dry weight (g) = 1.668 x Buoyant Weight (g) + 8.493;

Lophelia pertusa: Dry weight (g) = 1.594 x Buoyant Weight (g) – 0.206.

where the precision of this relationship is equivalent to the standard error of the regression (*Stylophora pistillata:* 0.060 g; *Pocillopora damicornis:* 0.053 g; *Seriatopora hystrix:* 0.068 g; *Lophelia pertusa:* 0.023 g).

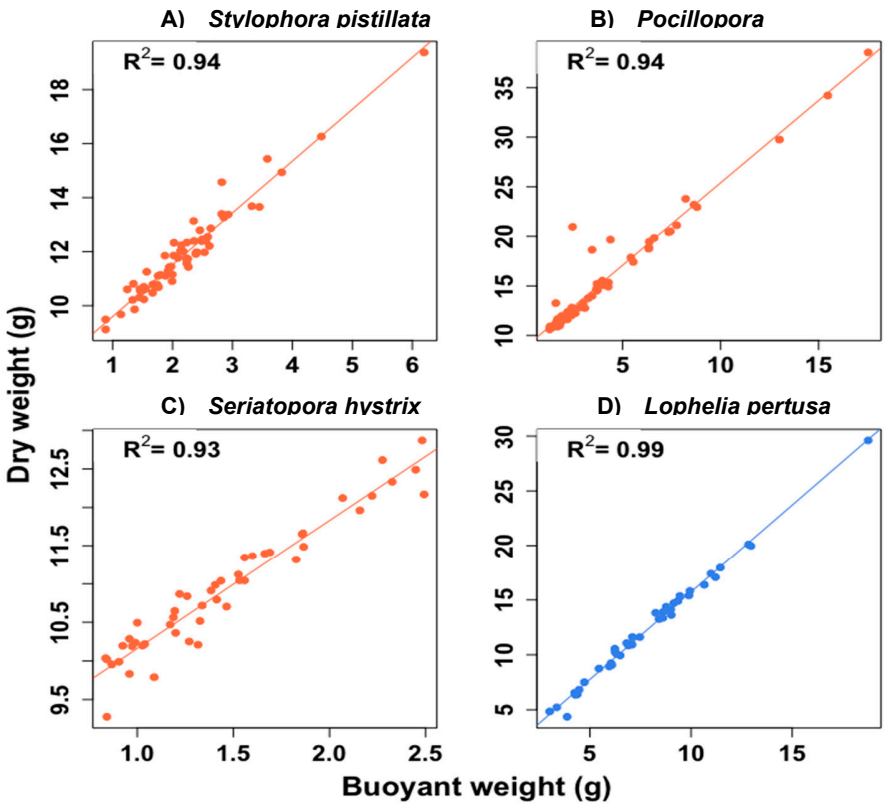

Figure S1. Scatterplots showing the significant correlations between dry and buoyant weights of three species of tropical corals (linear models, *S. pistillata*, $p<0.001$; *P. damicornis*, $p<0.001$; *S. hystrix*, $p<0.001$)) and one species of cold-water coral (*L. pertusa*, $p<0.001$). These empirical relationships were used to convert buoyant weights of the coral specimens obtained at the beginning and end of the experiment to dry skeletal weights, from which net calcification rates were calculated.

These empirically derived relationships were then used to calculate dry weight at the start and end of the experiment from the buoyant weights of the coral specimens at these times. Net calcification was calculated as the difference between the final and initial dry weights of the coral specimens, which was then normalized to the initial dry weight of the specimen to control for allometric effects, thereby yielding %-calcification:

%-calcification = (final dry weight – initial dry weight)/ initial dry weight

Section S4. Images of calcein dye incorporation into coral skeleton

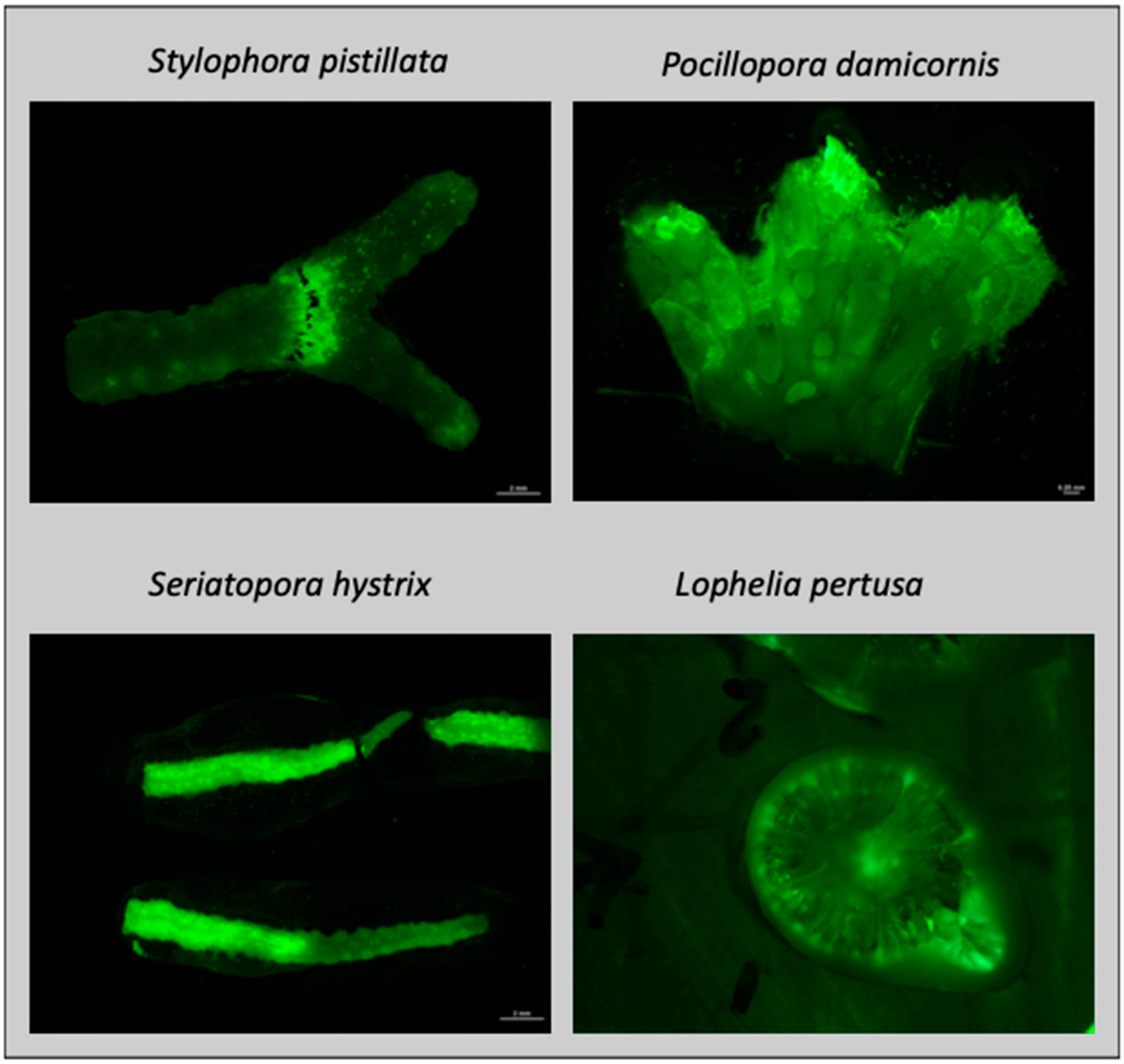

Figure S2. Photographs of the fluorescent calcein marker taken up in the skeletons of the tropical (*Stylophora pistillata, Pocillopora damicornis,* and *Seriatopora hystrix*) and cold-water coral specimens (*Lophelia pertusa*) at the start of the experiment, indicating the production of new skeleton during the experiment. The calcein marker was imaged using a Nikon AZ100 stereo microscope and a Nikon 96320 fluorescent filter tube.

Section S5. Method for estimating photosymbiont index

The tropical coral specimens were photographed alongside the *Coral Watch Coral Health Chart* color scale (Siebeck et al., 2006) under equivalent lighting at the end of the experimental period. Relative photosymbiont abundance was estimated by extracting red-band color of the live coral tissue, then assigning each pixel value a discrete score (1-5) based on the red band of the data of the color scale.

Images were annotated using *Adobe Photoshop* (*Creative Cloud* 2014) to mark pixels for extraction and analysis. The color scale layer was annotated with a series of square quadrats comprising 64 black pixels on an otherwise transparent layer. The live tissue was annotated by first selecting the coral colony region using the *Adobe Powerpoint* pixel selection algorithm tool 'Magic Wand', then by filling the selected region of the annotation layer with black. Annotation layers were exported as separate '.tif' files and read into *MatLab* (version *R2016a*) along with the photo of the specimen. Red band pixels that shared spatial indices with black pixels in the annotation layers were extracted for analysis.

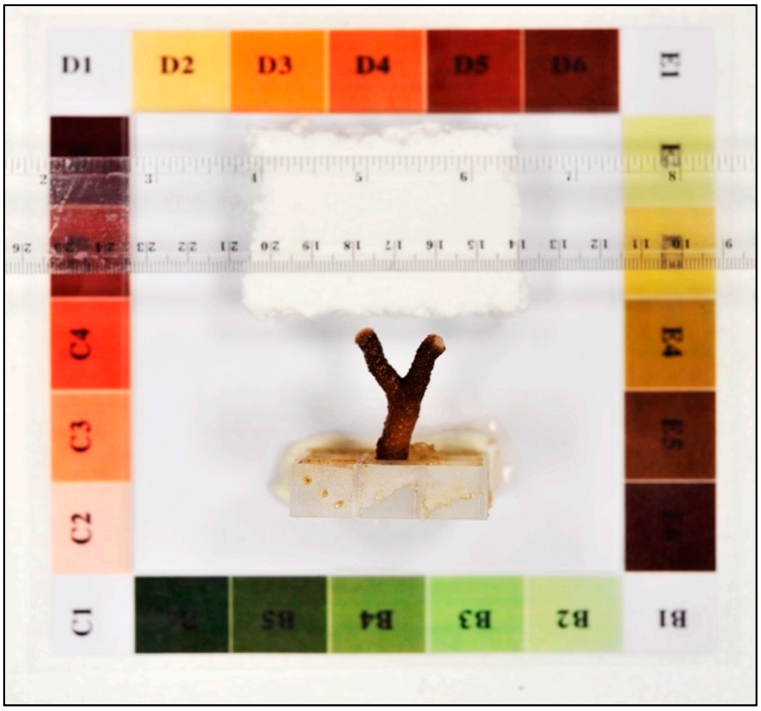

Figure S3. Sample image of the coral specimen, *Coral Watch* color scale, and spatial scale used to assign color score to the coral tissue as a proxy for photosymbiont abundance (i.e., 'bleaching').

Red-band pixel data for the coral colonies were then color-corrected by performing a calibration regression between the mean measured pixel data in each reference quadrat against red-band pixel data within the color scale. Hue, saturation, and brightness values for each reference color in the color scale[34] was converted to RGB to allow comparison using common units. Regression analysis and other calculations were carried out using the *R* statistical programming language v. *3.1.0* (R Core Team 2014). Prior to regression analysis, the pixel values were square-root transformed to correct for non-linearity. Therefore, calibration regressions took the following form:

$$\sqrt[2]{Quadrat_{measured}} \sim \hat{\beta}\sqrt[2]{Quadrat_{actual}} + \hat{\alpha}$$

The regression parameters were then algebraically rearranged and back-transformed so as to predict the corrected pixel data of the coral tissue:

$$E(Pixel_{corrected}) \sim \left[\left(\sqrt[2]{Pixel_{measured}} - \hat{\alpha}\right)/\hat{\beta}\right]^2$$

The corrected colony pixel values were converted back to discrete bleaching scores using the same conventions as employed by the *Coral Watch* color scale. With the exception of green-hue-scale, the other three hues of color described by the reference card have the same progression of red band values associated with each bleaching score (e.g., the red band pixel data for the red, yellow, and brown categories of corals were 237, 219, 191, 150, 94, and 61 for *Coral Watch* color scores of 1 through 6, respectively). Corrected red band pixel data for the coral tissue images were discretized into the bins (i.e., color scores) described above, with bin edges defined by the midpoint between adjacent reference values. Finally, a color score for each specimen was obtained by averaging the color scores of each pixel comprising the live coral tissue image.

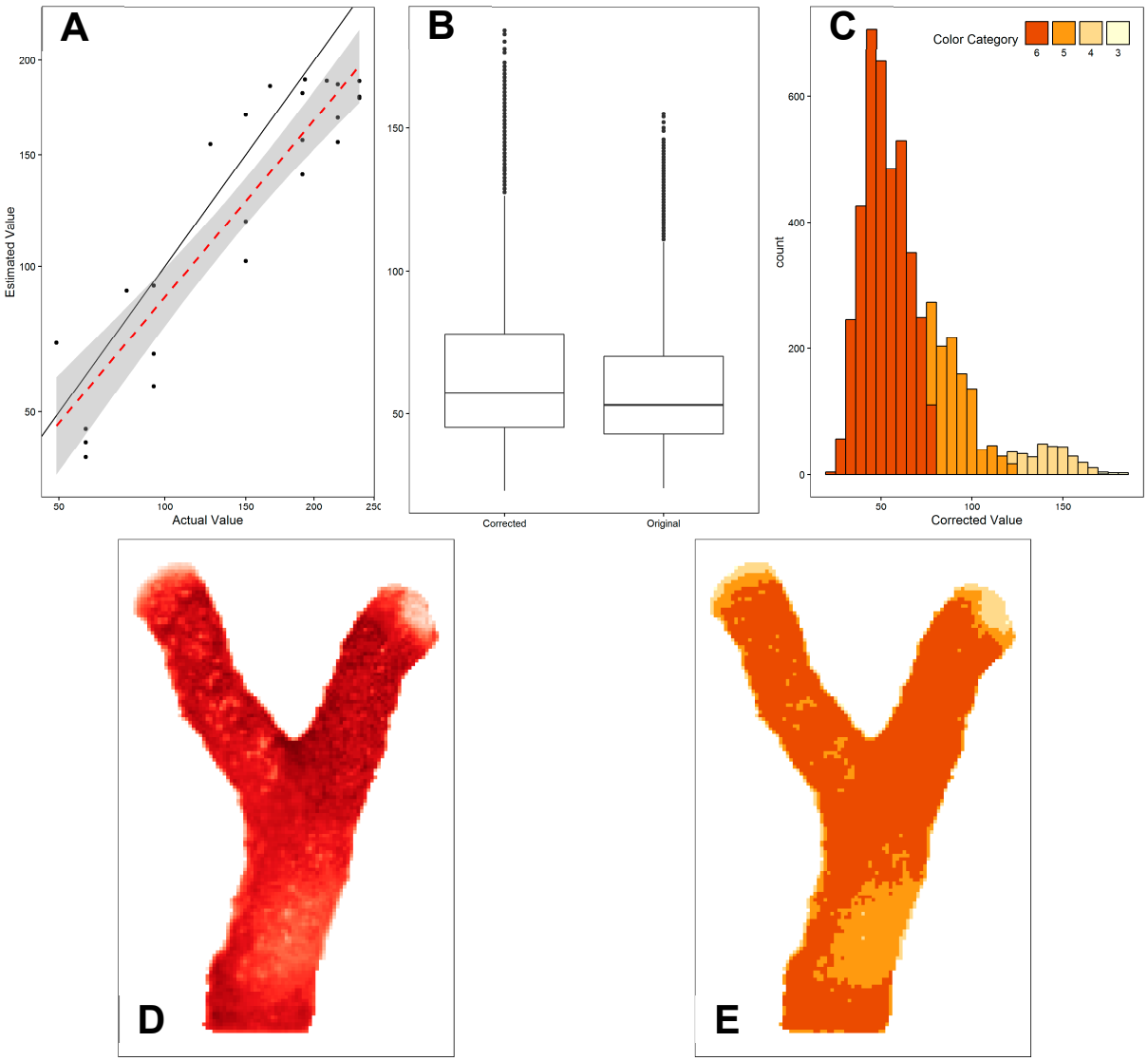

Figure S4. Diagnostic plots used to assign color score (as a proxy for photosymbiont abundance or 'bleaching') to the tissue of a *Stylophora pistillata* specimen from the control treatment. A: The calibration regression used to correct measured red band values to color values based on the standardized color card, where the regression is indicated by the red line and the 1:1 ratio is indicated by the black line. Shading indicates 95% confidence interval of the regression. Regressions were fitted on square-root-transformed values to address skewedness of higher values. B: Boxplot comparing corrected and uncorrected pixel values. C: Distribution of red band data for the imaged coral specimen, with color categories corresponding to the *Coral Watch* color scale. D: Distribution of the red band data across the coral's surface. E: Distribution of the assigned color scores by pixel, which were averaged to calculate the color score for the coral specimen.

Section S6. Model summary tables

Table S4. Table of linear mixed effects models used to investigate the impacts of pCO_2 and temperature on coral calcification rate. In all cases, replicate tank was included in the model as a random effect. Models that maximized R^2 and minimized AIC criteria were selected for final data interpretation. Model terms, R^2, and AIC values for selected models are shown in grey. If the selected model contained an interaction term, additional linear mixed effects models were run to evaluate the impact of the main effect of pCO_2 at each temperature level.

Species	Model terms:	DF	R^2	AIC	p-values
Stylophora pistillata	pCO_2 x Temperature	47	0.712	176.449	pCO_2: <0.001*** Temperature: 0.502 Interaction: <0.001***
	pCO_2 + Temperature	48	0.497	188.939	pCO_2: <0.001 Temperature: <0.001
	pCO_2	49	0.155	214.158	0.003
	Temperature	49	0.294	189.224	<0.001
Pocillopora damicornis	pCO_2 x Temperature	26	0.610	101.136	pCO_2: <0.001*** Temperature: 0.801 Interaction: 0.002**
	pCO_2 + Temperature	27	0.444	93.94	pCO_2: 0.002 Temperature: <0.001
	pCO_2	28	0.114	107.117	0.069
	Temperature	28	0.244	85.825	0.003
Seriatopora hystrix	pCO_2 x Temperature	31	0.784	104.193	pCO_2: <0.001*** Temperature: 0.642 Interaction: <0.001***
	pCO_2 + Temperature	32	0.517	116.318	pCO_2: <0.001 Temperature: <0.001
	pCO_2	33	0.205	132.188	0.004
	Temperature	33	0.334	110.556	<0.001
Lophelia pertusa	pCO_2 x Temperature	34	0.811	53.962	pCO_2: <0.001*** Temperature: 0.081 • Interaction: 0.001***
	pCO_2 + Temperature	35	0.748	45.708	pCO_2: <0.001 Temperature: 0.129
	pCO_2	36	0.738	43.036	<0.001
	Temperature	36	0.010	77.629	0.495

Table S5. Table of linear mixed effects models used to investigate the impacts of pCO_2 and temperature on coral calcifying fluid pH. In all cases, replicate tank was included in the model as a random effect. Models that maximized R^2 and minimized AIC criteria were selected for final data interpretation. Model terms, R^2, and AIC values for selected models are shown in grey. If the selected model contained an interaction term, additional linear mixed effects models were run to evaluate the impact of the main effect of pCO_2 at each temperature level.

Species	**Model terms:**	**DF**	**R^2**	**AIC**	**p-values**
Stylophora pistillata	pCO_2 x Temperature	11	0.539	51.098	pCO_2: 0.879 Temperature: 0.192 Interaction: 0.782
	pCO_2 + Temperature	12	0.553	32.725	pCO_2: 0.007** Temperature: 0.012*
	pCO_2	13	0.346	34.416	0.01
	Temperature	13	0.385	21.044	0.022
Pocillopora damicornis	pCO_2	4	0.743	33.032	0.038*
Seriatopora hystrix	pCO_2	4	0.527	26.358	0.041*
Lophelia pertusa	pCO_2	4	0.726	34.862	0.026*

Table S6. Table of linear mixed effects models used to investigate the impacts of pCO_2 and temperature on $\Delta[H^+]$ of the coral calcifying fluid. Models that maximized R^2 and minimized AIC criteria were selected for final data interpretation. Model terms, R^2, and AIC values for selected models are shown in grey. If the selected model contained an interaction term, additional linear mixed effects models were run to evaluate the impact of the main effect of pCO_2 at each temperature level.

Species	**Model terms:**	**DF**	**R^2**	**AIC**	**p-values**
Stylophora pistillata	pCO_2 x Temperature	11	0.925	1070.232	pCO_2: <0.001*** Temperature: 0.758 Interaction: 0.003**
	pCO_2 + Temperature	12	0.843	1133.707	pCO_2: <0.001 Temperature: 0.015
	pCO_2	13	0.773	1209.489	<0.001
	Temperature	13	0.146	1217.482	0.381
Pocillopora damicornis	pCO_2	4	0.888	542.189	0.002**
Seriatopora hystrix	pCO_2	4	0.697	543.011	0.013*
Lophelia pertusa	pCO_2	4	0.877	534.326	0.002**

Table S7. Table of linear mixed effects models explored to investigate the impacts of pCO_2 and temperature on coral color score (as a proxy for photosymbiont abundance or 'bleaching'). Models that maximized R^2 and minimized AIC criteria were selected for final data interpretation. Model terms, R^2, and AIC values for selected models are shown in grey. If the selected model contained an interaction term, additional linear mixed effects models were run to evaluate the impact of the main effect of pCO_2 at each temperature level.

Species	**Model terms:**	**DF**	**R^2**	**AIC**	**p-values**
Stylophora pistillata	pCO_2 x Temperature	47	0.729	92.618	pCO_2: <0.001 Temperature: <0.001 Interaction: 0.759
	pCO_2 + Temperature	48	0.732	73.888	pCO_2: <0.001*** Temperature: <0.001***
	pCO_2	49	0.350	116.308	<0.001
	Temperature	49	0.305	104.357	<0.001
Pocillopora damicornis	pCO_2 x Temperature	27	0.399	107.729	pCO_2: 0.004 Temperature: 0.091 Interaction: 0.873
	pCO_2 + Temperature	28	0.406	90.799	pCO_2: 0.001*** Temperature: 0.001***
	pCO_2	29	0.201	99.303	0.018
	Temperature	29	0.160	83.858	0.021
Seriatopora hystrix	pCO_2 x Temperature	33	0.535	65.834	pCO_2: <0.001*** Temperature: <0.001*** Interaction: <0.001***
	pCO_2 + Temperature	34	0.253	70.044	pCO_2: 0.021 Temperature: 0.007
	pCO_2	35	0.065	71.343	0.018
	Temperature	35	0.184	58.238	0.060

Table S8. Table of linear mixed effects models explored to investigate the correlation between coral color score and calcification rate. Color score is a proxy for photosymbiont abundance ('bleaching') based on measurement of red band signal within coral tissue at the end of the 62-day experimental period relative to the *Coral Watch* color scale, where 0 = bleached and 6 = healthy. Models that maximized R^2 and minimized AIC criteria were selected for final data interpretation. Model terms, R^2, and AIC values for selected models are shown in grey. If the selected model contained an interaction term, additional linear mixed effects models were run to evaluate the impact of the main effect of pCO_2 at each temperature level.

Species	Model terms:	DF	R^2	AIC	p-values
Stylophora pistillata	Color x pCO_2 x Temperature	43	0.727	204.483	Color: 0.049 pCO_2: 0.264 Temperature: 0.076 Color x Temperature: 0.089 Color x pCO_2: 0.367 Temperature x pCO_2: 0.241 Color x Temperature x pCO_2: 0.324
	Color x pCO_2 + Temperature	46	0.693	166.068	Color: <0.001 pCO_2: 0.031 Temperature: <0.001 Interaction: <0.001
	Color + Temperature + pCO_2	47	0.500	189.900	Color: 0.354 pCO_2: 0.003 Temperature: 0.041
	Color + pCO_2	48	0.413	197.116	Color: <0.001 pCO_2: 0.903
	Color x Temperature	47	0.668	153.340	Color: <0.001*** Temperature: <0.001*** Interaction: <0.001***
	Color + Temperature	48	0.462	177.190	Color: <0.001 Temperature: 0.034
	Color	49	0.418	179.693	<0.001
Pocillopora damicornis	Color x pCO_2 x Temperature	23	0.727	219.217	Color: 0.124 pCO_2: 0.002 Temperature: 0.933 Color x Temperature: 0.969 Color x pCO_2: 0.002 Temperature x pCO_2: 0.420 Color x Temperature x pCO_2: 0.559
	Color x pCO_2 + Temperature	26	0.635	206.850	Color: 0.740 pCO_2: 0.423* Temperature: 0.106 Interaction: 0.054 •
	Color + Temperature + pCO_2	27	0.500	196.999	Color: 0.244 pCO_2: 0.237 Temperature: 0.563
	Color + pCO_2	27	0.602	210.838	Color: 0.760 pCO_2: 0.272
	Color x pCO_2	28	0.413	198.242	Color: 0.760 Temperature: 0.184 Interaction: 0.221
	Color	29	0.418	184.320	0.520
Seriatopora hystrix	Color x pCO_2 x Temperature	29	0.214	231.261	Color: 0.974 pCO_2: 0.718 Temperature: 0.954 Color x Temperature: 0.976 Color x pCO_2: 0.671 Temperature x pCO_2: 0.887 Color x Temperature x pCO_2: 0.872
	Color + pCO_2 + Temperature	33	0.216	197.221	Color: 0.080 pCO_2: 0.429 Temperature: 0.020
	Color + pCO_2	34	0.098	202.177	Color: 0.377 pCO_2: 0.182
	Color + Temperature	34	0.207	182.010	Color: 0.023* Temperature: 0.010**
	Color	35	0.056	188.239	0.138