Supplementary Figures

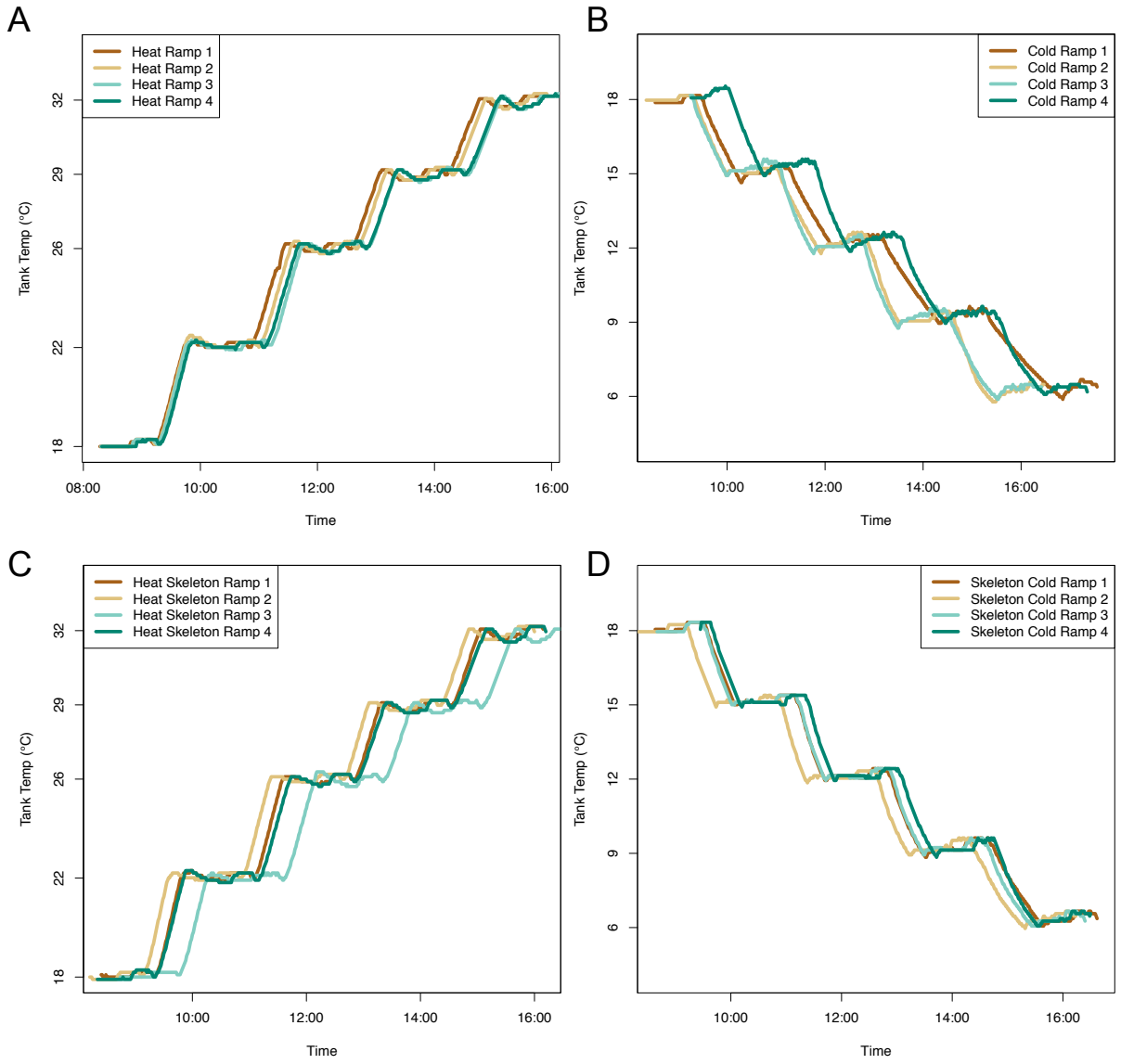

Fig. S1. Temperature and timing of ramp experiments. Temperature conditions and timing of the heat ramps (panel A), cold ramps (panel B), heat skeleton ramps (panel C), and cold skeleton ramps (panel D). Temperature was recorded every minute by a Hobo pendant temperature logger (Onset Computer Corp.) during all ramp experiments.

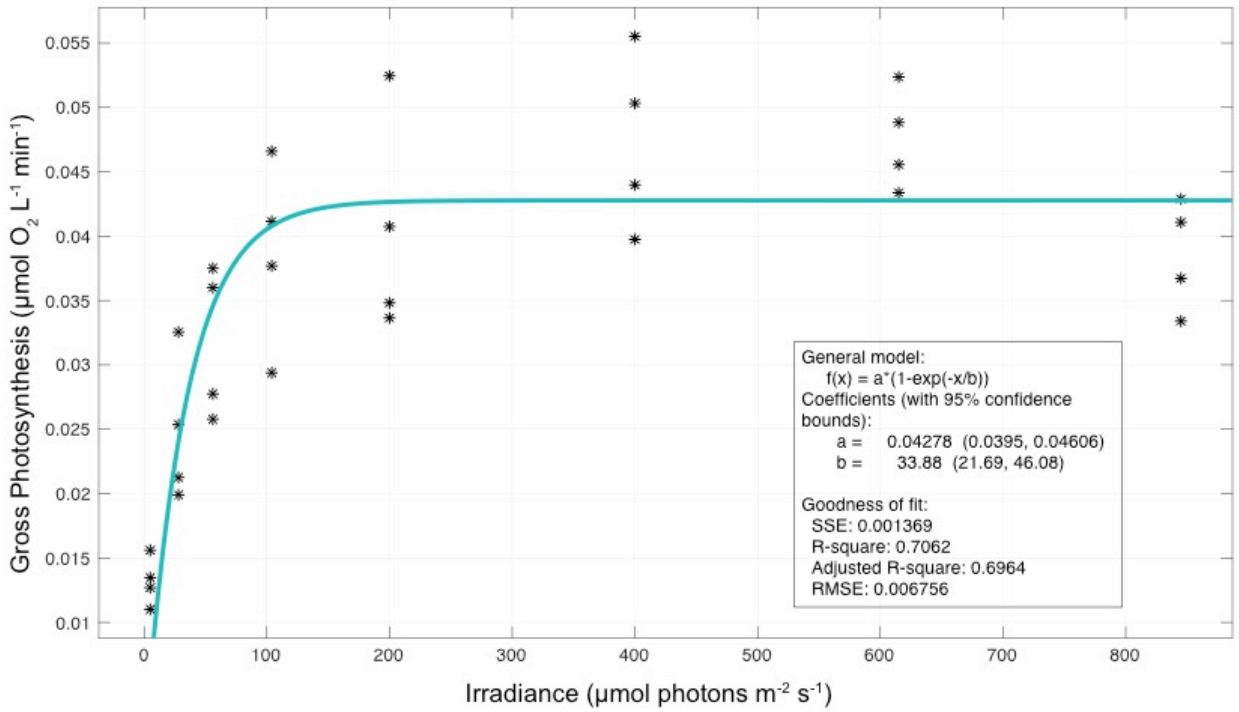

Fig. S2. Photosynthesis vs. irradiance curve of Virginia *Astrangia poculata*. *A. poculata* gross photosynthesis measured at 8 irradiance values between 5 and 845 µmol photons m^{-2} s^{-1}. Each data point represents gross photosynthesis of one VA-brown *A. poculata* individual, and four VA-brown individuals were measured in total. Inset shows goodness of fit statistics and parameter estimates from the exponential least squares best fit, where a = maximum rate of light saturated photosynthesis (P_{max}) and b = the irradiance required to saturate photosynthesis (E_k). This curve was used to choose 400 µmol photons m^{-2} s^{-1} as the light intensity used in the thermal ramp experiments.

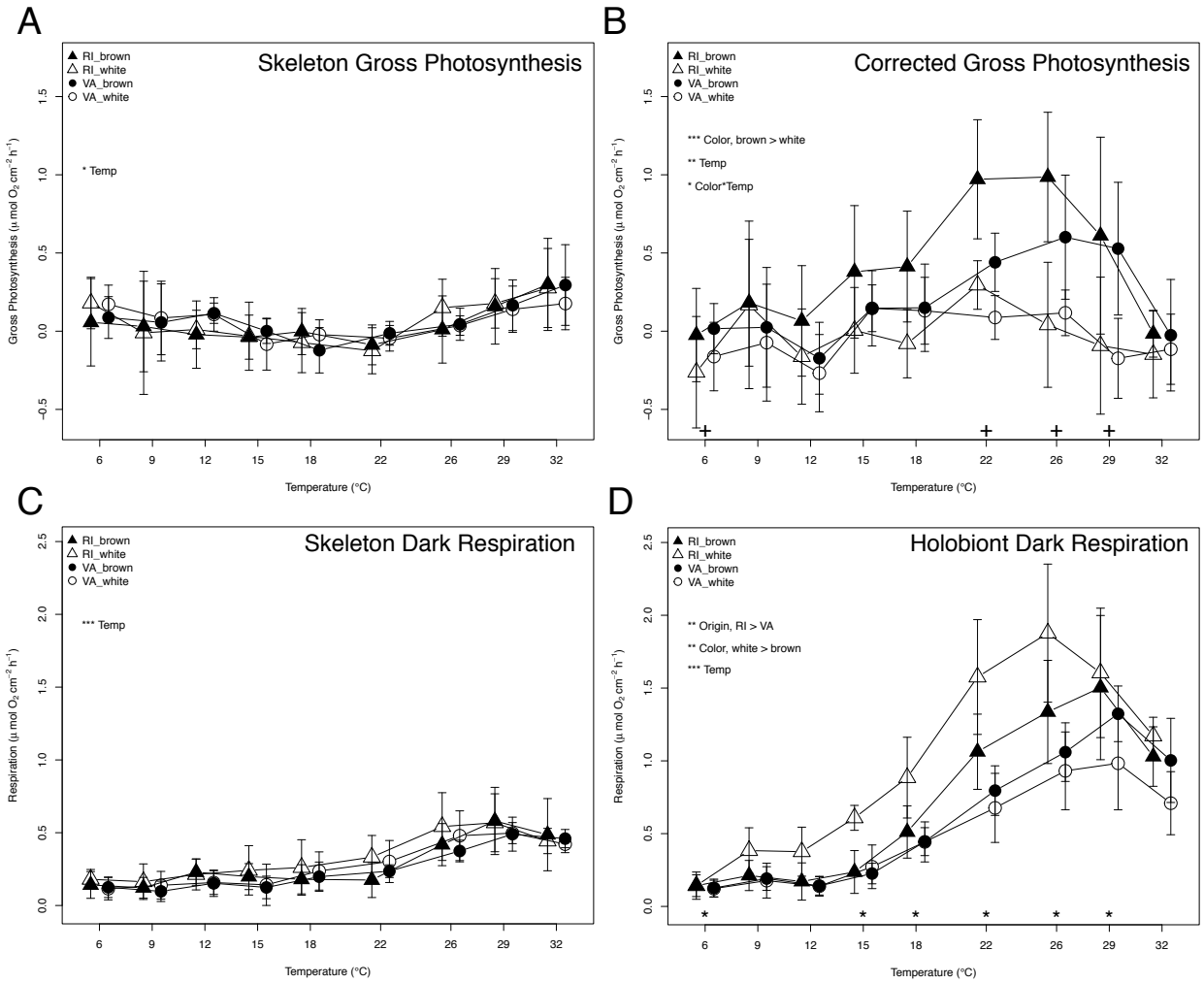

Fig. S3. *Astrangia poculata* metabolic rates. Gross photosynthesis rates (net photosynthesis – dark respiration) of skeleton-associated commensal organisms (A) were used to produce a measure of gross photosynthesis corrected for rates of commensals (P_{corr}; B). Dark respiration rates of commensal organisms associated with the coral skeleton (C) were subtracted from holobiont dark respiration rates (D) to obtain the corrected dark respiration presented in Fig. 3. For all panels, brown corals = dark symbols, white corals = open symbols, RI corals = triangles, and VA corals = circles. Asterisks designate significant factors on each panel (* = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.0001$). Plus signs above the x-axis indicate temperatures at which significant ($p < 0.05$) within-temperature differences between brown and white gross photosynthesis were detected (B), and asterisks above the x-axis indicate temperatures at which significant ($p < 0.05$) within-temperature differences between VA and RI corrected respiration were detected (D). All data points are an average of n = 8 distinct individuals and error bars are 95% confidence intervals.

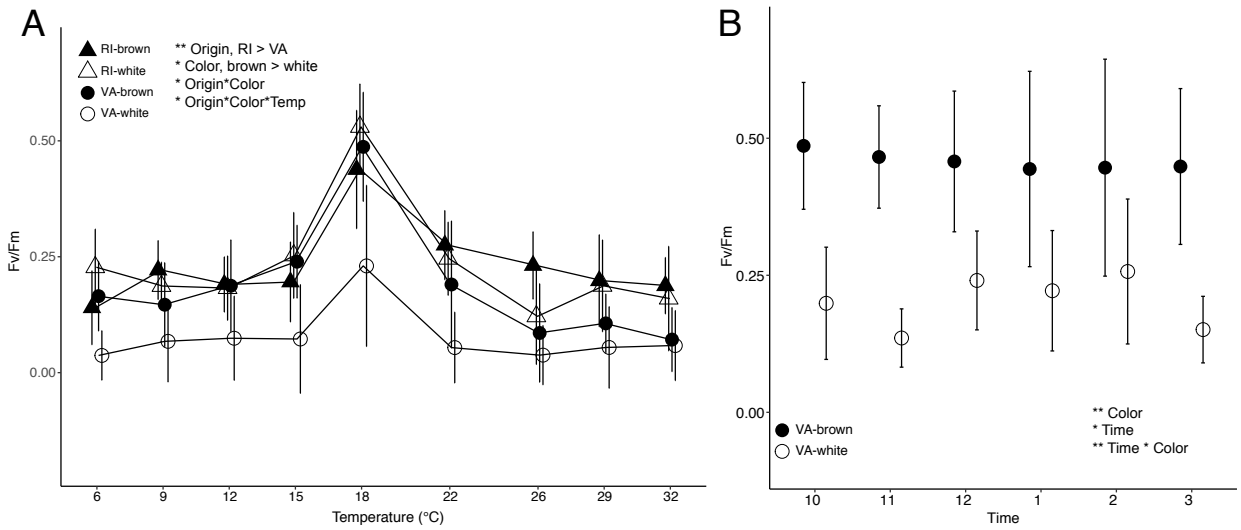

Fig. S4. Supplementary *Astrangia poculata* photochemical efficiency. (A) Photochemical efficiency (F_v/F_m) of photosynthetic commensal organisms associated with the coral skeleton in brown (dark symbols) and white (open symbols) RI (triangles) and VA (circles) *A. poculata* between 6 and 32°C. Origin, color, origin*color and origin*color*temperature all had a significant effect on skeleton F_v/F_m (* = $p < 0.05$, ** = $p < 0.001$). Each data point is an average of n = 8 distinct individuals, and each individual was measured in triplicate at all temperatures. (B) Photochemical efficiency (F_v/F_m) of VA-brown (dark symbols) and white (open symbols) corals held at 18°C for 5 hours (18°C trial experiment). Each data point is an average of n = 3 distinct individuals, and each individual was measured in triplicate at all time points (every hour between 10:00 and 15:00). Color, time, and color*time had significant effects on F_v/F_m, (* = $p < 0.05$, ** = $p < 0.001$), but there was no significant difference in F_v/F_m between time points ($p > 0.05$). Error bars are 95% confidence intervals for both panels.

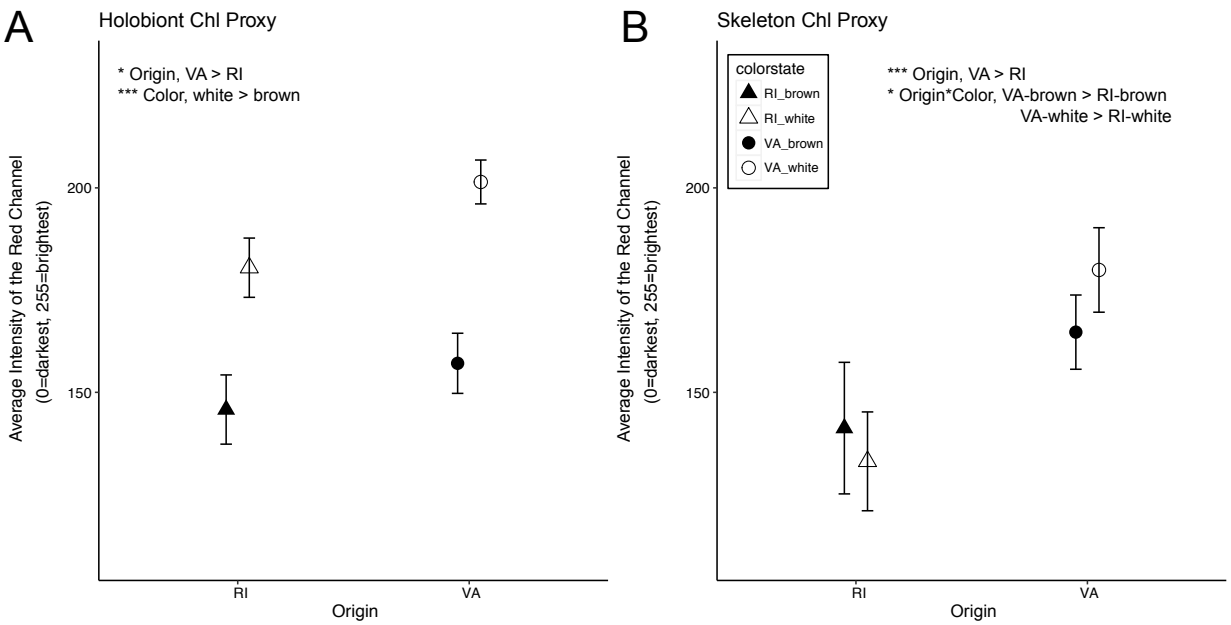

Fig. S5. *Astrangia poculata* predicted chlorophyll density. Chlorophyll density estimated from photos of *A. poculata* holobiont (A) and skeleton (B) fragments taken before the start of the heat and cold ramp experiments. Smaller intensity of the red channel = greater estimated chlorophyll density. (A) Chlorophyll density in the *A. poculata* holobiont was significantly affected by origin and color (* = $p < 0.05$; *** = $p < 0.0001$). Overall, RI holobiont fragments had more predicted chlorophyll than VA fragments and brown holobiont fragments had more predicted chlorophyll than white fragments. (B) Chlorophyll density in the *A. poculata* skeleton was significantly different based on origin and color (* = $p < 0.05$; *** = $p < 0.0001$). Both overall and within symbiotic state, RI skeleton fragments had more predicted chlorophyll than VA fragments. For both panels, each data point is an average of 16 distinct fragments, and error bars are 95% confidence intervals.