



Supplement of

Responses of microbial metabolic rates to non-equilibrated silicate-versus calcium-based ocean alkalinity enhancement

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SUPPLEMENTARY MATERIALS

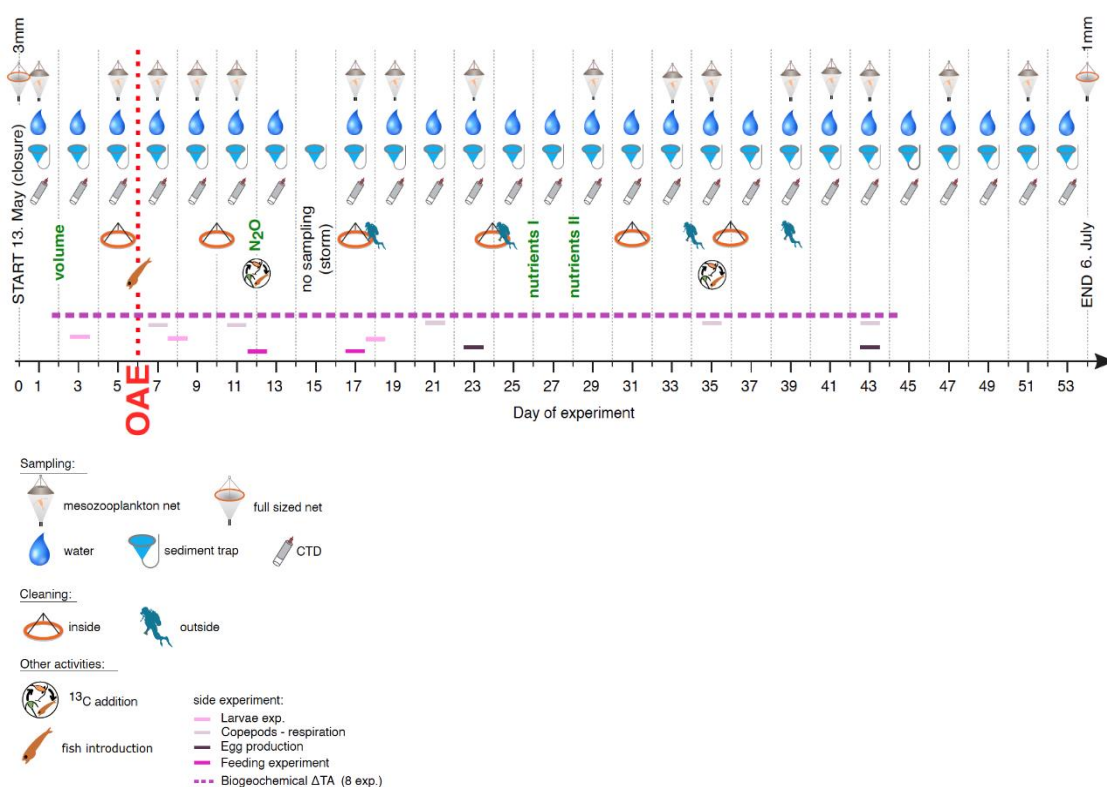


Figure S1. Activities conducted throughout the experimental period including, mesozooplankton and full-sized net casts, “water” meaning sampling for all parameters into the canisters or other parameter specific bottles, CTD casts, inside and outside cleaning of the the mesocosm bags, ¹³C spiking and side experiments. Figure proportioned by PhD Silvan Goldenberg

Table S1. Calculated $p\text{CO}_2$ levels in μatm , using the measured total alkalinity (TA), pH and nutrient concentrations at *in situ* temperature and salinity, using CO2Sys v2.5, for days 53 and 7. The last column to the right portrays the difference between the latter two ($p\text{CO}_2$ in day 53- in day 7).

MK	Mineral	$p\text{CO}_2$ T53	$p\text{CO}_2$ T7	$p\text{CO}_2$ T53 - T7
M5	Ca	417.94	341.96	75.98
M1	Ca	255.43	191.54	63.90
M9	Ca	161.93	116.74	45.19
M7	Ca	122.47	88.11	34.35
M3	Ca	90.02	65.95	24.07
M6	Si	397.49	354.59	42.90
M10	Si	244.99	191.68	53.31
M2	Si	160.95	125.29	35.66
M4	Si	113.75	85.23	28.51
M8	Si	78.52	68.77	12.75

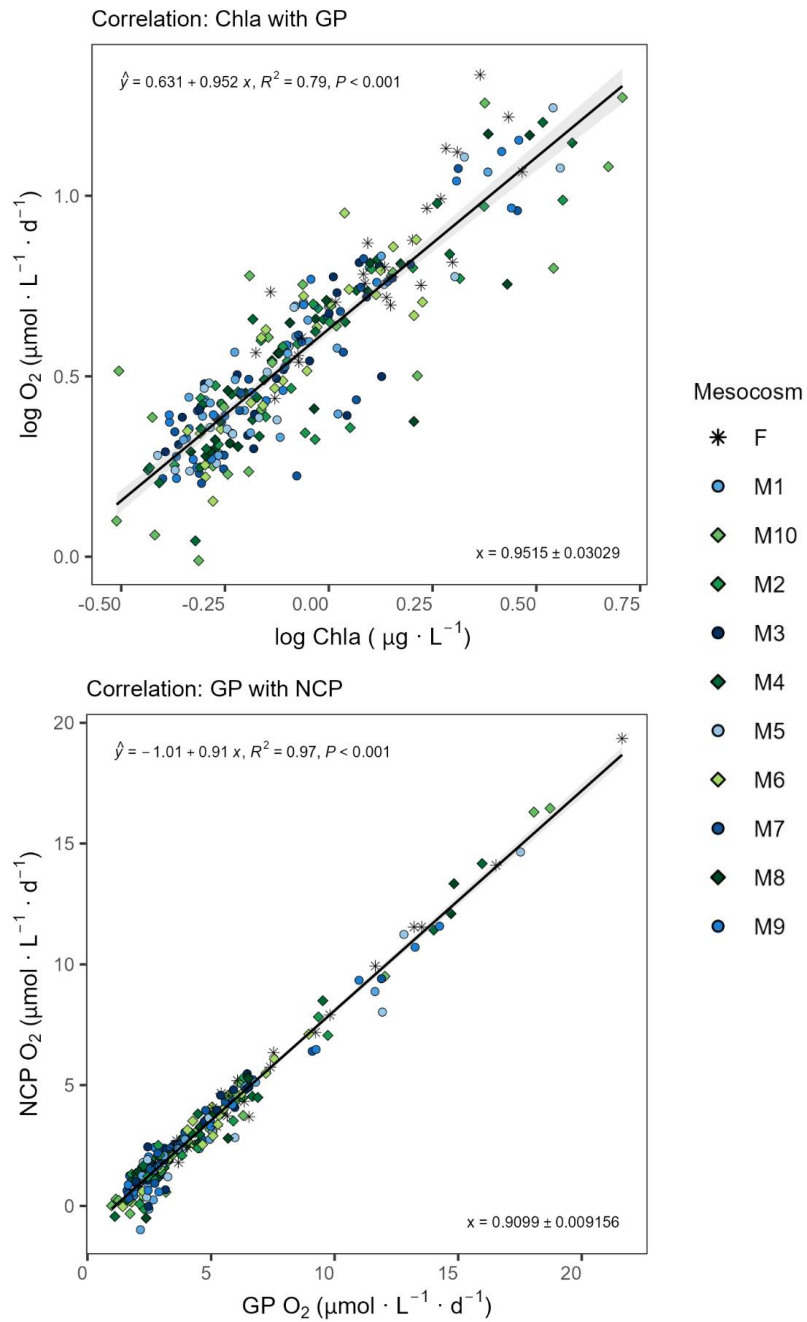


Figure S2. Statistical output figures of a spearman correlation between top) the base-10 log transformed measured gross production (GP) and chlorophyll a (Chla) concentrations, and bottom) the measured GP to net community production (NCP) throughout the experiment. In the legend F corresponds to Fjord, and M to Mesocosm.

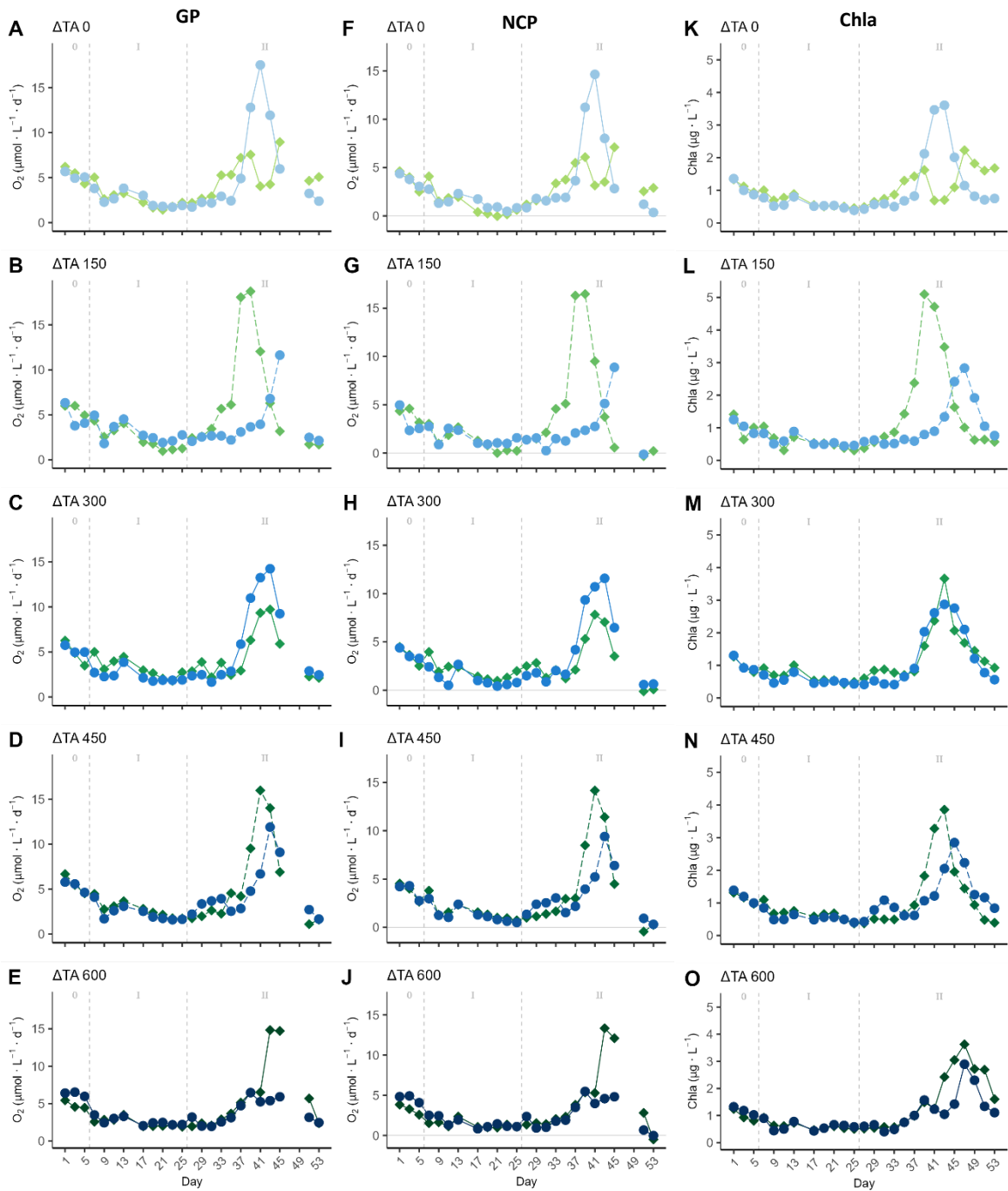


Figure S3. Temporal development of gross production (GP, first column: A, B, C, D, E), net community production (NCP, middle column: F, G, H, I, J) and Chlorophyll a (Chla) concentrations (third column: K, L, M, N, O). Calcium and silicate-based treatments were paired based in Δ total alkalinity (TA) level, moving up the gradient from top to bottom.

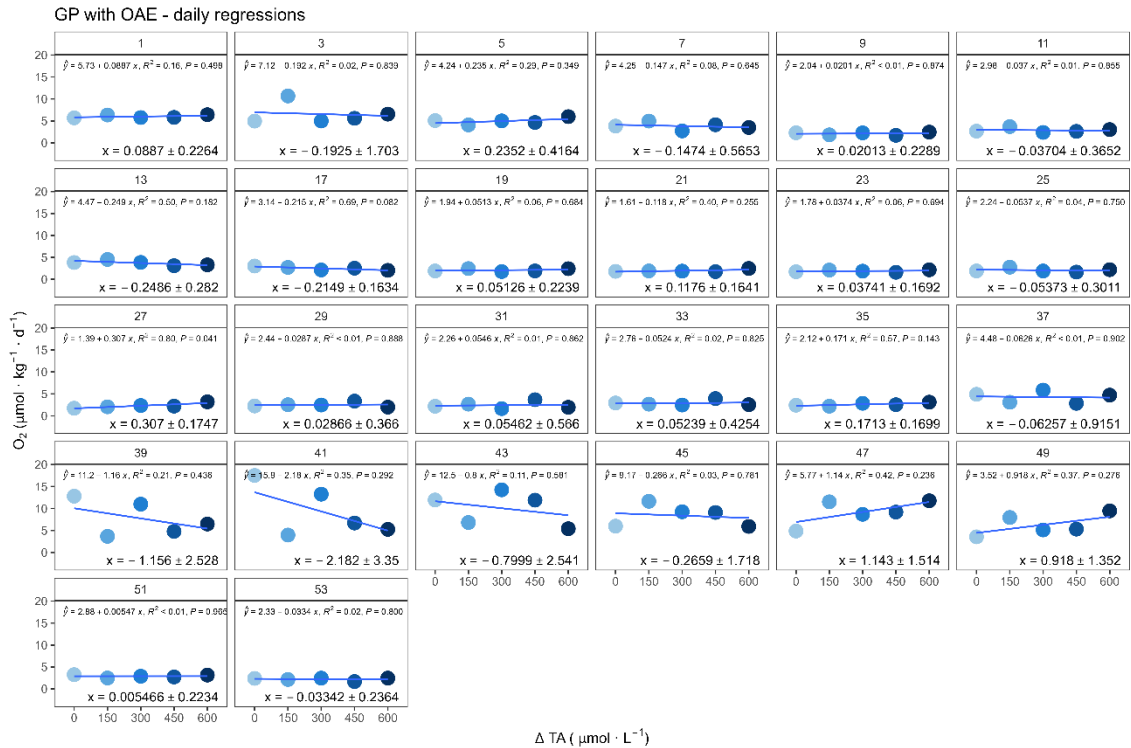
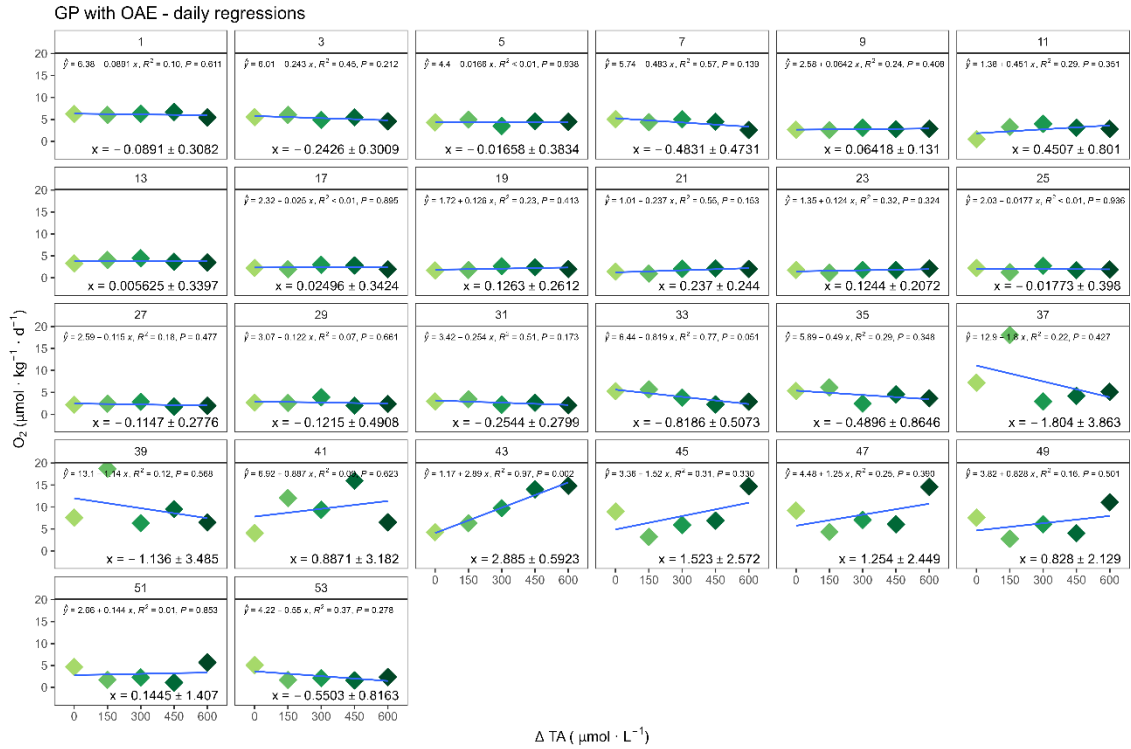


Figure S4. Daily linear models between the measured gross production (GP) rates and the Δ total alkalinity (TA). The slope \pm 95% confidence intervals (bottom right in each panel), and the p value (top right in each panel) were extracted and used to plot the overtime size effect graphs for each treatment set. These plots correspond to those found at the top, under each letter, of Figure 4 A and B in the main text.

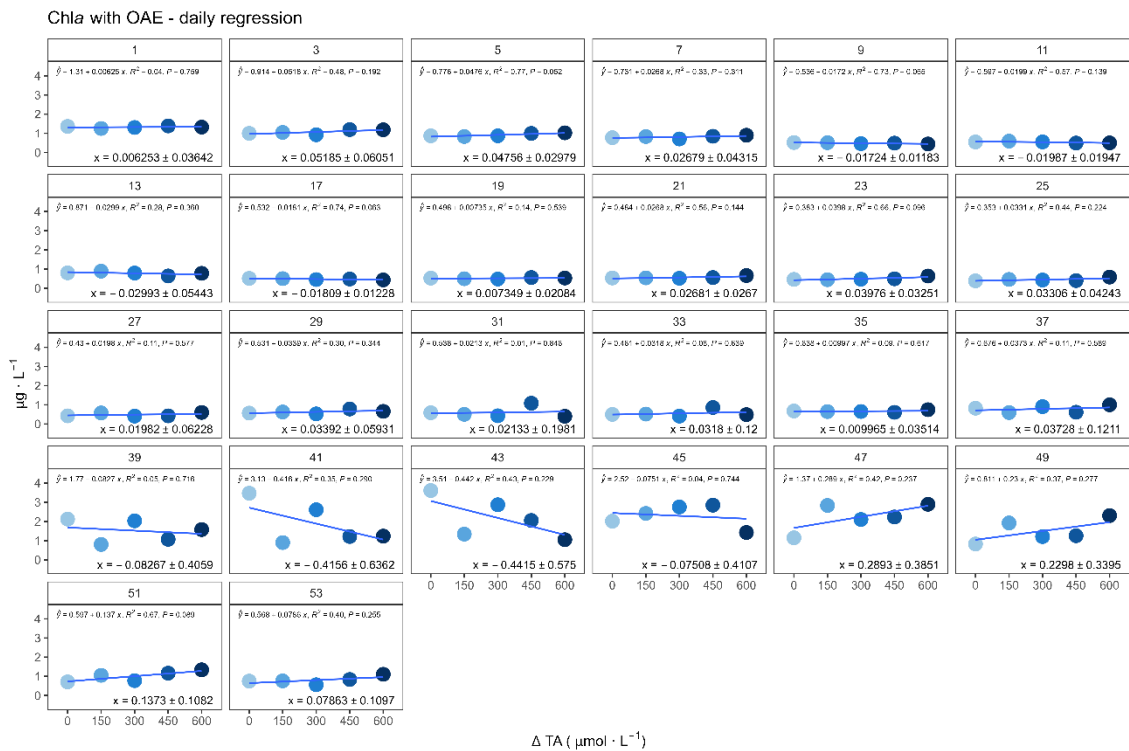
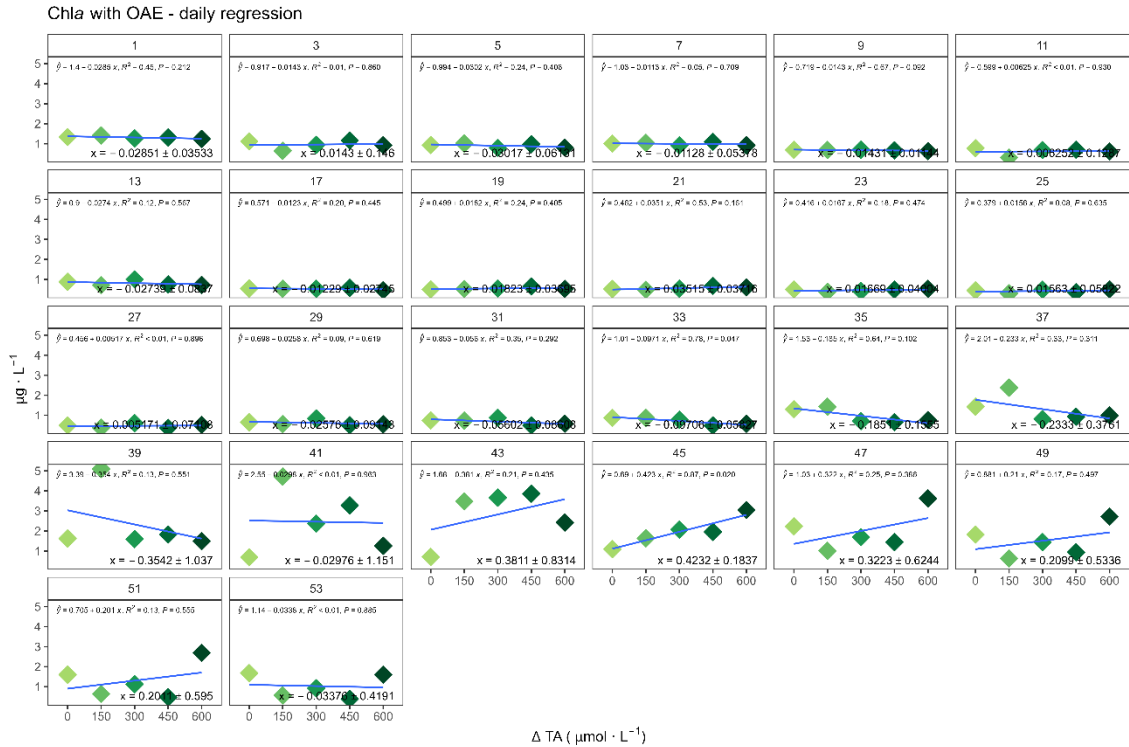


Figure S5. Daily linear models between the measured chlorophyll *a* (Chla) concentration and the Δ total alkalinity (TA). The slope \pm 95% confidence intervals (bottom right in each panel), and the p value (top right in each panel) were extracted and used to plot the overtime size effect graphs for each treatment set. These plots correspond to those found at the top, under each letter, of Figure 4 C and D in the main text.

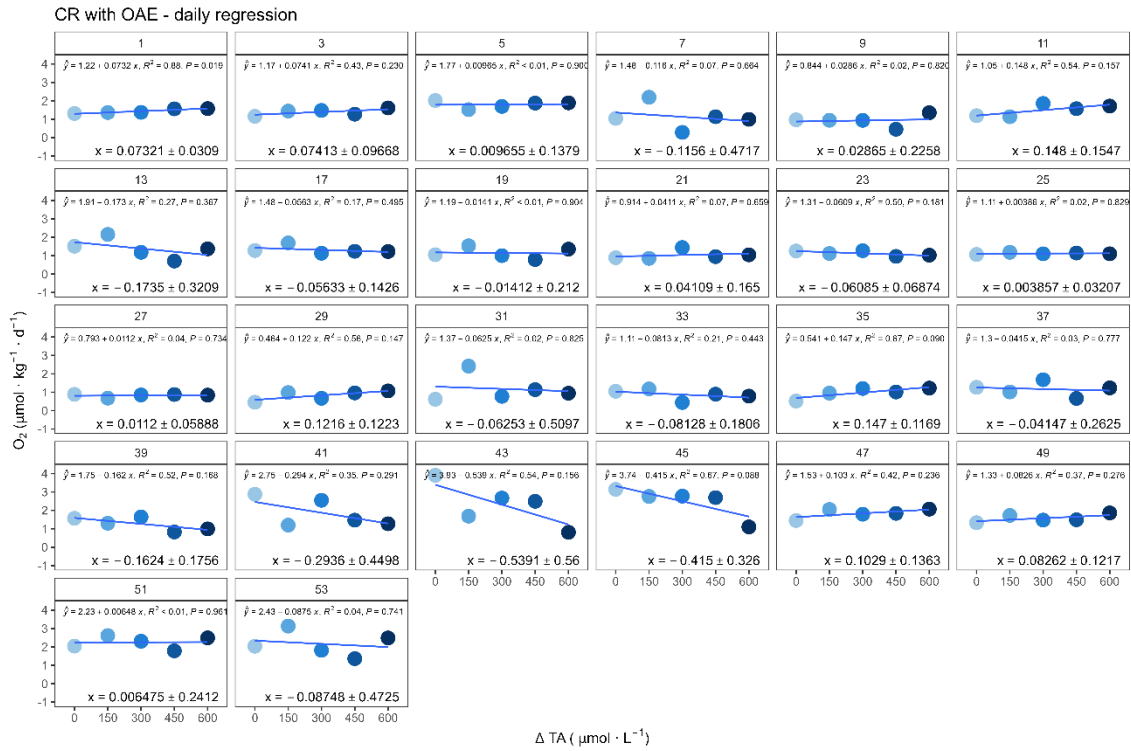
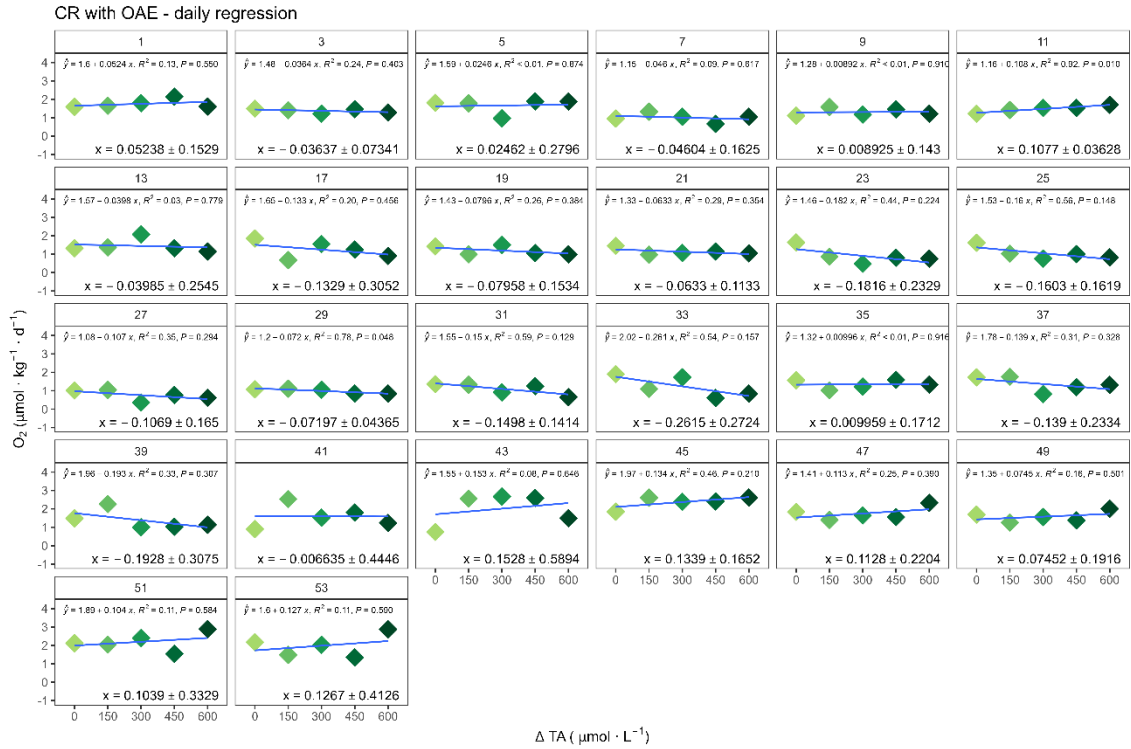
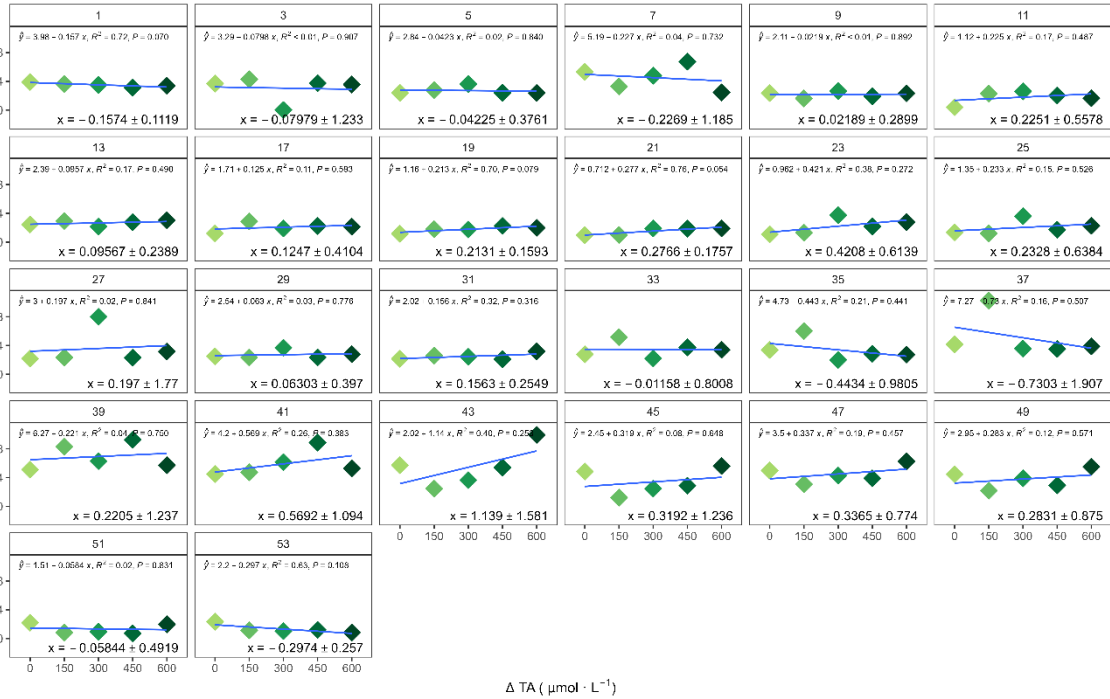


Figure S6. Daily linear models between the measured community respiration (CR) rates and the Δ total alkalinity (TA). The slope \pm 95% confidence intervals (bottom right in each panel), and the p value (top right in each panel) were extracted and used to plot the overtime size effect graphs for each treatment set. These plots correspond to Figures 5 A and B in the main text.

GP:CR with OAE - daily regression



GP:CR with OAE - daily regression

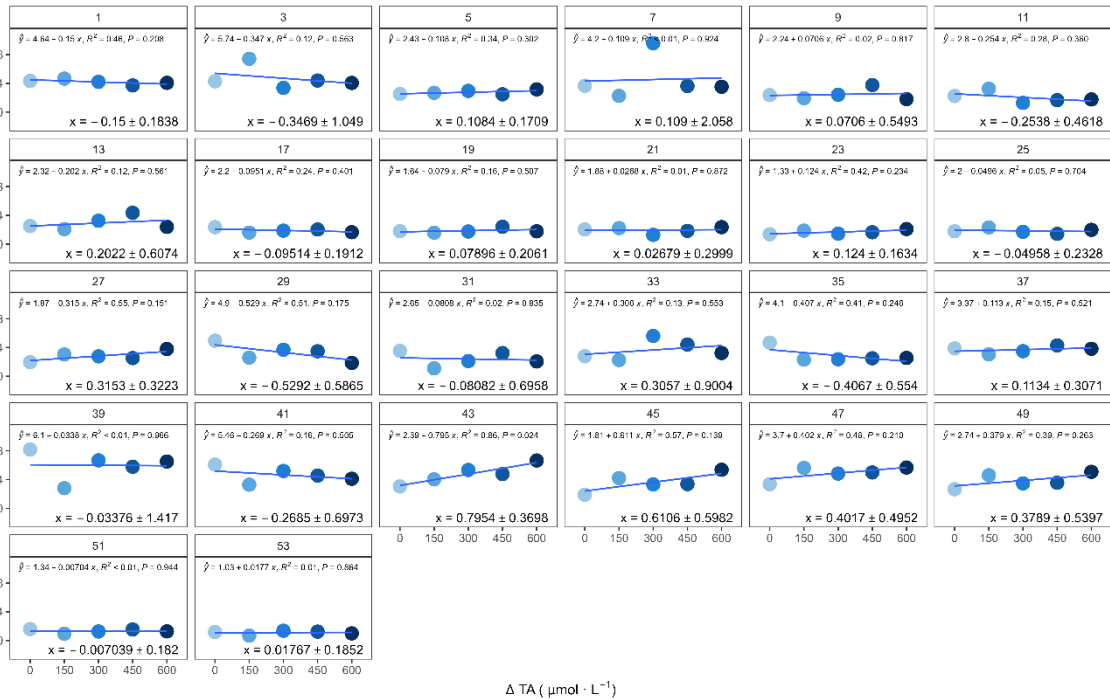


Figure S7. Daily linear models between the metabolic balance (ratio of gross production to community respiration, GP:CR) and the Δ total alkalinity (TA). The slope \pm 95% confidence intervals (bottom right in each panel), and the p value (top right in each panel) were extracted and used to plot the overtime size effect graphs for each treatment set. These plots correspond to those found at the top, under each letter, of Figure 6 A and B in the main text.

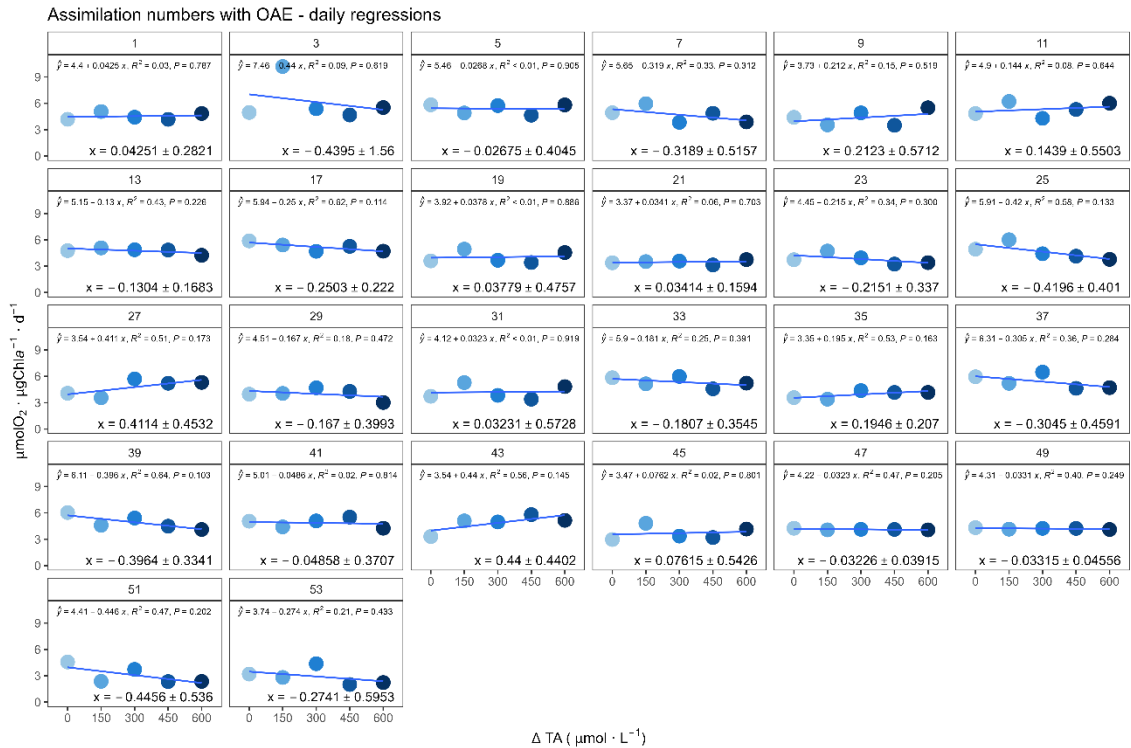
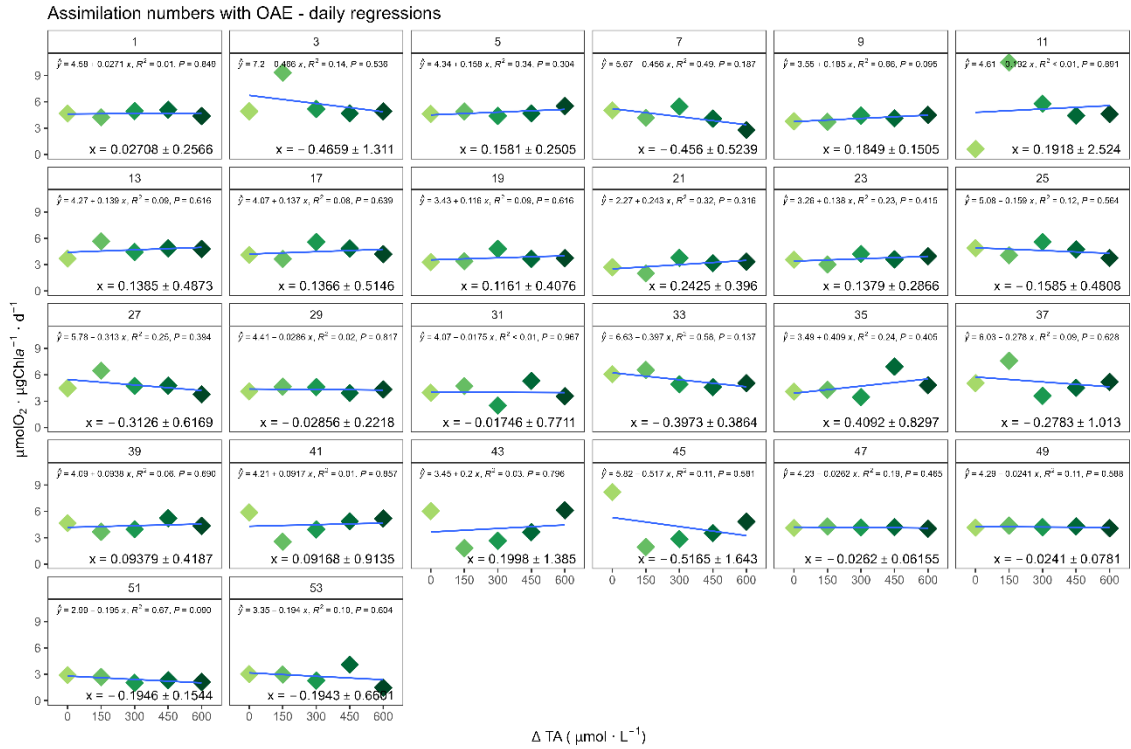


Figure S8. Daily linear models between the assimilation numbers (or the gross production normalized to chlorophyll *a*, GP:Chl*a*) and the Δ total alkalinity (TA). The slope \pm 95% confidence intervals (bottom right in each panel), and the p value (top right in each panel) were extracted and used to plot the overtime size effect graphs for each treatment set. These plots correspond to those found at the top, under each letter, of Figure 7 A and B in the main text.