

Table S1: Initial (T_0) and residual (T_{sample}) medium chemistry in paired high-P and low-P media batch experiments with *Coccolithus pelagicus* ssp. *braarudii* (RCC1200) grown at 15°C and ssp. *pelagicus* (J23) grown at 10 and 15°C: phosphate concentrations, total alkalinity, pH, Ψ (CO_2 released/ CaCO_3 precipitated), threshold $\Delta\text{PIC}/\Delta\text{POC}$, and PIC/POC ratio of algal cells. Reported are the averages of triplicate batch cultures.

a) Main experiments:

<i>C. pelagicus</i>	ssp. <i>braarudii</i> (RCC1200)				ssp. <i>pelagicus</i> (J23)							
	high-P 15°C		low-P 15°C		high-P 10°C		low-P 10°C		high-P 15°C		low-P 15°C	
	T_0	T_{sample}	T_0	T_{sample}	T_0	T_{sample}	T_0	T_{sample}	T_0	T_{sample}	T_0	T_{sample}
PO_4^{3-} (μM)	9.6	7.1	1.1	0.0	9.8	9.3	1.2	0.08	9.6	6.4	1.0	0.03
A_T ($\mu\text{mol kg}^{-1}$)	2000	1425	2000	1475	2050	1675	2050	1325	1950	1400	2000	1575
pH, NBS	8.12	7.81	7.98	7.92	8.15	7.84	8.20	7.91	8.18	7.81	7.99	7.95
Ψ	0.69	0.81	0.76	0.77	0.72	0.83	0.69	0.80	0.66	0.81	0.75	0.76
$\Delta\text{PIC}/\Delta\text{POC}$	1.45	1.23	1.32	1.30	1.39	1.20	1.45	1.25	1.52	1.23	1.33	1.32
PIC/POC (algal cell)		1.34		1.18		1.28		1.45		0.54		0.89

b) Additional experiments:

<i>C. pelagicus</i>	ssp. <i>braarudii</i> (RCC1200)				ssp. <i>pelagicus</i> (J23)			
	high-P 15°C		low-P 15°C		high-P 10°C		low-P 10°C	
	T_0	T_{sample}	T_0	T_{sample}	T_0	T_{sample}	T_0	T_{sample}
PO_4^{3-} (μM)	8.0	7.1	1.1	0.06	8.9	7.7	1.1	0.08
A_T ($\mu\text{mol kg}^{-1}$)	2200	1300	2100	1325	2050	1400	2000	1325
pH, NBS	8.15	7.90	8.15	8.06	8.15	7.23	7.91	7.86
Ψ	0.68	0.77	0.68	0.70	0.72	0.95	0.81	0.82
$\Delta\text{PIC}/\Delta\text{POC}$	1.47	1.30	1.47	1.43	1.39	1.05	1.23	1.22
PIC/POC (algal cell)		n/a		n/a		n/a		n/a