

The following supplement accompanies the article

Differing responses of three Southern Ocean *Emiliana huxleyi* ecotypes to changing seawater carbonate chemistry

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Grey shading in Tables S1–S3 highlights values for carbonate chemistry amended after publication (see [Corrigendum](#))

Supplementary Table S1: Carbonate chemistry speciation as the mean of triplicate treatments averaged from the start and end values of the experiments with corresponding standard deviation (\pm SD, $n=3$). C_T = total dissolved inorganic carbon, A_T = total alkalinity, Ω = calcium carbonate saturation state.

Strain EHTB 11.15 - Morphotype A over-calcified							
$p\text{CO}_2$ (μatm)	pH (total scale)	C_T ($\mu\text{mol kg}^{-1}$)	A_T ($\mu\text{mol kg}^{-1}$)	CO_2 ($\mu\text{mol kg}^{-1}$)	HCO_3^- ($\mu\text{mol kg}^{-1}$)	CO_3^{2-} ($\mu\text{mol kg}^{-1}$)	Ω (calcite)
329 \pm 2	8.14 \pm 0	2111 \pm 1	2390 \pm 0	12.6 \pm 0.1	1899 \pm 2	199 \pm 1	4.75 \pm 0.02
419 \pm 6	8.05 \pm 0.01	2184 \pm 2	2419 \pm 6	16.1 \pm 0.2	1995 \pm 0	173 \pm 2	4.11 \pm 0.06
701 \pm 30	7.86 \pm 0.02	2267 \pm 1	2411 \pm 7	27.0 \pm 1.2	2123 \pm 4	117 \pm 5	2.79 \pm 0.11
932 \pm 5	7.74 \pm 0	2300 \pm 0	2399 \pm 1	35.9 \pm 0.2	2172 \pm 0	92 \pm 0	2.19 \pm 0.01
1088 \pm 82	7.69 \pm 0.03	2342 \pm 4	2421 \pm 8	41.9 \pm 3.1	2217 \pm 7	82 \pm 6	1.96 \pm 0.14
1476 \pm 35	7.56 \pm 0.01	2388 \pm 1	2425 \pm 4	56.8 \pm 1.3	2268 \pm 1	63 \pm 2	1.51 \pm 0.04
Strain EHBH 13.26 - Morphotype A over-calcified							
$p\text{CO}_2$ (μatm)	pH (total scale)	C_T ($\mu\text{mol kg}^{-1}$)	A_T ($\mu\text{mol kg}^{-1}$)	CO_2 ($\mu\text{mol kg}^{-1}$)	HCO_3^- ($\mu\text{mol kg}^{-1}$)	CO_3^{2-} ($\mu\text{mol kg}^{-1}$)	Ω (calcite)
305 \pm 6	8.16 \pm 0.01	2093 \pm 2	2386 \pm 4	11.7 \pm 0.2	1872 \pm 4	209 \pm 3	4.98 \pm 0.08
388 \pm 16	8.08 \pm 0.02	2164 \pm 3	2413 \pm 10	14.9 \pm 0.6	1967 \pm 7	182 \pm 7	4.33 \pm 0.16
628 \pm 40	7.90 \pm 0.03	2247 \pm 4	2409 \pm 7	24.2 \pm 1.5	2095 \pm 10	127 \pm 7	3.03 \pm 0.17
838 \pm 30	7.78 \pm 0.01	2279 \pm 3	2394 \pm 3	32.3 \pm 1.2	2147 \pm 5	100 \pm 3	2.38 \pm 0.08
954 \pm 66	7.74 \pm 0.03	2320 \pm 1	2418 \pm 10	36.7 \pm 2.5	2192 \pm 5	92 \pm 6	2.19 \pm 0.15
1344 \pm 46	7.60 \pm 0.01	2369 \pm 4	2419 \pm 4	51.7 \pm 1.8	2249 \pm 4	68 \pm 2	1.63 \pm 0.05
Strain EHSO 5.14 - Morphotype A							
$p\text{CO}_2$ (μatm)	pH (total scale)	C_T ($\mu\text{mol kg}^{-1}$)	A_T ($\mu\text{mol kg}^{-1}$)	CO_2 ($\mu\text{mol kg}^{-1}$)	HCO_3^- ($\mu\text{mol kg}^{-1}$)	CO_3^{2-} ($\mu\text{mol kg}^{-1}$)	Ω (calcite)
300 \pm 4	8.16 \pm 0.00	2055 \pm 2	2343 \pm 0	11.5 \pm 0.1	1838 \pm 4	205 \pm 2	4.87 \pm 0.04
422 \pm 11	8.04 \pm 0.01	2118 \pm 5	2340 \pm 1	16.2 \pm 0.4	1939 \pm 7	162 \pm 3	3.86 \pm 0.07
794 \pm 9	7.80 \pm 0.00	2222 \pm 2	2339 \pm 0	30.5 \pm 0.3	2091 \pm 2	100 \pm 1	2.38 \pm 0.02
1179 \pm 24	7.64 \pm 0.01	2285 \pm 1	2347 \pm 3	45.4 \pm 0.9	2167 \pm 1	72 \pm 1	1.73 \pm 0.03
1527 \pm 99	7.53 \pm 0.03	2306 \pm 0	2333 \pm 9	58.7 \pm 3.8	2190 \pm 0	57 \pm 4	1.36 \pm 0.09
1683 \pm 60	7.49 \pm 0.02	2322 \pm 3	2336 \pm 3	64.7 \pm 2.3	2204 \pm 3	53 \pm 2	1.25 \pm 0.04

Strain EHSO 5.30 - Morphotype A							
$p\text{CO}_2$ (μatm)	pH (total scale)	C_T ($\mu\text{mol kg}^{-1}$)	A_T ($\mu\text{mol kg}^{-1}$)	CO_2 ($\mu\text{mol kg}^{-1}$)	HCO_3 ($\mu\text{mol kg}^{-1}$)	CO_3 ($\mu\text{mol kg}^{-1}$)	Ω (calcite)
296±3	8.17±0.00	2051±3	2342±1	11.4±0.1	1833±4	206±1	4.92±0.03
415±8	8.04±0.01	2114±2	2339±2	16.0±0.3	1934±4	164±2	3.90±0.06
763±14	7.81±0.01	2212±3	2336±2	29.4±0.5	2080±4	103±2	2.45±0.04
1137±14	7.66±0.01	2282±2	2350±1	43.8±0.6	2163±2	75±1	1.78±0.02
1565±17	7.52±0.00	2307±1	2331±2	60.2±0.7	2191±1	56±1	1.33±0.01
1747±32	7.48±0.01	2325±1	2335±2	67.2±1.2	2208±1	51±1	1.21±0.02
Strain EHSO 5.11 - Morphotype B/C							
$p\text{CO}_2$ (μatm)	pH (total scale)	C_T ($\mu\text{mol kg}^{-1}$)	A_T ($\mu\text{mol kg}^{-1}$)	CO_2 ($\mu\text{mol kg}^{-1}$)	HCO_3 ($\mu\text{mol kg}^{-1}$)	CO_3 ($\mu\text{mol kg}^{-1}$)	Ω (calcite)
259±5	8.22±0.01	2058±3	2385±5	10.0±0.2	1816±5	231±3	5.51±0.07
420±14	8.05±0.01	2151±3	2379±6	16.2±0.5	1967±6	167±5	3.99±0.11
675±26	7.87±0.02	2233±4	2379±2	26.0±1.0	2089±7	118±4	2.80±0.09
916±43	7.75±0.02	2281±11	2381±6	35.2±1.6	2154±12	92±3	2.19±0.08
1127±18	7.66±0.01	2306±1	2377±3	43.4±0.7	2186±0	77±1	1.84±0.03
1255±206	7.63±0.07	2331±25	2389±3	48.3±7.9	2210±28	72±11	1.71±0.26
Strain EHSO 8.15 - Morphotype B/C							
$p\text{CO}_2$ (μatm)	pH (total scale)	C_T ($\mu\text{mol kg}^{-1}$)	A_T ($\mu\text{mol kg}^{-1}$)	CO_2 ($\mu\text{mol kg}^{-1}$)	HCO_3 ($\mu\text{mol kg}^{-1}$)	CO_3 ($\mu\text{mol kg}^{-1}$)	Ω (calcite)
244±2	8.24±0.00	2050±3	2391±1	9.4±0.1	1799±4	241±1	5.75±0.02
403±2	8.06±0.00	2148±2	2385±2	15.5±0.1	1959±2	173±0	4.13±0.01
654±6	7.88±0.00	2227±1	2379±1	25.2±0.2	2082±2	120±1	2.87±0.02
817±16	7.79±0.01	2262±4	2379±1	31.5±0.6	2130±5	101±1	2.40±0.04
1059±21	7.69±0.01	2301±2	2380±1	40.7±0.8	2179±2	81±1	1.94±0.03
1306±17	7.61±0.01	2338±1	2390±1	50.2±0.7	2220±1	69±1	1.63±0.02

Supplementary Table S2: *Emiliana huxleyi* cellular quota, production rate and stoichiometry of particulate organic carbon (POC), particulate inorganic carbon (PIC) and particulate organic nitrogen (PON). Values are given as the mean of triplicate treatments (\pm SD, n=3).

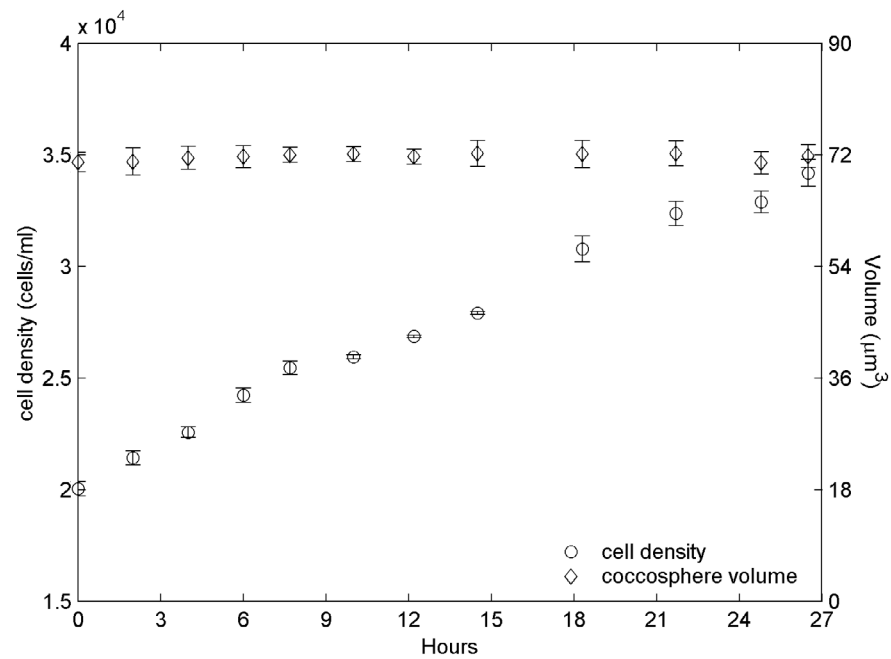
Strain EHTB 11.15 - Morphotype A over-calcified									
$p\text{CO}_2$ (μatm)	growth (d^{-1})	POC (pg cell^{-1})	PIC (pg cell^{-1})	PON (pg cell^{-1})	POC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PON_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC:POC (mol:mol)	POC:PON (mol:mol)
329 \pm 2	0.62 \pm 0.01	7.6 \pm 0.6	8.8 \pm 0.7	2.0 \pm 0.2	4.7 \pm 0.3	5.5 \pm 0.6	1.3 \pm 0.1	1.17 \pm 0.14	4.4 \pm 0.2
419 \pm 6	0.64 \pm 0.02	7.1 \pm 0.2	8.7 \pm 0.8	1.7 \pm 0.1	4.5 \pm 0.1	5.5 \pm 0.4	1.1 \pm 0.1	1.22 \pm 0.09	4.9 \pm 0.3
701 \pm 30	0.61 \pm 0.00	8.2 \pm 0.4	8.0 \pm 0.8	1.9 \pm 0.2	5.0 \pm 0.2	4.9 \pm 0.5	1.1 \pm 0.1	0.98 \pm 0.10	5.1 \pm 0.4
932 \pm 5	0.60 \pm 0.01	9.5 \pm 1.0	8.8 \pm 0.5	2.0 \pm 0.1	5.7 \pm 0.7	5.2 \pm 0.4	1.2 \pm 0.1	0.93 \pm 0.05	5.6 \pm 0.7
1088 \pm 82	0.59 \pm 0.01	12.4 \pm 1.6	9.0 \pm 0.5	2.2 \pm 0.4	7.3 \pm 0.8	5.3 \pm 0.2	1.3 \pm 0.2	0.73 \pm 0.07	6.7 \pm 0.4
1476 \pm 35	0.59 \pm 0.02	8.3 \pm 1.1	6.1 \pm 0.9	2.1 \pm 0.3	4.9 \pm 0.5	3.6 \pm 0.5	1.3 \pm 0.1	0.73 \pm 0.14	4.6 \pm 0.1
Strain EHBH 13.26 - Morphotype A over-calcified									
$p\text{CO}_2$ (μatm)	growth (d^{-1})	POC (pg cell^{-1})	PIC (pg cell^{-1})	PON (pg cell^{-1})	POC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PON_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC:POC (mol:mol)	POC:PON (mol:mol)
305 \pm 6	0.64 \pm 0.01	10.1 \pm 1.5	10.9 \pm 0.5	1.7 \pm 0.1	6.5 \pm 1.0	7.1 \pm 0.3	1.1 \pm 0.0	1.09 \pm 0.12	6.9 \pm 1.0
388 \pm 16	0.66 \pm 0.01	9.6 \pm 1.3	10.9 \pm 0.9	1.7 \pm 0.2	6.3 \pm 0.9	7.2 \pm 0.4	1.1 \pm 0.1	1.15 \pm 0.19	6.6 \pm 1.6
628 \pm 40	0.63 \pm 0.00	13.0 \pm 1.7	11.1 \pm 0.7	2.1 \pm 0.2	8.2 \pm 1.1	7.0 \pm 0.4	1.3 \pm 0.1	0.87 \pm 0.17	7.2 \pm 0.4
838 \pm 30	0.62 \pm 0.01	13.4 \pm 2.1	11.6 \pm 1.1	2.3 \pm 0.3	8.4 \pm 1.3	7.2 \pm 0.8	1.4 \pm 0.2	0.88 \pm 0.20	6.9 \pm 0.5
954 \pm 66	0.62 \pm 0.01	14.6 \pm 1.3	8.9 \pm 1.6	2.3 \pm 0.4	9.1 \pm 0.7	5.5 \pm 1.0	1.4 \pm 0.2	0.61 \pm 0.10	7.5 \pm 0.7
1344 \pm 46	0.62 \pm 0.01	13.0 \pm 2.0	8.2 \pm 1.2	2.3 \pm 0.3	8.1 \pm 1.2	5.1 \pm 0.7	1.4 \pm 0.2	0.63 \pm 0.10	6.6 \pm 1.6
Strain EHSO 5.14 - Morphotype A									
$p\text{CO}_2$ (μatm)	growth (d^{-1})	POC (pg cell^{-1})	PIC (pg cell^{-1})	PON (pg cell^{-1})	POC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PON_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC:POC (mol:mol)	POC:PON (mol:mol)
300 \pm 4	0.45 \pm 0.01	12.6 \pm 0.1	7.6 \pm 0.8	1.6 \pm 0.1	5.7 \pm 0.1	3.5 \pm 0.4	0.7 \pm 0.0	0.61 \pm 0.06	9.2 \pm 0.3
422 \pm 11	0.45 \pm 0.01	14.5 \pm 0.9	10.0 \pm 1.1	1.8 \pm 0.1	6.6 \pm 0.3	4.5 \pm 0.4	0.8 \pm 0.0	0.69 \pm 0.03	9.4 \pm 0.2
794 \pm 9	0.41 \pm 0.00	16.8 \pm 0.8	9.7 \pm 0.7	1.8 \pm 0.2	6.9 \pm 0.3	4.0 \pm 0.3	0.7 \pm 0.1	0.58 \pm 0.03	10.9 \pm 0.8
1179 \pm 24	0.30 \pm 0.00	23.4 \pm 3.1	9.3 \pm 2.6	2.2 \pm 0.1	7.0 \pm 1.0	2.8 \pm 0.8	0.7 \pm 0.0	0.39 \pm 0.06	12.2 \pm 1.6
1527 \pm 99	0.21 \pm 0.00	26.2 \pm 0.0	10.0 \pm 1.3	2.6 \pm 0.2	5.5 \pm 0.0	2.1 \pm 0.3	0.5 \pm 0.0	0.38 \pm 0.05	11.8 \pm 0.8
1683 \pm 60	0.20 \pm 0.01	28.5 \pm 1.8	10.4 \pm 1.4	2.6 \pm 0.1	5.7 \pm 0.2	2.1 \pm 0.2	0.5 \pm 0.0	0.37 \pm 0.05	12.6 \pm 0.7

Strain EHSO 5.30 - Morphotype A									
$p\text{CO}_2$ (μatm)	growth (d^{-1})	POC (pg cell^{-1})	PIC (pg cell^{-1})	PON (pg cell^{-1})	POC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PON_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC:POC (mol:mol)	POC:PON (mol:mol)
296±3	0.48±0.01	10.8±0.7	7.3±0.8	1.5±0.1	5.2±0.3	3.5±0.4	0.7±0.0	0.68±0.09	8.6±0.4
415±8	0.48±0.01	11.5±0.7	9.2±1.2	1.4±0.1	5.5±0.2	4.4±0.5	0.7±0.1	0.80±0.09	9.5±0.7
763±14	0.45±0.00	14.1±0.5	8.2±0.4	1.5±0.1	6.3±0.3	3.7±0.2	0.7±0.1	0.58±0.01	10.7±0.8
1137±14	0.34±0.00	17.4±2.5	6.9±1.8	1.7±0.1	5.9±0.9	2.3±0.6	0.6±0.0	0.39±0.06	11.9±0.9
1565±17	0.23±0.00	20.1±0.3	7.1±1.2	2.0±0.1	4.7±0.1	1.7±0.3	0.5±0.0	0.35±0.06	11.7±0.5
1747±32	0.23±0.00	20.4±1.2	8.0±1.5	1.9±0.1	4.6±0.3	1.8±0.3	0.4±0.0	0.39±0.09	12.4±0.7
Strain EHSO 5.11 - Morphotype B/C									
$p\text{CO}_2$ (μatm)	growth (d^{-1})	POC (pg cell^{-1})	PIC (pg cell^{-1})	PON (pg cell^{-1})	POC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PON_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC:POC (mol:mol)	POC:PON (mol:mol)
259±5	0.26±0.00	7.3±0.2	0.7±0.1	1.2±0.0	1.9±0.0	0.2±0.0	0.3±0.0	0.10±0.01	6.9±0.1
420±14	0.32±0.00	9.6±0.3	2.2±0.3	1.3±0.1	3.1±0.1	0.7±0.1	0.4±0.0	0.23±0.03	8.8±0.1
675±26	0.33±0.00	10.4±0.7	2.5±0.2	1.3±0.1	3.4±0.2	0.8±0.1	0.4±0.0	0.24±0.03	9.5±0.3
916±43	0.27±0.01	8.2±0.3	1.2±0.4	1.2±0.1	2.2±0.1	0.3±0.1	0.3±0.0	0.14±0.05	7.9±0.4
1127±18	0.25±0.00	8.2±0.2	0.5±0.1	1.2±0.0	2.1±0.0	0.1±0.0	0.3±0.0	0.07±0.01	8.2±0.1
1255±206	0.23±0.03	8.5±0.2	0.6±0.2	1.1±0.0	2.0±0.2	0.1±0.1	0.3±0.0	0.07±0.02	9.1±0.4
Strain EHSO 8.15 - Morphotype B/C									
$p\text{CO}_2$ (μatm)	growth (d^{-1})	POC (pg cell^{-1})	PIC (pg cell^{-1})	PON (pg cell^{-1})	POC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PON_{prod} ($\text{pg cell}^{-1}\text{d}^{-1}$)	PIC:POC (mol:mol)	POC:PON (mol:mol)
244±2	0.29±0.00	6.6±0.4	0.8±0.1	1.0±0.1	1.9±0.1	0.2±0.0	0.3±0.0	0.12±0.02	8.0±0.1
403±2	0.34±0.00	9.3±0.5	2.7±0.1	1.2±0.0	3.1±0.2	0.9±0.0	0.4±0.0	0.29±0.03	9.0±0.3
654±6	0.33±0.00	12.4±0.1	2.7±0.1	1.5±0.1	4.1±0.0	0.9±0.0	0.5±0.0	0.21±0.01	9.8±0.6
817±16	0.24±0.00	7.6±0.5	1.5±0.2	0.9±0.0	1.8±0.1	0.4±0.0	0.2±0.0	0.20±0.03	9.7±0.4
1059±21	0.22±0.00	7.0±0.1	0.5±0.1	0.8±0.0	1.6±0.0	0.1±0.0	0.2±0.0	0.08±0.01	10.5±0.4
1306±17	0.20±0.00	6.5±0.6	-	0.7±0.0	1.3±0.1	-	0.1±0.0	-	10.4±1.0

Supplementary Table S3: Cellular geometry of all *E. huxleyi* strains. Values are given as the mean of triplicate treatments with according standard deviation (\pm SD, n=3).

Strain EHTB 11.15 - Morphotype A over-calcified				
$p\text{CO}_2$ (μatm)	Sphere volume (μm^3)	Cell volume (μm^3)	Sphere diameter (μm)	Cell diameter (μm)
329 \pm 2	52.5 \pm 0.5	33.8 \pm 1.1	4.64 \pm 0.02	4.01 \pm 0.04
419 \pm 6	53.5 \pm 2.5	32.9 \pm 1.1	4.67 \pm 0.07	3.97 \pm 0.04
701 \pm 30	52.0 \pm 2.0	31.6 \pm 1.7	4.63 \pm 0.06	3.92 \pm 0.07
932 \pm 5	53.3 \pm 0.9	32.0 \pm 0.4	4.67 \pm 0.03	3.94 \pm 0.02
1088 \pm 82	51.6 \pm 1.1	32.0 \pm 0.8	4.62 \pm 0.03	3.94 \pm 0.03
1476 \pm 35	53.5 \pm 1.3	34.1 \pm 1.2	4.68 \pm 0.04	4.02 \pm 0.05
Strain EHBH 13.26 - Morphotype A over-calcified				
$p\text{CO}_2$ (μatm)	Sphere volume (μm^3)	Cell volume (μm^3)	Sphere diameter (μm)	Cell diameter (μm)
305 \pm 6	52.2 \pm 0.4	32.9 \pm 0.1	4.64 \pm 0.01	3.97 \pm 0.00
388 \pm 16	52.9 \pm 0.8	32.7 \pm 0.5	4.66 \pm 0.02	3.97 \pm 0.02
628 \pm 40	52.3 \pm 0.6	32.5 \pm 0.4	4.64 \pm 0.02	3.96 \pm 0.02
838 \pm 30	52.5 \pm 0.6	32.3 \pm 0.9	4.65 \pm 0.02	3.95 \pm 0.04
954 \pm 66	52.1 \pm 0.2	32.1 \pm 0.5	4.63 \pm 0.01	3.94 \pm 0.02
1344 \pm 46	52.8 \pm 0.4	32.1 \pm 0.5	4.65 \pm 0.01	3.94 \pm 0.02
Strain EHSO 5.14 - Morphotype A				
$p\text{CO}_2$ (μatm)	Sphere volume (μm^3)	Cell volume (μm^3)	Sphere diameter (μm)	Cell diameter (μm)
300 \pm 4	63.5 \pm 0.5	44.1 \pm 0.4	4.95 \pm 0.01	4.38 \pm 0.01
422 \pm 11	71.2 \pm 2.4	49.4 \pm 1.3	5.14 \pm 0.06	4.55 \pm 0.04
794 \pm 9	79.4 \pm 1.4	56.6 \pm 1.0	5.33 \pm 0.03	4.76 \pm 0.03
1179 \pm 24	78.7 \pm 0.5	60.0 \pm 0.3	5.32 \pm 0.01	4.86 \pm 0.01
1527 \pm 99	77.5 \pm 1.5	62.1 \pm 1.8	5.29 \pm 0.03	4.91 \pm 0.05
1683 \pm 60	78.4 \pm 2.8	68.4 \pm 0.9	5.31 \pm 0.06	5.07 \pm 0.02

Strain EHSO 5.30 - Morphotype A				
$p\text{CO}_2$ (μatm)	Sphere volume (μm^3)	Cell volume (μm^3)	Sphere diameter (μm)	Cell diameter (μm)
296±3	62.9±0.7	43.4±0.6	4.93±0.02	4.36±0.02
415±8	70.6±2.7	48.8±1.1	5.13±0.06	4.53±0.03
763±14	78.8±1.5	55.8±1.1	5.32±0.03	4.74±0.03
1137±14	78.1±0.7	59.4±0.2	5.30±0.02	4.84±0.01
1565±17	76.6±1.5	61.4±2.1	5.27±0.03	4.89±0.05
1747±32	77.6±2.7	67.7±1.1	5.29±0.06	5.06±0.03
Strain EHSO 5.11 - Morphotype B/C				
$p\text{CO}_2$ (μatm)	Sphere volume (μm^3)	Cell volume (μm^3)	Sphere diameter (μm)	Cell diameter (μm)
259±5	38.0±0.3	34.2±0.9	4.17±0.01	4.03±0.04
420±14	49.0±1.6	42.6±1.8	4.54±0.05	4.33±0.06
675±26	54.6±2.9	47.7±3.3	4.71±0.08	4.50±0.10
916±43	39.6±0.1	38.6±0.5	4.23±0.00	4.19±0.02
1127±18	37.7±0.3	37.4±0.2	4.16±0.01	4.15±0.01
1255±206	39.1±1.0	38.8±1.0	4.21±0.04	4.20±0.04
Strain EHSO 8.15 - Morphotype B/C				
$p\text{CO}_2$ (μatm)	Sphere volume (μm^3)	Cell volume (μm^3)	Sphere diameter (μm)	Cell diameter (μm)
244±2	38.6±1.0	34.7±0.4	4.19±0.03	4.05±0.01
403±2	48.6±0.9	43.5±0.9	4.53±0.03	4.36±0.03
654±6	55.2±1.0	48.5±0.8	4.73±0.03	4.52±0.03
817±16	40.5±0.2	38.2±0.5	4.26±0.01	4.18±0.02
1059±21	37.8±0.3	37.3±0.0	4.16±0.01	4.14±0.00
1306±17	36.7±1.1	36.2±1.0	4.12±0.04	4.10±0.04



Supplementary Fig. S1: Evolution of *E. huxleyi* (morphotype A, strain EHSO 5.14) cell density and coccosphere volume over time when cultured with a desynchronized cellular division cycle (triggered by continuous light). While cell density constantly increases over 24 hours, the coccosphere volume (cellular volume) stays constant.