

The following supplement accompanies the article

## Sensitivity of *Trichodesmium erythraeum* and *Crocospaera watsonii* abundance and N<sub>2</sub> fixation rates to varying NO<sub>3</sub><sup>-</sup> and PO<sub>4</sub><sup>3-</sup> concentrations in batch cultures

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**Supplement.** The supplement includes in table form the data presented in many of the figures in the main text, including N<sub>2</sub> fixation rates, biomass chl a, C, N, and P content, and biomass C:N:P ratios. Specifically, Table S1 includes the N<sub>2</sub> fixation rate data shown in Fig. 2, Table S2 includes the biomass chl a, C, N, and P content data shown in Fig. 3, Table S3 includes the exponential phase biomass C:N:P ratio data shown in Fig. 4, and the stationary phase biomass C:N:P ratio data in Table S4 are shown in Fig. 5 in the main text

Table S1. Triplicate average ( $\pm 1$  SD) exponential phase N<sub>2</sub> fixation rates of *Trichodesmium erythraeum* and *Crocospaera watsonii* grown in varying N and P treatments, normalized per trichome and cell, per chlorophyll *a* (chl *a*), and per C

	NO <sub>3</sub> <sup>-</sup> :PO <sub>4</sub> <sup>3-</sup> treatment ( $\mu$ M)			
	0:0.5	5:1	8:0.5	16:1
<i>T. erythraeum</i>				
pmol N trichome <sup>-1</sup> h <sup>-1</sup>	1.4 $\pm$ 0.4	0.4 $\pm$ 0.1	0.1 $\pm$ 0.03	0.2 $\pm$ 0.02
nmol N $\mu$ g chl <i>a</i> <sup>-1</sup> h <sup>-1</sup>	18.6 $\pm$ 4.6	9.4 $\pm$ 1.8	10.0 $\pm$ 6.9	3.8 $\pm$ 0.7
pmol N $\mu$ g C <sup>-1</sup> h <sup>-1</sup>		81.4 $\pm$ 30.0	44.7 $\pm$ 34.6	31.5 $\pm$ 6.0
<i>C. watsonii</i>				
fmol N cell <sup>-1</sup> h <sup>-1</sup>	0.14 $\pm$ 0.09	0.03 $\pm$ 0.02	0.03 $\pm$ 0.01	0.04 $\pm$ 0.01
nmol N $\mu$ g chl <i>a</i> <sup>-1</sup> h <sup>-1</sup>	0.5 $\pm$ 0.3	0.1 $\pm$ 0.1	0.1 $\pm$ 0.03	0.2 $\pm$ 0.1
pmol N $\mu$ g C <sup>-1</sup> h <sup>-1</sup>	53.0 $\pm$ 22.9	15.5 $\pm$ 11.0	11.6 $\pm$ 1.0	23.3 $\pm$ 11.0

Table S2. Average ( $\pm 1$  SD) of triplicate exponential phase biomass content of chl *a*, C, N, and P for *Trichodesmium erythraeum* and *Crocospaera watsonii* cultures

	NO <sub>3</sub> <sup>-</sup> :PO <sub>4</sub> <sup>3-</sup> treatment ( $\mu$ M)			
	0:0.5	5:1	8:0.5	16:1
<i>T. erythraeum</i>				
ng chl <i>a</i> trichome <sup>-1</sup>	45.1 $\pm$ 14.5	41.3 $\pm$ 16.3	5.0 $\pm$ 8.6	55.9 $\pm$ 6.7
pmol C trichome <sup>-1</sup>		424.1 $\pm$ 223.2	409.9 $\pm$ 215.2	564.8 $\pm$ 75.8
pmol N trichome <sup>-1</sup>		65.5 $\pm$ 17.4	76.6 $\pm$ 17.2	92.7 $\pm$ 11.8
pmol P trichome <sup>-1</sup>		2.0 $\pm$ 0.9	2.0 $\pm$ 1.5	2.7 $\pm$ 0.6
<i>C. watsonii</i>				
pg chl <i>a</i> cell <sup>-1</sup>	0.28 $\pm$ 0.03	0.31 $\pm$ 0.04	0.25 $\pm$ 0.03	0.23 $\pm$ 0.04
pmol C cell <sup>-1</sup>	0.22 $\pm$ 0.08	0.18 $\pm$ 0.04	0.23 $\pm$ 0.08	0.16 $\pm$ 0.04
fmol N cell <sup>-1</sup>	36 $\pm$ 15	34 $\pm$ 8	35 $\pm$ 9	34 $\pm$ 6
fmol P cell <sup>-1</sup>	1.1 $\pm$ 0.04	0.98 $\pm$ 0.3	0.90 $\pm$ 0.3	0.91 $\pm$ 0.2

Table S3. Triplicate average ( $\pm 1$  SD) biomass mol:mol ratios of C:N, N:P, and C:P for exponential-phase *Trichodesmium erythraeum* and *Crocospaera watsonii* cultures

	NO <sub>3</sub> <sup>-</sup> :PO <sub>4</sub> <sup>3-</sup> treatment ( $\mu$ M)			
	0:0.5	5:1	8:0.5	16:1
<i>T. erythraeum</i>				
C:N		6.2 $\pm$ 1.6	5.1 $\pm$ 2.0	6.1 $\pm$ 0.8
N:P		34.7 $\pm$ 6.2	49.5 $\pm$ 27.5	34.5 $\pm$ 3.9
C:P		209.4 $\pm$ 19.0	234.2 $\pm$ 132.4	211.4 $\pm$ 35.6
<i>C. watsonii</i>				
C:N	6.1 $\pm$ 0.2	5.3 $\pm$ 0.02	6.6 $\pm$ 0.6	4.8 $\pm$ 0.3
N:P	31.4 $\pm$ 12.2	34.8 $\pm$ 3.7	39.5 $\pm$ 7.4	39.2 $\pm$ 13.2
C:P	188.5 $\pm$ 69.4	183.1 $\pm$ 19.6	260.3 $\pm$ 43.2	190.9 $\pm$ 71.9

Table S4. Triplicate average ( $\pm 1$  SD) biomass mol:mol ratios of C:N, N:P, and C:P for stationary-phase *Trichodesmium erythraeum* and *Crocospaera watsonii* cultures

	NO <sub>3</sub> <sup>-</sup> :PO <sub>4</sub> <sup>3-</sup> treatment ( $\mu$ M)			
	0:0.5	5:1	8:0.5	16:1
<i>T. erythraeum</i>				
C:N		5.3 $\pm$ 0.7	7.0 $\pm$ 2.0	6.3 $\pm$ 1.4
N:P		114.0 $\pm$ 13.1	99.8 $\pm$ 27.4	127.7 $\pm$ 10.2
C:P		602.4 $\pm$ 22.1	731.3 $\pm$ 370.0	790.3 $\pm$ 118.8
<i>C. watsonii</i>				
C:N	6.0 $\pm$ 0.2	6.2 $\pm$ 0.4	7.5 $\pm$ 0.5	7.3 $\pm$ 0.7
N:P	62.0 $\pm$ 4.3	46.7 $\pm$ 9.7	58.9 $\pm$ 32.8	38.2 $\pm$ 23.5
C:P	373.0 $\pm$ 34.7	290.3 $\pm$ 69.9	433.6 $\pm$ 213.2	270.3 $\pm$ 153.7