

Supplementary material

## The effect of elevated CO<sub>2</sub> on autotrophic picoplankton abundance and production in a eutrophic lake (Lake Taihu, China)

Shengnan Li<sup>A,B</sup>, Jian Zhou<sup>A,B</sup>, Lijun Wei<sup>A,B</sup>, Fanxiang Kong<sup>A</sup> and Xiaoli Shi<sup>A,C</sup>

<sup>A</sup>State Key Laboratory of Lake Science and Environment, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, Nanjing 210008, China.

<sup>B</sup>University of Chinese Academy of Sciences, Beijing 100049, China.

<sup>C</sup>Corresponding author. Email: xlshi@niglas.ac.cn

**Table S1. Concentrations of various nutrients in different treatments and adjacent lake waters over different seasons**

Season	CO <sub>2</sub> (ppm)	NH <sub>4</sub> <sup>+</sup> (mg L <sup>-1</sup> )	NO <sub>3</sub> <sup>-</sup> (mg L <sup>-1</sup> )	PO <sub>4</sub> <sup>3-</sup> (mg L <sup>-1</sup> )
Spring	Adjacent lake	0.23 ± 0.09	1.41 ± 0.53	0.011 ± 0.004
	270	0.27 ± 0.08	1.23 ± 0.32	0.008 ± 0.004
	380	0.27 ± 0.10	1.33 ± 0.27	0.008 ± 0.004
	750	0.25 ± 0.08	1.29 ± 0.30	0.007 ± 0.003
Summer	Adjacent lake	0.27 ± 0.05	0.12 ± 0.03	0.017 ± 0.003
	270	0.28 ± 0.07	0.12 ± 0.06	0.019 ± 0.004
	380	0.27 ± 0.07	0.11 ± 0.03	0.018 ± 0.002
	750	0.29 ± 0.09	0.12 ± 0.04	0.017 ± 0.002
Autumn	Adjacent lake	0.28 ± 0.06	0.21 ± 0.04	0.045 ± 0.009
	270	0.29 ± 0.09	0.22 ± 0.03	0.047 ± 0.021
	380	0.31 ± 0.04	0.24 ± 0.04	0.044 ± 0.022
	750	0.33 ± 0.06	0.21 ± 0.05	0.049 ± 0.021
Winter	Adjacent lake	0.56 ± 0.06	0.93 ± 0.05	0.223 ± 0.023
	270	0.73 ± 0.07	0.99 ± 0.03	0.213 ± 0.066
	380	0.73 ± 0.06	0.90 ± 0.06	0.225 ± 0.070
	750	0.69 ± 0.10	0.93 ± 0.05	0.216 ± 0.065

**Table S2. List of days at which picophytoplanktonic abundances were significantly ( $P < 0.05$ ) different among treatment groups**

Population	Season	Between 750 ppm and 270 ppm CO <sub>2</sub>	Between 750 ppm and 380 ppm CO <sub>2</sub>	Between 270 ppm and 380 ppm CO <sub>2</sub>
Picoeukaryotes	Spring	5,15,25,35,45	5,25,35,45	15,25,
	Summer	3,12,18	18	–
	Autumn	9,12,15,18	9,12	18
	Winter	–	–	–
Picocyanobacteria	Spring	35,45	35,45	–
	Summer	9,18	18	9
	Autumn	3,15	–	15
	Winter	–	–	–