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Supplement of

Ocean acidification impacts bacteria–phytoplankton coupling at low-nutrient conditions

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Supplementary

Table S1: Summary of I) Physical/chemical predictor variables and A) metabolic variables and C) abundances of functional bacterial and phytoplankton groups used for distance-based modelling (DistLM) and II) A) Chemical, B) metabolic and C) abundances of functional bacterial and phytoplankton groups used for permutational multivariate analysis of variance (PERMANOVA). Fugacity of CO_2 (fCO_2), temperature (Temp), photosynthetically active radiation (PAR), dissolved organic carbon (DOC), total dissolved nitrogen (TDN), dissolved silica (DSi), total particulate carbon (TPC), particulate organic phosphorus (POP), particulate biogenic silica (BSi), bacterial protein production (BPP), areal primary production (PP), community respiration (CR), chlorophyll *a* (Chl *a*), particle-associated (PA) prokaryotes; flow-cytometric determined: low SYBR green I fluorescent prokaryotes (LDNA), high SYBR green I fluorescent prokaryotes (HDNA), *Synechococcus* spp. (SYN), picophytoplankton I-III (Pico I-III), naophytoplankton I-II (Nano I-II)

I)	A)	predictor variables:	fCO_2, Temp, PAR, DOC, TDN, Phosphate, DSi, TPC, POP, BSi
		metabolic variables:	BPP, PP, CR
	B)	predictor variables:	fCO_2, Temp, PAR, DOC, TDN, Phosphate, DSi, TPC, POP, BSi
		functional groups:	LDNA, HDNA, PA prokaryotes, SYN, Pico I, Pico II, Pico III, Nano I, Nano II, Chl *a*
II)	A)	chemical variables:	DOC, TDN, Phosphate, DSi, TPC, TPN, POP, BSi
	B)	metabolic variables:	BPP, PP, CR
	C)	functional groups:	LDNA, HDNA, SYN, Pico I, Pico II, Pico III, Nano I, Nano II, Chl *a*

Chl *a* BV_{Nano} BV_{Pico} $FL\ BV_{HP}$ $PA\ BV_{HP}$

re

L. %

100
75
50
25
0

365 µatm
368 µatm
497 µatm
821 µatm
1007 µatm
1231 µatm

−3 0 5 10 15 20 25 30 35 40

Day of experiment

Figure S1. Concentration of Chl *a*, biovolumes of picophotoautotrophs (BV_{Pico}; sum of *Synechococcus* spp. and Pico I-III) and nanophotoautotrophs (BV_{Nano}; sum of Nano I and II) as well as biovolumes of free-living (FL BV_{HP}) and particle-associated (PA BV_{HP}) heterotrophic prokaryotes during the course of the experiment in the respective mesocosms labelled with the average fCO_2 [µatm] between t1-t43. Biovolumes are standardized to the highest observed value for each parameter and expressed as relative percentage.

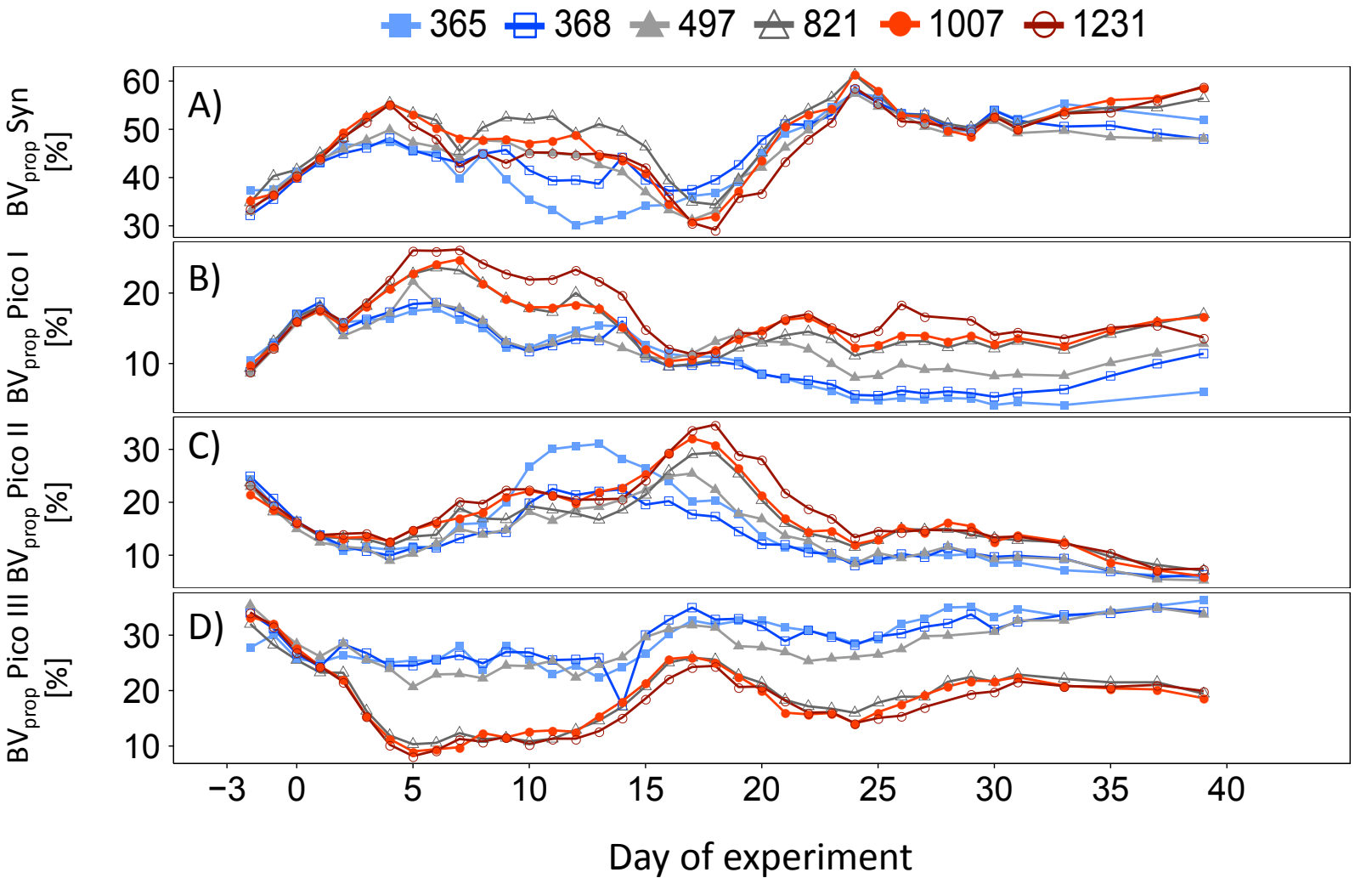
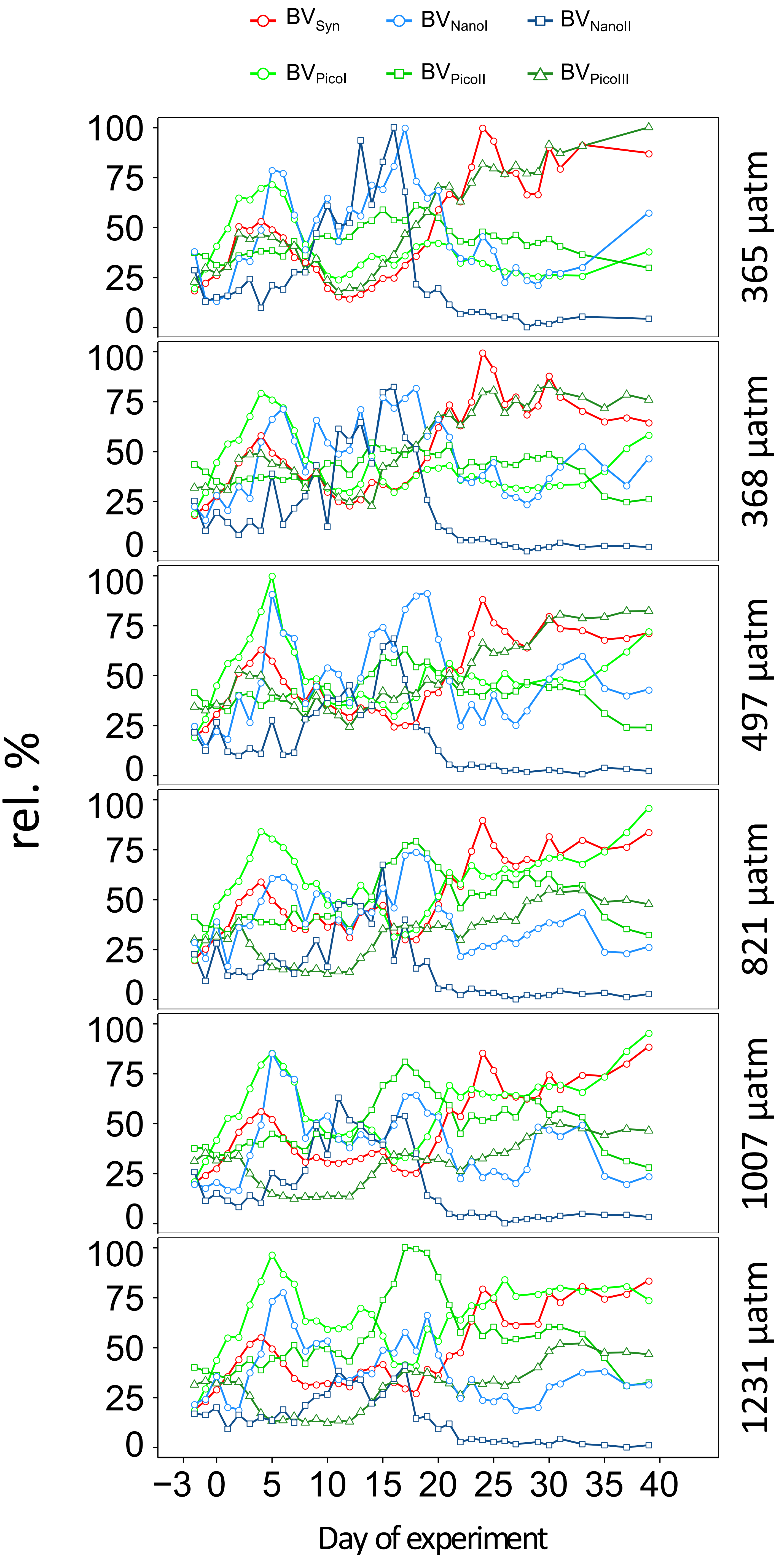

365
368
497
821
1007
1231
A)
B)
C)
D)
BVprop Syn [%]
BVprop Pico I [%]
BVprop Pico II [%]
BVprop Pico III [%]
60
50
40
30
20
10
30
20
10
30
20
10
−3
0
5
10
15
20
25
30
35
40
Day of experiment

Figure S2. Relative biovolume (BV) contribution of A) BV of *Synechococcus* spp. [x10^5 µm^3 ml^{-1}] and B-D) BV of picoeukaryote groups I-III (Pico I-III) [x10^5 µm^3 ml^{-1}] to total BV of picophotoautotrophs (sum of *Synechococcus* spp. and Pico I-III) revealed by flow-cytometry during the course of the experiment. Colours and symbols indicate average fCO_2 [µatm] between t1-t43.



BVSyn
BVNanoI
BVNanoII
BVPicoI
BVPicoII
BVPicoIII
rel. %
365 µatm
368 µatm
497 µatm
821 µatm
1007 µatm
1231 µatm
100
75
50
25
0
−3 0 5 10 15 20 25 30 35 40
Day of experiment

Figure S3. Biovolumes of *Synechococcus* spp., picoeukaryote groups I-III and nanophytoplankton groups I-II during the course of the experiment in the respective mesocosms labelled with the average fCO_2 [µatm] between t1-t43. Biovolumes are standardized to the highest observed value for each organism group and expressed as relative percentage.