Table S3. Spearman Rank Order Correlations on the A area dataset. Marked correlations are significant at a $p < 0.05$

	Physico-chemical and trophic variables													**Microbial abundance data**															**Microbial metabolism**					
	T	S	DO	Fl	NH_4	NO_2 +	PO_4	DOC	*Sl*	SUVA	TSM	POC	PN	PA^C	HNA	LNA	Pico	Nano	Vol	TPP	PB	% Live	% Dead	%CTC	alphaP	betaP	gamma	deltaP	epsilon	FB	CCS	CH	PC	CA	AA	AM
T	1.00	**-0.85**	**0.63**	**0.79**	0.00	**-0.67**	**-0.73**	0.17	0.21	0.22	**0.46**	**0.75**	**0.79**	**0.64**	**0.64**	**0.68**	**0.53**	**0.53**	0.29	**0.83**	**0.79**	0.14	-0.14	-0.37	**0.63**	0.45	-0.32	**-0.64**	-0.42	-0.26	0.07	-0.16	-0.01	-0.39	-0.22	-0.12
S		1.00	**-0.49**	**-0.84**	0.01	**0.67**	**0.75**	-0.19	-0.25	-0.09	**-0.40**	**-0.77**	**-0.79**	**-0.62**	**-0.62**	**-0.64**	-0.30	-0.23	**-0.26**	**-0.80**	**-0.77**	-0.23	0.23	0.31	-0.43	**-0.62**	0.35	**0.72**	0.15	0.20	-0.06	0.08	-0.09	0.40	0.10	0.15
DO			1.00	**0.54**	-0.11	**-0.70**	**-0.64**	0.12	0.03	0.08	0.14	**0.61**	**0.73**	**0.49**	**0.47**	**0.58**	**0.57**	**0.66**	**0.34**	**0.61**	**0.63**	0.06	-0.06	-0.09	**0.49**	**0.58**	**-0.61**	**-0.77**	-0.08	0.13	-0.18	-0.01	-0.01	-0.13	-0.12	-0.19
Fl				1.00	0.02	**-0.67**	**-0.70**	0.07	0.15	0.37	**0.42**	**0.78**	**0.82**	**0.71**	**0.71**	**0.71**	0.27	0.32	0.24	**0.82**	**0.80**	0.02	-0.02	-0.11	0.38	0.45	-0.12	-0.41	-0.41	-0.16	-0.07	0.01	0.14	-0.21	-0.10	-0.35
NH_4					1.00	0.19	0.14	0.05	-0.05	0.10	-0.18	-0.21	-0.31	-0.01	-0.03	0.00	0.00	-0.07	-0.04	-0.07	-0.05	0.02	-0.02	-0.08	0.06	0.00	-0.10	-0.15	-0.09	-0.05	-0.37	0.14	0.02	0.30	0.15	0.04
Nox						1.00	**0.89**	0.08	-0.26	-0.13	-0.34	**-0.76**	**-0.86**	**-0.48**	**-0.45**	**-0.58**	**-0.48**	**-0.40**	-0.26	**-0.62**	**-0.61**	-0.10	0.10	0.08	**-0.71**	**-0.62**	0.35	**0.70**	0.24	0.32	0.04	0.18	-0.11	**0.54**	0.29	0.08
PO_4							1.00	0.02	-0.14	-0.14	-0.30	**-0.72**	**-0.80**	**-0.49**	**-0.48**	**-0.57**	-0.25	-0.22	**-0.38**	**-0.69**	**-0.69**	-0.02	0.02	0.13	**-0.65**	**-0.49**	0.34	**0.64**	0.36	0.22	0.17	0.18	-0.10	**0.49**	0.29	0.17
DOC								1.00	-0.21	-0.26	**0.43**	0.10	-0.01	0.08	0.11	0.09	0.08	0.25	0.22	0.20	0.21	0.14	-0.14	**-0.41**	0.02	0.60	-0.46	-0.30	-0.36	0.13	-0.01	0.00	-0.19	-0.03	0.08	-0.13
Sl									1.00	-0.20	0.00	0.12	0.27	0.08	0.06	0.10	0.28	0.12	-0.18	0.18	0.06	0.08	-0.08	0.12	0.09	0.04	0.06	0.00	0.10	-0.33	-0.13	-0.08	-0.15	-0.39	-0.11	-0.08
SUVA										1.00	0.14	0.08	0.05	0.36	0.36	0.33	-0.24	-0.30	-0.03	0.37	0.41	-0.29	0.29	-0.15	-0.31	0.06	0.46	0.10	-0.51	0.13	0.06	0.12	0.02	0.05	-0.08	-0.18
TSM											1.00	**0.53**	0.33	0.40	**0.43**	0.38	-0.10	0.04	0.20	**0.47**	**0.52**	0.03	-0.03	-0.23	0.44	0.15	-0.25	-0.26	-0.40	-0.48	0.23	0.15	0.11	-0.26	0.17	0.19
POC												1.00	**0.90**	**0.79**	**0.79**	**0.81**	**0.75**	**0.68**	0.15	**0.80**	**0.78**	0.04	-0.04	-0.12	**0.64**	0.09	-0.45	-0.43	-0.39	-0.39	0.08	0.00	0.11	-0.19	-0.12	-0.10
PN													1.00	**0.69**	**0.69**	**0.74**	**0.84**	**0.76**	0.04	**0.73**	**0.68**	0.14	-0.14	0.06	**0.77**	0.05	-0.45	-0.52	-0.42	-0.40	-0.04	-0.17	-0.01	-0.30	-0.29	-0.23
PA^C														1.00	**0.99**	**0.96**	**0.58**	**0.64**	0.21	**0.87**	**0.86**	-0.25	0.25	-0.15	0.30	**0.48**	-0.32	-0.41	**-0.55**	0.03	-0.04	0.00	0.08	-0.25	-0.17	-0.29
HNA															1.00	**0.93**	**0.56**	**0.61**	0.22	**0.87**	**0.87**	-0.27	0.27	-0.05	0.28	0.46	-0.28	-0.37	**-0.54**	0.02	0.00	0.02	0.09	-0.23	-0.13	-0.26
LNA																1.00	**0.66**	**0.70**	0.21	**0.84**	**0.83**	-0.12	0.12	-0.28	0.32	**0.54**	-0.33	-0.42	**-0.58**	-0.01	-0.05	-0.10	0.00	-0.29	-0.30	-0.23
Pico																	1.00	**0.94**	0.22	0.34	**0.41**	0.10	-0.10	-0.32	0.27	0.47	-0.43	-0.28	0.07	0.03	-0.17	-0.54	-0.32	-0.28	-0.39	0.04
Nano																		1.00	0.15	0.37	**0.41**	0.00	0.00	-0.11	0.37	-0.05	-0.50	-0.33	-0.27	0.22	-0.10	-0.32	-0.23	-0.26	-0.11	0.04
Vol																			1.00	**0.30**	**0.54**	0.01	-0.01	-0.31	0.21	**0.48**	-0.21	-0.26	-0.02	-0.26	-0.22	-0.24	-0.11	-0.09	-0.24	-0.03
TPP																				1.00	**0.95**	-0.17	0.17	-0.21	0.41	**0.56**	-0.28	**-0.51**	**-0.61**	-0.07	-0.06	0.05	0.07	-0.28	-0.09	-0.30
PB																					1.00	-0.17	0.17	-0.28	0.38	**0.54**	-0.25	**-0.48**	**-0.56**	-0.07	-0.16	-0.07	0.02	-0.29	-0.20	-0.40
% Live																						1.00	**-1.00**	0.02	-0.14	0.12	0.24	0.00	0.20	-0.40	0.20	-0.29	-0.12	0.03	-0.07	0.33
% Dead																							1.00	-0.02	0.14	-0.12	-0.24	0.00	-0.20	0.40	-0.20	0.29	0.12	-0.03	0.07	-0.33
%CTC																								1.00	-0.26	-0.53	-0.04	0.33	-0.13	**0.65**	0.10	0.26	0.19	0.40	0.37	0.34
alphaP																									1.00	0.37	**-0.49**	**-0.70**	0.01	**-0.46**	-0.15	-0.30	-0.09	-0.41	-0.38	-0.02
betaP																										1.00	-0.31	**-0.59**	-0.34	-0.22	0.07	0.20	-0.02	0.00	0.00	-0.02
gammaP																											1.00	0.49	-0.08	-0.32	-0.17	0.12	0.12	-0.15	0.05	-0.21
deltaP																												1.00	-0.04	0.20	0.07	0.06	0.26	0.28	0.12	0.03
epsilonP																													1.00	-0.08	0.10	-0.36	-0.23	0.03	-0.17	0.29
FB																														1.00	-0.08	0.21	-0.10	0.45	0.23	0.05
CCS																															1.00	**0.50**	**0.65**	0.22	**0.62**	**0.69**
CH																																1.00	**0.66**	**0.48**	**0.85**	**0.55**
PC																																	1.00	0.39	**0.72**	**0.56**
CA																																		1.00	0.41	0.32
AA																																			1.00	**0.61**
AM																																				1.00

alphaP = alphaproteobacteria; betaP = betaproteobacteria; gammaP = gammaproteobacteria; deltaP = deltaproteobacteria;epsilonP = epsilonproteobacteria; CCS = complex carbon source; CH = carbohydrates; PC = phosphate – carbon; CA = carboxylic acid; AA = aminoacids; AM = amines. For the other acronyms, see explanations in the "Material and methods" section.

Table S3 (follows). Spearman Rank Order Correlations on the C area dataset. Marked correlations are significant at a $p < 0.05$

	Physico-chemical and trophic variables													Microbial abundance data											Microbial metabolism					
	T	S	DO	Fl	NH_4	$NO_2 + NO_3$	PO_4	DOC	*Sl*	SUVA	TSM	POC	PN	PA^C	HNA	LNA	Pico	Nano	Vol	TPP	PB	% Live	% Dead	% CTC	CCS	CH	PC	CA	AA	AM
T	1.00	**0.31**	**-0.71**	**-0.52**	0.15	0.20	**0.43**	-0.34	-0.34	0.30	-0.13	-0.37	-0.37	**-0.57**	**-0.53**	**-0.61**	**-0.46**	-0.06	**-0.31**	**-0.45**	**-0.48**	-0.03	0.03	-0.15	0.23	0.28	-0.14	-0.11	0.10	-0.13
S		1.00	**-0.72**	**-0.76**	-0.10	**0.42**	**0.48**	0.32	-0.26	**-0.55**	**-0.58**	**-0.69**	**-0.68**	**-0.75**	**-0.73**	**-0.73**	**-0.83**	0.00	-0.27	**-0.78**	**-0.73**	0.06	-0.06	-0.07	**-0.33**	**-0.50**	**-0.41**	**-0.46**	**-0.43**	-0.13
DO			1.00	**0.80**	-0.12	**-0.33**	**-0.53**	-0.12	**0.53**	0.27	**0.61**	**0.84**	**0.85**	**0.78**	**0.76**	**0.81**	**0.49**	**0.66**	**0.48**	**0.74**	**0.76**	-0.04	0.04	-0.06	0.16	0.16	**0.46**	**0.49**	0.25	0.20
Fl				1.00	-0.07	**-0.41**	**-0.58**	-0.06	**0.48**	**0.37**	**0.81**	**0.83**	**0.87**	**0.86**	**0.88**	**0.83**	0.09	**0.87**	**0.40**	**0.84**	**0.82**	0.02	-0.02	-0.08	0.37	0.33	**0.47**	**0.55**	**0.40**	0.19
NH_4					1.00	0.16	-0.18	-0.25	-0.15	0.15	-0.26	-0.19	-0.19	-0.03	-0.09	-0.03	-0.14	-0.21	-0.02	0.03	-0.02	-0.14	0.14	-0.12	-0.22	0.06	-0.34	**-0.37**	-0.14	-0.32
$NO_2 + NO_3$						1.00	**0.69**	-0.15	**-0.37**	-0.06	**-0.47**	-0.35	-0.34	**-0.33**	**-0.34**	**-0.28**	-0.13	-0.22	0.11	-0.26	-0.22	-0.01	0.01	0.15	0.27	0.12	0.17	0.00	0.01	0.21
PO_4							1.00	-0.19	-0.36	-0.24	**-0.53**	**-0.51**	**-0.43**	**-0.56**	**-0.57**	**-0.51**	-0.14	**-0.51**	-0.27	**-0.51**	**-0.48**	0.10	-0.10	0.11	0.29	0.00	0.06	-0.01	-0.03	0.17
DOC								1.00	-0.04	-0.22	0.09	0.13	0.10	-0.01	0.02	0.00	-0.24	0.40	**-0.53**	-0.27	**-0.37**	0.07	-0.07	-0.03	-0.28	-0.07	-0.14	-0.11	0.09	0.04
Sl									1.00	0.05	0.40	**0.48**	**0.48**	**0.47**	**0.49**	**0.44**	-0.54	0.34	0.17	0.30	0.31	-0.19	0.19	0.00	0.17	-0.11	0.02	0.28	-0.12	-0.22
SUVA										1.00	0.29	0.33	0.32	**0.42**	0.36	**0.42**	**0.68**	-0.51	0.33	**0.45**	**0.47**	-0.28	0.28	-0.28	**0.40**	**0.45**	**0.39**	**0.39**	**0.37**	0.24
TSM											1.00	**0.71**	**0.75**	**0.47**	**0.57**	**0.49**	-0.54	0.48	0.36	**0.56**	**0.57**	-0.08	0.08	0.05	-0.16	-0.08	0.06	0.14	-0.05	-0.33
POC												1.00	**0.97**	**0.81**	**0.87**	**0.75**	-0.29	0.57	0.35	**0.75**	**0.71**	-0.10	0.10	0.13	0.06	0.08	0.33	**0.52**	0.25	-0.09
PN													1.00	**0.76**	**0.83**	**0.74**	-0.58	**0.68**	0.41	**0.76**	**0.75**	-0.09	0.09	0.03	0.08	0.09	0.33	**0.51**	0.27	-0.12
PA^C														1.00	**0.98**	**0.96**	**0.67**	0.18	**0.40**	**0.91**	**0.88**	-0.14	0.14	0.14	0.34	0.33	**0.48**	**0.64**	**0.38**	0.16
HNA															1.00	**0.92**	0.40	**0.48**	**0.39**	**0.90**	**0.86**	-0.11	0.11	0.08	**0.41**	0.35	**0.54**	**0.71**	**0.42**	0.18
LNA																1.00	**0.80**	-0.13	**0.44**	**0.89**	**0.88**	-0.11	0.11	0.10	0.26	0.36	**0.47**	**0.53**	**0.38**	0.19
Pico																	1.00	-0.09	0.13	0.38	0.31	-0.35	0.35	0.19	0.16	0.30	0.38	0.18	0.17	0.49
Nano																		1.00	**0.55**	**0.57**	**0.57**	0.37	-0.37	**-0.58**	0.11	-0.12	0.36	0.40	0.05	-0.03
Vol																			1.00	**0.53**	**0.68**	0.13	-0.13	-0.13	0.22	0.12	0.36	0.20	0.04	0.18
TPP																				1.00	**0.97**	-0.02	0.02	0.10	**0.42**	**0.44**	**0.53**	**0.61**	**0.44**	0.14
PB																					1.00	-0.01	0.01	0.03	0.37	0.30	**0.50**	**0.54**	0.32	0.11
% Live																						1.00	-1.00	-0.05	0.08	-0.17	-0.11	-0.08	-0.11	-0.03
% Dead																							1.00	0.05	-0.08	0.17	0.11	0.08	0.11	0.03
% CTC																								1.00	-0.08	-0.01	-0.10	-0.05	-0.04	-0.04
CCS																									1.00	**0.61**	**0.65**	**0.80**	**0.57**	**0.43**
CH																										1.00	**0.75**	**0.60**	**0.91**	**0.62**
PC																											1.00	**0.84**	**0.81**	**0.70**
CA																												1.00	**0.71**	**0.41**
AA																													1.00	**0.65**
AM																														1.00

CCS = complex carbon source; CH = carbohydrates; PC = phosphate – carbon; CA = carboxylic acid; AA = aminoacids; AM = amines.

For the other acronyms, see explanations in the "Material and methods" section.