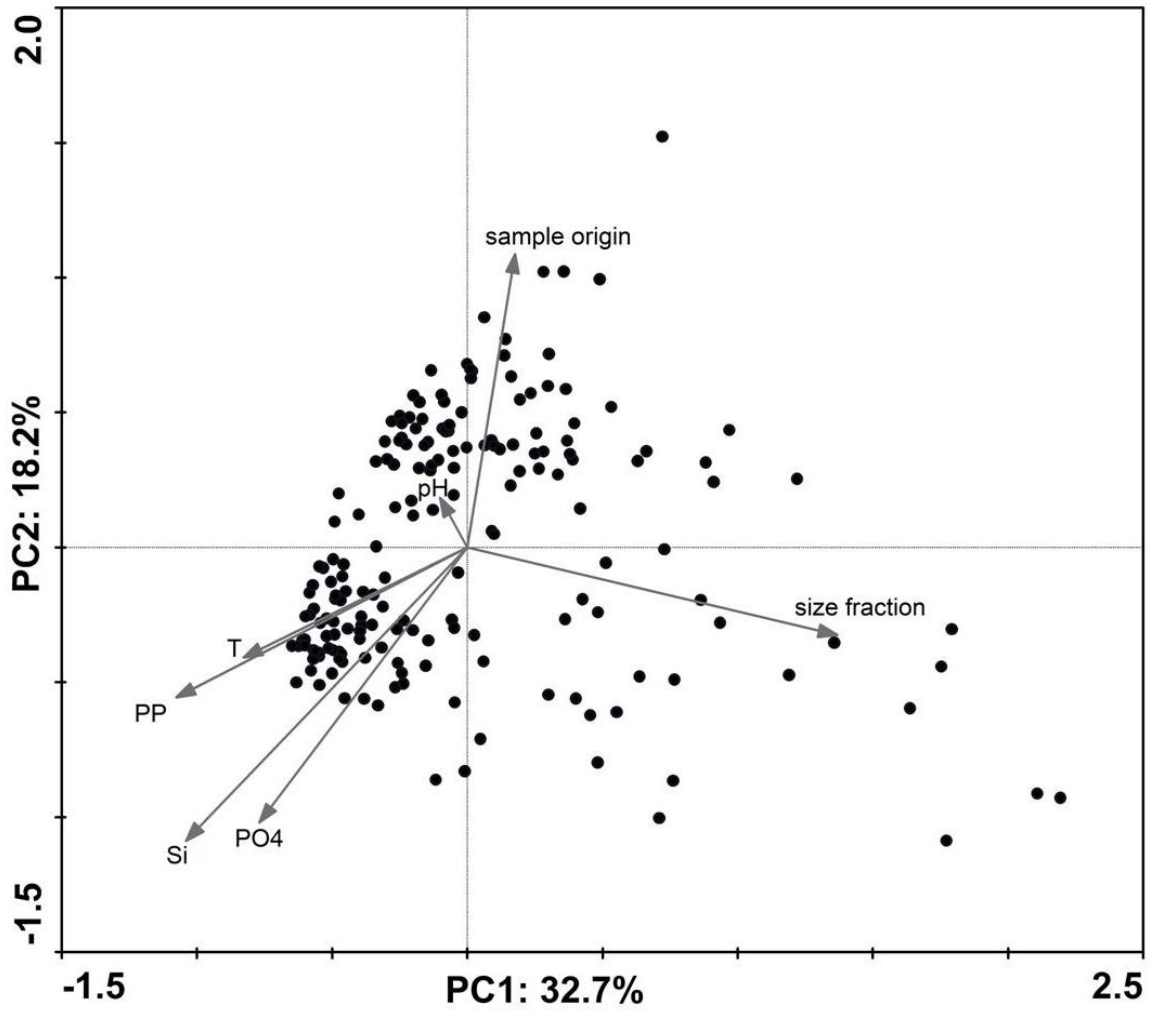

Fig. S1. Principal coordinates analysis (PCoA) with significant environmental variables overlaid as supplementary data.

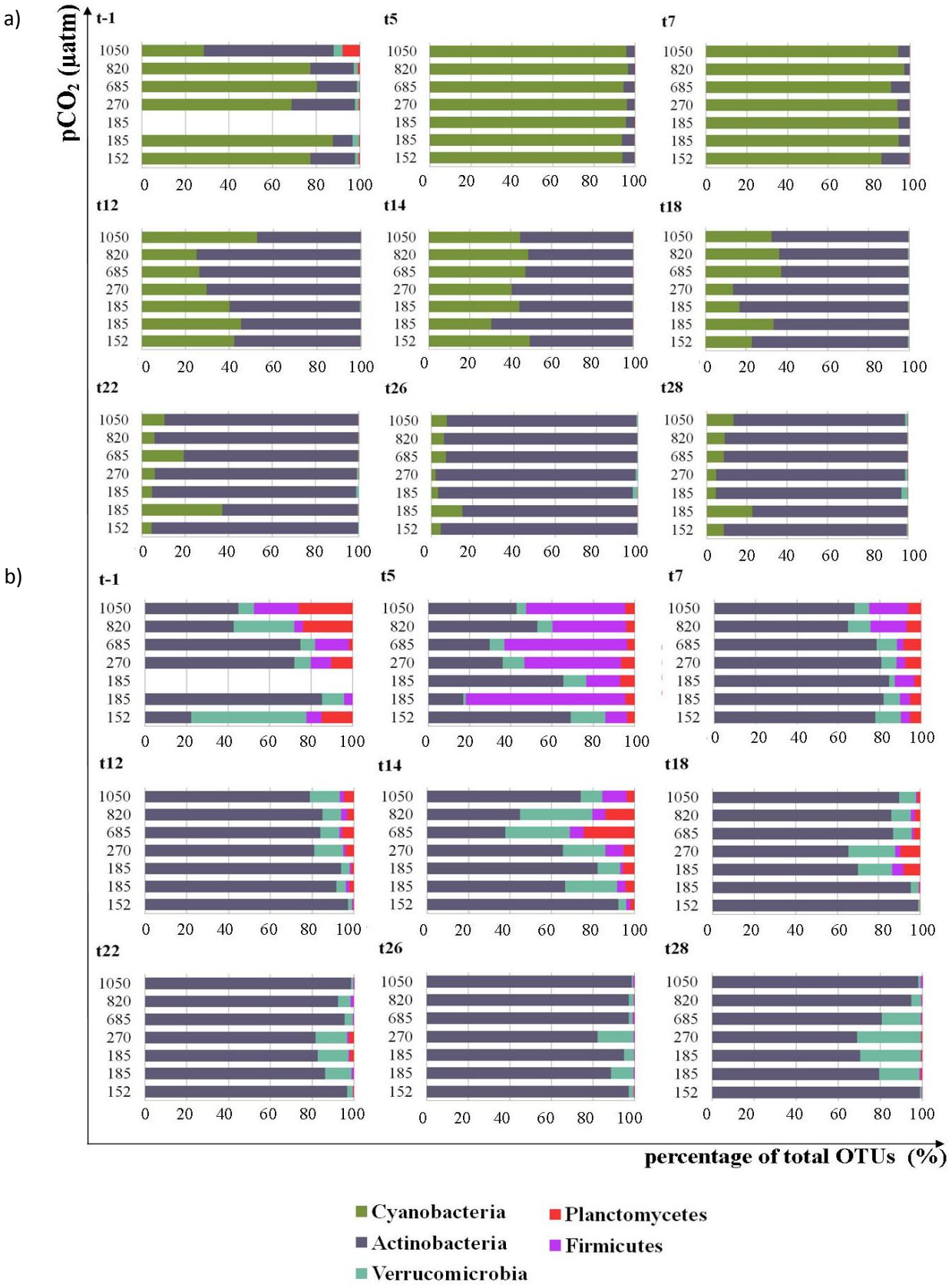

Fig. S2. Microbial community overview of the most abundant phyla classified as 'others' in Fig. 2 in **(a)** the small (0.2-3 µm) and **(b)** the large (3-20 µm) size fraction during t-1, t5, t7, t12, t14, t18, t22, t26 and t28; x-axis represents percentage of total OTUs and y-axis represents pCO_2 in µatm.

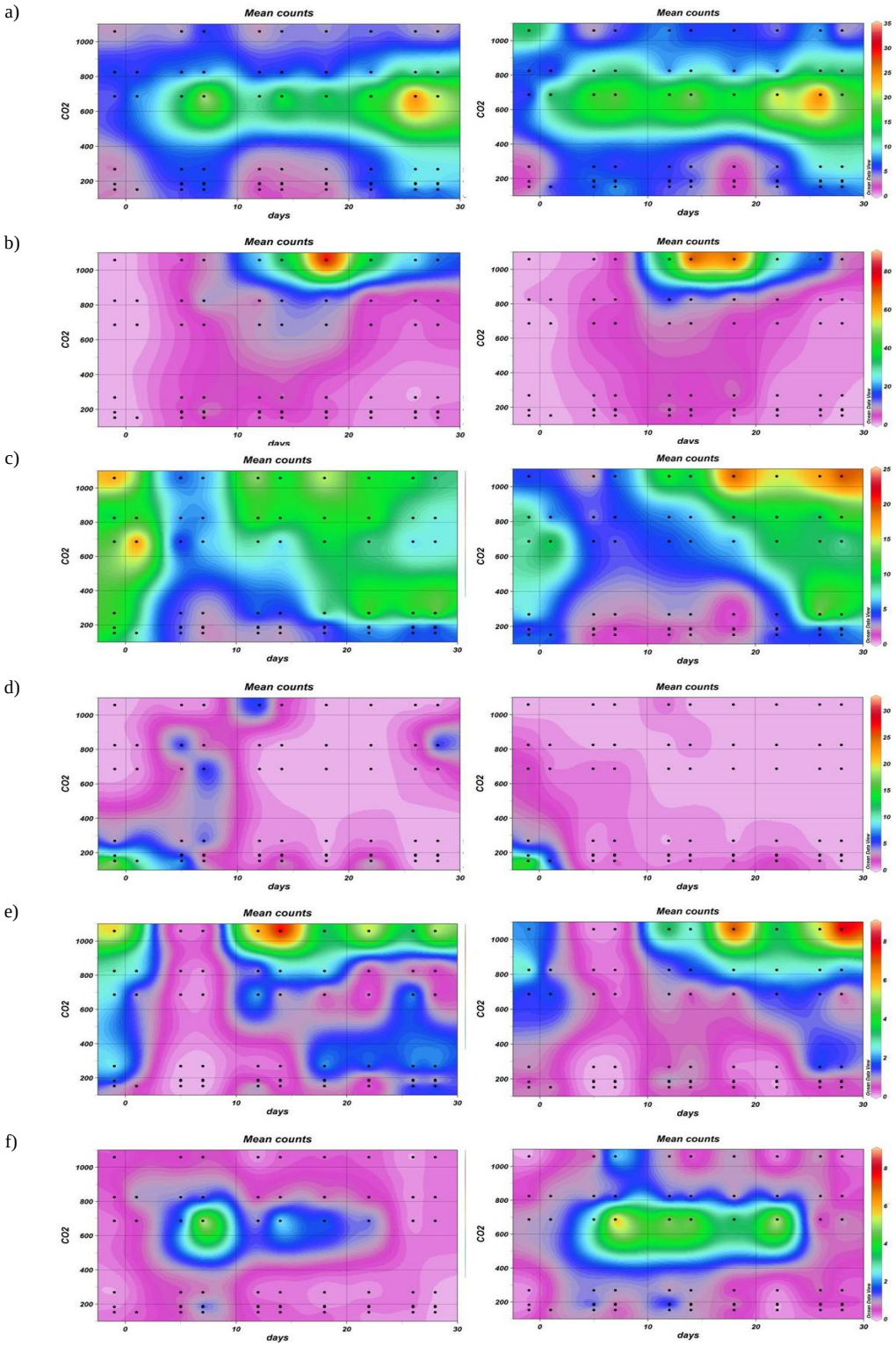

Fig. S3. Contour plots presenting the mean abundance count of **a)** Methylotenera **b)** Oceanospirillaceae **c)** Flavobacteriaceae **d)** Leucothrix **e)** Sphingobacteriales **f)** Oxalobacteraceae plotted against pCO_2 (µatm, y-axis) and time (days, x-axis). Left and right panel represent, respectively, the small (0.2-3 µm) and large (3-20 µm) size fraction.

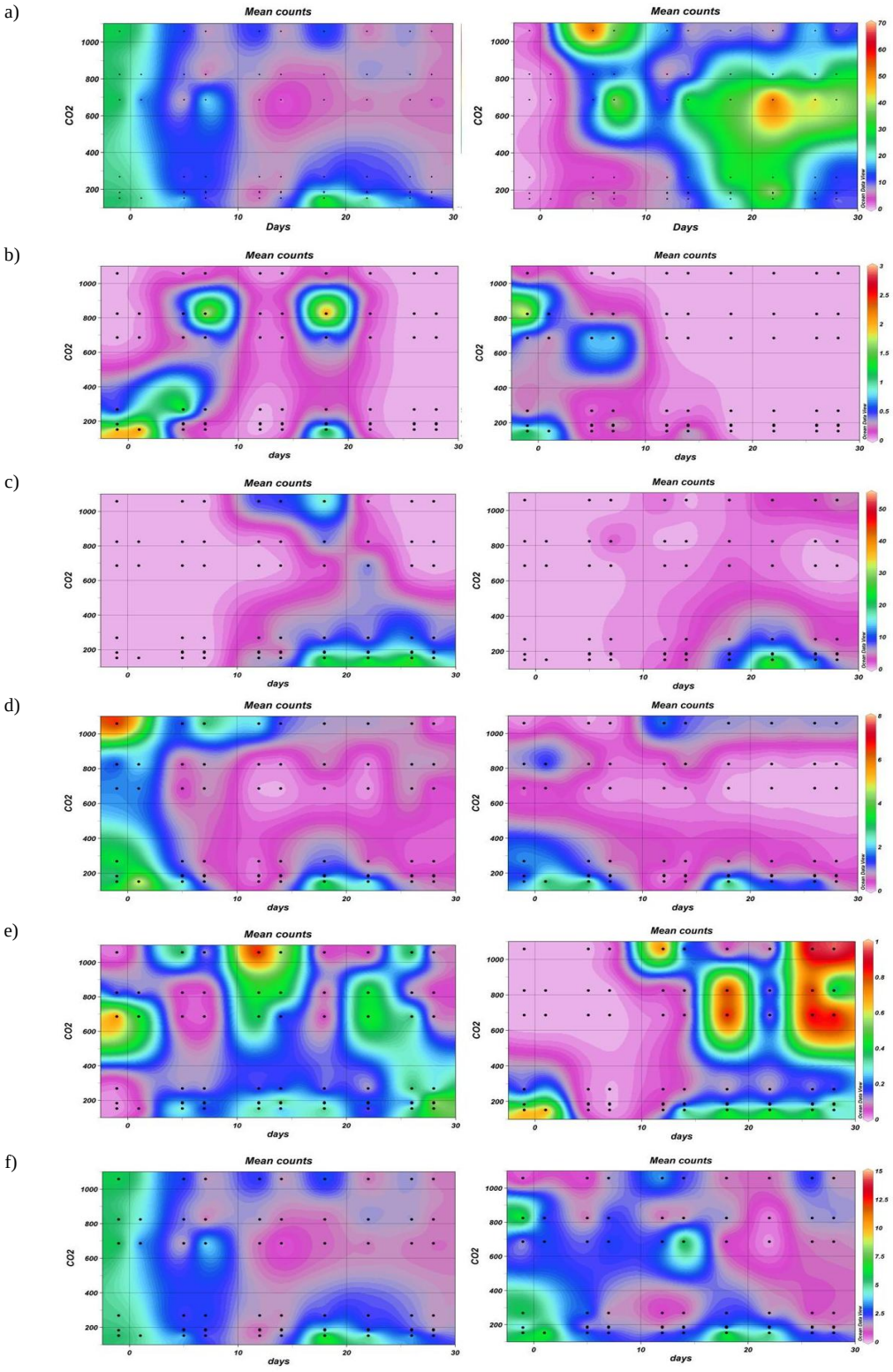

Fig. S4. Contour plots presenting the mean abundance count of **a)** Oleibacter **b)** HTCC-2188 **c)** Flavobacterium succinicians **d)** Flavobacteria **e)** Thioclava **f)** SC3-41 plotted against pCO_2 (µatm, y-axis) and time (days, x-axis). Left and right panel represent, respectively, the small (0.2-3 µm) and large (3-20 µm) size fraction.

Table S1. Mean abundance, standard deviation (SD) and standard error (SE) of the main phyla of the bacterial community presented in figure 3 for the fjord, the control and the manipulated mesocosms of the free living **(a)** and particle associated **(b)** size fraction pre- and post–nutrient addition. Phyla with significant different p values (< 0.05) marked bold. Abbreviation: Bact = Bacteroidetes, α-proteo = α-proteobacteria, β-proteo = β-proteobacteria, γ-proteo = γ-proteobacteria, Cya+Euk = Cyanobacteria + Eukaryotic chloroplast.

	Time	Taxa	fjord			control			manipulated		
			Mean	SD	SE	Mean	SD	SE	Mean	SD	SE
a)	Pre	Bact	25078	10713	4791	24252	9155	3460	25369	9570	2558
		α-proteo	19558	5190	2321	20702	4184	1582	21393	3312	885
		β-proteo	2399	1129	505	2666	1190	450	2465	1338	358
		γ-proteo	23552	4243	1898	26693	9636	3642	27341	9736	2602
		Others	4509	3915	1751	10240	7119	2691	6338	5309	1419
	Post	Bact	38840	20131	9003	29447	9580	3029	36768	9116	2038
		α-proteo	20773	2227	996	19119	3240	1024	16634	2220	496
		β-proteo	1687	459	205	2654	833	263	2733	1066	238
		γ-proteo	**26179**	**2952**	**1320**	**19975**	**2517**	**796**	**22939**	**2570**	**575**
		Others	7243	4216	1885	9013	4234	1339	7396	3481	778
b)	Pre	Bact	24482	11356	5079	26960	13486	5097	31214	13397	3158
		α-proteo	11196	4685	2095	9368	5154	1948	8164	2472	583
		β-proteo	890	235	105	1199	746	282	906	371	87
		γ-proteo	16585	2726	1219	24832	9919	3749	25781	9855	2323
		Cya+Euk.	**27219**	**16235**	**7261**	**18142**	**10560**	**3991**	**12301**	**8141**	**1919**
		Others	671	684	306	626	189	72	503	247	58
	Post	**Bact**	**26397**	**2672**	**1195**	**46750**	**4431**	**1401**	**49271**	**20762**	**4643**
		α-proteo	**19696**	**4627**	**2069**	**10355**	**2466**	**780**	**11195**	**4116**	**920**
		β-proteo	923	282	126	889	278	88	1177	477	107
		γ-proteo	19763	2090	935	17505	2807	888	19287	9974	2230
		Cya+Euk.	**9855**	**3202**	**1432**	**4066**	**1719**	**544**	**4980**	**2643**	**591**
		Others	**4446**	**1062**	**475**	**1508**	**691**	**219**	**2262**	**2578**	**577**