

Microbial community adaptation to brackish water rewetting in a coastal peatland

Supplementary File 3

Sara E. Anthony^{1,2,3,*}, Nina Schulze^{1,4}, Klaus-Holger Knorr³, Dominik H. Zak^{5,6}, Susanne Liebner^{7,8,*}, Gerald Jurasinski^{2,9,*}

¹Department of Landscape Ecology, Faculty of Agricultural and Environmental Sciences, University of Rostock, 18059 Rostock, Germany

²Peatland Science, Institute of Botany and Landscape Ecology, University of Greifswald, 17489 Greifswald, Germany

³Ecohydrology and Biogeochemistry Group, Institute of Landscape Ecology, University of Münster, 48149 Münster, Germany

⁴Department of Grassland and Fodder Sciences, Faculty of Agricultural and Environmental Sciences, University of Rostock, 18059 Rostock, Germany

⁵Catchment Science and Environmental Management, Department of Ecoscience, Aarhus University, 8000 Aarhus, Denmark

⁶Department of Ecohydrology and Biogeochemistry, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Germany

⁷GFZ Helmholtz Centre for Geosciences, Section Geomicrobiology, Telegrafenberg, Potsdam, Germany

⁸Institute of Biochemistry and Biology, University of Potsdam, 14476 Potsdam, Germany

⁹Maritime Systems, Interdisciplinary Faculty, University of Rostock, 18059 Rostock, Germany

*Sara E Anthony, Susanne Liebner, and Gerald Jurasinski are the corresponding authors.

Sara E Anthony: sara.anthony@uni-muenster.de

Susanne Liebner: sliebner@gfz-potsdam.de, +49 (0) 331 6264 288 17

Gerald Jurasinski: gerald.jurasinski@uni-greifswald.de

ORCID:

Sara E. Anthony: 0000-0002-7945-4480

Nina Schulze: 0009-0001-5346-3901

Klaus-Holger Knorr: 0000-0003-4175-0214

Dominik H. Zak: 0000-0002-1229-5294

Susanne Liebner: 0000-0002-9389-7093

Gerald Jurasinski: 0000-0002-6248-938

Introduction

Supplementary File 3 provides list of functional genes included in each category of Fig 8.

Cycle	Gene Name	KO Number	Group
Sulfur	aprA	K00394	DSR
Sulfur	aprB	K00395	DSR
Sulfur	dsrA	K11180	DSR
Sulfur	dsrB	K11181	DSR
Sulfur	dsrL	K27196	DSR
Sulfur	dsrM	K27187	DSR
Sulfur	dsrK	K27188	DSR
Sulfur	dsrJ	K27189	DSR
Sulfur	dsrO	K27190	DSR
Sulfur	dsrP	K27191	DSR
Sulfur	sat	K00958	DSR
Sulfur	soxA	K17222	Thiosulfate
Sulfur	soxB	K17224	Thiosulfate
Sulfur	soxC	K17225	Thiosulfate
Sulfur	soxD	K22622	Thiosulfate
Sulfur	soxX	K17223	Thiosulfate
Sulfur	soxY	K17226	Thiosulfate
Sulfur	soxZ	K17227	Thiosulfate
Nitrogen	nifH	K02588	Nfix
Nitrogen	nifD	K02586	Nfix
Nitrogen	nifK	K02591	Nfix
Nitrogen	anfG	K00531	Nfix
Nitrogen	vnfD	K22896	Nfix
Nitrogen	vnfK	K22897	Nfix
Nitrogen	vnfG	K22898	Nfix
Nitrogen	vnfH	K22899	Nfix
Nitrogen	narG	K00370	DNRA_DeNit
Nitrogen	narH	K00371	DNRA_DeNit
Nitrogen	narI	K00374	DNRA_DeNit
Nitrogen	napA	K02567	DNRA_DeNit
Nitrogen	napB	K02568	DNRA_DeNit
Nitrogen	nirB	K00362	DNRA
Nitrogen	nirD	K00363	DNRA
Nitrogen	nrfA	K03385	DNRA
Nitrogen	nrfH	K15876	DNRA
Nitrogen	nirK	K00368	DeNit_Annamox
Nitrogen	nirS	K15864	DeNit_Annamox
Nitrogen	norB	K04561	DeNit
Nitrogen	norC	K02305	DeNit
Nitrogen	nosZ	K00376	DeNit
Nitrogen	pmoA	K10944	Nitri
Nitrogen	pmoB	K10945	Nitri
Nitrogen	pmoC	K10946	Nitri
Nitrogen	hao	K10535	Nitri
Nitrogen	HZS1	K20932	Annamox
Nitrogen	HZS2	K20933	Annamox
Nitrogen	HZS3	K20934	Annamox
Nitrogen	hdh	K20935	Annamox
Methane	fwdA	K00200	CO2meth

Methane	fwdB	K00201	CO2meth
Methane	fwdC	K00202	CO2meth
Methane	fwdD	K00203	CO2meth
Methane	fwdE	K11261	CO2meth
Methane	fwdF	K00205	CO2meth
Methane	fwdG	K11260	CO2meth
Methane	fwdH	K00204	CO2meth
Methane	fttr	K00672	CO2meth
Methane	mch	K01499	CO2meth
Methane	mtD	K00319	CO2meth
Methane	hmd	K13942	CO2meth
Methane	mer	K00320	CO2meth
Methane	mtrA	K00577	acetate_CO2meth
Methane	mtrB	K00578	acetate_CO2meth
Methane	mtrC	K00579	acetate_CO2meth
Methane	mtrD	K00580	acetate_CO2meth
Methane	mtrE	K00581	acetate_CO2meth
Methane	mtrF	K00582	acetate_CO2meth
Methane	mtrG	K00583	acetate_CO2meth
Methane	mtrH	K00584	acetate_CO2meth
Methane	mcrA	K00399	mcrABG
Methane	mcrB	K00401	mcrABG
Methane	mcrG	K00402	mcrABG
Methane	hdrA1	K22480	SharedMeth
Methane	hdrB1	K22481	SharedMeth
Methane	hdrC1	K22482	SharedMeth
Methane	hdrA2	K03388	SharedMeth
Methane	hdrB2	K03389	SharedMeth
Methane	hdrC2	K03390	SharedMeth
Methane	hdrD	K08264	SharedMeth
Methane	hdrE	K08265	SharedMeth
Methane	mvhD	K14127	SharedMeth
Methane	mvhA	K14126	SharedMeth
Methane	mvhG	K14128	SharedMeth
Methane	fdhA	K22516	SharedMeth
Methane	fdhB	K00125	SharedMeth
Methane	mtaA	K14080	Methanol
Methane	mtaB	K04480	Methanol
Methane	mtaC	K14081	Methanol
Methane	mtbA	K14082	MA
Methane	mtmC	K16177	MA
Methane	mtmB	K16176	MA
Methane	mtbC	K16179	MA
Methane	mtbB	K16178	MA
Methane	mttC	K14084	MA
Methane	mttB	K14083	MA
Methane	pmoA-amOA	K10944	Meth_Ox
Methane	pmoB-amOB	K10945	Meth_Ox
Methane	pmoC-amOC	K10946	Meth_Ox
Methane	mmoX	K16157	Meth_Ox

Methane	mmoY	K16158	Meth_Ox
Methane	mmoZ	K16159	Meth_Ox
Methane	mmoB	K16160	Meth_Ox
Methane	mmoC	K16161	Meth_Ox
Methane	mmoD	K16162	Meth_Ox
Methane	mdh1	K14028	Meth_Ox
Methane	mdh2	K14029	Meth_Ox
Methane	xoxF	K23995	Meth_Ox
Carbon Fixation	porA	K00169	rTCA_DCHB
Carbon Fixation	porB	K00170	rTCA_DCHB
Carbon Fixation	porD	K00171	rTCA_DCHB
Carbon Fixation	porC	K00172	rTCA_DCHB
Carbon Fixation	por	K03737	rTCA
Carbon Fixation	pps	K01007	rTCA_DCHB
Carbon Fixation	ppdK	K01006	rTCA
Carbon Fixation	ppc	K01595	rTCA_DCHB
Carbon Fixation	pycA	K01959	rTCA
Carbon Fixation	pycB	K01960	rTCA
Carbon Fixation	PC	K01958	rTCA
Carbon Fixation	E4.2.1.2A	K01676	rTCA
Carbon Fixation	E4.2.1.2B	K01679	rTCA
Carbon Fixation	E4.2.1.2AA	K01677	rTCA_DCHB
Carbon Fixation	E4.2.1.2AB	K01678	rTCA_DCHB
Carbon Fixation	sdhA	K00239	rTCA_DCHB
Carbon Fixation	sdhB	K00240	rTCA_DCHB
Carbon Fixation	sdhC	K00241	rTCA_DCHB
Carbon Fixation	sdhD	K00241	rTCA_DCHB
Carbon Fixation	frdA	K18556	rTCA
Carbon Fixation	frdB	K18557	rTCA
Carbon Fixation	frdC	K18558	rTCA
Carbon Fixation	frdD	K18559	rTCA
Carbon Fixation	frdE	K18560	rTCA
Carbon Fixation	sucD	K01902	rTCA_DCHB
Carbon Fixation	sucC	K01903	rTCA_DCHB
Carbon Fixation	korA	K00174	rTCA
Carbon Fixation	korB	K00175	rTCA
Carbon Fixation	korC	K00177	rTCA
Carbon Fixation	korD	K00176	rTCA
Carbon Fixation	IDH1	K00031	rTCA
Carbon Fixation	ACO	K01681	rTCA
Carbon Fixation	acnB	K01682	rTCA
Carbon Fixation	aclA	K15230	rTCA
Carbon Fixation	aclB	K15231	rTCA
Carbon Fixation	ccsA	K15231	rTCA
Carbon Fixation	ccsB	K15233	rTCA
Carbon Fixation	ccl	K15234	rTCA
Carbon Fixation	K01964	K01964	HPHB
Carbon Fixation	K15037	K15037	HPHB
Carbon Fixation	K15036	K15036	HPHB
Carbon Fixation	K15017	K15017	HPHB_DCHB

Carbon Fixation	K15039	K15039	HPHB
Carbon Fixation	K15018	K15018	HPHB
Carbon Fixation	K15020	K15020	HPHB
Carbon Fixation	MCEE	K05606	HPHB
Carbon Fixation	E5.4.99.2A	K01848	HPHB
Carbon Fixation	E5.4.99.2B	K01849	HPHB
Carbon Fixation	K15038	K15038	HPHB_DCHB
Carbon Fixation	K15017	K15017	HPHB
Carbon Fixation	K14465	K14465	HPHB_DCHB
Carbon Fixation	K14466	K14466	HPHB
Carbon Fixation	K18861	K18861	HPHB_DCHB
Carbon Fixation	K25774	K25774	HPHB_DCHB
Carbon Fixation	abfD	K14534	HPHB_DCHB
Carbon Fixation	K15016	K15016	HPHB_DCHB
Carbon Fixation	ACAT	K00626	HPHB_DCHB
Carbon Fixation	mdh	K00024	DCHB
Carbon Fixation	4hbl	K14467	HPHB
Carbon Fixation	cooS	K00198	Wood-Ljungdahl
Carbon Fixation	fdhA	K05299	Wood-Ljungdahl
Carbon Fixation	fdhB	K15022	Wood-Ljungdahl
Carbon Fixation	fdhF	K22015	Wood-Ljungdahl
Carbon Fixation	hydA2	K25123	Wood-Ljungdahl
Carbon Fixation	hycB	K25124	Wood-Ljungdahl
Carbon Fixation	fhs	K01938	Wood-Ljungdahl
Carbon Fixation	fold	K01491	Wood-Ljungdahl
Carbon Fixation	fchA	K01500	Wood-Ljungdahl
Carbon Fixation	metF	K00297	Wood-Ljungdahl
Carbon Fixation	metV	K25007	Wood-Ljungdahl
Carbon Fixation	rnfC2	K25008	Wood-Ljungdahl
Carbon Fixation	acsE	K15023	Wood-Ljungdahl
Carbon Fixation	acsB	K14138	Wood-Ljungdahl
Carbon Fixation	cdhE	K14138	Wood-Ljungdahl
Carbon Fixation	cdhD	K00194	Wood-Ljungdahl