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Supplementary material

For

Changes in groundwater bacterial community during cyclic groundwater-table variations

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Wet-packing procedure

The water table was constantly maintained a small distance above the top of the porous medium to avoid entrapment of air but also to minimize the separation of grain sizes due to different settling rates (Haberer et al., 2012).

The needed volume of imbibed or drained water to achieve the desired groundwater table: (n_e represents the effective porosity)

$V = \pi r^2 \times \triangle h \times n_e = 3.14 \times 12^2 \times 40 \times 0.35 = 6330$ mL

However, each sample removed 90 mL (triplicate 30 mL) groundwater from the column, and thus two samples removed 180 mL groundwater from the column. To compensate for the volume reduction, the volume of imbibed and drained water were 6510 ml and 6150 ml in each cycle.

Flow-rate:

$v_i = 6510$ ml / $(100 \times 60) = 1.09$ mL/min

$v_d = 6150$ ml / $(100 \times 60) = 1.03$ mL/min

Dissolved oxygen measurement

One 10 cm long oxygen dipping probes (PreSens, Germany) was dipped at depth of 30 cm above the bottom of the columns (near the top of continuously saturation zone), combined with an OXY-10 trace SMA monitoring technique (PreSens, Germany), was used to measured dissolved oxygen.

Total DNA extraction method

1. Add 6 mL of groundwater sample to a 10 mL centrifuge tube.

2. Add 200 μL of solution GA and vortex for 1 min.

3. Add 20 μL of solution Proteinase K and invert several times.

4. Add 220 μL of solution GB and vortex for 30 s. Incubate at 70 °C for 10 min.

5. Add 220 μL of absolute ethanol and vortex for 30 s. Let stand for 2 minutes.

6. Put a CB3 adsorption column into a 2 mL collection tube provided. Load 675 μL of supernatant onto the CB3 adsorption column and centrifuge at 12 000 rpm for 1 min. Reaped, until all of the supernatant has been loaded and centrifuged. Discard flow through.

7. Add 500 μL of solution GD and centrifuge at 12 000 rpm for 1 min. Discard flow through.

8. Add 600 μL of solution PW and centrifuge at 12 000 rpm for 1 min. Discard flow through. Repeated once.

9. Centrifuge at 12 000 rpm for 2 min. Discard flow through. Let stand for 5 minutes at room temperature (15 - 25 °C).

10. Transfer the CB3 adsorption column into a new 2 mL collection tube provided. Add 200 μL of solution TE, let stand for 5 min, and centrifuge at 12 000 rpm for 1 min. Discard the CB3 adsorption column, and total DNA is ready in the 2 mL collection tube for downstream analysis.

Polymerase chain reaction (PCR)

For each sample, 10-digit barcode sequence was added to the 5' end of the forward and reverse primers. The reaction mixture consisted of DNA template (30 ng), 1 μL of each primer (5 μM), 3 μL of BSA (2 ng/μL), 12.5 μL of 2×Taq PCR MasterMix and 7.5 μL of double distilled H_2O. PCR was performed by using the following conditions: 5 min at 94 °C followed by 25 cycles of 30 s at 94 °C, 30 s at 50 °C, and 1 min at 72 °C and then 7 min at 72 °C.

High-quality sequences extraction

Low-quality sequences were removed: (1) if raw reads were shorter than 110 nucleotides, (2) if the 300 bp reads were truncated at any site receiving an average quality score < 20 over a 50 bp sliding window, and truncated reads that were shorter than 50 bp. (3) if exact barcode matching, or a two nucleotide mismatch in primer matching and reads containing ambiguous characters. (4) if overlap was shorter than 10 bp (Yin et al., 2018).

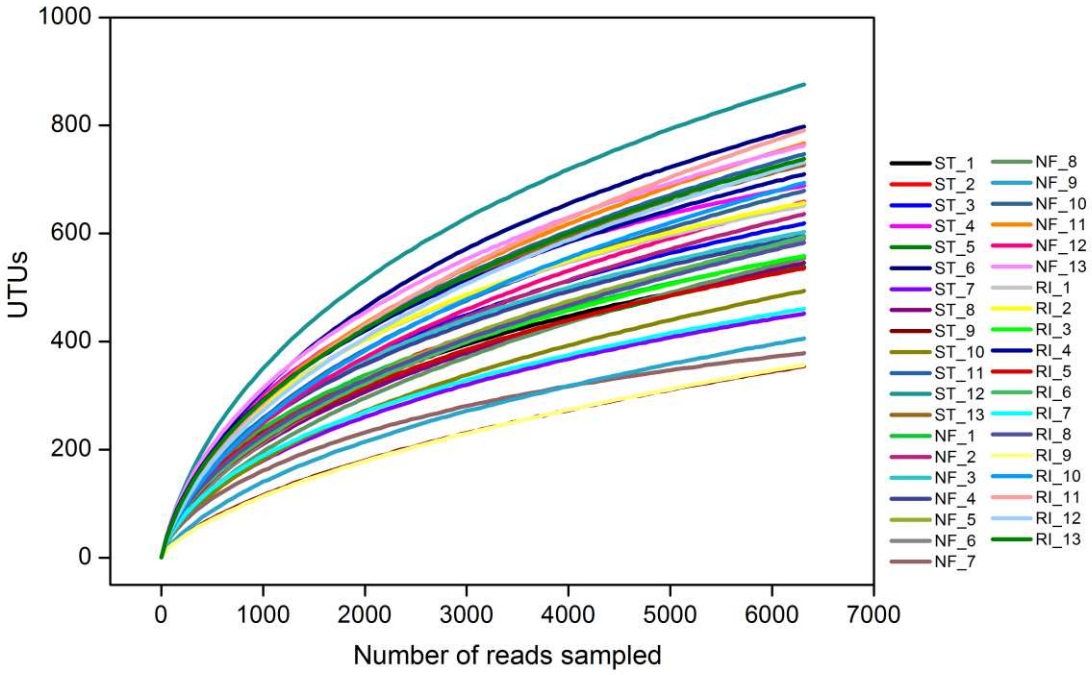

Fig. S. 1. Rarefaction curve of OTUs in all the groundwater samples.

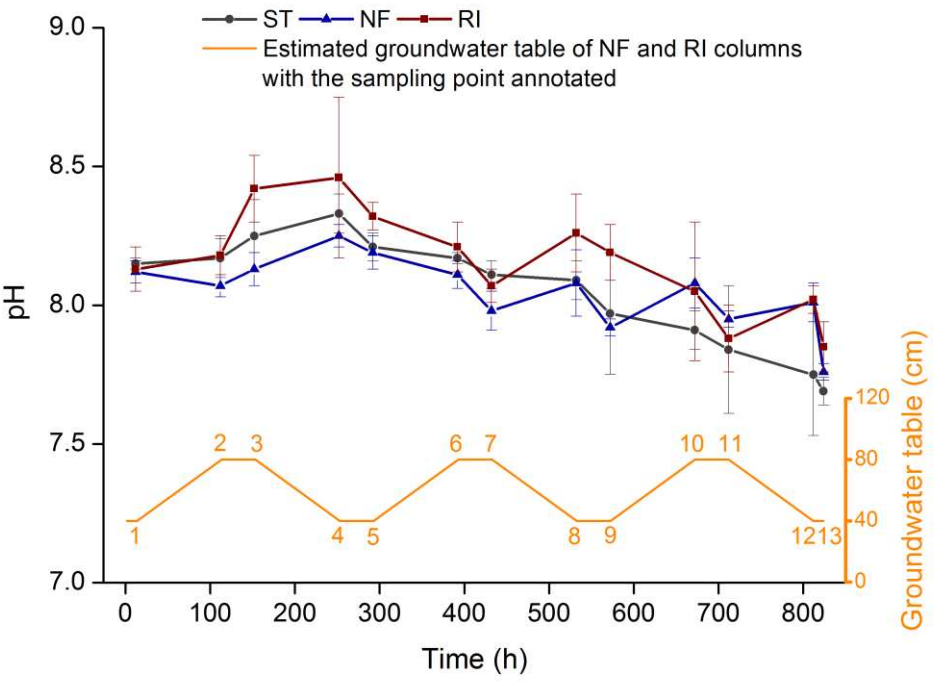

Fig. S. 2. Variations of pH in groundwater samples at 10 cm below the surface of continuously saturated zone during cyclic groundwater-table variations (the error bars represent the standard deviations of the mean values from triplicate measurements).

Table S 1

(a) Relative abundance (%) of top 100 abundant OTUs in the groundwater samples of the ST column.

OTU	ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9	ST10	ST11	ST12	ST13
OTU1	1.1	0.4	5.8	2.7	10.0	11.4	2.0	9.9	46.8	39.6	14.4	2.4	0.7
OTU2	0.0	0.0	1.2	0.4	0.5	3.7	0.3	1.7	23.7	2.9	4.6	0.6	0.1
OTU3	10.8	7.0	6.6	1.1	5.3	1.1	13.0	7.6	0.5	2.1	4.6	7.0	10.0
OTU4	0.3	3.1	0.7	5.7	1.7	2.1	5.4	1.0	0.3	0.3	0.4	1.0	0.3
OTU6	1.2	0.5	2.4	3.4	13.4	4.2	5.8	1.0	1.4	1.3	1.0	2.5	0.4
OTU32	0.2	0.3	2.3	0.7	11.0	3.4	3.0	3.8	1.9	4.7	4.7	2.3	1.4
OTU5	0.2	0.2	6.2	0.1	1.9	3.2	4.6	0.6	0.8	0.1	0.2	0.1	0.0
OTU7	0.6	2.0	0.2	2.1	0.6	0.4	2.3	1.1	0.3	0.1	0.4	1.0	0.6
OTU18	0.0	0.1	0.9	0.0	0.5	4.3	13.0	0.3	4.5	0.8	0.9	0.3	0.2
OTU13	0.0	0.0	0.1	0.0	1.3	0.5	0.3	2.0	0.6	0.2	0.7	0.1	0.1
OTU8	0.0	0.1	0.3	0.0	0.2	0.4	0.0	0.7	0.5	0.0	1.0	0.1	0.0
OTU27	0.1	0.0	0.1	0.5	0.7	0.1	0.0	0.3	0.1	0.1	0.4	0.3	0.5
OTU17	0.0	0.0	6.9	0.0	0.5	1.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0
OTU14	0.6	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.8
OTU10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.0	3.0	5.7	6.3
OTU9	1.7	0.1	0.4	0.6	0.2	0.3	0.8	1.9	0.2	0.7	1.3	0.7	3.4
OTU46	0.0	0.1	5.6	0.6	1.6	1.2	3.2	0.1	1.3	0.6	0.4	0.3	0.2

OTU11	2.8	6.2	0.3	0.1	0.4	0.3	0.3	3.4	0.3	0.5	1.2	1.8	1.3
OTU15	0.4	0.2	0.1	0.8	0.1	0.2	0.6	0.3	0.1	0.0	0.2	0.3	0.0
OTU19	1.3	8.3	0.0	2.7	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.6	0.6
OTU16	0.0	0.0	0.0	2.4	0.0	0.2	0.2	1.5	0.1	0.3	1.1	0.5	2.2
OTU12	1.1	0.1	0.1	0.0	0.9	0.5	0.3	0.9	0.3	0.9	0.6	0.5	0.2
OTU53	0.3	0.1	2.2	0.3	0.5	0.3	0.5	0.4	0.4	1.4	1.6	1.0	0.2
OTU22	1.7	1.3	0.1	0.2	0.5	0.4	0.5	1.8	0.2	0.3	0.7	1.0	2.7
OTU20	2.2	3.7	0.4	0.0	0.4	0.3	1.1	1.7	0.1	0.4	0.4	0.8	1.1
OTU2444	1.6	1.2	0.9	0.0	1.0	0.5	1.0	2.2	0.1	0.2	0.4	0.6	0.4
OTU23	1.9	2.6	0.6	0.2	0.3	0.6	0.2	0.2	0.0	0.1	0.2	0.1	0.4
OTU24	0.3	0.1	0.1	0.1	0.2	0.2	0.9	1.3	0.0	0.5	0.8	1.1	1.7
OTU1434	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.1	0.5	0.0	0.1	0.0	0.0
OTU39	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU26	0.8	0.5	0.0	0.6	0.1	0.7	0.0	0.3	0.2	0.6	0.4	0.2	0.3
OTU45	0.0	0.1	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU21	0.0	0.6	0.0	0.2	0.1	0.1	0.0	4.2	0.3	2.2	0.0	0.1	0.0
OTU31	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.2	0.1
OTU384	0.0	0.0	0.8	0.0	0.3	0.6	0.6	0.2	1.7	1.8	1.3	0.1	0.0
OTU28	0.3	0.0	0.3	0.2	0.3	1.6	0.1	0.1	0.3	0.3	0.3	0.5	3.3
OTU506	0.1	0.1	0.8	0.7	0.6	1.9	0.7	0.4	0.6	0.1	0.2	0.1	0.0
OTU114	0.0	0.0	1.0	0.2	2.9	0.3	1.4	0.0	0.1	0.7	0.7	0.3	0.3
OTU37	2.8	0.1	0.0	0.0	0.1	0.9	0.0	0.1	0.1	2.8	0.2	0.1	0.1

OTU48	1.1	2.1	0.1	1.6	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
OTU35	7.3	4.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU162	0.6	0.1	2.2	0.3	1.4	1.0	0.8	0.2	0.2	0.1	0.0	0.2	0.1
OTU59	0.0	0.1	1.0	0.6	0.5	0.3	1.4	0.2	0.1	0.0	0.1	0.3	0.0
OTU78	0.1	0.0	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.0
OTU71	0.0	0.1	0.0	2.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU30	2.2	1.0	0.0	0.0	0.0	0.1	0.0	6.4	0.1	0.0	0.0	0.0	0.0
OTU64	0.0	0.2	0.4	1.0	0.4	0.4	0.8	0.2	0.1	0.0	0.3	0.1	0.0
OTU44	0.0	0.1	0.4	0.5	0.7	0.5	0.3	0.1	0.1	0.4	0.7	0.1	0.0
OTU74	0.6	0.9	0.1	0.6	0.3	0.4	0.1	0.0	0.2	1.9	1.0	0.4	0.3
OTU34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1
OTU43	0.1	0.3	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU29	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.2	0.1	2.4	1.2	1.8	1.7
OTU25	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.4	0.0	0.1	0.2	0.3	0.3
OTU49	0.0	0.1	0.0	0.1	0.6	0.7	3.3	0.2	0.0	0.1	0.1	0.2	0.1
OTU117	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.8	1.3	0.2	0.5
OTU36	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.3	2.4	2.9
OTU66	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
OTU83	0.1	0.0	0.3	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0
OTU193	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.0	1.0	1.0	0.1	0.0
OTU47	0.3	1.3	0.0	0.6	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1	0.2
OTU69	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.2	0.0	0.0	0.1	0.3	0.1

OTU54	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.3
OTU38	0.1	0.0	0.1	0.1	0.2	0.1	0.4	1.5	0.1	0.2	0.6	0.4	1.2
OTU65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU41	0.0	0.0	0.2	0.3	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.1
OTU60	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU75	0.0	0.1	0.0	0.0	0.2	0.1	0.2	0.6	0.0	0.0	0.0	0.1	0.0
OTU172	0.0	0.2	0.3	1.2	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.0
OTU51	0.3	2.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
OTU33	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0
OTU93	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU205	0.5	0.0	0.1	0.4	0.1	0.0	0.1	0.4	0.0	0.1	0.1	0.1	0.4
OTU92	0.6	1.8	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU67	0.0	0.0	4.4	0.0	0.0	3.7	0.0	0.0	0.4	0.0	0.0	0.0	0.0
OTU608	0.0	0.0	1.0	0.0	0.0	0.2	0.0	0.2	0.1	0.1	0.5	0.2	0.1
OTU42	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.1	0.5	0.5	1.2
OTU76	0.4	0.2	0.0	0.2	0.0	0.0	0.2	0.2	0.0	0.1	0.3	0.4	1.0
OTU57	0.4	0.0	0.2	0.3	0.2	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.2
OTU63	2.7	0.2	0.1	0.3	0.0	0.3	0.0	0.1	0.0	0.1	0.1	0.1	0.0
OTU574	0.7	0.3	0.2	0.6	1.0	0.3	0.3	0.0	0.2	0.1	0.1	0.0	0.0
OTU131	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.1	0.1	0.0	0.3	0.4	0.0
OTU61	0.0	0.0	0.1	0.0	0.2	0.5	0.1	3.1	0.3	0.2	0.1	0.1	0.0
OTU77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.3	0.4	0.7

OTU50	0.0	0.1	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU73	0.1	0.0	0.1	0.7	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
OTU901	0.1	0.2	0.0	0.0	0.1	0.6	0.0	0.3	0.2	1.3	1.0	0.2	0.1
OTU62	0.0	0.0	1.3	0.0	0.9	0.4	4.1	0.0	0.0	0.0	0.0	0.0	0.0
OTU230	0.0	0.0	0.6	0.0	2.3	0.4	1.0	0.0	0.1	0.0	0.0	0.0	0.0
OTU105	0.1	0.0	0.2	0.1	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
OTU52	0.4	0.1	0.0	0.0	0.1	0.1	0.0	1.6	0.1	0.1	0.0	0.0	0.0
OTU58	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3	0.3	1.3
OTU2007	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
OTU253	0.0	0.1	0.7	0.1	0.4	1.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2
OTU113	0.0	0.4	0.0	1.5	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0
OTU88	0.2	1.4	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
OTU87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU40	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.4	0.1	0.3	0.6	0.4	1.7
OTU121	0.2	0.0	0.3	0.0	0.8	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0
OTU2986	0.1	0.0	0.0	0.1	0.3	0.1	0.1	0.1	0.1	0.7	0.5	0.2	0.3
OTU79	0.4	1.0	0.0	0.5	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1

(b) Relative abundance (%) of top 100 abundant OTUs in the groundwater samples of the NF column.

OTU	NF1	NF2	NF3	NF4	NF5	NF6	NF7	NF8	NF9	NF10	NF11	NF12	NF13
OTU1	1.3	1.2	1.2	0.7	7.7	7.0	16.0	12.8	10.8	6.9	9.2	15.8	1.7
OTU2	0.0	0.0	2.4	0.0	7.2	9.1	1.2	8.9	58.5	4.1	4.1	3.1	0.2
OTU3	0.5	1.5	1.2	1.4	3.0	3.1	15.1	1.8	0.7	4.3	3.8	0.7	1.0
OTU4	1.4	6.4	0.7	13.9	1.8	1.2	2.8	0.9	0.3	0.9	2.6	0.5	0.8
OTU6	0.5	0.9	2.9	0.7	8.9	3.7	3.3	10.5	1.3	12.9	1.8	0.8	0.3
OTU32	0.0	0.8	2.2	0.8	15.9	2.2	2.7	6.1	1.7	4.7	4.4	1.9	1.1
OTU5	0.3	0.1	15.8	0.1	5.1	0.6	0.3	2.2	0.3	0.1	0.2	0.4	0.3
OTU7	0.8	1.3	0.0	1.6	0.0	0.2	0.4	0.7	0.3	0.8	2.8	0.5	0.2
OTU18	0.0	0.0	1.3	0.0	1.4	0.7	2.0	1.9	0.5	2.9	1.8	0.3	0.2
OTU13	0.0	0.0	0.2	0.0	3.1	2.9	8.3	14.8	0.7	0.3	0.2	0.1	0.1
OTU8	0.0	0.1	0.0	0.0	0.6	23.9	0.0	0.3	2.5	0.1	0.0	0.1	0.1
OTU27	0.0	0.1	0.0	0.7	0.0	0.1	0.0	0.4	0.2	0.4	0.7	0.5	0.1
OTU17	0.0	0.0	7.5	0.0	3.2	1.0	0.1	0.5	0.0	0.1	0.3	0.3	0.2
OTU14	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
OTU10	0.0	0.0	0.0	0.0	0.0	0.2	0.1	1.5	0.2	5.0	1.8	1.0	1.5
OTU9	1.3	0.5	0.0	0.8	0.1	0.6	1.2	0.4	0.1	2.4	1.8	0.3	0.6
OTU46	0.0	0.1	0.7	0.1	0.5	0.7	0.8	0.6	0.2	2.8	0.3	0.1	0.4
OTU11	0.4	0.2	0.2	0.2	0.1	0.4	0.9	0.2	0.1	0.4	0.3	0.2	0.5
OTU15	0.2	0.5	0.0	1.6	0.0	0.0	0.5	0.6	0.1	0.4	3.5	0.2	0.0

OTU19	1.2	1.3	0.0	3.9	0.0	0.1	0.7	0.1	0.0	0.2	0.8	0.1	0.1
OTU16	0.0	0.9	0.0	0.3	0.0	3.2	2.0	0.6	0.2	0.6	0.9	0.1	0.2
OTU12	0.6	0.2	0.1	0.1	0.1	0.2	0.0	0.0	0.1	0.2	0.1	9.7	3.6
OTU53	0.0	0.0	3.0	0.0	0.5	0.4	0.1	0.6	0.3	1.4	0.4	0.3	0.3
OTU22	0.3	0.5	0.1	0.9	0.1	0.4	0.4	0.1	0.1	0.2	0.3	0.3	0.5
OTU20	0.0	0.2	0.3	0.2	0.0	0.2	0.7	0.1	0.1	0.3	0.3	0.1	0.1
OTU2444	0.2	0.3	0.5	0.4	0.2	0.5	1.1	0.2	0.1	0.2	0.2	0.1	0.2
OTU23	3.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU24	0.4	0.2	0.0	0.2	0.2	1.9	3.4	0.4	0.1	1.4	1.0	0.2	0.6
OTU1434	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.6	2.3	0.1	1.0	0.1	0.1
OTU39	0.0	11.9	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU26	0.3	0.1	0.0	0.5	0.4	0.1	0.0	0.2	0.1	0.1	0.2	6.9	2.3
OTU45	0.2	1.9	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU21	0.0	0.3	0.1	0.9	0.9	0.2	2.0	2.7	0.2	0.0	0.0	0.0	0.0
OTU31	0.7	0.7	0.3	0.5	0.8	1.4	5.9	0.6	0.1	0.9	1.4	0.2	0.9
OTU384	0.0	0.0	1.9	0.0	0.7	0.2	0.0	0.3	0.3	2.2	0.2	0.1	0.1
OTU28	0.0	0.0	0.1	0.0	0.4	0.2	0.0	0.3	0.0	0.2	0.4	0.5	1.2
OTU506	0.0	2.0	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.4	0.7	0.0
OTU114	0.0	0.0	0.1	0.0	0.2	0.2	0.6	0.3	0.1	0.2	0.2	0.1	4.6
OTU37	0.6	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.0	0.1	3.7	0.3	0.2
OTU48	2.3	1.6	0.0	0.7	0.0	0.0	0.4	0.0	0.0	0.1	0.1	0.1	0.1
OTU35	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OTU162	0.8	0.5	1.3	0.1	1.1	0.1	0.5	0.4	0.1	0.1	0.1	0.1	0.1
OTU59	0.0	0.1	0.1	0.6	0.2	0.1	0.6	0.3	0.2	0.1	0.6	0.1	0.0
OTU78	0.1	0.0	0.2	0.0	0.1	1.0	0.1	0.3	0.1	0.1	0.1	0.0	0.1
OTU71	0.0	10.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU30	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.2	0.0	0.0	0.1	0.0
OTU64	0.0	0.3	0.3	0.9	0.1	0.2	0.3	0.1	0.1	0.2	0.4	0.0	0.0
OTU44	0.1	0.3	0.7	0.1	1.1	0.2	0.0	0.2	0.1	0.1	0.1	0.1	0.0
OTU74	0.1	0.4	0.3	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.4	0.9
OTU34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1
OTU43	0.0	1.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
OTU29	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.3	0.3	0.1	0.0
OTU25	0.0	0.1	0.0	0.3	0.1	0.4	0.5	0.1	0.1	0.6	0.5	0.1	0.1
OTU49	0.0	0.1	0.1	0.4	0.1	0.6	1.9	0.6	0.1	0.1	0.2	0.0	0.0
OTU117	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.3	0.1	0.2	0.1	0.4	0.3
OTU36	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.8	0.4	0.2	0.2
OTU66	8.0	0.0	0.5	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU83	0.9	0.1	0.3	0.1	0.6	0.4	0.6	0.1	0.0	0.0	0.1	0.1	0.1
OTU193	0.0	0.0	0.2	0.0	0.1	0.3	0.6	0.5	0.4	0.7	0.5	0.0	0.2
OTU47	0.1	0.4	0.0	0.3	0.0	0.1	0.5	0.1	0.0	0.1	0.5	0.0	0.0
OTU69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	2.3	2.9
OTU54	0.7	1.1	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
OTU38	0.1	0.1	0.0	1.1	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.1	0.2

OTU65	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU41	0.8	0.3	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.1	0.0
OTU60	0.1	0.0	0.6	0.0	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1
OTU75	0.6	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0
OTU172	0.0	0.2	0.3	0.8	0.4	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.1
OTU51	0.1	1.0	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
OTU33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	5.9	2.1
OTU93	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU205	0.4	0.9	0.0	0.2	0.0	0.3	0.2	0.1	0.0	0.1	0.3	0.0	0.1
OTU92	1.4	0.9	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU67	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
OTU608	0.0	0.0	2.0	0.0	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.3
OTU42	0.2	0.3	0.2	0.0	0.1	1.7	0.6	0.1	0.0	0.3	0.3	0.1	0.6
OTU76	0.2	1.9	0.0	0.8	0.0	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.1
OTU57	0.4	0.2	0.0	0.3	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.0
OTU63	1.3	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.8	0.6
OTU574	1.1	0.8	0.1	0.2	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.1
OTU131	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.0	0.3	0.3	0.0
OTU61	0.0	0.1	0.1	0.7	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0
OTU77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.3	1.2	1.6
OTU50	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.1
OTU73	0.8	0.5	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0

OTU901	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.1
OTU62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
OTU230	0.0	0.0	0.6	0.0	0.8	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0
OTU105	1.3	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
OTU58	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.0	1.2	0.6	0.3	0.6
OTU2007	0.0	0.0	1.2	0.0	0.8	0.1	0.0	0.1	0.0	0.2	0.2	0.4	0.1
OTU253	0.0	0.1	0.5	0.0	0.7	0.0	0.0	0.2	0.0	0.1	0.3	0.0	0.1
OTU113	0.0	0.2	0.0	0.5	0.8	0.0	0.1	0.2	0.0	0.1	0.0	0.0	0.0
OTU88	0.7	0.4	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
OTU87	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU40	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2
OTU121	0.1	0.0	0.0	0.0	0.4	1.1	0.5	0.8	0.0	0.0	0.0	0.0	0.0
OTU2986	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.7	0.1	0.7	0.3	0.2	0.0
OTU79	0.0	0.2	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.1	0.3	0.0	0.1

(c) Relative abundance (%) of top 100 abundant OTUs in the groundwater samples of the RI column.

OTU	RI1	RI2	RI3	RI4	RI5	RI6	RI7	RI8	RI9	RI10	RI11	RI12	RI13
OTU1	0.7	4.1	13.1	2.7	17.1	11.9	7.4	15.4	23.6	20.2	19.3	0.6	1.3
OTU2	0.0	0.0	1.7	0.2	6.3	3.2	0.5	1.7	38.3	2.2	0.5	0.0	0.1
OTU3	1.5	1.4	3.8	0.6	1.6	6.4	13.7	4.6	1.0	3.1	2.1	1.9	2.2
OTU4	7.9	15.5	2.9	12.1	0.7	6.8	15.9	9.7	1.1	4.9	4.7	0.3	0.7
OTU6	0.3	0.6	2.6	1.3	2.4	5.1	4.7	2.1	1.6	3.9	1.0	0.1	0.4
OTU32	0.1	0.2	1.1	0.5	1.7	1.3	0.4	2.3	1.6	3.5	3.6	0.3	0.6
OTU5	0.0	0.0	4.3	0.0	4.3	1.8	3.8	1.9	0.4	0.2	4.2	0.0	0.0
OTU7	2.8	1.5	0.0	0.8	0.0	0.8	1.7	3.8	0.4	3.6	4.2	0.5	0.6
OTU18	0.0	0.0	0.2	0.0	0.1	0.3	0.1	0.1	0.5	0.3	0.3	0.0	0.1
OTU13	0.1	0.0	0.2	0.0	0.2	0.1	0.1	0.3	0.3	0.1	0.3	0.7	0.3
OTU8	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.3	0.3	1.6	0.3	0.0	0.4
OTU27	0.7	0.0	0.2	0.0	0.1	0.0	0.0	1.2	0.2	1.4	0.8	13.3	9.1
OTU17	0.1	0.0	4.0	0.0	1.3	4.4	0.6	0.4	0.2	0.0	0.0	0.0	0.0
OTU14	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.8	0.0	14.8	14.2
OTU10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.5	1.7	1.5
OTU9	1.4	0.7	0.0	0.5	0.0	0.4	0.8	1.2	0.2	0.8	0.8	0.6	1.5
OTU46	0.4	0.1	3.4	0.3	0.2	0.1	0.2	0.3	0.8	0.7	0.3	0.0	0.0
OTU11	0.7	0.3	0.7	0.1	0.2	0.8	0.3	0.3	0.2	0.3	0.4	0.9	0.9

OTU15	0.6	0.3	0.0	0.3	0.0	0.2	1.1	2.1	0.5	6.3	3.5	0.2	0.3
OTU19	0.4	0.7	0.0	0.2	0.0	0.0	0.3	0.2	0.0	0.2	0.1	0.3	0.3
OTU16	0.0	0.4	0.0	2.9	0.0	0.0	0.1	0.9	0.0	0.6	0.5	0.2	0.8
OTU12	0.2	0.1	0.3	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.3	0.1	0.3
OTU53	0.0	0.1	2.0	0.2	1.8	0.3	0.0	0.4	0.3	0.6	0.9	0.2	0.2
OTU22	0.7	0.9	0.1	0.5	0.2	0.9	0.3	0.1	0.2	0.3	0.1	0.3	0.7
OTU20	0.1	0.3	1.3	0.1	0.2	1.0	0.8	0.5	0.1	0.3	0.4	0.2	0.3
OTU2444	0.6	0.5	2.0	0.2	0.5	1.2	0.6	0.4	0.1	0.2	0.3	0.1	0.2
OTU23	3.9	1.2	1.0	0.2	0.2	0.6	1.3	0.5	0.0	0.0	0.0	0.1	0.2
OTU24	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.1	0.5	1.0
OTU1434	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	12.7	0.1	0.0	0.0	0.0
OTU39	0.0	2.3	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU26	0.6	0.0	0.1	0.5	0.2	0.0	0.0	0.0	0.0	0.2	0.2	1.4	0.3
OTU45	0.9	4.1	0.0	4.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
OTU21	0.1	0.3	0.0	0.3	0.4	0.1	0.2	0.2	0.2	0.1	0.5	0.1	0.0
OTU31	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.1	0.2	0.1	0.3	0.7
OTU384	0.0	0.0	0.4	0.2	0.9	0.1	0.1	0.1	0.4	0.7	0.5	0.0	0.0
OTU28	0.1	0.0	0.4	0.3	0.9	0.4	0.0	0.3	0.0	0.3	0.2	0.5	2.0
OTU506	0.1	0.6	0.2	1.8	0.1	0.3	0.0	0.2	0.2	0.5	0.5	0.0	0.1
OTU114	0.0	0.0	0.1	0.0	0.1	0.2	0.1	0.3	0.1	0.2	0.3	0.0	0.1
OTU37	0.0	0.0	0.2	0.7	0.0	0.3	0.3	0.0	0.6	0.2	0.1	0.1	0.5
OTU48	1.1	2.7	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0

OTU35	1.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU162	0.6	0.1	0.2	0.3	0.6	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1
OTU59	0.1	0.3	0.3	0.6	0.1	0.4	2.3	0.9	0.2	0.7	0.6	0.0	0.0
OTU78	0.1	0.1	3.9	0.4	0.2	1.6	3.6	0.2	0.1	0.1	0.1	0.0	0.0
OTU71	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU30	0.1	0.5	0.0	0.2	0.0	0.0	0.6	0.6	0.2	0.0	0.6	0.0	0.1
OTU64	0.3	0.5	0.1	0.9	0.1	0.9	1.2	0.6	0.2	0.6	0.5	0.0	0.0
OTU44	0.1	0.1	0.3	1.3	2.9	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.0
OTU74	0.1	0.4	0.8	0.3	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1
OTU34	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	6.9	2.8
OTU43	0.4	0.7	0.0	1.2	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.1
OTU29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.4
OTU25	0.0	0.0	0.0	0.0	0.1	1.5	1.4	1.6	0.2	0.7	0.6	0.3	0.5
OTU49	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.0	0.2	0.1	0.0	0.0
OTU117	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.2	0.0	0.4	0.4	1.7	2.3
OTU36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.4	0.8
OTU66	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU83	0.2	0.1	0.3	0.1	1.5	0.8	1.0	0.1	0.0	0.1	0.1	0.4	0.8
OTU193	0.0	0.0	0.1	0.0	0.1	0.3	0.0	0.1	2.9	0.0	0.1	0.0	0.0
OTU47	0.8	1.0	0.0	0.3	0.0	0.1	0.3	0.5	0.1	0.5	0.4	0.1	0.1
OTU69	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.0	0.6	1.6	0.1	0.1
OTU54	1.1	0.8	0.0	1.6	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1

OTU38	0.1	0.2	0.0	0.2	0.0	0.4	0.2	0.3	0.0	0.2	0.3	0.1	0.3
OTU65	2.7	4.5	0.0	1.5	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1
OTU41	0.5	0.6	0.1	0.3	0.0	1.4	0.8	1.2	0.1	0.5	0.3	0.0	0.1
OTU60	0.0	0.0	4.7	0.9	0.4	0.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0
OTU75	0.1	0.0	0.5	0.0	5.0	0.2	0.3	0.0	0.0	0.1	0.1	0.0	0.0
OTU172	0.0	0.2	0.1	1.5	0.3	0.0	0.0	0.1	0.0	0.1	0.3	1.4	0.2
OTU51	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1
OTU93	7.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU205	1.1	0.8	0.0	0.3	0.0	0.5	0.2	0.3	0.1	0.1	0.2	0.0	0.2
OTU92	0.5	1.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU67	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU608	0.0	0.0	1.6	0.0	0.1	0.1	0.3	0.0	0.0	0.1	0.8	0.1	0.0
OTU42	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.4	0.2	0.3
OTU76	0.3	0.5	0.0	0.3	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1
OTU57	0.4	0.2	0.0	0.3	0.0	0.6	0.3	1.0	0.1	0.4	0.5	0.1	0.2
OTU63	0.0	0.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
OTU574	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
OTU131	0.0	0.0	0.0	0.0	0.4	0.0	0.0	1.6	0.1	0.3	0.6	1.4	0.5
OTU61	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.2	0.1	0.0	0.6	0.1	0.0
OTU77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.9	0.7
OTU50	0.1	0.4	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.5	0.7	0.9	2.0

OTU73	0.9	0.6	0.0	0.3	0.0	0.7	0.3	0.7	0.2	0.3	0.1	0.0	0.1
OTU901	0.0	0.1	0.0	0.3	0.0	0.3	0.2	0.1	0.1	0.1	0.3	0.0	0.0
OTU62	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
OTU230	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
OTU105	3.0	0.0	0.4	0.1	0.3	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0
OTU52	0.4	0.0	0.0	0.0	0.0	0.0	0.5	3.4	0.0	0.0	0.1	0.0	0.0
OTU58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	0.8
OTU2007	0.0	0.0	0.2	0.0	0.4	0.2	1.0	0.4	0.0	0.1	0.6	0.1	0.1
OTU253	0.1	0.0	0.5	0.0	0.6	0.0	0.0	0.1	0.0	0.1	0.2	0.1	0.2
OTU113	0.0	0.2	0.2	1.1	0.2	0.0	0.3	0.1	0.0	0.0	0.3	0.4	0.0
OTU88	0.3	0.6	0.0	1.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
OTU87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.9
OTU121	0.0	0.0	0.3	0.0	0.3	0.1	0.4	0.5	0.0	0.0	0.0	0.0	0.0
OTU2986	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.7	0.2	0.2	0.0
OTU79	0.1	0.3	0.0	0.2	0.0	0.1	0.5	0.4	0.0	0.4	0.3	0.2	0.3

Table S 2 The top 100 most abundant OTUs identified to genus.

OTU	Phylum	Class	Order	Family	Genus
OTU1	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Variovorax
OTU2	Proteobacteria	γ-proteobacteria	Pseudomonadales	Pseudomonadaceae	Pseudomonas
OTU3	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU4	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU6	Proteobacteria	α-proteobacteria	Sphingomonadales	Sphingomonadaceae	Novosphingobium
OTU32	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Unclassified
OTU5	Actinobacteria	Actinobacteria	Micrococcales	Micrococcaceae	Pseudarthrobacter
OTU7	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU18	Proteobacteria	γ-proteobacteria	Pseudomonadales	Pseudomonadaceae	Pseudomonas
OTU13	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Hydrogenophaga
OTU8	Proteobacteria	γ-proteobacteria	Cellvibrionales	Cellvibrionaceae	Cellvibrio
OTU27	Proteobacteria	β-proteobacteria	Rhodocyclales	Rhodocyclaceae	Unclassified
OTU17	Saccharibacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU14	Proteobacteria	δ-proteobacteria	Syntrophobacterales	Syntrophobacteraceae	Desulfovirga
OTU10	Firmicutes	Clostridia	Clostridiales	Family_XVIII	Unclassified
OTU9	Unclassified	Unclassified	Unclassified	Unclassified	Unclassified
OTU46	Proteobacteria	β-proteobacteria	Burkholderiales	Oxalobacteraceae	Massilia
OTU11	Parcubacteria	Candidatus_Jorgensenbacteria	Unclassified	Unclassified	Unclassified

OTU15	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU19	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU16	Parcubacteria	Candidatus_Moranbacteria	Unclassified	Unclassified	Unclassified
OTU12	Proteobacteria	α-proteobacteria	Caulobacterales	Caulobacteraceae	Caulobacter
OTU53	Proteobacteria	β-proteobacteria	Burkholderiales	Unclassified	Unclassified
OTU22	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU20	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU2444	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU23	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU24	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU1434	Proteobacteria	γ-proteobacteria	Pseudomonadales	Pseudomonadaceae	Pseudomonas
OTU39	Proteobacteria	β-proteobacteria	Burkholderiales	Burkholderiaceae	Limnobacter
OTU26	Proteobacteria	β-proteobacteria	Rhodocyclales	Rhodocyclaceae	Methyloversatilis
OTU45	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU21	Proteobacteria	β-proteobacteria	Methylophilales	Methylophilaceae	Unclassified
OTU31	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU384	Proteobacteria	β-proteobacteria	Burkholderiales	Oxalobacteraceae	Unclassified
OTU28	Verrucomicrobia	Opitutae	Opitutales	Opitutaceae	Opitutus

OTU506	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Caenimonas
OTU114	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Unclassified
OTU37	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Aquabacterium
OTU48	Firmicutes	Bacilli	Bacillales	Bacillaceae	Anoxybacillus
OTU35	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU162	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Unclassified
OTU59	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU78	Proteobacteria	α-proteobacteria	Caulobacterales	Caulobacteraceae	Brevundimonas
OTU71	Bacteroidetes	Sphingobacteriia	Sphingobacteriales	S15-21	Unclassified
OTU30	Proteobacteria	α-proteobacteria	Sphingomonadales	Sphingomonadaceae	Unclassified
OTU64	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU44	Proteobacteria	α-proteobacteria	Rhizobiales	Hyphomicrobiaceae	Hyphomicrobium
OTU74	Proteobacteria	α-proteobacteria	Caulobacterales	Caulobacteraceae	Phenylobacterium
OTU34	Proteobacteria	δ-proteobacteria	Syntrophobacterales	Syntrophobacteraceae	Desulfovirga
OTU43	Parcubacteria	Candidatus_Jorgensenbacteria	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11	Parcubacteria_group_bacterium_GW2011_GWA1_60_11
OTU29	Firmicutes	Clostridia	Clostridiales	Unclassified	Unclassified
OTU25	Candidatus_Berkelbacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU49	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU117	Proteobacteria	α-proteobacteria	Rhodospirillales	Rhodospirillaceae	Magnetospirillum

OTU36	Nitrospirae	Nitrospira	Nitrospirales	Nitrospiraceae	Unclassified
OTU66	Proteobacteria	α-proteobacteria	Rhodobacterales	Rhodobacteraceae	Rhodobacter
OTU83	Proteobacteria	α-proteobacteria	Rhodospirillales	Rhodospirillales_Incertae_Sedis	Reyranella
OTU193	Proteobacteria	γ-proteobacteria	Pseudomonadales	Pseudomonadaceae	Pseudomonas
OTU47	Parcubacteria	Candidatus_Jorgensenbacteria	Unclassified	Unclassified	Unclassified
OTU69	Proteobacteria	α-proteobacteria	Rhodospirillales	Rhodospirillaceae	Azospirillum
OTU54	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU38	Parcubacteria	Parcubacteria_group_bacterium_GW2011_GWD2_43_10	Parcubacteria_group_bacterium_GW2011_GWD2_43_10	Parcubacteria_group_bacterium_GW2011_GWD2_43_10	Parcubacteria_group_bacterium_GW2011_GWD2_43_10
OTU65	WWE3	Unclassified	Unclassified	Unclassified	Unclassified
OTU41	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU60	Proteobacteria	γ-proteobacteria	Xanthomonadales	Xanthomonadaceae	Thermomonas
OTU75	Actinobacteria	Actinobacteria	Micrococcales	Microbacteriaceae	Microbacterium
OTU172	Proteobacteria	β-proteobacteria	Methylophilales	Methylophilaceae	Unclassified
OTU51	Parcubacteria	Candidatus_Yanofskybacteria_bacterium_GW2011_GWA2_41_22	Candidatus_Yanofskybacteria_bacterium_GW2011_GWA2_41_22	Candidatus_Yanofskybacteria_bacterium_GW2011_GWA2_41_22	Candidatus_Yanofskybacteria_bacterium_GW2011_GWA2_41_22
OTU33	Proteobacteria	α-proteobacteria	Sphingomonadales	Sphingomonadaceae	Novosphingobium
OTU93	Bacteroidetes	Flavobacteriia	Flavobacteriales	Cryomorphaceae	NS10_marine_group
OTU205	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU92	Firmicutes	Bacilli	Bacillales	Paenibacillaceae	Brevibacillus
OTU67	Proteobacteria	γ-proteobacteria	Cellvibrionales	Cellvibrionaceae	Simiduia

OTU608	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Azohydromonas
OTU42	Parcubacteria	Candidatus_Moranbacteria	Unclassified	Unclassified	Unclassified
OTU76	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU57	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU63	Proteobacteria	α-proteobacteria	Sphingomonadales	Sphingomonadaceae	Sphingomonas
OTU574	Proteobacteria	α-proteobacteria	Caulobacterales	Caulobacteraceae	Caulobacter
OTU131	Proteobacteria	β-proteobacteria	Rhodocyclales	Rhodocyclaceae	Unclassified
OTU61	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Unclassified
OTU77	Firmicutes	Clostridia	Clostridiales	Peptococcaceae	Desulfurispora
OTU50	Parcubacteria	Candidatus_Magasanikbacteria	Unclassified	Unclassified	Unclassified
OTU73	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU901	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Paucibacter
OTU62	Proteobacteria	γ-proteobacteria	Legionellales	Legionellaceae	Legionella
OTU230	Proteobacteria	γ-proteobacteria	Oceanospirillales	Oceanospirillaceae	Pseudohongiella
OTU105	Bacteroidetes	Sphingobacteriia	Sphingobacteriales	Chitinophagaceae	Sediminibacterium
OTU52	Proteobacteria	α-proteobacteria	Rickettsiales	Rickettsiales_Incertae_Sedis	Unclassified
OTU58	Candidatus_Berkelbacteria	Unclassified	Unclassified	Unclassified	Unclassified
OTU2007	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Leptothrix
OTU253	Acidobacteria	Subgroup_6	Unclassified	Unclassified	Unclassified
OTU113	Proteobacteria	β-proteobacteria	Methylophilales	Methylophilaceae	Methylobacillus

OTU88	Parcubacteria	Candidatus_Azambacteria	Unclassified	Unclassified	Unclassified
OTU87	Bacteroidetes	Flavobacteriia	Flavobacteriales	Cryomorphaceae	Fluviicola
OTU40	Parcubacteria	Candidatus_Moranbacteria	Unclassified	Unclassified	Unclassified
OTU121	Bacteroidetes	Sphingobacteriia	Sphingobacteriales	Sphingobacteriaceae	Pedobacter
OTU2986	Proteobacteria	β-proteobacteria	Burkholderiales	Comamonadaceae	Ramlibacter
OTU79	Parcubacteria	Unclassified	Unclassified	Unclassified	Unclassified

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