

Table S1. Chemical composition of the bath water CANBW at La Crouen spring (New Caledonia).

Source	This work	Cox et al., 1982
Na (mM)	2.24	2.41
K (μM)	30	0.05
Ca (μM)	35	0.03
Mg (μM)	0.64	8.23
Sr (μM)	4.41	ND ³
Ba (nM)	24	ND ³
Si (mM)	0.81	1.00
DIC as Cinorg (mM)	1.36	0.34
NPOC as Corg (mM) ¹	0.05	ND ³
Cl (mM)	0.24	0.34
SO ₄ (mM)	0.16	0.15
NO ₃ (μM)	0.44	ND ³
F (μM)	23.63	ND ³
PO ₄ (μM)	0.30	ND ³
N ₂ (μM)	363	ND ³
H ₂ (μM)	BDL ²	ND ³
CH ₄ (μM)	BDL ²	ND ³
O ₂ (μM)	54	ND ³
CO ₂ (μM)	BD ²	ND ³

¹ NPOC: Non Purgeable Organic Carbon

² BDL: Below detection limit

³ ND: Not determined

Table S2. Blast analysis on the dominant proteobacterial OTUs (>1% of total sequences in at least on sample) obtained from La Crouen spring.

OTUs (Accession number)	Closest cultivated relative retrieved from NCBI nucleotide database			% of sequences per samples											
	Species (Accession number)	Taxonomy (Proteobacterial class, order, family)	Identity (%)												
				CANBS1	CANBS2	CANBW1	CANBW2	CANPS1	CANPS2	CANPW1	CANPW2	CANAS1	CANAS2	CANAW1	CANAW2
OTU_181 (MW801419)	<i>Aquaspirillum serpens</i> (AB680863)	<i>Betaproteo.</i> ; <i>Neisseriales</i> ; <i>Chromobacteriaceae</i>	99	1.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.4
OTU_5158 (MW801426)	<i>Methyloversatilis</i> sp. DMSP- 7 (KC860260)	<i>Betaproteo.</i> ; <i>Nitrosomonadales</i> ; <i>Sterolibacteriaceae</i>	97	0.3	0.3	4.6	4.4	4.2	5.7	7.4	6.8	1.1	1.7	0.4	0.4
OTU_2 (MW801389)	<i>Ca. Desulfobacillus</i> <i>denitrificans</i> (AP021857)	<i>Betaproteo.</i> ; <i>Candidatus Desulfobacillus</i>	99	0.8	0.7	9.9	10.1	12.5	13.6	16.0	18.1	3.0	4.2	1.1	1.2
OTU_25154 (MW801433)	<i>Ca. Desulfobacillus</i> <i>denitrificans</i> (AP021857)	<i>Betaproteo.</i> ; <i>Candidatus Desulfobacillus</i>	97	0.4	0.4	5.4	5.4	6.4	7.7	8.9	10.0	1.7	2.5	0.5	0.5
OTU_25205 (MW801434)	<i>Ca. Desulfobacillus</i> <i>denitrificans</i> (AP021857)	<i>Betaproteo.</i> ; <i>Candidatus Desulfobacillus</i>	97	0.2	0.1	2.3	2.1	2.3	3.2	3.5	3.6	0.7	1.0	0.3	0.2
OTU_25375 (MW801435)	<i>Ca. Desulfobacillus</i> <i>denitrificans</i> (AP021857)	<i>Betaproteo.</i> ; <i>Candidatus Desulfobacillus</i>	97	0.0	0.0	0.7	0.8	0.9	1.0	1.3	1.6	0.2	0.4	0.1	0.1
OTU_14298 (MW801429)	<i>Ca. Desulfobacillus</i> <i>denitrificans</i> (AP021857)	<i>Betaproteo.</i> ; <i>Candidatus Desulfobacillus</i>	97	0.0	0.0	0.2	0.4	2.1	1.3	0.4	0.4	0.2	0.2	0.1	0.1
OTU_7706 (MW801427)	<i>Sulfurisoma sediminicola</i> (NR_125471)	<i>Betaproteo.</i> ; <i>Nitrosomonadales</i> ; <i>Sterolibacteriaceae</i>	96	0.0	0.0	0.1	0.1	1.5	1.0	0.1	0.1	0.2	0.2	0.1	0.1
OTU_6 (MW801390)	<i>Hydrogenophaga atypica</i> (MG712818)	<i>Betaproteo.</i> ; <i>Burkholderiales</i> ; <i>Comamonadaceae</i>	99	0.2	0.2	4.2	3.3	0.3	0.3	0.2	0.2	0.4	0.3	0.4	0.4
OTU_15795 (MW801430)	<i>Hydrogenophaga aquatica</i> (NR_158120)	<i>Betaproteo.</i> ; <i>Burkholderiales</i> ; <i>Comamonadaceae</i>	99	0.1	0.0	2.4	1.8	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
OTU_2358 (MW801425)	<i>Vogesella indigofera</i> (MG011571)	<i>Betaproteo.</i> ; <i>Neisseriales</i> ; <i>Chromobacteriaceae</i>	95	0.4	0.1	0.1	0.1	0.5	0.3	0.1	0.1	6.9	3.4	0.2	0.2
OTU_11 (MW801393)	<i>Desulfomonile liminaris</i> (NR_025079)	<i>Deltaproteo.</i> ; <i>Syntrophobacterales</i> ; <i>Syntrophaceae</i>	85	0.0	0.0	6.2	5.0	0.1	0.0	10.3	6.8	0.0	0.0	0.1	0.1
OTU_154 (MW801415)	<i>Alkalilimnicola ehrlichii</i> MLHE-1 (CP000453)	<i>Gammaproteo.</i> ; <i>Chromatiales</i> ; <i>Ectothiorhodospiraceae</i>	94	2.5	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.0
OTU_10 (MW801392)	<i>Thiofaba tepidiphila</i> (NR_041602)	<i>Gammaproteo.</i> ; <i>Chromatiales</i> ; <i>Halothiobacillaceae</i>	96	0.3	0.1	4.8	5.6	20.4	10.7	2.5	2.1	2.4	2.2	17.2	18.7
OTU_23277 (MW801432)	<i>Thiofaba tepidiphila</i> (NR_041602)	<i>Gammaproteo.</i> ; <i>Chromatiales</i> ; <i>Halothiobacillaceae</i>	94	0.1	0.0	1.3	1.5	6.4	2.9	0.7	0.6	0.7	0.7	5.2	5.2
OTU_25557 (MW801436)	<i>Thiofaba tepidiphila</i> (NR_041602)	<i>Gammaproteo.</i> ; <i>Chromatiales</i> ; <i>Halothiobacillaceae</i>	93	0.1	0.0	0.4	0.7	1.2	1.4	0.1	0.1	0.1	0.1	1.9	1.8
OTU_77 (MW801402)	<i>Thiovirga sulfuroxydans</i> (NR_040986)	<i>Gammaproteo.</i> ; <i>Chromatiales</i> ; <i>Halothiobacillaceae</i>	97	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	6.3	2.1
OTU_16702 (MW801431)	<i>Thiovirga sulfuroxydans</i> (NR_040986)	<i>Gammaproteo.</i> ; <i>Chromatiales</i> ; <i>Halothiobacillaceae</i>	98	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.1	1.4
OTU_209 (MW801423)	<i>Thiovirga sulfuroxydans</i> (NR_040986)	<i>Gammaproteo.</i> ; <i>Chromatiales</i> ; <i>Halothiobacillaceae</i>	94	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.0	1.9	0.9
OTU_1 (MW801388)	<i>Pseudomonas putida</i> (MG846038)	<i>Gammaproteo.</i> ; <i>Pseudomonadales</i> ; <i>Pseudomonadaceae</i>	99	0.9	0.1	3.2	4.8	1.7	0.1	2.7	4.7	0.9	0.1	0.4	0.4
OTU_194 (MW801422)	<i>Thiothrix disciformis</i> (NR_118037)	<i>Gammaproteo.</i> ; <i>Thiotrichales</i> ; <i>Thiotrichaceae</i>	96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.9	1.4

Table S3. Blast analysis on the dominant non-proteobacterial OTUs (>1% of total sequences in at least on sample) obtained from La Crouen springs.

OTUs (Accession number)	Closest cultivated relative retrieved from NCBI nucleotide database			% of sequences per samples											
	Species (Accession number)	Taxonomy (Phylum, order, family)	Identity (%)	CANBS1	CANBS2	CANBW 1	CANBW 2	CANPS1	CANPS2	CANPW1	CANPW2	CANAS1	CANAS2	CANAW 1	CANAW2
OTU_170 (MW801417)	<i>Paludibaculum fermentans</i> (NR_134120)	Acidobacteria; Solibacterales; Bryobacteraceae	92	0.9	1.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.0
OTU_93 (MW801406)	<i>Lentimicrobium saccharophilum</i> (MG264204)	Bacteroidetes; Bacteroidales; Lentimicrobiaceae	94	1.6	0.3	0.0	0.0	0.2	0.3	0.0	0.0	1.3	0.4	0.5	0.5
OTU_120 (MW801410)	<i>Lentimicrobium saccharophilum</i> (NR_149795)	Bacteroidetes; Bacteroidales; Lentimicrobiaceae	89	1.7	0.4	0.0	0.0	0.3	0.5	0.0	0.0	2.1	0.5	0.5	0.6
OTU_39 (MW801394)	<i>Anaerophaga</i> sp. (KX930003)	Bacteroidetes; Marinilabiales; Marinilabillaceae	99	0.2	0.1	1.4	1.1	5.6	3.4	1.7	1.3	1.3	1.0	0.1	0.1
OTU_72 (MW801400)	<i>Prolixibacter bellariivorans</i> (LC015091)	Bacteroidetes; Marinilabiales; Prolixibacteraceae	86	0.0	0.0	0.5	2.9	0.0	0.0	0.0	0.0	0.0	0.0	1.7	2.5
OTU_92 (MW801405)	<i>Sunxiuqinia faeciviva</i> (NR_108114)	Bacteroidetes; Marinilabiales; Prolixibacteraceae	92	3.9	1.2	0.0	0.0	0.6	1.0	0.0	0.0	0.5	0.2	0.0	0.1
OTU_99 (MW801407)	<i>Raineyia orbicola</i> (MF125288)	Bacteroidetes; Cytophagales; Raineyaceae	89	0.0	0.0	0.6	1.2	0.4	0.0	0.0	0.0	0.1	0.1	1.9	2.5
OTU_79 (MW801403)	<i>Bellilinea caldifistulae</i> (NR_041354)	Chloroflexi; Anaerolineales; Anaerolineaceae	98	1.3	2.2	0.0	0.0	0.5	0.6	0.0	0.0	1.7	3.4	0.0	0.0
OTU_53 (MW801397)	<i>Leptolinea tardivitalis</i> (NR_040971)	Chloroflexi; Anaerolineales; Anaerolineaceae	90	0.1	0.1	2.1	1.2	0.3	0.2	1.8	2.4	0.3	0.1	0.0	0.0
OTU_156 (MW801416)	<i>Thermomarinilinea lacunifontana</i> (NR_132293)	Chloroflexi; Anaerolineales; Anaerolineaceae	89	0.8	2.2	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.0
OTU_138 (MW801413)	<i>Caldilinea tarbellica</i> (NR_117797)	Chloroflexi; Caldilineales; Caldilineaceae	94	0.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.6	0.0	0.0
OTU_75 (MW801401)	<i>Litorilinea aerophila</i> (NR_132330)	Chloroflexi; Caldilineales; Caldilineaceae	89	3.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU_10190 (MW801428)	<i>Litorilinea aerophila</i> (NR_132330)	Chloroflexi; Caldilineales; Caldilineaceae	87	2.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU_101 (MW801408)	<i>Calothrix</i> sp. (MT350509)	Cyanobacteria; Nostocales; Calotrichaceae	94	0.0	0.0	2.1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU_121 (MW801411)	<i>Ancylothrix terrestris</i> (KT819202)	Cyanobacteria; Oscillatoriales; Phormidiaceae	98	0.7	0.2	0.0	0.0	0.5	2.1	0.0	0.0	0.1	0.1	0.3	0.9
OTU_57 (MW801398)	<i>Leptolyngbya</i> sp. (MF405393)	Cyanobacteria; Synechococcales; Leptolyngbyaceae	98	8.7	2.0	0.2	0.2	0.0	0.0	0.0	0.0	2.6	1.2	0.5	0.7
OTU_8 (MW801391)	<i>Meiothermus ruber</i> (KC252987)	Deinococcus-Thermus; Thermales; Thermaceae	98	5.6	14.9	0.3	1.0	0.6	0.9	0.0	0.0	9.0	19.8	0.2	0.2
OTU_83 (MW801404)	<i>Candidatus Aminicenantes</i> (MK067121)	Aminicenantes (candidate phylum OP8)	100	3.5	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU_52 (MW801396)	<i>Candidatus Gracilibacteria</i> (CP042461)	Candidatus Gracilibacteria	92	0.0	0.0	12.0	9.9	0.0	0.0	17.7	17.1	0.0	0.0	0.2	0.1
OTU_127 (MW801412)	<i>Thermodesulfovibrio yellowstonii</i> (NR_074345)	Nitrospirae; Nitrospirales; Nitrospiraceae	89	1.2	0.5	0.0	0.0	0.0	0.1	0.0	0.0	1.5	2.0	0.0	0.0
OTU_148 (MW801414)	<i>Thermodesulfovibrio hydrogeniphilus</i> (NR_044075)	Nitrospirae; Nitrospirales; Nitrospiraceae	87	0.3	0.2	0.0	0.0	0.9	0.8	0.0	0.0	1.0	0.9	0.1	0.1
OTU_51 (MW801395)	<i>Thermodesulfovibrio yellowstonii</i> (NR_074345)	Nitrospirae; Nitrospirales; Nitrospiraceae	89	0.5	0.6	0.0	0.0	0.2	0.7	0.0	0.0	5.0	7.0	0.0	0.0
OTU_60 (MW801399)	<i>Leptospira alexanderi</i> (JQ988836)	Spirochaetes; Leptospirales; Leptospiraceae	90	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	6.5	6.7

OTU_212 (MW801424)	<i>Pedospira parvula</i> (AY960777)	<i>Verrucomicrobia; Verrucomicrobiales</i>	86	1.1	0.4	0.0	0.0	0.4	0.2	0.0	0.0	0.4	0.2	0.0	0.0
OTU_193 (MW801421)	<i>Methanobacterium subterraneum</i> (CP017768)	<i>Euryarchaeota; Methanobacteria; Methanobacteriales;</i> <i>Methanobacteriaceae</i>	99	0.5	1.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0
OTU_178 (MW801418)	<i>Methanobacterium oryzae</i> (NR_028171)	<i>Euryarchaeota; Methanobacteria; Methanobacteriales;</i> <i>Methanobacteriaceae</i>	99	0.2	1.1	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.2	0.0	0.0
OTU_186 (MW801420)	<i>Methanosaeta pelagica</i> (NR_113571)	<i>Euryarchaeota; Methanomicrobium; Methanosarcinales;</i> <i>Methanosaetaceae</i>	96	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTU_106 (MW801409)	<i>Methanosaeta harundinacea</i> (KP231498)	<i>Euryarchaeota; Methanomicrobium; Methanosarcinales;</i> <i>Methanosaetaceae</i>	98	4.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.0	0.0