

C.J. Gray and A.S. Engel - “Microbial diversity and impact on carbonate geochemistry across a changing geochemical gradient in a karst aquifer”

Supplemental Information

Table S2. Operational Taxonomic Units (OTUs) of all clone libraries defined at 98% sequence identity. Red shading is for OTUs from all sites; orange shading for 4 sites; yellow for 3 sites, and brown shading for 2 sites.

Major Taxonomic Class or Phylum	Representative Clone	Accession Number	Closest Relative	Accession Number	% Similarity	Occurrence of clones in OTU per site				
						Girl Scout Deep	Girl Scout Shallow	LCRA Deep	LCRA Shallow	Paradise Alley Shallow
<i>Alphaproteobacteria</i>	EDW07B001_84	HM066242	Lower Kane Cave wall biofilm clone LKC_Acid_196	EU038058	99	4	0	0	0	14
	EDW07B006_69	HM066678	Xiangjiang River <i>Rhizobium</i> sp. XJ-L72 clone	EU817493	98	1	0	0	0	0
	EDW07B005_130	HM066595	Phyllosphere <i>Agrobacterium</i> sp. M11 clone	GU086439	99	5	3	0	2	0
	EDW07B003_49	HM066517	Dust isolate <i>Rhizobium huautlense</i> OS-49.b.	AM237359	100	0	0	0	1	0
	EDW07B003_68	HM066652	<i>Mesorhizobium ciceri</i> strain C-2/2	AY206686	96	0	0	0	1	0
	EDW07B003_109	HM066498	Drinking water treatment biofilms <i>Xanthobacter</i> sp. Clone	FJ572674	99	0	0	0	2	0
	EDW07B003_53	HM066519	<i>Bosea massiliensis</i> strain 63287	NR025118	99	0	0	0	1	0
	EDW07B001_32	HM066286	<i>Dechlorospirillum</i> sp. DB	AY530551	97	0	0	0	0	1
	EDW07B001_85	HM066243	Washing water clone ATB-LH-6119	FJ535117	99	0	2	1	0	3
	EDW07B003_91	HM066485	Lake Tanganyika anoxic hypolimnion clone TK-NH3	DQ463742	97	0	0	0	1	0
	EDW07B003_114	HM066503	Lake Tanganyika anoxic hypolimnion clone TK-NH3	DQ463742	99	0	0	0	1	0
	EDW07B003_40	HM066514	Swine effluent contaminated soil, <i>Sphingomonas</i> sp. BBCT69	DQ337553	98	0	0	0	1	0
	EDW07B003_29	HM066510	Deep-sea sediment <i>Novosphingobium aromaticivorans</i> isolate	AB025012	97	0	0	0	2	0
	EDW07B001_118	HM066314	Zn-resistant clone <i>Sphingomonas</i> sp. ZnH-1	EF061133	99	0	2	0	0	1
	EDW07B001_92	HM066248	Arctic tundra soil clone <i>Sphingomonas</i> sp. DhA-95	AF177917	99	0	0	0	0	1
	EDW07B001_55	HM066296	<i>Sphingomonadaceae</i> bacterium CBFR-1	EF066484	99	0	0	0	0	2
	EDW07B002_20	HM066409	Swine effluent contaminated soil, <i>Sphingomonas</i> sp. BBCT20	DQ337548	96	0	0	1	0	0
	EDW07B003_75	HM066524	Kartchner Caverns stalactite clone KC-IT-W5	FJ711211	99	0	0	0	1	0
	EDW07B006_43	HM066662	<i>Candidatus</i> Reyranelia massiliensis strain URTM1	EF394922	95	1	0	0	0	0
	EDW07B001_58	HM066297	Arctic glacier sandy sediment <i>Brevundimonas</i> strain Asd M7-3	FM955876	100	6	8	3	1	7
	EDW07B001_8	HM066277	Alkaline soil <i>Brevundimonas kwangchunensis</i> strain KSL-110	AY971369	98	0	0	0	2	2
	EDW07B001_26	HM066282	Alkaline groundwater <i>Phenylobacterium falsum</i> strain AC-49T	AJ717391	98	0	0	0	0	1
	EDW07B002_38	HM066351	Hydrocarbon-contaminated soil <i>Caulobacter</i> clone CM14D1	AM936876	99	0	0	1	0	0
	EDW07B003_20	HM066508	<i>Caulobacter crescentus</i> NA1000	CP001340	99	2	5	1	2	0
	EDW07B001_1	HM066203	Bering Sea surface water clone DBS1a18	GQ984314	94	0	0	0	0	1
	EDW07B001_5	HM066275	Lower Kane Cave wall biofilm clone LKC_Acid_196	EU038058	99	3	0	0	0	6
	EDW07B006_39	HM066720	Groundwater <i>Rhizobium</i> clone W3	EU781656	99	1	0	0	0	0

Major Taxonomic Class or Phylum	Representative Clone	Closest Relative	Accession #	% Similarity	Girl Scout Deep	Girl Scout Shallow	LCRA Deep	LCRA Shallow	Paradise Alley Shallow	
Gammaproteobacteria	EDW07B005_145	HM066627	<i>Agrobacterium larrymoorei</i>	EU373312	99	0	1	0	0	0
	EDW07B003_90	HM066528	Drinking water treatment plant <i>Xanthobacter</i> clone	FJ572674	99	0	0	0	1	0
	EDW07B001_11	HM066279	Deep-sea sediment isolate <i>Novosphingobium subterraneum</i>	AB025014	97	0	0	0	0	5
	EDW07B005_105	HM066617	Deep-sea sediment isolate <i>Novosphingobium aromaticivorans</i>	AB025012	99	0	1	0	1	0
	EDW07B003_65	HM066521	Washing water clone ATB-LH-6119	FJ535117	99	1	2	0	1	0
	EDW07B001_109	HM066312	Dust isolate <i>Sphingomonas</i> sp. PA219	AM900782	96	0	0	0	0	1
	EDW07B001_80	HM066306	<i>Sphingomonadaceae</i> bacterium CBFR-1	EF066484	99	0	0	0	0	1
	EDW07B001_9	HM066278	Arctic glacier sandy sediment <i>Brevundimonas</i> strain Asd M7-3	FM955876	99	2	3	4	4	10
	EDW07B003_18	HM066507	Soil <i>Brevundimonas lenta</i> strain DS-18	EF363713	99	0	0	0	1	0
	EDW07B005_176	HM066638	Alkaline soil <i>Brevundimonas kwangchunensis</i> strain KSL-110	AY971369	97	0	1	0	0	0
	EDW07B003_85	HM066526	<i>Caulobacter crescentus</i> NA1000	CP001340	99	0	4	0	1	0
	EDW07B002_87	HM066420	Alphaproteobacterium clone A0902	AF236003	95	0	0	1	0	0
	EDW07B003_104	HM066493	<i>Pseudomonas fluorescens</i> strain Ps 7-12	EU854430	99	19	3	0	5	0
	EDW07B001_128	HM066319	Rhizosphere <i>Pseudomonas poae</i> strain BIHB730	DQ536513	99	2	9	0	5	13
	EDW07B005_125	HM066592	Pb-An mine tailings clone Fe-K6-C35	EF612432	91	0	1	0	0	0
	EDW07B003_26	HM066445	Rhizosphere <i>Pseudomonas poae</i> strain BIHB730	DQ536513	98	0	0	0	1	0
	EDW07B003_28	HM066447	Rhizosphere <i>Pseudomonas migulae</i> strain CT14	EU111725	98	1	0	1	1	1
	EDW07B005_113	HM066587	Deep-sea sediment <i>Pseudomonas</i> 130(2zx) isolate	AM409194	99	1	1	0	0	0
	EDW07B001_86	HM066244	Soil and phyllosphere <i>Pseudomonas putida</i>	AY958233	99	2	0	0	21	4
	EDW07B003_4	HM066431	<i>Pseudomonas</i> ACP14	AY464463	99	0	1	0	1	0
	EDW07B003_77	HM066476	<i>Pseudomonas argentinensis</i> strain HDDMG01	EU723817	99	6	3	0	1	0
	EDW07B005_129	HM066594	<i>Pseudomonas fluorescens</i> strain Mc07	EF672049	98	1	1	0	0	0
	EDW07B001_87	HM066245	Phyllosphere <i>Pseudomonas</i> HhSoUsc	AY089990	99	0	0	0	11	2
	EDW07B006_73	HM066682	Wastewater treatment plant <i>Pseudomonas</i> clone 1-C	EU305565	99	1	0	0	0	0
	EDW07B005_81	HM066576	Wastewater treatment plant <i>Acinetobacter</i> strain HPC253	AY346313	99	2	3	0	0	0
	EDW07B002_102	HM066392	Himalayan soil sample <i>Pseudomonas</i> SPS-2	AM689946	96	0	0	1	0	0
	EDW07B002_98	HM066389	Hydrocarbon contaminated soil clone AMFG7	AM935272	97	0	0	1	0	0
	EDW07B005_142	HM066624	Soil <i>Pseudomonas rhodesiae</i> strain NO5	FJ462694	99	10	6	0	2	1
	EDW07B003_56	HM066520	<i>Pseudomonas</i> AEBL3	AY247063	99	0	1	0	2	1
	EDW07B006_95	HM066696	Rhizosphere <i>Pseudomonas</i> clone TM14_39	DQ279339	95	1	0	0	0	0
	EDW07B005_157	HM066593	Hemp water <i>Pseudomonas argentinensis</i> strain HDDMG01	EU723817	99	2	1	0	0	0
	EDW07B006_62	HM066672	Cotton soil <i>Pseudomonas</i> clone 28R14a	AF456224	97	1	0	0	0	0
EDW07B006_29	HM066655	Wastewater treatment plant <i>Acinetobacter</i> strain HPC253	AY346313	97	1	0	0	0	0	
EDW07B001_101	HM066254	Deep-sea sediment <i>Stenotrophomonas</i> isolate An27	AJ551165	99	0	0	0	0	1	
Betaproteobacteria	EDW07B003_5	HM066432	Tar-oil aquifer sediments <i>Hydrogenophilaceae</i> clone D10-09	EU266782	93	0	0	0	2	0
	EDW07B002_72	HM066377	Marine sediment clone STU9	EU700151	99	0	0	7	0	0
	EDW07B002_57	HM066366	Marine sediment STU9	EU700151	96	0	0	1	0	0
	EDW07B002_30	HM066345	Frasassi cave sulfidic stream clone lka50b	EF467590	98	0	2	29	0	0

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	EDW07B001_4	HM066205 Deep-sea sediment <i>Janthinobacterium</i> An8 isolate	AJ551147	99	0	1	2	4	6
	EDW07B002_79	HM066382 Cleanroom <i>Massilia</i> sp. clone GI8-sp-C19	GQ129883	99	0	1	1	0	0
	EDW07B005_101	HM066580 Dune sand <i>Oxalobacteraceae</i> bacterium clone 3	EU362132	98	1	4	0	0	0
	EDW07B005_74	HM066573 Soil crust <i>Massilia timonae</i> clone CP183-9	AJ871463	98	0	1	0	0	0
	EDW07B002_61	HM066369 EBPR sludge clone SBR1001	AF204252	95	0	0	3	0	0
	EDW07B005_18	HM066544 Anaerobic Fe(III) & Mn(IV) degrader <i>Georgfuchsia toluolica</i>	EF219370	94	0	3	0	0	0
	EDW07B002_120	HM066404 Microbial fuel cell <i>Azospira</i> clone MFC-B162-F12	FJ393125	93	0	0	1	0	0
	EDW07B001_42	HM066222 Simazine-degrading clone CDB21	AB194096	99	4	4	0	2	8
	EDW07B003_101	HM066491 Simazine-degrading clone CDB21	AB194096	99	0	0	0	2	0
	EDW07B005_122	HM066591 Hydrogen-oxidizing <i>Burkholderia sordidicola</i> isolate Jm120	DQ256491	99	0	1	0	0	0
	EDW07B001_18	HM066207 Concrete sewer pipe biofilm 057MICCrown clone	JF341695	97	0	0	0	0	1
	EDW07B001_70	HM066234 Tar-oil aquifer sediments <i>Hydrogenophilaceae</i> clone D10_45	EU266809	99	0	0	0	0	11
	EDW07B005_43	HM066558 Wetland water clone TDNP_Wbc97_166_1_58	FJ517027	96	0	2	0	0	0
	EDW07B002_118	HM066402 Wetland water clone TDNP_Wbc97_166_1_58	FJ517027	95	0	0	1	0	0
	EDW07B002_41	HM066354 <i>Comamonas</i> sp. L11	EF426453	99	0	3	1	0	0
	EDW07B006_13	HM066646 <i>Delftia</i> sp. LFJ11-1	DQ140182	98	1	0	0	0	0
	EDW07B006_108	HM066701 Activated sludge <i>Acidovorax</i> clone KSP2	AB076843	98	1	0	0	0	0
	EDW07B005_144	HM066626 TCE-transforming wastewater clone SJA-62	AJ009470	99	0	1	0	0	0
	EDW07B001_68	HM066233 Thiosulfate-oxidizing freshwater <i>Thiobacillus</i> isolate LMD81.11	AJ289884	97	0	0	0	0	5
	EDW07B002_116	HM066401 Tar-oil aquifer sediment <i>Gallionellaceae</i> clone D12_32	EU266836	94	0	0	1	0	0
	EDW07B002_52	HM066363 Microbial fuel cell <i>Azospira</i> clone MFC-B162-G10	FJ393134	99	0	0	5	11	0
	EDW07B001_98	HM066252 Freshwater pond <i>nifH</i> -harboring clone IMCC1716	DQ664239	95	0	0	0	0	1
	EDW07B001_10	HM066206 <i>Thiobacillus denitrificans</i> ATCC 25259	CP000116	99	0	0	0	0	2
	EDW07B001_37	HM066288 Simazine-degrading clone CDB21	AB194096	99	1	2	0	0	2
	EDW07B003_88	HM066483 Microbial fuel cell clone <i>Azospira</i> MFC-B162-G10	FJ393134	98	0	0	0	1	0
	EDW07B005_165	HM066635 Anaerobic Fe(III) & Mn(IV) degrader <i>Georgfuchsia toluolica</i>	EF219370	96	0	1	0	0	0
	EDW07B006_42	HM066661 Dune sand <i>Oxalobacteraceae</i> clone 3	EU362132	98	1	0	0	0	0
	EDW07B006_127	HM066710 Antarctic lake sediments <i>Janthinobacterium</i> clone Lc30-2	GU244361	98	1	0	0	0	0
	EDW07B005_93	HM066613 <i>Comamonas</i> sp. L11	EF426453	99	0	2	0	0	0
<i>Deltaproteobacteria</i>	EDW07B001_39	HM066220 Marine cold-seep sediments clone GoM140_Bac40	AM746084	92	0	0	0	0	1
	EDW07B003_98	HM066490 El Zacaton biomat, 114 m deep, clone 114MB87	FJ485074	97	0	0	0	1	0
	EDW07B001_121	HM066266 Wetland water clone TCNP_Wbc97_1_229	FJ517129	96	0	0	0	0	1
	EDW07B005_14	HM066542 Humic lake water clone CrystalBog021E5	AY792293	90	0	1	0	0	0
	EDW07B001_47	HM066225 UASB reactor <i>Smithella</i> clone B09	EU888819	93	0	0	0	0	1
	EDW07B005_72	HM066571 Deep marine sediments, 2725 m deep, clone II3B	FJ205327	84	0	1	0	0	0
	EDW07B001_28	HM066214 El Zacaton biomat, 114 m deep, clone Z17M21B	FJ484425	87	0	0	0	0	2
	EDW07B005_97	HM066578 Mangrove soil clone MSB-5D3	DQ811832	80	0	1	0	0	0
<i>Bacteroidetes</i>	EDW07B001_46	HM066291 Soil enrichment <i>Pedobacter</i> sp. VA-17	DQ984208	97	0	0	0	0	1
	EDW07B003_51	HM066518 Soil <i>Pedobacter terrae</i> strain DS-57	DQ889723	99	0	0	0	1	0

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Nitrospirae	EDW07B002_60	HM066368	Soil <i>Pedobacter agri</i> strain PB92	EF660751	100	0	0	3	0	0
	EDW07B001_88	HM066246	Volcanic deposit soil <i>Sphingobacteriaceae</i> clone KVD-1969-11	DQ490464	97	0	0	0	0	1
	EDW07B002_75	HM066380	Water <i>Flavobacterium</i> isolate ARSA-45	GU295966	98	0	0	7	0	0
	EDW07B002_34	HM066413	<i>Cytophaga</i> sp. SA1	AF414444	95	0	0	2	0	0
	EDW07B003_39	HM066513	Paper mill slime <i>Bacteroidetes</i> clone CLi112	AF529321	98	1	0	0	2	0
	EDW07B002_47	HM066358	Paper pulp column <i>Bacteroidetes</i> clone CC_04	EF562555	99	0	0	1	0	0
	EDW07B002_39	HM066352	Fresh water lake <i>Bacteroidetes</i> clone 1.9.7.2	AY887013	98	0	0	1	0	0
	EDW07B002_103	HM066424	Sediment <i>Flavobacterium</i> clone THWCSN34	AM888191	96	0	0	1	0	0
	EDW07B002_94	HM066423	Soil <i>Pedobacter agri</i> strain PB92	EF660751	99	0	0	1	0	0
	EDW07B001_110	HM066260	Tar-oil aquifer sediment <i>Bacteroidetes/Chlorobi</i> clone D25_47	EU266920	91	0	0	1	0	1
	EDW07B002_36	HM066349	Marine sediment <i>Bacteroidetes</i> clone ANTXXIII_706-4_Bac44	FN429794	89	0	0	1	0	0
	EDW07B005_121	HM066590	Mo mine sediment <i>Bacteroidetes/Chlorobi</i> clone 715OD1B27	EF562135	95	0	1	0	0	0
	EDW07B005_23	HM066548	Cold-seep sediment <i>Cytophaga</i> clone JT75-104	AB189358	87	0	1	0	0	0
	EDW07B005_118	HM066588	Tar-oil aquifer sediment <i>Nitrospiraceae</i> clone D15_30	EU266868	98	0	3	0	0	1
	EDW07B005_73	HM066572	El Zacaton biomat, 17 m deep, clone Z17M50B	FJ484454	93	0	1	0	0	0
	EDW07B002_112	HM066400	Wetland water <i>Nitrospirae</i> clone TDNP_Wbc97_10_7_4	FJ516996	95	0	0	3	0	0
	EDW07B003_16	HM066439	El Zacaton biomat, 17 m deep, clone Z17M13B	FJ484418	94	0	0	0	1	0
	EDW07B005_16	HM066543	El Zacaton biomat, 17 m deep, clone Z17M13B	FJ484418	94	0	1	0	0	0
	EDW07B006_84	HM066689	El Zacaton biomat, 53 m deep, clone Z53M16B	FJ484503	97	1	0	0	0	0
	EDW07B002_121	HM066405	Radioactive waste well water clone S15A-MN131	AJ534688	87	0	0	1	0	0
EDW07B005_127	HM066593	Wetland water clone TDNP_USbc97_185_1_45	FJ516912	95	0	1	0	0	0	
EDW07B005_79	HM066605	Deep marine sediment <i>Nitrospira</i> clone II1F	FJ205367	94	0	1	0	0	0	
Firmicutes	EDW07B001_27	HM066283	Subsurface water, South Africa clone DR546BH1103001SAD14	DQ234641	95	0	0	3	0	1
Planctomycetes	EDW07B002_19	HM066339	Nitrate-reducing, deep-sea vent <i>Vulcanibacillus modesticaldus</i>	AM050346	95	0	0	1	0	0
	EDW07B002_44	HM066356	Nitrate-reducing, deep-sea vent <i>Vulcanibacillus modesticaldus</i>	AM050346	95	0	0	1	0	0
	EDW07B005_49	HM066562	Mangrove soil <i>Firmicutes</i> clone MSB-5C10	DQ811928	86	0	1	0	0	0
	EDW07B001_141	HM066328	Subsurface water, South Africa clone DR546BH1103001SAD14	DQ234641	95	0	0	0	0	1
Chloroflexi	EDW07B005_7	HM066537	Pristine coastal aquifer <i>Planctomycete</i> clone 49S1_2B_12	DQ837238	89	0	1	0	0	0
	EDW07B005_24	HM066549	Pristine coastal aquifer <i>Planctomycete</i> clone 49S1_2B_12	DQ837238	97	0	1	0	0	0
	EDW07B002_12	HM066335	El Zacaton biomat, 195 m deep, clone Z195MB5	FJ484765	91	0	0	1	0	0
	EDW07B002_28	HM066343	Wetland water <i>Planctomycetales</i> clone TDNP_Wbc97_134_1_41	FJ517014	90	0	0	1	0	0
Caldithrix	EDW07B005_86	HM066608	Tar-oil aquifer sediment <i>Chloroflexi</i> clone D15_19	EU266859	94	0	1	0	0	0
	EDW07B003_87	HM066482	Lake Tanganyika anoxic hypolimnion clone TK-SH12	DQ463718	88	0	0	0	1	0
Candidate Divisions	EDW07B001_41	HM066221	Limestone sinkhole <i>Caldithrix</i> clone LP30MUD30	FJ901586	83	0	0	0	0	2
	EDW07B002_65	HM066372	Farm soil Candidate Division SPAM clone AKYG1047	AY921949	92	0	0	1	0	0
	EDW07B005_131	HM066596	Suboxic freshwater Candidate Division OD1 clone MVP-6A-5	DQ676467	86	0	1	0	0	0
	EDW07B005_52	HM066599	Glacier soil Candidate Division TM7 clone P1s-267	GQ287613	92	0	1	0	0	0
Total						88	108	97	105	128