

TABLE S2. Operational Taxonomic Unit (OTU) designations for the full-length *Zetaproteobacteria* dataset.

OTU	Clone	Accession Number	Rep. no. clones	Region	Reference
1	Loh OTU2 clone 60	FJ001796	11	Loihi Seamount	Rassa <i>et al.</i> , 2009
1	Poh OTU1 clone 9	JF320714	8	Loihi Seamount	This study
1	Poh OTU1 clone 67	JF320715	8	Loihi Seamount	This study
1	Poh OTU1 clone 74	JF320716	8	Loihi Seamount	This study
1	Poh OTU15 clone 52	JF320731	1	Loihi Seamount	This study
1	ULoh OTU20 clone 55	JF320770	2	Loihi Seamount	This study
1	ULoh OTU39 clone 94	JF320772	1	Loihi Seamount	This study
1	UNH OTU16 clone 122	JF320787	2	Loihi Seamount	This study
1	V1F clone 151b	FJ905756	6	Tonga Arc	Forget <i>et al.</i> , 2010
1	AV19F clone 4b	FJ905617	17	Tonga Arc	Forget <i>et al.</i> , 2010
1	ELSC clone 13	FJ205309	1	East Lau Spreading Center	GenBank; C. Dong, pers. comm.
1	Kermadec Arc clone TF-31	FJ535254	1	Kermadec Arc	Hodges and Olson, 2009
1	1-WB OTU4 clone 29	EU574657	1	Southern Mariana Trough	Davis and Moyer, 2008
2	PVB OTU4 clone 13	U15116	1	Loihi Seamount	Moyer <i>et al.</i> , 1995
2	UHO OTU2 clone 21	JF320735	4	Loihi Seamount	This study
2	SPL OTU7 clone 22	JF320751	3	Loihi Seamount	This study
2	Loh OTU1 clone 67	FJ001795	12	Loihi Seamount	Rassa <i>et al.</i> , 2009
2	Poh OTU2 clone 12	JF320717	7	Loihi Seamount	This study
2	Poh OTU2 clone 27	JF320718	7	Loihi Seamount	This study
2	Poh OTU2 clone 89	JF320719	7	Loihi Seamount	This study
2	ULoh OTU8 clone 191	JF320764	8	Loihi Seamount	This study
2	UNH OTU13 clone 95	JF320785	2	Loihi Seamount	This study
2	Cleft Mound pushcore clone CMB-2	DQ832638	2	Juan de Fuca Ridge	Davis <i>et al.</i> , 2009
2	Vailulu'u Seamount clone VS_CL-318	FJ497570	1	Vailulu'u Seamount	Sudek <i>et al.</i> , 2009
3	Poh OTU16 clone 64	JF320732	1	Loihi Seamount	This study
3	Cleft Mound pushcore clone CMB-25	DQ832637	3	Juan de Fuca Ridge	Davis <i>et al.</i> , 2009
3	AV19F clone 45b	FJ905642	5	Tonga Arc	Forget <i>et al.</i> , 2010
3	V1F clone 2b	FJ905692	27	Tonga Arc	Forget <i>et al.</i> , 2010
4	Poh OTU6 clone 78	JF320723	3	Loihi Seamount	This study
4	Poh OTU7 clone 34	JF320724	3	Loihi Seamount	This study
4	Poh OTU13 clone 3	JF320729	1	Loihi Seamount	This study
4	Poh OTU14 clone 5	JF320730	1	Loihi Seamount	This study
4	V1F clone 118b	FJ905745	1	Tonga Arc	Forget <i>et al.</i> , 2010
4	V1F clone 7b	FJ905694	1	Tonga Arc	Forget <i>et al.</i> , 2010
4	V1F clone 25b	FJ905704	9	Tonga Arc	Forget <i>et al.</i> , 2010
4	ELSC clone 16	FJ205310	15	East Lau Spreading Center	GenBank; C. Dong, pers. comm.
5	V1F clone 48b	FJ905712	12	Tonga Arc	Forget <i>et al.</i> , 2010
6	SPL OTU2 clone 25	JF320746	6	Loihi Seamount	This study
6	Loh OTU5 clone 26	FJ001799	3	Loihi Seamount	Rassa <i>et al.</i> , 2009
6	Loh OTU5 clone 49	JF320713	2	Loihi Seamount	Rassa <i>et al.</i> , 2009
7	SPL OTU1 clone 10	JF320745	8	Loihi Seamount	This study
8	2-WB OTU10 clone 8	EU574670	5	Southern Mariana Trough	Davis and Moyer, 2008
8	AV19F clone 30b	FJ905632	2	Tonga Arc	Forget <i>et al.</i> , 2010
8	ELSC clone 40	FJ205311	1	East Lau Spreading Center	GenBank; C. Dong, pers. comm.

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TABLE S2. Operational Taxonomic Unit (OTU) designations for the full-length *Zetaproteobacteria* dataset. (Continued)

OTU	Clone	Accession Number	Rep. no. clones	Region	Reference
9	Environmental enrichment JMM_S4-B-H2a	HQ206658	1	Maine	McBeth <i>et al.</i> , 2011
9	Cleft Mound pushcore clone CMB-6	DQ832644	3	Juan de Fuca Ridge	Davis <i>et al.</i> , 2009
9	Papm3 clone BL26	AB284832	1	Southern Mariana Trough	Kato <i>et al.</i> , 2009b
9	Papm3 clone BL54	AB284833	1	Southern Mariana Trough	Kato <i>et al.</i> , 2009b
9	Vailulu'u Seamount clone VS_CL-111	FJ497362	1	Vailulu'u Seamount	Sudek <i>et al.</i> , 2009
9	Vailulu'u Seamount clone VS_CL-407	FJ497659	1	Vailulu'u Seamount	Sudek <i>et al.</i> , 2009
10	Poh OTU10 clone 1	JF320727	2	Loihi Seamount	This study
10	Poh OTU11 clone 68	JF320728	2	Loihi Seamount	This study
10	ULoh OTU22 clone 69	JF320771	2	Loihi Seamount	This study
10	UNH OTU12 clone 27	JF320784	2	Loihi Seamount	This study
11	<i>Mariprofundus ferrooxydans</i> strain JV-1	EF493244	1	Loihi Seamount	Emerson and Moyer, 2002; Emerson <i>et al.</i> , 2007
11	<i>Mariprofundus ferrooxydans</i> strain PV-1	EF493243	1	Loihi Seamount	Emerson and Moyer, 2002; Emerson <i>et al.</i> , 2007
11	<i>Mariprofundus</i> sp. strain M34	JF317957	1	Loihi Seamount	This study
11	Loh OTU7 clone 5	FJ001801	2	Loihi Seamount	Rassa <i>et al.</i> , 2009
11	SFB salt marsh sediment clone WSMO200	GU291335	2	California	Moreau <i>et al.</i> , 2010
12	UNB OTU6 clone 31	JF261517	3	Loihi Seamount	Edwards <i>et al.</i> , 2011
12	UNB OTU8 clone 7	JF261519	2	Loihi Seamount	Edwards <i>et al.</i> , 2011
13	V1F clone 74b	FJ905724	5	Tonga Arc	Forget <i>et al.</i> , 2010
14	Red Sea bacterium KT-2K34	AJ309526	1	Red Sea	Eder <i>et al.</i> , 2001
14	UNB OTU7 clone 44	JF261518	3	Loihi Seamount	Edwards <i>et al.</i> , 2011
15	Papm3 clone BL17	AB284830	1	Southern Mariana Trough	Kato <i>et al.</i> , 2009b
15	Papm3 clone BL58	AB284834	1	Southern Mariana Trough	Kato <i>et al.</i> , 2009b
15	Papm3 clone BL23	AB284831	1	Southern Mariana Trough	Kato <i>et al.</i> , 2009b
16	AV19F clone 42b	FJ905640	2	Tonga Arc	Forget <i>et al.</i> , 2010
16	V1F clone 105b	FJ905738	1	Tonga Arc	Forget <i>et al.</i> , 2010
17	ELSC clone 100	FJ205312	3	East Lau Spreading Center	GenBank; C. Dong, pers. comm.
18	Laboratory enrichment JMM_Dock-D2b-C6	HQ206656	1	Maine	McBeth <i>et al.</i> , 2011
18	Laboratory enrichment JMM_S1-C-H1a	HQ206657	1	Maine	McBeth <i>et al.</i> , 2011
19	SPL OTU11 clone 31	JF320755	2	Loihi Seamount	This study
20	2-WB OTU8 clone 7	EU574668	2	Southern Mariana Trough	Davis and Moyer, 2008
21	AV19F clone 13b	FJ905621	1	Tonga Arc	Forget <i>et al.</i> , 2010
21	V1F clone 125b	FJ905748	1	Tonga Arc	Forget <i>et al.</i> , 2010
22	PV-549_X2 clone P9X2b7H12	EU491223	1	Loihi Seamount	Santelli <i>et al.</i> , 2008
22	PV-549_X2 clone P9X2b8F02	EU491311	1	Loihi Seamount	Santelli <i>et al.</i> , 2008
23	<i>Mariprofundus</i> sp. strain GSB2	HQ206653	1	Maine	McBeth <i>et al.</i> , 2011
24	Guaymas Core B clone B03R022	AY197408	1	Guaymas	Dhillon <i>et al.</i> , 2003
25	AV19F clone 106b	FJ905673	1	Tonga Arc	Forget <i>et al.</i> , 2010
26	Kermadec Arc clone CF-30	FJ535293	1	Kermadec Arc	Hodges and Olson, 2009
27	Kermadec Arc clone TS-20	FJ535342	1	Kermadec Arc	Hodges and Olson, 2009
28	Vailulu'u Seamount clone VS_CL-152	FJ497401	1	Vailulu'u Seamount	Sudek <i>et al.</i> , 2009