Liu, L, Yang, J, Yu, Z and Wilkinson, DM

The biogeography of abundant and rare bacterioplankton in the lakes and reservoirs of China.

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Article

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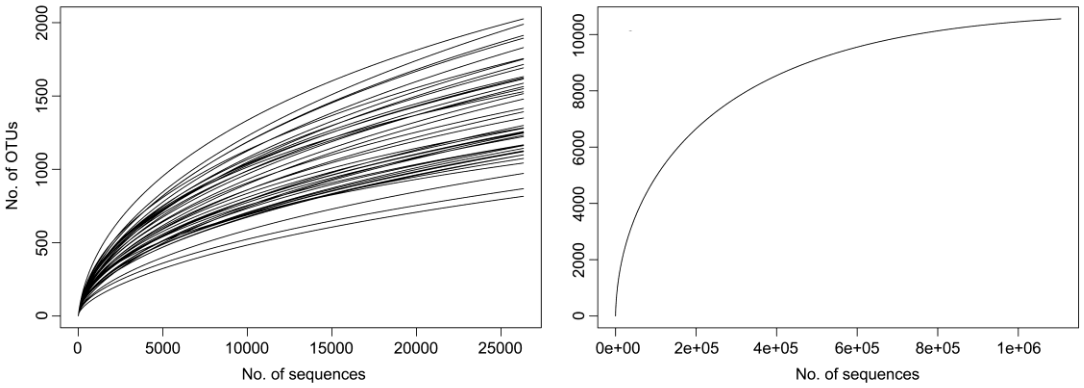

Figure S1 Rarefaction curves of similarity-based operational taxonomic unit (OTUs) at cluster distance value of 0.03. Left - the individual samples, right - the combined set of 42 samples.

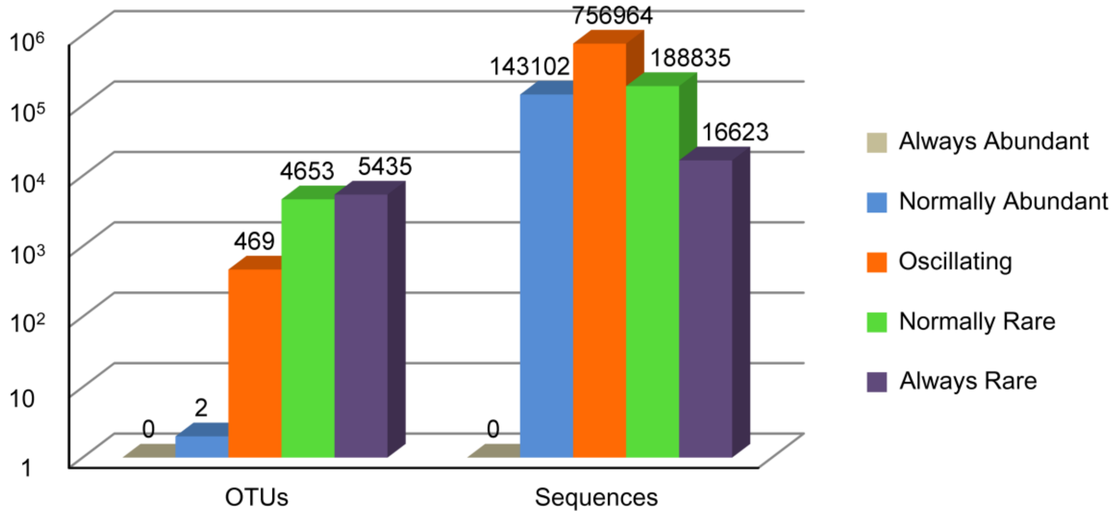

Figure S2 The number of OTUs and sequences of always abundant (the OTUs with > 1% abundance in all samples), normally abundant (the OTUs with > 1% abundance were present > 70% of the samples), Oscillating (the OTUs does not fall in any of the other categories), normally rare (the OTUs with < 0.01% abundance were present > 70% of the samples), and always rare bacteria (the OTUs with < 0.01% abundance in all samples).

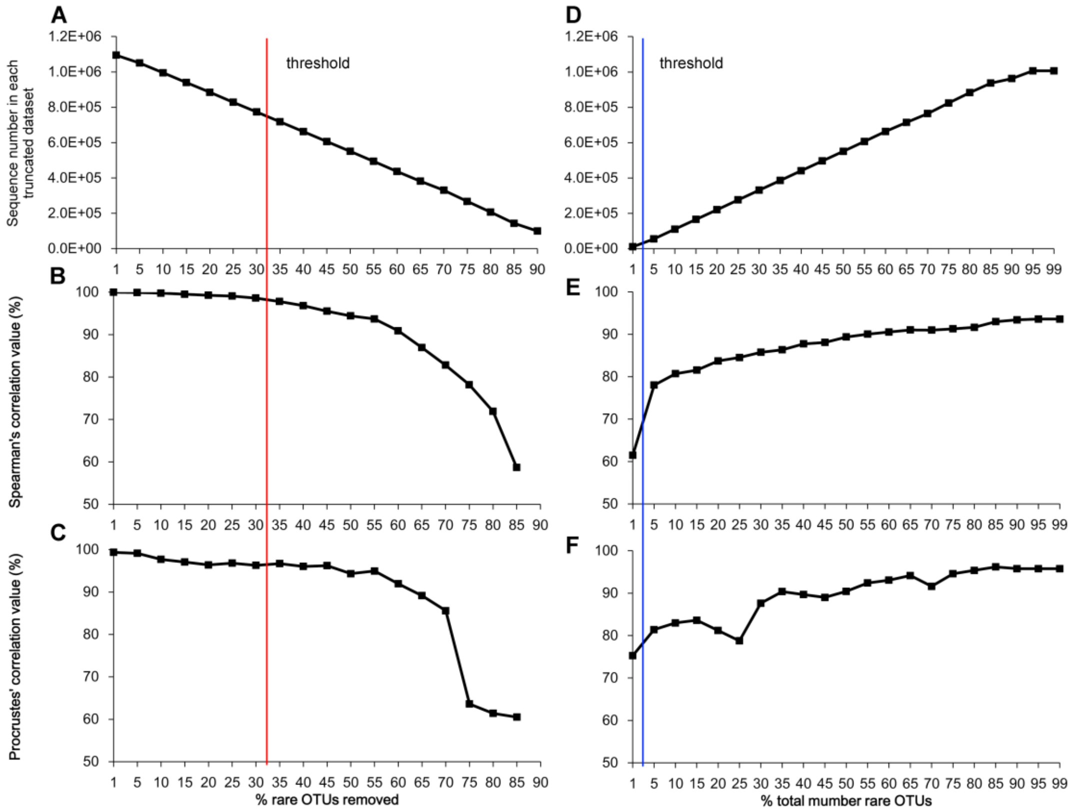

Figure S3 MultiCoLA profiles based on the dataset-cutoff approaches. The rare OTUs were removed (A-C), and the rare OTUs were retained (D-F) in each truncated dataset. Abundance of OTUs in each truncated dataset (A, D). Non-parametric Spearman correlations comparing the deviation in complete data structure between the original matrix and truncated matrices (B, E). Comparison of most important axes of extracted variation between the original and truncated datasets (C, F). Lacking points are due to sample loss by applying a given cutoff to the original dataset. The red line indicated the threshold of abundant OTUs (32.0%), and the blue line indicated the threshold of rare OTUs (2.7%) in this study, respectively.

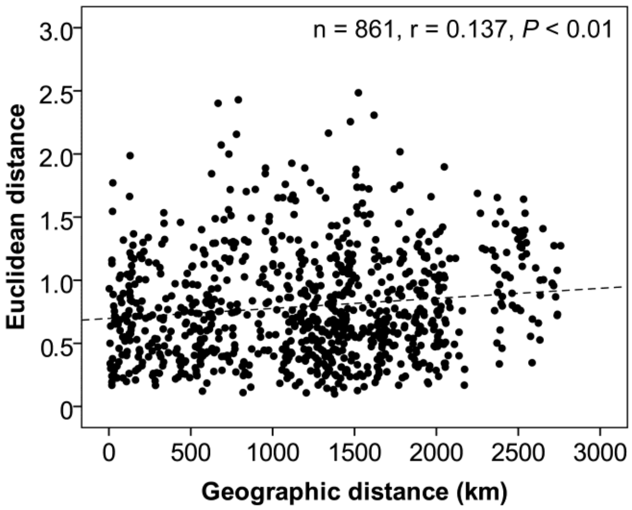

Figure S4 Spearman’s rank correlation between the Euclidean distance and geographical distance (n is the number of comparison, all ten environmental variables were used, see material and methods).

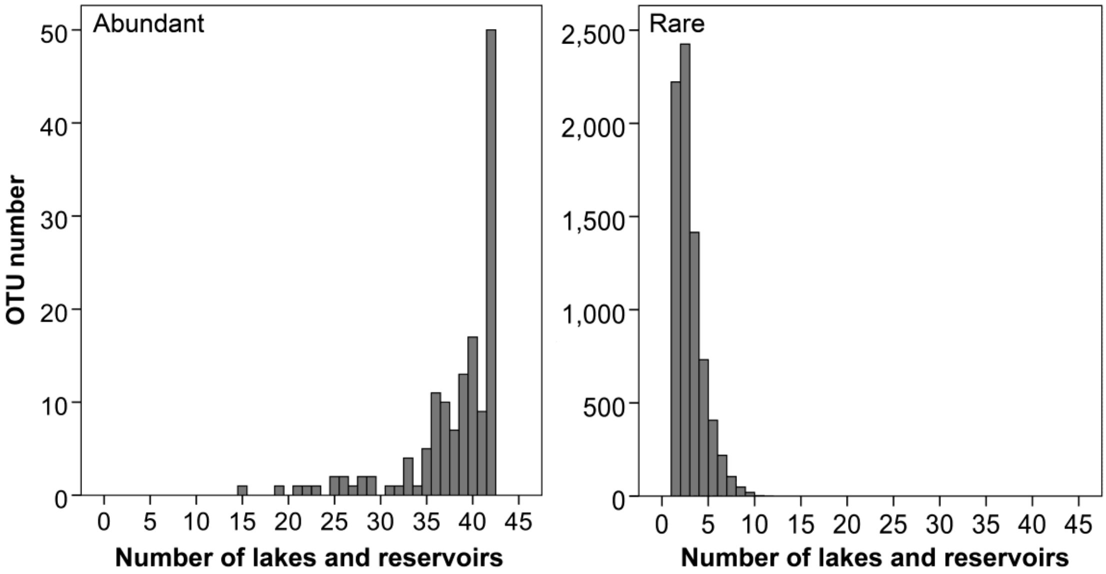

Figure S5 Frequency distribution of abundant and rare bacterial OTUs from 42 inland lakes and reservoirs across China.

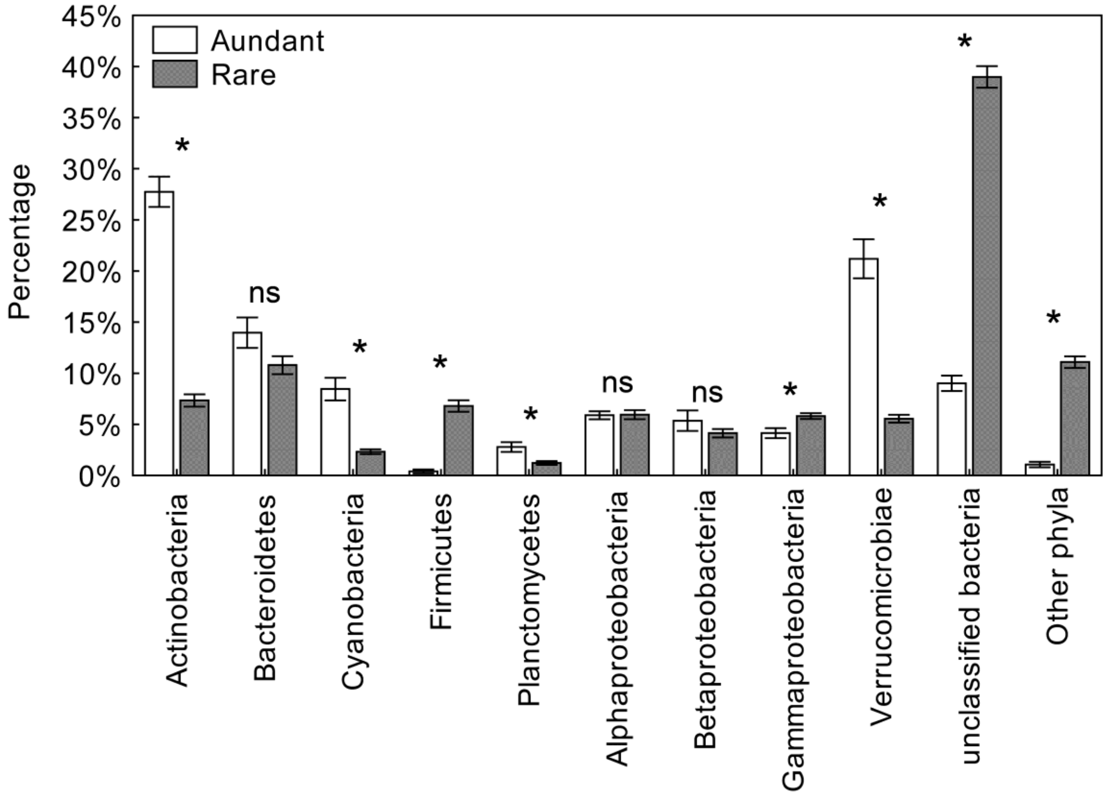

Figure S6 Community composition of abundant bacterial taxa compared with rare bacterial taxa in 42 lakes and reservoirs of China. Values and error bars indicate mean and standard error, respectively. ns – not significant, * – $P < 0.05$ (t test).

Table S1 Sample information from 42 lakes and reservoirs of China

Lake name	Lat. (°N)	Long. (°E)	Depth (m)	Region	No. of OTUs
Bantou R.	24.67	118.02	8.0	FJ	1223
Dongzhen R.	25.48	118.94	21.4	FJ	868
Hubian R.	24.50	118.15	6.8	FJ	1099
Shidou R.	24.69	118.01	13.6	FJ	1074
Tingxi R.	24.80	118.14	23.6	FJ	1043
Baiyangdian L.	38.94	115.98	1.3	ECC	1715
Dongping L.	35.97	116.19	3.4	ECC	1350
Hengshui L.	37.62	115.63	1.3	ECC	1392
Hongze L.	33.28	118.73	2.3	ECC	1143
Luoma L.	34.05	118.22	3.5	ECC	1126
Weishan L.	34.64	117.28	2.2	ECC	1516
Daihai L.	40.57	112.67	8.6	IM	1247
Donghaizi L.	40.63	107.00	1.5	IM	816
Hasuhai L.	40.61	110.97	1.5	IM	1165
Quansanhaizi L.	41.07	107.87	1.5	IM	972
Shahu L.	38.83	106.36	2.3	IM	1121
Shenglihaizi L.	41.12	107.83	4.0	IM	1099
Wuliangsuhai L.	40.87	108.79	2.6	IM	1232
Xinghai L.	38.99	106.40	1.5	IM	1162
Yuehai L.	38.56	106.20	0.9	IM	1257
Bei’er L.	47.93	117.70	5.4	IM	1167
Huhenuo’er L.	49.30	119.23	1.8	IM	1479
Hulun L.	49.12	117.54	3.2	IM	1529
Wulanpao L.	48.36	117.52	1.6	IM	1564
Amutapao L.	46.61	124.06	2.1	NEC	1251
Dongxintunnanpao L.	46.81	124.26	2.0	NEC	2026
Kulipao L.	45.37	124.50	2.2	NEC	1751
Lamasipao L.	46.29	124.10	2.1	NEC	1894
Qijiapao L.	46.82	124.28	1.8	NEC	1913
Tianhu L.	46.87	124.40	1.3	NEC	1587
Xinhuangpao L.	45.63	123.76	1.6	NEC	1299
Xinmiaopao L.	45.21	124.45	1.8	NEC	1989
Yueliangpao L.	45.74	124.00	4.1	NEC	1830
Chaohu L.	31.52	117.56	3.8	CJ	1755
Gucheng L.	31.28	118.92	4.2	CJ	1283
Longgan L.	29.94	116.17	3.0	CJ	1623
Liangzi L.	30.24	114.51	3.0	CJ	1616
Nanyi L.	31.12	118.98	4.4	CJ	1550
Shijiu L.	31.47	118.89	5.3	CJ	1692
Shengjin L.	30.39	117.04	5.0	CJ	1632
Taibai L.	29.96	115.80	2.3	CJ	1416
Taihu L.	31.22	120.14	3.1	CJ	1280

Table S2 General description of all, abundant and rare OTUs data sets at 97% similarity level

	OTU number	Sequence number	Chao 1	ACE
ALL OTUs	10559	1105524	10791 ± 22	10952 ± 48
Abundant OTUs	143 (1.4%)	751588 (68.0%)		
Rare OTUs	7598 (72.0%)	29824 (2.7%)		

Abundant OTUs were defined as the OTUs with an abundance > 1% in a sample and a mean relative abundance of > 0.1% in all samples.

Rare OTUs were defined as the OTUs with an abundance < 0.01% in a sample and a mean relative abundance of < 0.001% in all samples.