



Figure S1. Phytoplankton situation. (A) Phytoplankton density during the dry season; (B) Phytoplankton density during the wet season; (C) Number of genera of species in 7 classification units.

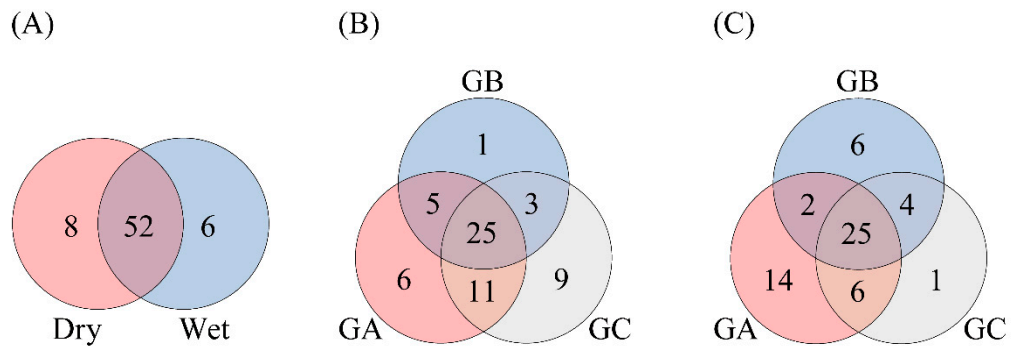


Figure S2. Venn diagram. (A) Venn diagram showing phytoplankton distribution during dry and wet season. Dry represents dry season, Wet represents wet season; (B) Venn diagram showing the distribution of phytoplankton at different group in the dry season. GA, Group A; GB, Group B; GC, Group C; GD, Group D; (C) Venn diagram showing the distribution of phytoplankton at different group in the Wet season. GA, Group A; GB, Group B; GC, Group C; GD, Group D.

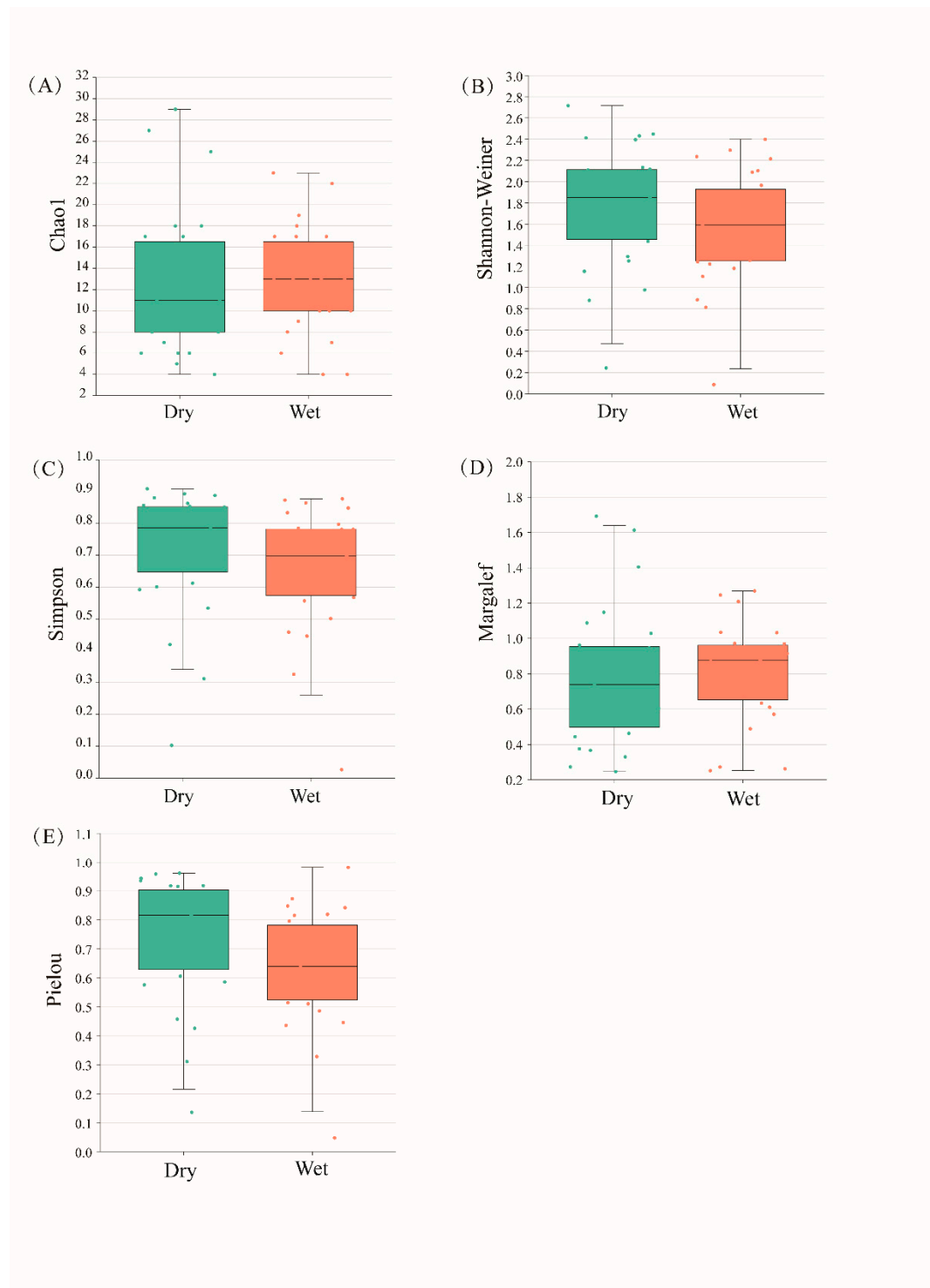


Figure S3. α diversity analysis results of 27 reservoirs. Dry represents dry season, Wet represents wet season. (A) Chao1 index; (B) Shannon-Wiener index; (C) Simpson index; (D) Margalef index; (J) Pielou index.

Table S2. Reservoir groupings and abbreviations

Group	Reservoirs	Abbreviated name
A	Dakeng	DK
	Damali	DML
	Dongzi	DZ
	Fengmulang	FML
	Jingxin	JX
	Ling'ao	LA
	Luowutian	LWT
	Xiangche	XC
	Qingjing	QLJ
	Tongluojing	TLJ
	Chiao	CA
	Honghualingshangku	HHLSK
	Honghualingxiaku	HHLXK
	Shangdongao	SDA
B	Songzikeng	SZK
	Sanzhoutian	SZT
	Meilin	ML
	Longkou	LK
	Shenzhen	SZ
C	Changlingpi	CLP
	Xili	XL
	Luotian	LT
	Shiyan	SY
	Teigang	TG
	Ejing	EJ
	Gongming	GM
	Xikeng	XK

Table S3. Percentage similarity of phytoplankton (SIMPER) analysis of drinking water source reservoirs in Shenzhen(top 20).

Genus	Average	SD	Ratio	Cumsum
<i>Pseudoanabaena</i> sp.	0.19084	0.22683	0.841	0.214
<i>Microcystis</i> sp.	0.11071	0.24517	0.452	0.339
<i>Melosira</i> sp.	0.05271	0.12443	0.424	0.398
<i>Cylindrospermopsis</i> sp.	0.04981	0.0748	0.666	0.454
<i>Coelastrum</i> sp.	0.04153	0.1138	0.365	0.501
<i>Limnothrix</i> sp.	0.03736	0.08582	0.435	0.543
<i>Scenedesmus</i> .sp.	0.0344	0.03917	0.878	0.581
<i>Cyclotella</i> sp.	0.03028	0.05029	0.602	0.616
<i>Oscillatoria</i> sp.	0.02382	0.10644	0.224	0.642
<i>Dolichospermum</i> sp.	0.02344	0.06189	0.379	0.669
<i>Nephrocytium</i> sp.	0.02331	0.07467	0.312	0.695
<i>Chlorella</i> sp.	0.02241	0.03706	0.605	0.72
<i>Aphanizomenon</i> sp.	0.02206	0.05117	0.431	0.745
<i>Cryptomonas</i> sp.	0.01833	0.04222	0.434	0.765
<i>Ankistrodesmus</i> sp.	0.0148	0.0294	0.503	0.782
<i>Peridinium</i> sp.	0.01192	0.02375	0.502	0.795
<i>Staurastrum</i> sp.	0.01088	0.02942	0.37	0.808
<i>Rhizosolenia</i> sp.	0.01079	0.03208	0.336	0.82
<i>Crucigenia</i> sp.	0.00937	0.03257	0.288	0.83

Table S4 P-values and R-values for intergroup correlation analysis.

Dry season														
	pValue								rValue					
	Bacillar iophyta	Pyrroph yta	Chrysop hyta	Cyanop hyta	Eugleno phyta	Chlorop hyta	Cryptop hyta	Bacillar iophyta	Pyrroph yta	Chrysop hyta	Cyanop hyta	Eugleno phyta	Chlorop hyta	Cryptop hyta
WT	0.4579	0.8011	0.1163	0.2366	0.4433	0.4570	0.3079	-0.1491	-0.0509	-0.3094	0.2357	0.1539	-0.1494	-0.2038
pH	0.0138	0.2351	0.1652	0.0068	0.0056	0.1234	0.4141	0.4682	-0.2364	-0.2749	0.5084	0.5183	0.3038	0.1639
DO	0.3882	0.6991	0.2295	0.9710	0.2905	0.5790	0.5127	0.1730	-0.0780	-0.2392	-0.0073	0.2111	0.1117	0.1317
TUR	0.7289	0.8944	0.1202	0.1270	0.1699	0.7994	0.1521	0.0699	0.0268	-0.3063	0.3011	0.2720	0.0513	0.2833
TRA	0.0065	0.3910	0.0261	0.0001	0.1591	0.0259	0.1063	-0.5105	0.1720	0.4277	-0.6777	-0.2788	-0.4282	-0.3177
NH ₄ ⁺ -N	0.2416	0.5073	0.6718	0.1273	0.2668	0.9697	0.6090	0.2332	0.1333	0.0854	0.3008	0.2215	0.0077	0.1030
TN	0.0017	0.0416	0.0269	0.0201	0.0299	0.2333	0.1896	0.5745	-0.3946	-0.4255	0.4449	0.4183	0.2373	0.2604
TP	0.2956	0.1323	0.6817	0.3960	0.4722	0.3975	0.7475	0.2089	-0.2971	0.0827	-0.1702	0.1444	0.1697	0.0650
COD _{Mn}	0.0000	0.6380	0.2731	0.0002	0.0621	0.0096	0.0765	0.7698	-0.0948	-0.2187	0.6623	0.3638	0.4891	0.3466
Chla	0.0000	0.9856	0.1383	0.0000	0.0267	0.0004	0.0359	0.7295	0.0036	-0.2928	0.7269	0.4260	0.6326	0.4054
TLI	0.0000	0.3835	0.1545	0.0002	0.0030	0.0019	0.0391	0.7869	-0.1747	-0.2817	0.6590	0.5487	0.5697	0.3993

Wet season														
	pValue								rValue					
	Bacillar iophyta	Pyrroph yta	Chrysop hyta	Cyanop hyta	Eugleno phyta	Chlorop hyta	Cryptop hyta	Bacillar iophyta	Pyrroph yta	Chrysop hyta	Cyanop hyta	Eugleno phyta	Chlorop hyta	Cryptop hyta
WT	0.7701	0.5876	0.6680	0.4668	0.8838	0.0467	0.2843	0.0590	0.1092	-0.0865	0.1462	0.0295	0.3860	0.2138
pH	0.0279	0.6468	0.1948	0.0004	0.7530	0.0133	0.0004	0.4231	0.0924	-0.2575	0.6307	-0.0635	0.4702	0.6293
DO	0.1989	0.3394	0.1162	0.0209	0.5681	0.0362	0.0434	0.2552	0.1912	-0.3095	0.4421	0.1149	0.4048	0.3915
TUR	0.1817	0.6868	0.0424	0.0381	0.5759	0.0519	0.0295	0.2650	-0.0813	-0.3933	0.4011	0.1127	0.3780	0.4193

TRA	0.0278	0.6370	0.0273	0.0009	0.7944	0.0206	0.0006	-0.4233	0.0951	0.4245	-0.6030	0.0526	-0.4432	-0.6203
NH ₄ ⁺ -N	0.9865	0.1322	0.8210	0.9754	0.0488	0.8862	0.5118	-0.0034	-0.2972	0.0457	-0.0062	-0.3827	0.0289	-0.1319
TN	0.0014	0.2495	0.2339	0.0034	0.1086	0.1129	0.1146	0.5821	-0.2295	-0.2370	0.5431	-0.3158	0.3122	0.3108
TP	0.0061	0.4151	0.0869	0.0012	0.0992	0.0440	0.1528	0.5143	-0.1635	-0.3357	0.5893	-0.3240	0.3906	0.2829
COD _{Mn}	0.0565	0.2012	0.8191	0.0000	0.5923	0.0066	0.0005	0.3713	0.2540	-0.0462	0.7284	0.1079	0.5094	0.6214
Chla	0.0001	0.5389	0.3161	0.0000	0.6300	0.0004	0.0006	0.6717	0.1237	-0.2005	0.7499	-0.0971	0.6369	0.6205
TLI	0.0126	0.8404	0.1984	0.0001	0.5415	0.0171	0.0106	0.4824	0.0415	-0.2607	0.6981	-0.1254	0.4633	0.4926

Group B

	pValue							rValue						
	Bacillar iophyta	Pyrroph yta	Chrysop hyta	Cyanop hyta	Eugleno phyta	Chlorop hyta	Cryptop hyta	Bacillar iophyta	Pyrroph yta	Chrysop hyta	Cyanop hyta	Eugleno phyta	Chlorop hyta	Cryptop hyta
WT	0.3736	0.8809	0.8868	0.1869	0.7353	0.7892	0.4657	-0.3161	0.0546	0.0519	0.4545	-0.1228	-0.0973	0.2614
pH	0.8022	0.2397	0.5816	0.3104	0.7353	0.5784	0.5096	0.0912	-0.4097	-0.1989	0.3576	-0.1228	0.2006	0.2371
DO	0.9601	0.2755	0.6155	0.6515	0.6040	0.4874	0.2505	0.0182	-0.3824	-0.1816	0.1636	0.1875	0.2492	0.4012
TUR	0.6021	0.7068	0.1033	0.0008	0.0818	0.7253	0.3001	-0.1885	-0.1366	-0.5449	0.8788	-0.5754	-0.1277	-0.3647
TRA	0.8277	0.2381	0.1021	0.0072	0.0807	0.9334	0.3482	-0.0793	0.4109	0.5466	-0.7842	0.5771	0.0305	0.3323
NH ₄ ⁺ -N	0.7840	0.1135	0.6958	0.7715	0.2139	0.7840	0.1054	0.0997	0.5320	0.1419	0.1056	-0.4308	-0.0997	-0.5422
TN	0.1921	0.0518	0.0294	0.7261	0.7353	0.4339	0.8807	0.4499	-0.6282	-0.6833	0.1273	-0.1228	0.2796	-0.0547
TP	0.2658	0.1291	0.1354	0.8272	0.8438	0.2740	0.8862	0.3896	-0.5134	-0.5063	0.0795	0.0718	0.3834	-0.0521
COD _{Mn}	0.1927	0.3706	0.9426	0.0560	0.4088	0.5042	0.6839	-0.4492	0.3180	-0.0263	0.6197	-0.2945	-0.2400	-0.1477
Chla	0.0596	0.4145	0.1054	0.5208	0.0986	0.1223	0.5423	0.6128	-0.2911	-0.5423	0.2310	-0.5512	0.5213	-0.2195
TLI	0.3833	0.0924	0.0294	0.0897	0.5296	0.3639	0.9867	0.3100	-0.5599	-0.6833	0.5636	-0.2263	0.3222	-0.0061

Group C														
	pValue							rValue						
	Bacillar iophyta	Pyrroph yta	Chrysop hyta	Cyanop hyta	Eugleno phyta	Chlorop hyta	Cryptop hyta	Bacillar iophyta	Pyrroph yta	Chrysop hyta	Cyanop hyta	Eugleno phyta	Chlorop hyta	Cryptop hyta
WT	0.6881	0.1982	0.2648	0.0137	0.0529	0.1985	0.8115	0.1296	0.3995	-0.3500	0.6865	-0.5703	0.3993	-0.0772
pH	0.5128	0.0234	0.3339	0.1591	0.3365	0.7954	0.5121	0.2098	0.6454	-0.3057	0.4336	-0.3041	0.0839	0.2102
DO	0.0479	0.0868	0.4954	0.5717	0.4954	0.7456	0.1817	0.5804	0.5148	-0.2184	0.1818	-0.2183	0.1049	0.4133
TUR	0.1063	0.2783	0.8928	0.6331	0.5603	0.9484	0.9483	-0.4895	0.3408	-0.0437	0.1538	0.1872	0.0210	-0.0210
TRA	0.0296	0.3271	0.5851	0.0879	0.5171	0.5324	0.5539	0.6257	-0.3098	0.1756	-0.5132	0.2077	-0.2004	0.1901
NH ₄ ⁺ -N	0.9044	0.1480	0.2593	0.0549	0.0122	0.8269	0.3292	-0.0389	-0.4442	0.3537	-0.5664	0.6948	-0.0708	-0.3085
TN	0.0071	0.6031	0.4938	0.3346	0.9519	0.6795	0.6391	0.7298	-0.1674	-0.2191	-0.3053	0.0196	-0.1333	0.1511

TP	0.0044	0.2465	0.7850	0.4051	0.2933	0.5376	0.3243	0.7562	-0.3628	-0.0883	-0.2650	-0.3310	0.1979	0.3115
COD _{Mn}	0.7575	0.9454	0.5796	0.2257	0.4475	0.0205	0.8513	0.0998	-0.0222	-0.1781	-0.3780	0.2425	-0.6561	0.0607
Chla	0.8454	0.6683	0.8924	0.2738	0.1003	0.5113	0.4927	0.0632	0.1383	-0.0438	-0.3439	0.4969	-0.2105	0.2197
TLI	0.2356	0.6529	0.3339	0.3423	0.2306	0.5567	0.8627	0.3706	0.1450	-0.3057	-0.3007	0.3743	-0.1888	0.0560
