

Supplementary

Table S1 Correlations between the first two PCA axes (PC1 and PC2) and chemical variables. \* indicate  $p < 0.05$  and \*\* indicate  $p < 0.01$ .

	TN	NO <sub>3</sub>	NO <sub>2</sub>	NH <sub>4</sub>	TP	PO <sub>4</sub>	SiO <sub>2</sub>	Chl	mmHg	DO	Cond	pH	ORP mv
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
PC1	0.530*	-0.267	-0.457	-0.296	-0.511*	-0.493*	-0.591*	-0.494*	<b>-0.695**</b>	0.164	<b>-0.77**</b>	0.122	0.536*
PC2	-0.358	-0.314	0.054	0.362	<b>-0.773**</b>	<b>-0.778**</b>	0.189	<b>-0.712**</b>	0.508*	-0.136	0.323	0.513*	-0.410

Table S2 Macroinvertebrate composition and abundances in streams of the Beijiang basin (BJ1-BJ9) and Dongjiang basin (DJ1-DJ8).

	BJ1	BJ2	BJ3	BJ4	BJ5	BJ6	BJ7	BJ8	BJ9	DJ1	DJ2	DJ3	DJ4	DJ5	DJ6	DJ7	DJ8
Philopotamidae	24	1	0	1	1	2	0	0	4	8	0	6	0	2	0	0	0
Rhyacophilidae	10	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydropsychidae	93	32	32	6	0	62	1	0	10	8	20	53	0	21	17	19	0
Polycentropodidae	11	0	0	1	0	7	6	1	6	0	0	0	0	4	31	1	0
Lepidostomatidae	3	0	60	22	5	5	5	1	3	22	10	5	7	1	5	68	0
Glossosomatidae	1	0	0	21	22	10	0	0	0	2	33	1	0	0	0	0	0
Ecnomidae	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Limnephilidae	0	0	0	2	0	2	0	6	3	0	0	0	0	0	1	0	0
Psychomyiidae	0	0	0	1	0	0	0	0	0	8	5	2	0	0	9	6	1
Leptoceridae	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0
Tanypodinae	38	2	41	12	53	0	4	0	20	1	17	9	10	7	13	5	4
Orthoclaudiinae	171	12	96	25	16	17	69	7	16	5	10	0	2	5	0	0	0
Chironominae	3	0	37	9	10	0	0	0	0	18	20	16	5	44	129	15	32
Simuliidae	40	7	66	23	0	23	121	0	21	51	5	58	86	6	5	0	9
Tipulidae	8	21	22	15	64	6	19	5	13	30	59	18	22	9	37	6	1
Dolichopodidae	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Ceratopogonidae	0	0	1	0	0	0	0	0	0	1	0	0	0	0	10	0	0
Dixidae	0	1	0	0	0	1	0	2	3	0	0	0	0	0	0	0	0
Tabanidae	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	22	0
Tabanidae	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Ephemeridae	26	78	10	5	30	7	1	108	69	143	18	100	0	9	29	24	5
Heptageniidae	6	27	25	9	46	30	0	13	17	20	58	14	3	32	26	81	2
Baetidae	83	29	175	60	10	54	2	12	11	41	95	23	159	25	33	62	2
Isonychiidae	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0
Siphonuridae	0	0	0	1	135	0	0	0	0	0	0	0	0	0	0	0	4
Ephemerellidae	1	6	2	25	0	5	0	13	4	44	22	9	13	8	11	4	5
Leptophlebiidae	0	5	0	2	0	0	0	57	25	3	0	2	0	0	1	0	0
Potamanthidae	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Nemouridae	15	49	21	0	0	0	0	0	0	32	9	13	7	6	17	5	0
Chloroperlidae	0	0	2	1	2	1	1	4	1	1	8	0	0	4	1	3	2
Perlidae	0	0	10	18	0	10	18	9	10	8	22	18	0	2	4	5	0
Pteronarcyidae	0	0	4	0	5	2	0	0	0	0	0	0	0	0	0	0	0
Capniidae	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Taeniopterygidae	0	0	0	0	0	2	0	5	1	0	0	0	0	0	0	0	0
Perlodidae	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0
Calopterygidae	9	2	0	0	0	0	0	0	21	4	0	1	0	7	7	3	0
Coenagrionidae	0	0	0	0	3	0	0	2	26	0	0	0	0	0	7	1	2
Sialidae	1	0	1	1	0	1	0	6	0	0	2	1	0	0	0	0	0
Corydalidae	0	0	0	0	0	0	0	0	0	0	6	0	1	2	1	1	0
Gomphidae	1	6	4	1	0	3	0	0	12	2	2	5	1	0	0	1	1

[illegible]

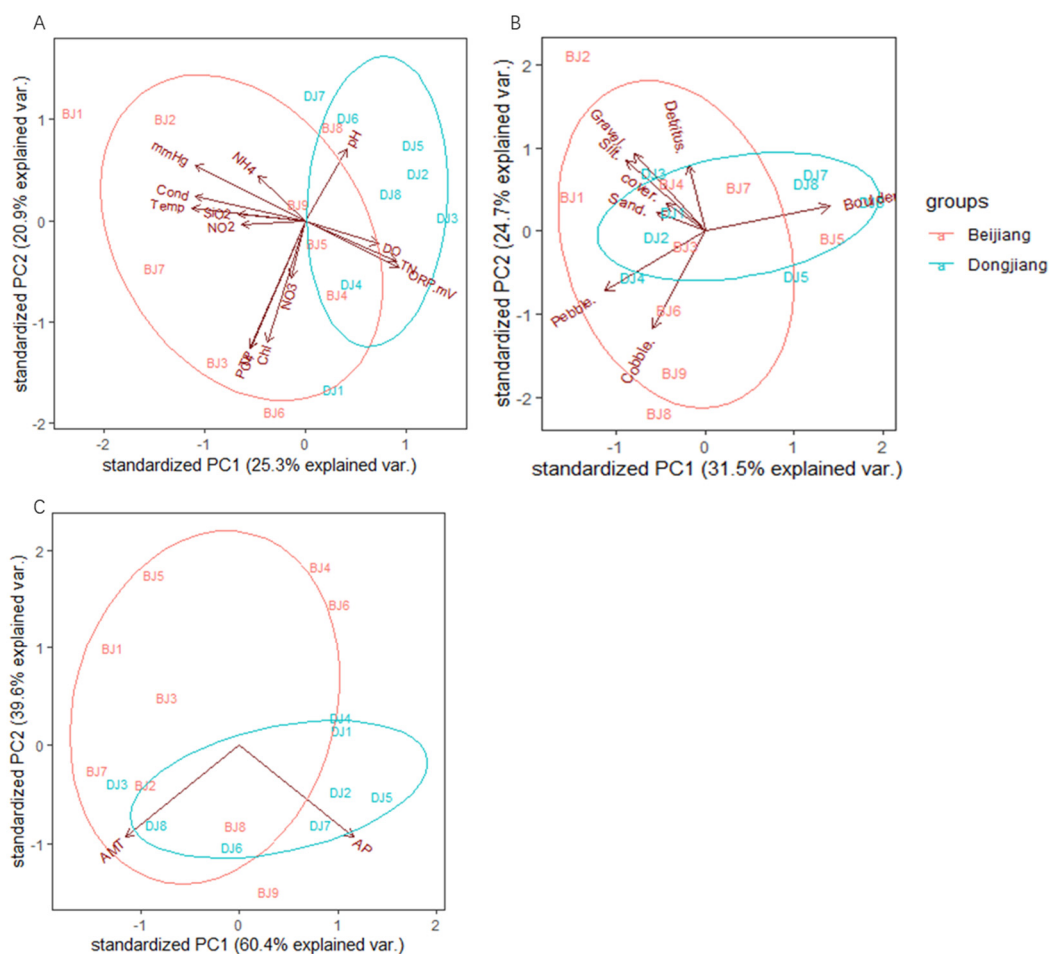


Figure S1 PCA plots of chemical variables (A), physical variables (B), and climatic variables (C). TN: total nitrogen;  $\text{NO}_3$ : nitrate;  $\text{NO}_2$ : nitrite;  $\text{NH}_4$ : ammonium; TP: total phosphorus;  $\text{PO}_4$ : phosphate;  $\text{SiO}_2$ : silicon dioxide; Chl: chlorophyll; DO: dissolved oxygen; Temp: water temperature; Cond: conductivity; AP: Annual Precipitation; AMT: Annual Mean Temperature.