Supplementary Materials

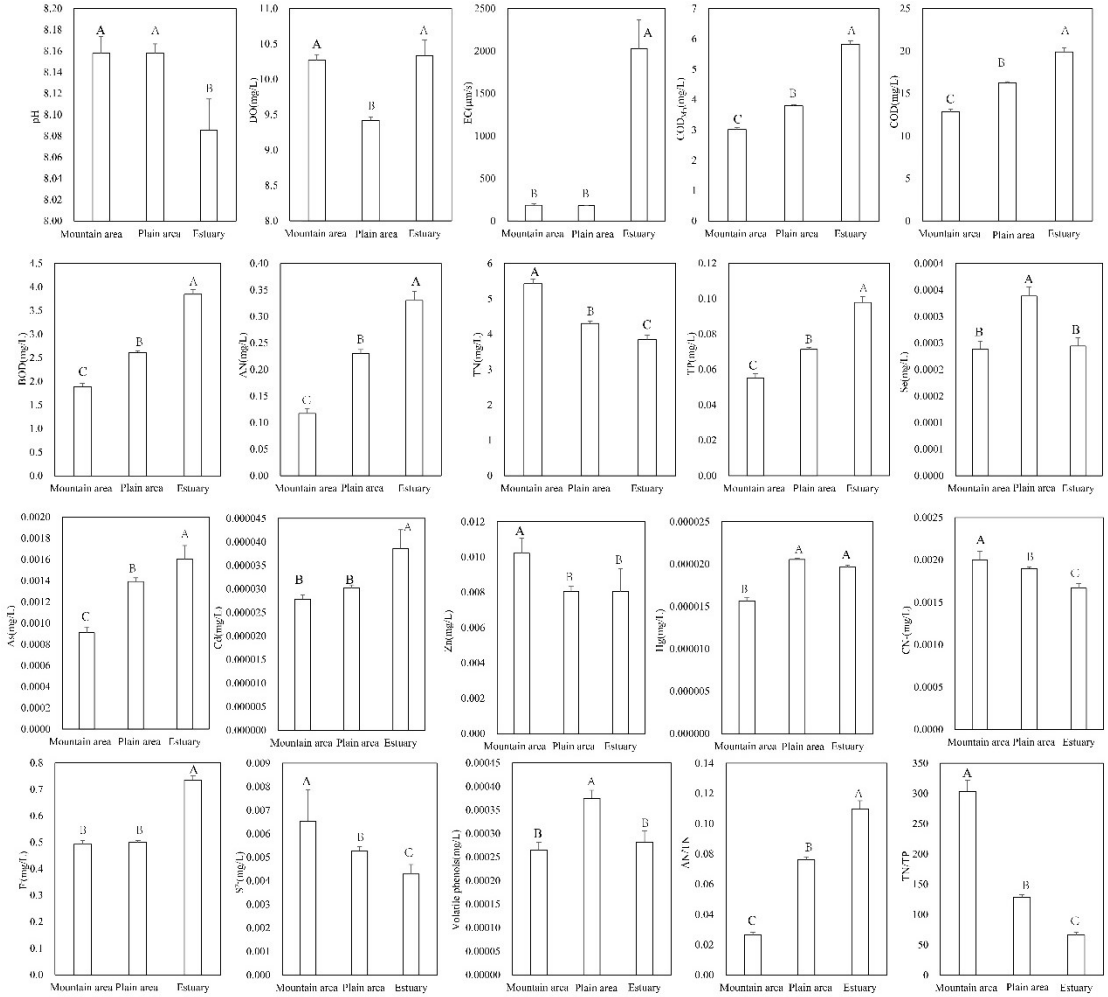


Figure S1 Spatial changes of water quality parameters among various sampling areas

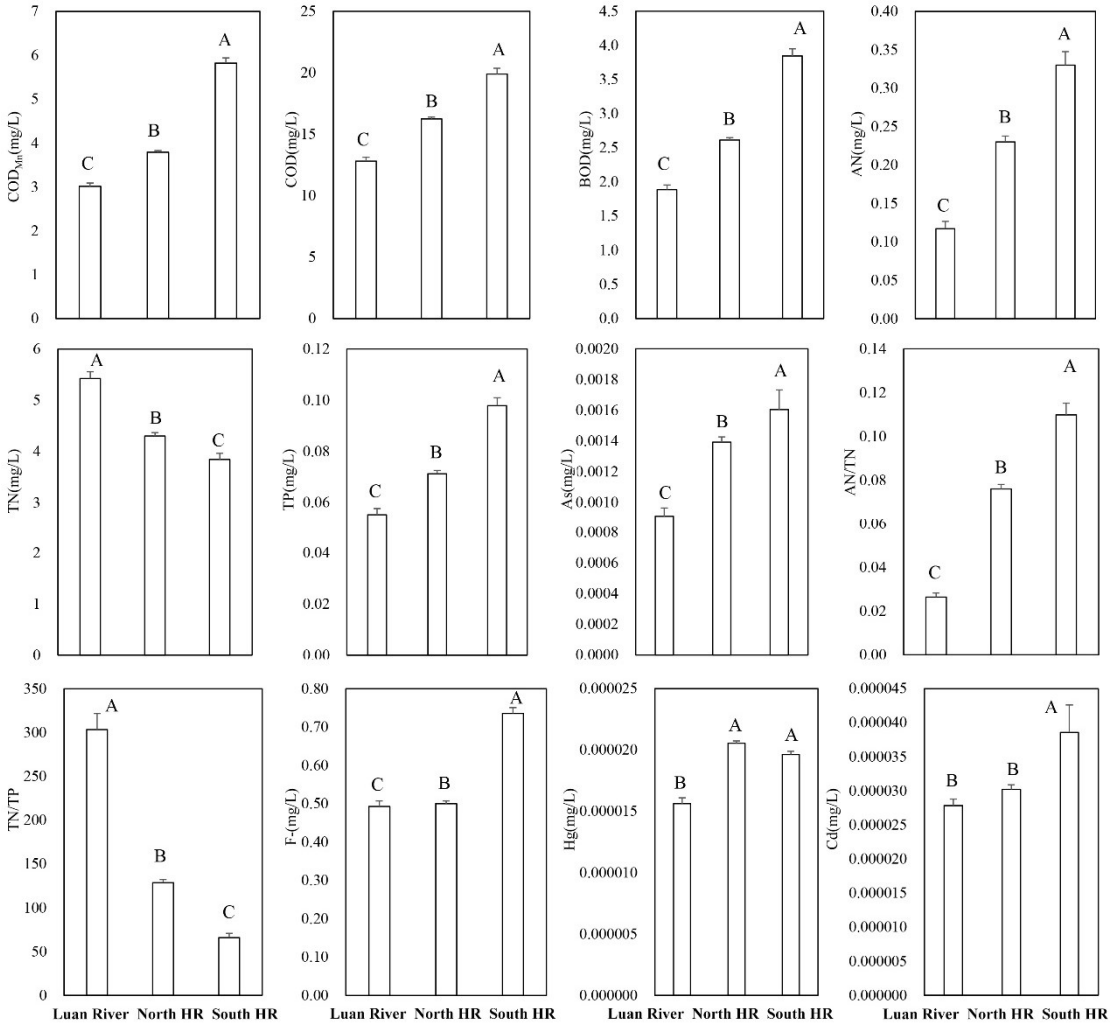


Figure S2 Spatial changes of water quality parameters among various river systems

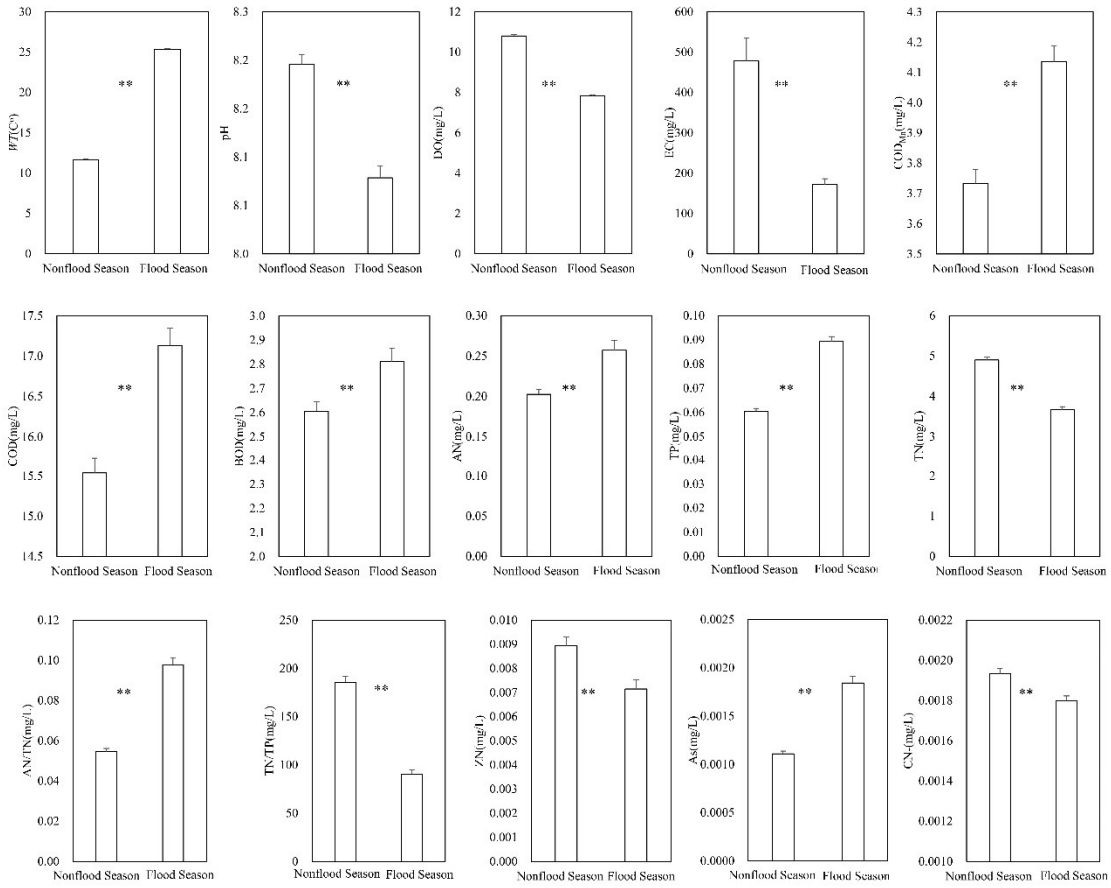


Figure S3 Seasonal variations for each parameter between non-flood and flood seasons

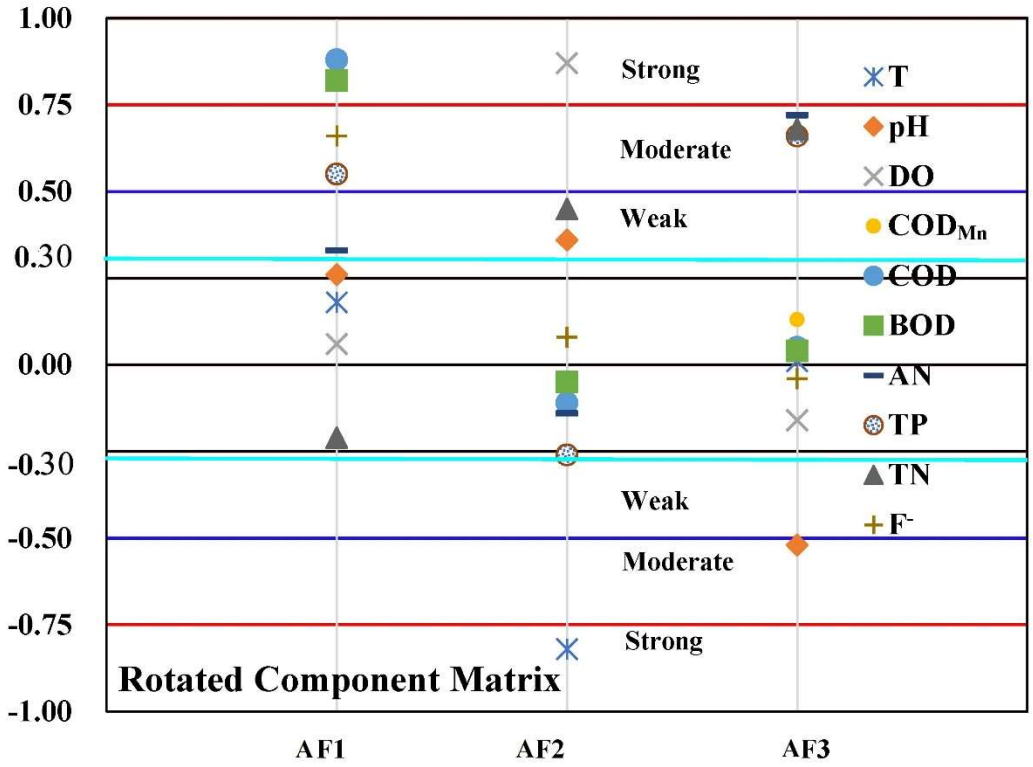


Figure S4 Loadings of ten parameters on varimax rotated factors

Table S1 Weights and normalization factors for WQI parameters

Parameter	Weight (W_i)	Normalization factor (Q_i)										
		100	90	80	70	60	50	40	30	20	10	0
pH	1	7	7-8	7-8.5	7-9	6.5-7	6-9.5	5-10	4-11	3-12	2-13	1-14
T(ºC)	1	21/16	22/15	24/14	26/12	28/10	30/5	32/0	36/-2	40/-4	45/-6	50/-8
EC (μS/cm)	1	<750	<1000	<1250	<1500	<2000	<2500	<3000	<5000	<8000	≤12000	>12000
DO (mg/L)	4	>=7.5	>7	>6.5	>6	>5	>4	>3.5	>3	>2	>=1	<1
TUR (mg/L)	2	<0.005	<0.02	<0.04	<0.08	<0.15	<0.3	<0.6	<1	<2	=<3	>3
BOD (mg/L)	3	<0.5	<2	<3	<4	<5	<6	<8	<10	<12	=<15	>15
COD (mg/L)	3	<5	<10	<20	<30	<40	<50	<60	<80	<100	=<150	>150
AN (mg/L)	3	<0.01	<0.05	<0.1	<0.2	<0.3	<0.4	<0.5	<0.75	<1	=<1.25	>1.25
TP (mg/L)	1	<0.01	<0.02	<0.05	<0.1	<0.15	<0.2	<0.25	<0.3	<0.35	=<0.4	>0.4
TN (mg/L)	2	<0.1	<0.2	<0.35	<0.5	<0.75	<0.1	<1.25	<1.5	<1.75	=<2	>2

Table S2 Descriptive statistics for each parameter in the HRB

Parameter	Mean	SE[a]	CV[b]	Skewness	Kurtosis	K-S test	S-W test
T	16.9	0.1	49.9%	-0.2	-1.1	0.00	0.00
pH	8.15	0.01	5.7%	0.3	1.9	0.00	0.00
DO	9.6	0.05	30.2%	1.0	3.7	0.00	0.00
EC(μ)	376.65	37.55	567.2%	17.3	323.1	0.00	0.00
COD_{Mn}	3.9	0.03	54.4%	1.0	2.1	0.00	0.00
COD	16.2	0.1	46.5%	0.9	1.4	0.00	0.00
BOD	2.7	0.03	60.7%	1.3	3.0	0.00	0.00
AN	0.22	0.01	168.2%	10.0	231.0	0.00	0.00
TP	0.072	0.001	93.1%	2.5	17.4	0.00	0.00
TN	4.43	0.05	72.4%	1.6	6.1	0.00	0.00
Cu	0.007	0.004	2442.8%	39.4	1552.5	0.00	0.00
Zn	0.008	0.0003	128.2%	3.1	17.2	0.00	0.00
F^-	0.534	0.006	52.4%	1.3	3.8	0.00	0.00
Se	0.00032	0.00001	163.3%	10.4	139.3	0.00	0.00
As	0.0013	0.00003	88.8%	2.0	5.6	0.00	0.00
Hg	0.00002	0.00000	32.3%	4.3	43.9	0.00	0.00
Cd	0.00003	0.00000	85.5%	6.0	52.4	0.00	0.00
Cr^{6+}	0.002	0.000	37.2%	19.2	469.9	0.00	0.00
Pb	0.00036	0.00001	138.6%	2.8	18.7	0.00	0.00
CN^-	0.002	0.0000	42.0%	12.8	328.4	0.00	0.00
VPCs	0.00035	0.00001	157.1%	9.2	153.5	0.00	0.00
Oil pollutant	0.009	0.0007	304.8%	22.3	578.5	0.00	0.00
LAS	0.03	0.001	100.5%	9.5	137.6	0.00	0.00
S^{2-}	0.005	0.0002	171.9%	12.6	196.0	0.00	0.00
Turb	36.0	1.51	206.1%	7.9	89.3	0.00	0.00
TN/TP	148.5	4.11	168.6%	3.9	19.1	0.00	0.00
AN/TN	0.07	0.002	135.4%	2.6	8.4	0.00	0.00

Note: [a]SE represented standard errors; [b]CV represented coefficient of variation.