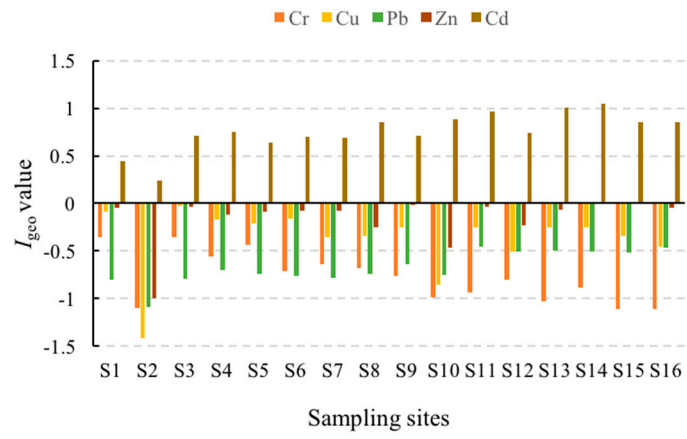**Supplementary Materials**

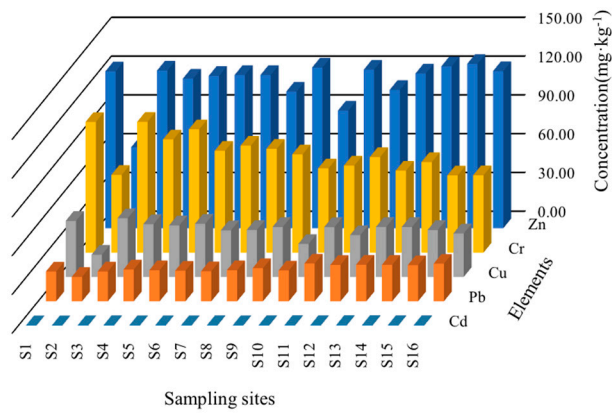**Figure S1.** I_{geo} values of five heavy metals from each sampling site.

Figure S2. Concentrations of heavy metals in 16 sampling sites.

Table S1. The comprehensive risks of Cr, Cu, Pb, Zn and Cd in sediments from the Honghu Lake

Sampling Sites	Elements				
	Cr	Cu	Pb	Zn	Cd
S1	(1, 0, 0, 0, 0)	(0.452, 0.548, 0, 0, 0)	(1, 0, 0, 0, 0)	(0.300, 0.549, 0.151, 0, 0)	(0.147, 0.227, 0.626, 0, 0)
S2	(1, 0, 0, 0, 0)	(0.711, 0.289, 0, 0, 0)	(0.789, 0.211, 0, 0, 0)	(0.833, 0.167, 0, 0, 0)	(0.205, 0.465, 0.330, 0, 0)
S3	(1, 0, 0, 0, 0)	(0.521, 0.479, 0, 0, 0)	(0.840, 0.160, 0, 0, 0)	(0.839, 0.161, 0, 0, 0)	(0.055, 0.485, 0.460, 0, 0)
S4	(1, 0, 0, 0, 0)	(0.601, 0.399, 0, 0, 0)	(0.848, 0.152, 0, 0, 0)	(0.842, 0.158, 0, 0, 0)	(0.037, 0.416, 0.547, 0, 0)
S5	(1, 0, 0, 0, 0)	(0.940, 0.060, 0, 0, 0)	(0.831, 0.169, 0, 0, 0)	(0.922, 0.078, 0, 0, 0)	(0.082, 0.218, 0.649, 0.051, 0)
S6	(1, 0, 0, 0, 0)	(0.915, 0.085, 0, 0, 0)	(0.854, 0.146, 0, 0, 0)	(0.817, 0.183, 0, 0, 0)	(0.058, 0.461, 0.481, 0, 0)
S7	(1, 0, 0, 0, 0)	(0.866, 0.134, 0, 0, 0)	(0.856, 0.144, 0, 0, 0)	(0.922, 0.078, 0, 0, 0)	(0.064, 0.488, 0.448, 0, 0)
S8	(1, 0, 0, 0, 0)	(0.780, 0.220, 0, 0, 0)	(0.877, 0.123, 0, 0, 0)	(0.806, 0.194, 0, 0, 0)	(0, 0.550, 0.450, 0, 0)
S9	(0.966, 0.034, 0, 0, 0)	(0.514, 0.486, 0, 0, 0)	(0.883, 0.117, 0, 0, 0)	(0.733, 0.267, 0, 0, 0)	(0.055, 0.461, 0.484, 0, 0)
S10	(1, 0, 0, 0, 0)	(0.676, 0.324, 0, 0, 0)	(0.870, 0.130, 0, 0, 0)	(0.754, 0.246, 0, 0, 0)	(0, 0.304, 0.696, 0, 0)
S11	(1, 0, 0, 0, 0)	(0.501, 0.499, 0, 0, 0)	(0.900, 0.100, 0, 0, 0)	(0.782, 0.218, 0, 0, 0)	(0, 0.539, 0.461, 0, 0)
S12	(1, 0, 0, 0, 0)	(0.300, 0.653, 0.047, 0, 0)	(0.890, 0.110, 0, 0, 0)	(0.693, 0.307, 0, 0, 0)	(0.040, 0.349, 0.611, 0, 0)
S13	(1, 0, 0, 0, 0)	(1, 0, 0, 0, 0)	(0.882, 0.118, 0, 0, 0)	(0.758, 0.242, 0, 0, 0)	(0, 0.527, 0.473, 0, 0)
S14	(1, 0, 0, 0, 0)	(0.315, 0.685, 0, 0, 0)	(0.916, 0.084, 0, 0, 0)	(0.769, 0.231, 0, 0, 0)	(0, 0.581, 0.419, 0, 0)
S15	(1, 0, 0, 0, 0)	(0.936, 0.064, 0, 0, 0)	(0.921, 0.079, 0, 0, 0)	(0.776, 0.224, 0, 0, 0)	(0, 0.526, 0.474, 0, 0)
S16	(1, 0, 0, 0, 0)	(0.511, 0.489, 0, 0, 0)	(0.890, 0.110, 0, 0, 0)	(0.770, 0.230, 0, 0, 0)	(0, 0.528, 0.472, 0, 0)