

Table S1. The classes of pollution and potential ecological risk

Pollution assessment			
Index	Formula	Classes of contamination	Contamination Degree
Contamination factor (CF) [34]	$CF_i = \frac{C_i}{B_i}$	$CF_i < 1$ $1 \leq CF_i < 3$ $3 \leq CF_i < 6$ $CF_i \geq 6$	Low Moderate Considerable Very high
Pollution load index (PLI) [35]	$PLI = \sqrt[n]{\prod_{i=1}^n CF_i}$	$PLI < 1$ $PLI > 1$	Unpolluted Polluted
Nemerow multi-factor index (PI) [36]	$PI = \sqrt{\frac{(CF_{i\max})^2 + (CF_{i\text{ave}})^2}{2}}$	$PI < 1$ $1 \leq PI < 2.5$ $2.5 \leq PI < 7$ $PI \geq 7$	Unpolluted Lowly polluted Moderately polluted Highly polluted [37]
Ecological risk assessment			
Index	Formula	Classes of risk	Potential ecological risk
Potential ecological risk index of the single metal (ER) [38]	$ER_i = TR_i \cdot \frac{C_i}{B_i}$	$ER_i < 40$ $40 \leq ER_i < 80$ $80 \leq ER_i < 160$ $160 \leq ER_i < 320$ $ER_i \geq 320$	Low Moderate Considerable High Very high
Potential ecological risk index (PERI) [38]	$PERI = \sum_{i=1}^n ER_i$	$PERI < 150$ $150 \leq PERI < 300$ $300 \leq PERI < 600$ $PERI \geq 600$	Low Moderate High Very high

Symbols description: C_i is the measured concentration of metal i , B_i is the geochemical background value of metal i , n is the number of heavy metals, $CF_{i\max}$ is the maximum contamination factor, $CF_{i\text{ave}}$ is the average contamination factor, ER_i is the potential ecological risk index of the metal i , TR_i is the toxic response factor for metal i (Cd = 30, Zn = 1, Cr = 2, Ni = Cu = Pb = 5).