Electronic Supplementary Material (ESI) for Journal of Environmental Monitoring

Supplementary data

Table 1 Selected physico-chemical properties of sediments

		Indicator element concentration mg/kg				
Sample station	Substrate pH	Exch[c] Na	Cr	Ni	S	V
T2 (REF)	8.81	16.2	29.2	7.6	139.1	34.4
T3	9.06	776	116.2	47.6	4517.7	163.0
T4	9.22	697	61.6	14.1	1048.0	78.5
T5	8.66	789	70.6	30.7	1281.5	110.3
T6	9.12	1749	245.1	104.4	2317.7	334.3
M1 (REF)	9.05	60.2	30.3	12.5	155.4	28.8
M2	9.88	1888	205.5	90.8	1371.2	280.3
M4	8.67	564	41.6	19.0	861.8	55.0
M5	8.35	110	35.5	18.7	1566.2	67.0
M6	8.51	61.0	25.1	11.3	757.7	30.4
M7	8.39	195	27.7	12.3	3887.1	133.7
M8	8.81	139	48.5	22.5	2074.1	91.6
M9	8.16	37.2	20.3	8.6	2897.4	26.4
M10	7.98	95.2	37.3	19.2	4965.5	86.1
M11	8.31	77.0	20.2	9.3	4542.4	197.4
R1 (REF)	8.26	50.3	79.8	33.5	457.9	98.7
R2	8.41	80.4	84.2	38.3	595.1	105.5
MD1	8.14	60.0	87.6	36.6	567.7	110.1

[c]"Exch" refers to exchangeable fraction. "TE" refers to sum of trace elements: As Cu Co Cr Cd Mo Ni V Zn

Table 2 Bioassay results of sediments alongside bioassay results

	Aerobic bacteria cell number		*Vibrio fischeri* luminescence inhibition	*Sinapis alba* growth inhibition		*Lemna minor* lethality	*Heterocypris incongruens* growth inhibition
Sample station	1000 cell/g dry sed.	I%	E_sD_{50} (Cu-eq mg/kg sed.)	Root I%	Shoot I%	I% relative to control	I% after 72 hours
T2 (REF)	350	<1.0	<11	15	11	52.7	50
T3	940	94.4	232	8	-4	60.4	90
T4	600	95.1	106	26	29	58.4	80
T5	1900	94.0	173	22	-10	64.5	20
T6	1,400	95.0	116	44	34	69.4	50
M1 (REF)	300	21.0	30	19	-11	47.3	10
M2	3,400	97.2	556	57	45	82.7	80
M4	3,600	91.9	227	26	-13	58.8	30
M5	760	91.3	248	11	-27	54.1	50
M6	600	45.2	11	14	6	56.1	10
M7	1,200	83.5	140	46	46	61.8	70
M8	790	84.4	159	37	45	60.7	70
M9	140	77.0	212	32	15	51.6	50
M10	130	22.2	<11	48	54	53.7	50
M11	20	75.2	212	38	42	35.3	50
R1 (REF)	850	74.6	194	29	27	58.1	60
R2	750	86.3	209	27	38	63.3	50
MD1	700	84.0	171	21	27	68.6	50

[a] "I%" refers to inhibition%

Table 3 Spearman Rank correlation coefficients (rs) for the bioassays against a range of chemical sediment properties.

	Aerobic bacteria colony number (dry weight adjusted)	*Vibrio fischeri* E_sD_{50} (Cu-eq mg/kg)	*Sinapis alba* root (I% relative to control)	*Sinapis alba* shoot (I% relative to control)	*Lemna minor* (I% relative to control)	*Heterocypris incongruens* (inhibition % after 72 hour)
pH	0.51*	0.41	0.15	-0.33	0.49*	0.29
Exch Na	0.66*	0.53*	0.42	0.12	0.69*	0.30
Exch Al	-0.20	-0.08	0.51*	0.50*	-0.35	0.06
Exch TE	0.00	0.11	0.61*	0.55*	0.02	0.19
Total Al	0.09	0.27	0.40	0.56*	0.40	0.21
Total As	0.41	0.35	0.65*	0.37	0.37	0.24
Total Co	0.54*	0.65*	0.10	-0.05	0.73**	0.44
Total Cu	0.15	0.41	0.21	0.18	0.34	0.11
Total Cr	0.47*	0.48*	0.37	0.24	0.75**	0.34
Total Fe	0.51*	0.57*	0.30	0.17	0.79**	0.41
Total Ni	0.49*	0.51*	0.40	0.24	0.75**	0.30
Total S	-0.22	0.03	0.39	0.37	-0.25	0.10
Total V	0.36	0.50*	0.58*	0.43	0.49*	0.42

*:p <0.05; **:p <0.001
"Exch" refers to exchangeable fraction. "TE" refers to sum of trace elements: As Cu Co Cr Cd Mo Ni V Zn. "I%" refers to inhibitio