minerals

MDPI

Supplementary Materials

The Long-Term Effect of Industrial Waste Landfill on Surface Water: An Example from Central Poland

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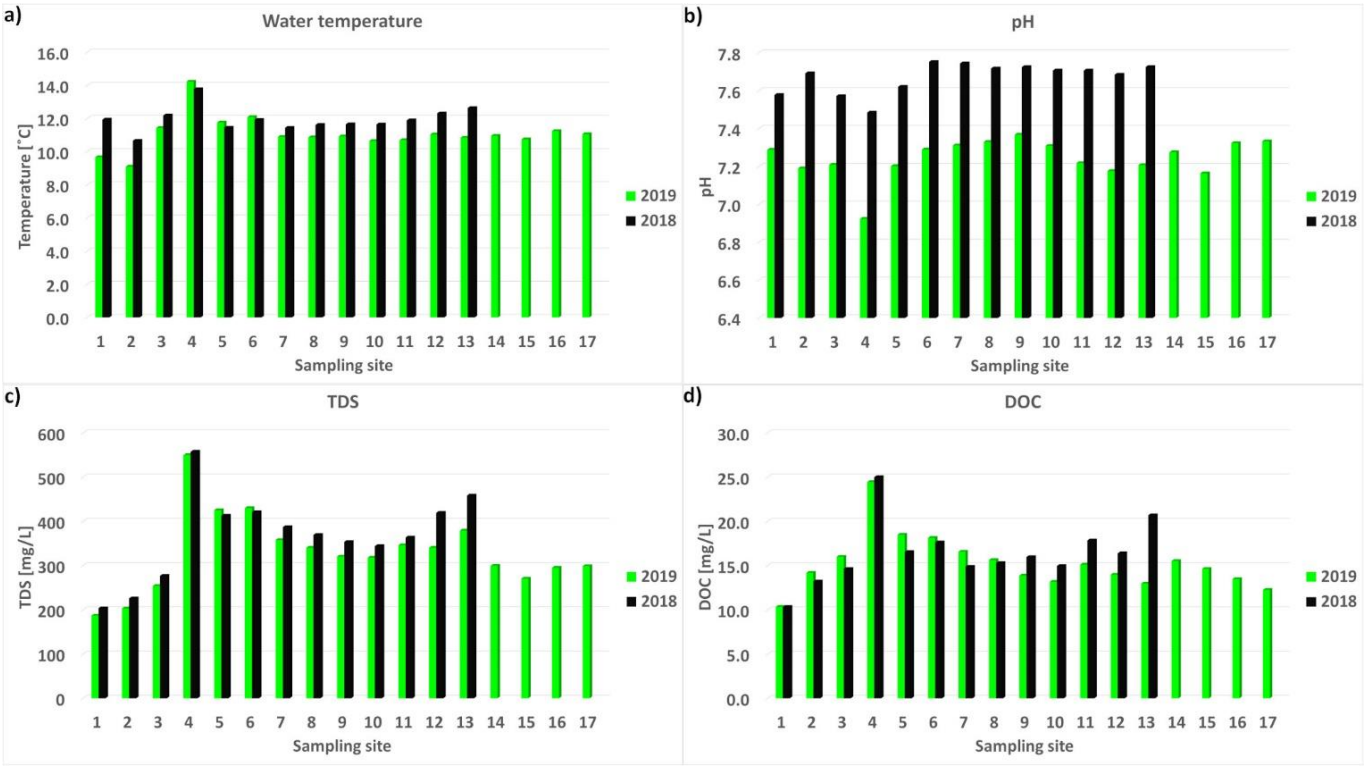


Figure S1. The annual mean values of physicochemical properties of river water: (**a**) temperature, (**b**) TDS, (**c**) pH, (**d**) DOC.

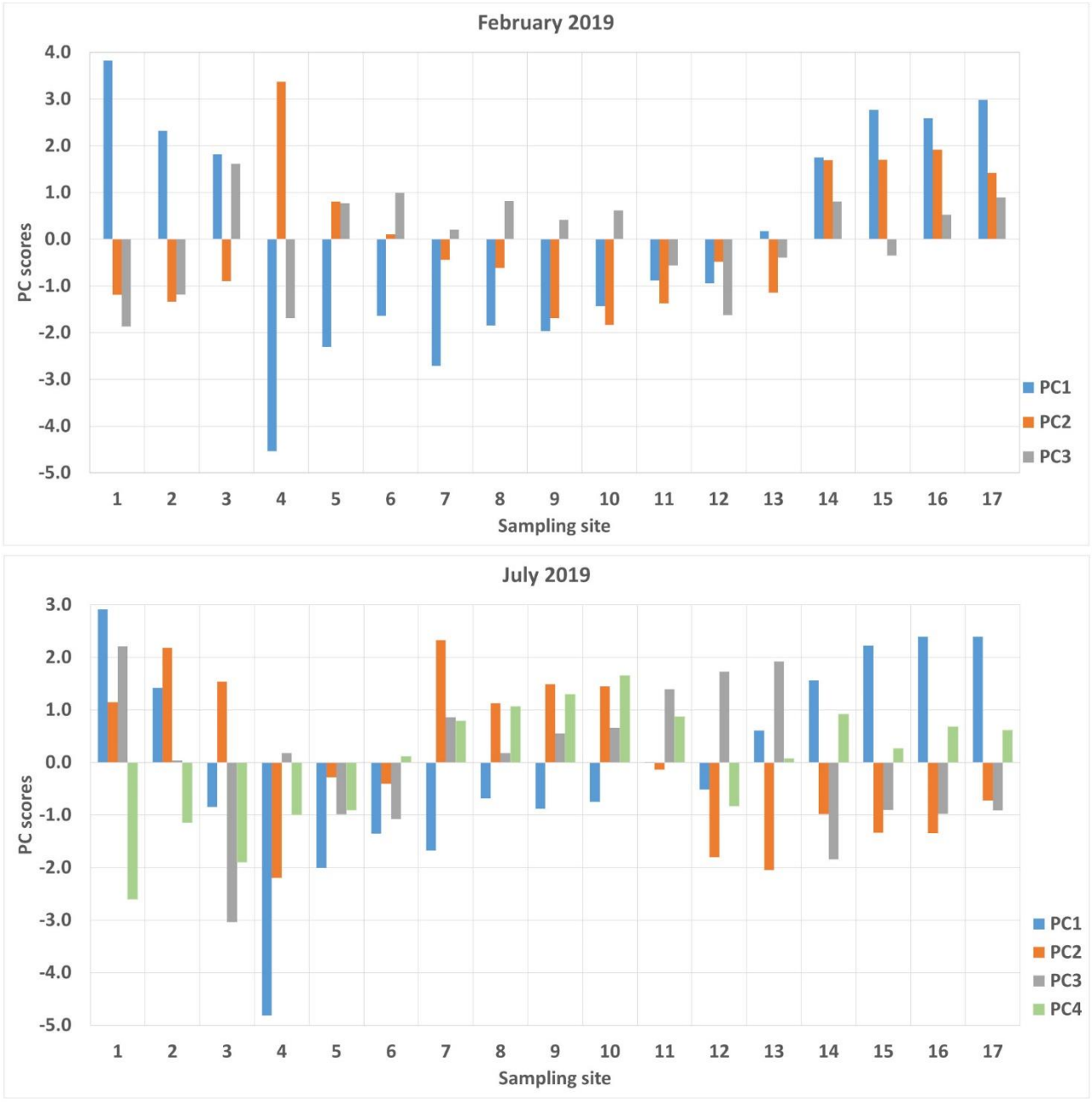


Figure S2. Spatial changes of PC scores in (a) February and (b) July in 2019.

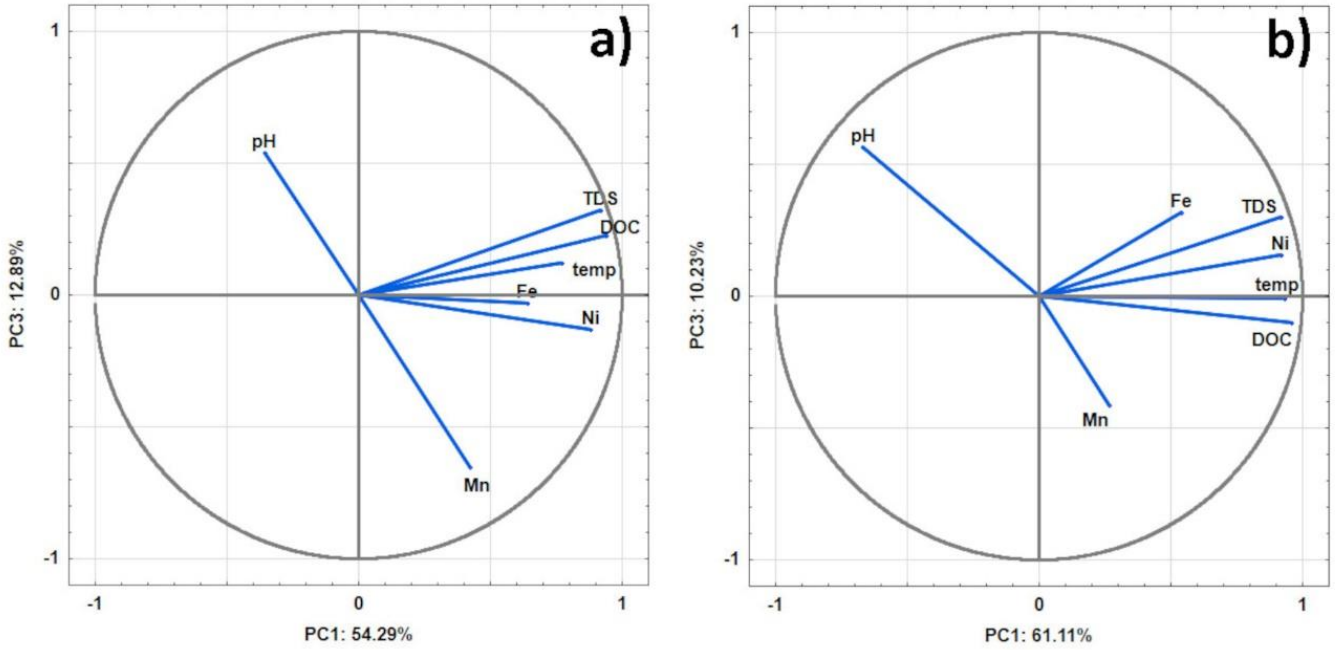


Figure S3. Correlations between the variables and principal components in the projection of PC1 and PC3 for (**a**) 2018 and (**b**) 2019.

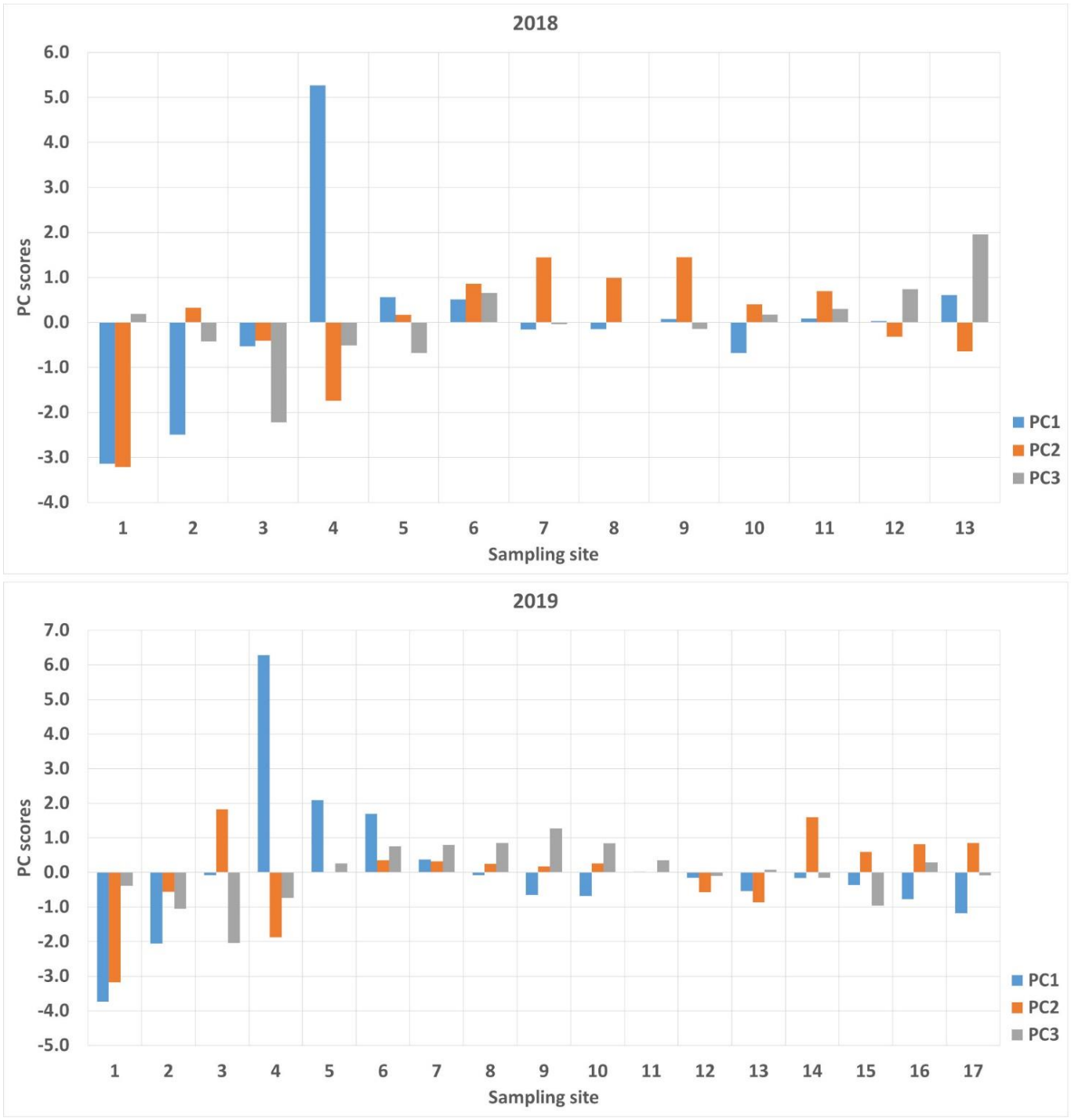


Figure S4. Spatial changes of PC scores in (**a**) 2018 and (**b**) 2019.

Table S1. Results of metal concentrations in the Bzura River water according to the sampling sites in 2019.

Metal	Parameter	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	min	< LOD	< LOD	< LOD	16.7	10.5	7.6	6.3	5.8	4.3	5.2	3.8	2.3	1.1	0.5	< LOD	< LOD	< LOD
	max	2.3	5.8	8.5	324	147	87.1	81.3	66.8	41.0	34.2	29.9	22.1	10.8	8.4	30.4	27.1	6.7
Ni	median	**0.8**	**2.2**	**1.8**	**44.9**	**22.8**	**17.7**	**14.7**	**12.8**	**11.0**	**10.6**	**9.3**	**7.9**	**4.6**	**2.2**	**3.0**	**1.9**	**2.2**
[µg/L]	mean	**0.5**	**1.3**	**1.7**	**66.3**	**33.6**	**25.2**	**20.9**	**17.7**	**14.5**	**12.6**	**10.8**	**8.8**	**5.5**	**2.5**	**4.4**	**3.8**	**2.1**
	CV [%]	70.8	67.5	106.8	126.3	110.9	86.8	97.4	94.9	75.0	70.4	69.3	65.2	56.2	84.3	154.5	164.2	74.4
	n	4	5	8	12	12	12	12	12	12	12	12	12	12	12	8	8	8
	min	< LOD	< LOD	< LOD	< LOD	< LOD	0.7	1.3	1.2	1.3	1.1	0.6	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD
	max	4.0	25.0	32.8	4.2	4.9	11.7	85.3	9.1	9.2	10.9	8.6	6.9	8.1	4.8	8.3	3.1	63.7
Pb	median	**0.9**	**2.5**	**1.7**	**1.7**	**1.8**	**1.5**	**4.9**	**2.5**	**2.3**	**4.5**	**2.8**	**2.3**	**1.9**	**0.7**	**1.7**	**1.4**	**2.1**
[µg/L]	mean	**1.2**	**4.1**	**4.2**	**1.7**	**1.9**	**3.0**	**11.7**	**3.5**	**3.9**	**4.5**	**3.5**	**2.4**	**1.9**	**0.8**	**1.4**	**0.9**	**6.1**
	CV [%]	83.1	142.1	182.6	68.1	60.3	107.5	201.3	65.4	70.1	64.7	71.1	72.0	102.7	123.5	97.7	64.7	191.7
	n	9	9	10	10	9	12	12	12	12	12	12	10	8	6	5	6	5
	min	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD
	max	0.20	0.13	0.09	0.35	0.47	0.24	0.34	0.39	0.36	0.45	0.29	0.36	0.25	0.17	0.31	0.10	0.11
Cd	median	**0.07**	**0.08**	**0.05**	**0.12**	**0.07**	**0.07**	**0.17**	**0.10**	**0.13**	**0.14**	**0.10**	**0.13**	**0.14**	**0.08**	**0.05**	**0.04**	**0.08**
[µg/L]	mean	**0.05**	**0.04**	**0.04**	**0.13**	**0.11**	**0.08**	**0.16**	**0.13**	**0.14**	**0.15**	**0.11**	**0.09**	**0.08**	**0.04**	**0.04**	**0.02**	**0.03**
	CV [%]	82.2	59.5	39.3	62.1	105.5	68.0	56.2	70.2	55.0	68.9	79.0	89.2	66.0	75.2	110.3	75.7	55.7
	n	7	6	7	10	9	9	11	10	11	10	11	7	6	5	3	3	4
	min	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	0.004	0.006	< LOD	0.002	0.006	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD
	max	0.019	0.026	0.047	0.099	0.070	0.057	0.067	0.063	0.059	0.053	0.057	0.046	0.030	0.036	0.012	0.011	0.014
Zn	median	**0.005**	**0.012**	**0.015**	**0.044**	**0.032**	**0.031**	**0.034**	**0.033**	**0.033**	**0.028**	**0.027**	**0.030**	**0.018**	**0.010**	**0.006**	**0.007**	**0.013**
[mg/L]	mean	**0.004**	**0.008**	**0.013**	**0.045**	**0.034**	**0.029**	**0.035**	**0.035**	**0.030**	**0.028**	**0.028**	**0.025**	**0.017**	**0.007**	**0.004**	**0.003**	**0.004**
	CV [%]	92.5	57.0	77.4	61.1	49.2	46.2	50.5	46.3	45.1	53.0	53.1	42.3	41.0	97.6	54.6	49.8	54.3
	n	6	7	8	12	11	11	12	12	11	12	12	11	11	8	6	6	5
	min	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD
	max	0.073	0.052	0.055	0.049	0.054	0.053	0.052	0.047	0.045	0.038	0.042	0.024	0.029	0.032	0.043	0.035	0.011
Cu	median	**0.026**	**0.026**	**0.027**	**0.026**	**0.026**	**0.034**	**0.032**	**0.032**	**0.034**	**0.028**	**0.024**	**0.017**	**0.006**	**0.016**	**0.024**	**0.020**	**0.007**
[mg/L]	mean	**0.019**	**0.019**	**0.020**	**0.018**	**0.021**	**0.023**	**0.022**	**0.020**	**0.019**	**0.014**	**0.010**	**0.007**	**0.005**	**0.006**	**0.008**	**0.008**	**0.003**
	CV [%]	58.7	45.8	40.6	40.5	56.7	38.0	35.3	33.9	26.1	30.9	65.5	51.8	87.7	79.8	67.9	82.6	55.9
	n	7	8	8	8	8	8	8	8	7	6	6	5	6	4	4	5	4
	min	< LOD	0.08	0.17	0.17	0.19	0.18	0.16	0.15	0.19	0.19	0.15	0.05	0.04	0.13	0.10	0.10	0.09
Fe	max	0.09	0.33	0.33	0.34	0.38	0.41	0.38	0.36	0.36	0.52	0.53	0.47	0.47	0.45	0.46	0.48	0.40
[mg/L]	median	**0.07**	**0.24**	**0.25**	**0.27**	**0.29**	**0.30**	**0.27**	**0.26**	**0.26**	**0.25**	**0.24**	**0.15**	**0.13**	**0.26**	**0.21**	**0.20**	**0.16**

	mean	**0.04**	**0.21**	**0.24**	**0.27**	**0.28**	**0.28**	**0.28**	**0.27**	**0.28**	**0.28**	**0.29**	**0.25**	**0.22**	**0.31**	**0.28**	**0.27**	**0.23**
	CV [%]	46.3	26.2	25.5	20.3	21.3	23.7	26.6	27.6	20.8	40.9	17.3	58.9	56.2	23.5	37.8	35.2	32.4
	n	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	min	< LOD	0.03	0.07	0.05	0.04	0.04	0.03	0.03	0.01	0.01	< LOD	< LOD	< LOD	0.01	< LOD	< LOD	0.03
	max	0.07	0.12	0.21	0.12	0.16	0.15	0.13	0.14	0.13	0.15	0.22	0.16	0.16	0.19	0.21	0.20	0.18
Mn	median	**0.03**	**0.07**	**0.14**	**0.08**	**0.09**	**0.09**	**0.08**	**0.07**	**0.06**	**0.07**	**0.05**	**0.09**	**0.08**	**0.11**	**0.10**	**0.09**	**0.10**
[mg/L]	mean	**0.03**	**0.08**	**0.14**	**0.08**	**0.09**	**0.09**	**0.09**	**0.08**	**0.07**	**0.08**	**0.08**	**0.07**	**0.07**	**0.11**	**0.10**	**0.09**	**0.11**
	CV [%]	49.3	35.7	31.1	29.6	44.2	48.9	45.0	45.4	53.8	58.8	78.3	65.6	58.1	51.4	56.0	52.6	49.9
	n	11	12	12	12	12	12	12	12	12	12	11	11	10	12	11	11	12

Table S2. Results of metal concentrations in the Bzura River water according to the sampling sites in 2018.

Metal	Parameter	1	2	3	4	5	6	7	8	9	10	11	12	13
	min	< LOD	< LOD	< LOD	15.4	6.3	4.1	5.7	4.6	3.6	2.3	1.0	< LOD	0.6
	max	7.6	3.1	1.7	283	87.3	58.0	56.8	56.6	50.6	38.8	15.3	15.6	9.3
Ni	median	**1.2**	**1.0**	**1.0**	**30.7**	**12.7**	**11.5**	**8.9**	**8.7**	**7.0**	**5.5**	**4.8**	**4.5**	**4.2**
[μg/L]	mean	**1.8**	**0.8**	**0.5**	**63.4**	**25.5**	**18.7**	**15.1**	**13.9**	**12.2**	**9.6**	**6.4**	**5.5**	**4.5**
	CV [%]	112.7	69.8	39.1	121.8	100.4	88.0	94.2	102.8	106.5	104.1	73.1	76.2	61.0
	n	9	5	3	12	12	12	12	12	12	12	12	11	12
	min	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1.4	1.1	1.1	0.7	< LOD	< LOD
	max	3.7	4.5	6.3	6.6	5.6	19.8	22.8	20.4	28.6	19.1	15.0	7.9	16.5
Pb	median	**2.6**	**1.8**	**2.0**	**2.5**	**2.0**	**3.7**	**3.7**	**4.5**	**4.6**	**3.6**	**3.3**	**2.5**	**1.3**
[μg/L]	mean	**1.4**	**1.4**	**1.7**	**2.6**	**2.3**	**4.6**	**5.5**	**6.0**	**8.5**	**6.0**	**4.7**	**3.1**	**3.1**
	CV [%]	47.4	74.0	92.7	61.4	69.1	103.2	104.5	88.0	95.7	95.1	90.0	73.0	135.3
	n	7	8	8	10	11	10	11	12	12	12	12	11	9
	min	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	0.05	0.03	0.04	< LOD	0.06	< LOD	< LOD
	max	0.34	0.97	0.10	0.22	0.29	0.30	0.85	0.76	1.16	0.47	0.67	0.42	1.20
Cd	median	**0.08**	**0.06**	**0.06**	**0.14**	**0.12**	**0.14**	**0.23**	**0.22**	**0.21**	**0.21**	**0.23**	**0.06**	**0.09**
[μg/L]	mean	**0.07**	**0.11**	**0.03**	**0.12**	**0.11**	**0.13**	**0.26**	**0.24**	**0.33**	**0.19**	**0.24**	**0.11**	**0.19**
	CV [%]	101.7	191.0	55.8	42.1	56.6	50.3	79.6	80.5	95.2	61.2	63.9	105.1	158.4
	n	8	7	5	11	10	10	12	12	12	11	12	10	10
	min	< LOD	< LOD	< LOD	0.008	0.002	0.003	0.007	0.002	0.008	0.006	0.015	0.005	< LOD
	max	0.035	0.021	0.016	0.104	0.064	0.081	0.237	0.206	0.147	0.090	0.076	0.061	0.045
Zn	median	**0.007**	**0.010**	**0.010**	**0.065**	**0.035**	**0.040**	**0.052**	**0.053**	**0.047**	**0.044**	**0.043**	**0.03**	**0.017**
[mg/L]	mean	**0.006**	**0.006**	**0.005**	**0.055**	**0.032**	**0.035**	**0.061**	**0.056**	**0.060**	**0.044**	**0.043**	**0.034**	**0.019**
	CV [%]	99.3	53.5	34.9	53.6	58.0	57.3	98.5	92.3	70.3	55.9	41.2	57.1	68.1
	n	7	7	6	12	12	12	12	12	12	12	12	12	12
	min	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD
	max	0.047	0.052	0.057	0.053	0.059	0.051	0.056	0.050	0.066	0.067	0.061	0.049	0.129
Cu	median	**0.027**	**0.025**	**0.033**	**0.026**	**0.021**	**0.019**	**0.029**	**0.026**	**0.025**	**0.019**	**0.034**	**0.021**	**0.016**
[mg/L]	mean	**0.012**	**0.012**	**0.016**	**0.023**	**0.018**	**0.017**	**0.020**	**0.019**	**0.020**	**0.018**	**0.016**	**0.014**	**0.020**
	CV [%]	115.7	81.5	71.0	53.0	74.0	76.8	70.7	60.7	72.8	85.0	74.6	77.8	136.5
	n	7	8	8	8	8	8	8	8	7	6	6	5	6
	min	< LOD	0.04	0.02	0.06	0.08	0.17	0.16	0.15	0.17	0.15	0.21	< LOD	0.11
	max	0.21	0.59	0.47	1.30	0.77	0.75	0.99	0.77	1.19	0.51	0.68	0.75	1.02
Fe	median	**0.06**	**0.22**	**0.28**	**0.37**	**0.34**	**0.34**	**0.37**	**0.39**	**0.48**	**0.40**	**0.37**	**0.37**	**0.17**
[mg/L]	mean	**0.05**	**0.29**	**0.28**	**0.47**	**0.38**	**0.39**	**0.44**	**0.43**	**0.50**	**0.37**	**0.43**	**0.33**	**0.29**
	CV [%]	87.4	56.5	29.8	66.8	46.4	47.5	53.4	42.7	56.0	34.4	30.8	61.2	71.6
	n	9	12	12	12	12	12	12	12	12	12	12	11	12
	min	< LOD	0.01	0.03	0.01	0.01	0.02	0.02	0.02	0.02	< LOD	< LOD	0.01	0.01
	max	0.09	0.14	0.32	0.16	0.16	0.16	0.29	0.24	0.33	0.19	0.17	0.23	0.29
Mn	median	**0.02**	**0.08**	**0.14**	**0.11**	**0.11**	**0.10**	**0.10**	**0.10**	**0.08**	**0.11**	**0.10**	**0.07**	**0.04**
[mg/L]	mean	**0.03**	**0.08**	**0.14**	**0.11**	**0.10**	**0.10**	**0.11**	**0.10**	**0.11**	**0.09**	**0.09**	**0.08**	**0.06**
	CV [%]	78.1	45.8	41.7	39.1	44.0	52.8	60.7	52.9	71.5	55.4	54.3	80.8	233.8
	n	10	12	12	12	12	12	12	12	12	11	11	12	12

Table 3. Results of metal concentrations in the Bzura River water according to the months in 2019.

Metal	Parameter	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.
	min	< LOD	< LOD	< LOD	< LOD	0.5	< LOD	0.8	< LOD	1.8	< LOD	< LOD	< LOD
	max	47.5	57.0	77.1	47.1	23.0	324	42.8	24.8	27.5	16.7	76.9	30.4
Ni	median	**13.6**	**4.9**	**8.3**	**12.2**	**2.6**	**32.3**	**8.4**	**8.5**	**9.7**	**5.4**	**28.2**	**4.9**
[μg/L]	mean	**12.4**	**8.7**	**14.7**	**11.2**	**4.8**	**53.7**	**10.2**	**7.5**	**10.8**	**5.6**	**18.7**	**5.7**
	CV [%]	79.9	141.2	120.7	91.5	116.4	129.6	108.8	65.0	56.3	72.8	73.3	115.2
	n	13	14	15	14	17	14	17	12	17	15	11	14
	min	< LOD	0.3	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	0.8	< LOD	< LOD	0.5
	max	2.6	8.3	5.1	7.4	2.0	85.3	5.9	2.9	10.9	6.7	63.7	7.3
Pb	median	**1.1**	**2.4**	**1.3**	**4.0**	**1.5**	**6.4**	**1.7**	**1.4**	**4.8**	**2.8**	**3.4**	**1.6**
[μg/L]	mean	**1.0**	**3.3**	**1.0**	**3.3**	**0.6**	**10.7**	**1.9**	**1.3**	**5.3**	**2.1**	**7.4**	**1.8**
	CV [%]	66.7	73.8	79.1	37.6	34.8	141.6	73.8	41.8	53.4	77.5	188.6	81.9
	n	12	17	11	13	6	10	14	15	17	13	15	17
	min	< LOD	< LOD	< LOD	0.02	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD
	max	0.13	0.36	0.47	0.39	0.03	0.15	0.18	0.17	0.17	0.27	0.17	0.12
Cd	median	**0.11**	**0.20**	**0.20**	**0.24**	**0.03**	**0.06**	**0.10**	**0.06**	**0.07**	**0.19**	**0.08**	**0.06**
[μg/L]	mean	**0.05**	**0.17**	**0.14**	**0.21**	**0.03**	**0.04**	**0.05**	**0.05**	**0.07**	**0.11**	**0.06**	**0.04**
	CV [%]	27.4	54.8	73.7	58.6	-	52.5	40.3	64.0	47.7	22.1	45.6	52.5
	n	7	16	11	17	1	9	8	12	16	12	12	8
	min	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	0.003	0.010	< LOD	< LOD	< LOD
	max	0.041	0.024	0.099	0.067	0.051	0.082	0.006	0.042	0.046	0.031	0.039	0.052
Zn	median	**0.029**	**0.012**	**0.047**	**0.050**	**0.028**	**0.040**	**0.003**	**0.016**	**0.026**	**0.012**	**0.028**	**0.024**
[mg/L]	mean	**0.018**	**0.010**	**0.035**	**0.035**	**0.017**	**0.030**	**0.001**	**0.020**	**0.026**	**0.015**	**0.021**	**0.018**
	CV [%]	71.9	58.7	56.7	51.5	50.8	51.3	68.8	57.3	44.5	56.8	33.8	52.7
	n	15	14	13	14	11	13	6	17	17	16	13	12
	min	< LOD	-	-	< LOD	-	-	< LOD	< LOD	0.004	< LOD	0.005	<LOD
	max	0.050	-	-	0.034	-	-	0.023	0.041	0.038	0.073	0.049	0.025
Cu	median	**0.035**	**-**	**-**	**0.026**	**-**	**-**	**0.018**	**0.027**	**0.027**	**0.050**	**0.025**	**0.020**
[mg/L]	mean	**0.027**	**-**	**-**	**0.020**	**-**	**-**	**0.011**	**0.019**	**0.021**	**0.033**	**0.025**	**0.012**
	CV [%]	27.6	-	-	17.0	-	-	19.7	59.1	65.1	36.9	40.9	15.3
	n	13	0	0	13	0	0	11	15	17	12	17	7
	min	0.08	0.04	< LOD	< LOD	0.07	0.07	0.06	< LOD	0.08	0.01	0.03	0.09
	max	0.47	0.48	0.41	0.33	0.41	0.46	0.53	0.30	0.35	0.29	0.28	0.37
Fe	median	**0.28**	**0.25**	**0.25**	**0.26**	**0.29**	**0.34**	**0.38**	**0.23**	**0.26**	**0.16**	**0.19**	**0.24**
[mg/L]	mean	**0.28**	**0.28**	**0.25**	**0.22**	**0.26**	**0.34**	**0.37**	**0.20**	**0.24**	**0.17**	**0.17**	**0.24**
	CV [%]	32.2	48.0	30.5	39.0	39.4	28.6	30.1	28.4	30.5	46.2	40.5	28.7
	n	17	17	16	16	17	17	17	16	17	17	17	17
	min	0.01	0.02	< LOD	0.03	0.07	0.07	0.04	0.02	0.03	< LOD	< LOD	0.02
	max	0.16	0.18	0.16	0.15	0.15	0.19	0.22	0.20	0.20	0.15	0.11	0.11
Mn	median	**0.06**	**0.05**	**0.11**	**0.11**	**0.12**	**0.15**	**0.14**	**0.06**	**0.08**	**0.04**	**0.03**	**0.07**
[mg/L]	mean	**0.06**	**0.08**	**0.10**	**0.11**	**0.11**	**0.14**	**0.15**	**0.08**	**0.08**	**0.04**	**0.03**	**0.06**
	CV [%]	58.6	66.2	28.6	29.7	19.0	20.7	32.0	61.1	48.8	86.7	70.1	44.2
	n	17	17	16	17	17	17	17	17	17	14	14	17

Table S4. Results of metal concentrations in the Bzura River water according to the months in 2018.

Metal	Parameter	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.
	min	< LOD	0.6	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	0.7
	max	22.8	283	25.3	15.4	31.9	20.7	24.0	29.6	54.6	143	52.0	59.0
Ni	median	**5.8**	**36.7**	**6.6**	**4.4**	**5.7**	**7.3**	**3.7**	**9.3**	**8.3**	**15.0**	**16.5**	**13.1**
[μg/L]	mean	**4.9**	**49.0**	**6.6**	**4.5**	**7.2**	**6.1**	**5.4**	**9.5**	**11.1**	**26.8**	**16.7**	**16.5**
	CV [%]	92.7	154	75.9	77.0	105.4	71.9	110.0	72.0	119.1	124.0	75.6	99.0
	n	9	13	10	12	12	11	12	11	12	10	11	13
	min	0.5	< LOD	< LOD	< LOD	< LOD	0.4	< LOD	1.2	2.5	3.7	0.9	< LOD
	max	3.2	22.8	9.9	1.5	3.1	4.7	4.8	28.6	16.5	13.0	8.3	3.4
Pb	median	**1.4**	**11.7**	**2.3**	**1.1**	**2.1**	**3.2**	**3.3**	**6.0**	**6.4**	**7.9**	**3.9**	**2.0**
[μg/L]	mean	**1.5**	**7.0**	**1.8**	**0.6**	**1.7**	**3.0**	**2.6**	**7.3**	**8.1**	**7.4**	**4.2**	**1.6**
	CV [%]	57.4	83.2	95.5	40.8	59.8	44.8	42.4	108.7	62.7	34.4	54.8	40.6
	n	13	8	7	7	12	13	11	13	13	13	13	10
	min	< LOD	< LOD	< LOD	< LOD	0.04	0.03	< LOD	< LOD	0.02	< LOD	< LOD	< LOD
	max	0.34	0.85	0.66	0.35	0.28	0.26	0.97	1.16	1.20	0.16	0.28	0.21
Cd	median	**0.12**	**0.13**	**0.28**	**0.24**	**0.21**	**0.13**	**0.05**	**0.19**	**0.20**	**0.08**	**0.05**	**0.12**
[μg/L]	mean	**0.12**	**0.24**	**0.25**	**0.18**	**0.18**	**0.14**	**0.12**	**0.22**	**0.29**	**0.05**	**0.07**	**0.10**
	CV [%]	56.3	113.7	62.6	30.6	46.0	49.8	173.1	111.1	114.0	61.3	99.7	42.7
	n	10	12	12	10	13	13	9	10	13	7	11	10
	min	< LOD	0.006	< LOD	< LOD	< LOD	0.007	0.004	0.005	< LOD	0.010	< LOD	< LOD
	max	0.073	0.237	0.104	0.087	0.064	0.065	0.074	0.114	0.068	0.042	0.017	0.016
Zn	median	**0.047**	**0.064**	**0.052**	**0.063**	**0.045**	**0.036**	**0.038**	**0.033**	**0.030**	**0.026**	**0.006**	**0.009**
[mg/L]	mean	**0.039**	**0.085**	**0.042**	**0.048**	**0.036**	**0.036**	**0.036**	**0.034**	**0.029**	**0.025**	**0.005**	**0.007**
	CV [%]	33.3	86.2	42.7	52.3	24.3	53.0	54.1	84.2	64.0	42.0	77.8	51.8
	n	10	13	10	12	10	13	13	13	12	13	10	10
	min	< LOD	0.001	-	-	< LOD	< LOD	0.001	0.016	0.040	0.033	0.015	-
	max	0.045	0.037	-	-	0.008	0.017	0.026	0.066	0.067	0.047	0.129	-
Cu	median	**0.008**	**0.010**	**-**	**-**	**0.005**	**0.006**	**0.016**	**0.046**	**0.052**	**0.038**	**0.021**	**-**
[mg/L]	mean	**0.007**	**0.013**	**-**	**-**	**0.005**	**0.005**	**0.014**	**0.045**	**0.053**	**0.040**	**0.031**	**-**
	CV [%]	115.6	97.9	-	-	114.0	74.3	48.3	26.3	13.1	12.1	97.7	-
	n	7	13	0	0	2	10	13	13	13	13	13	0
	min	0.01	0.04	0.06	0.04	< LOD	0.21	0.08	< LOD	0.06	0.06	0.04	< LOD
	max	0.46	0.99	0.75	0.68	1.02	1.30	0.65	1.19	0.43	0.42	0.27	0.27
Fe	median	**0.34**	**0.37**	**0.49**	**0.47**	**0.35**	**0.55**	**0.57**	**0.37**	**0.32**	**0.28**	**0.20**	**0.16**
[mg/L]	mean	**0.30**	**0.44**	**0.47**	**0.42**	**0.38**	**0.59**	**0.48**	**0.38**	**0.28**	**0.25**	**0.19**	**0.13**
	CV [%]	42.5	61.7	35.9	37.6	54.1	44.4	39.0	67.0	43.0	38.7	33.6	53.2
	n	13	13	13	13	12	13	13	11	13	13	13	12
	min	0.03	0.02	0.003	0.02	< LOD	< LOD	0.03	0.01	0.02	0.02	0.01	< LOD
	max	0.12	0.29	0.23	0.15	0.29	0.16	0.22	0.33	0.19	0.15	0.10	0.10
Mn	median	**0.08**	**0.10**	**0.13**	**0.13**	**0.11**	**0.10**	**0.11**	**0.11**	**0.09**	**0.06**	**0.03**	**0.02**
[mg/L]	mean	**0.08**	**0.12**	**0.12**	**0.12**	**0.12**	**0.09**	**0.11**	**0.12**	**0.09**	**0.07**	**0.04**	**0.02**
	CV [%]	27.0	61.7	41.0	35.5	47.7	51.3	45.6	83.4	57.0	53.4	62.1	89.7
	n	13	13	13	13	12	11	13	13	13	13	13	12

Nov. – November; Dec. – December; Jan. – January; Feb. – February; Mar. – March; Apr. – April; Jun. – June; Jul. – July; Aug. – August; Sep. – September; Oct. – October.

Table S5. Sample no. 4 – results of basic statistics: standard deviations (s) [μg/L], coefficients of variation (CV) [%] and confidence intervals (CI) (n=4; p=95%).

Metal	s [μg/L]	CV [%]	CI [μg/L]
Cd	0.01	16	0.064 ± 0.016
Cu	3.0	12	24.8 ± 4.7
Fe	10.9	3.0	362 ± 17
Mn	1.9	3.7	51.3 ± 3.0
Ni	0.17	1.2	13.6 ± 0.3
Pb	0.07	7.3	0.97 ± 0.11
Zn	0.91	4.9	18.6 ± 1.4