

Supplementary materials

Table S1. Median values of modeled and observed nitrate concentrations (2013–2015).

Observation Location	Modeled Concentration (mg/l)			Observed Concentration (mg/l)	Difference ** (mg/l)
	Agriculture	Sewer system	Total *		
1	11.31	2.77	20.07	15.30	−4.77
2	9.40	26.09	41.49	27.30	−14.19
3	0.00	14.81	20.81	34.50	13.69
4	0.00	19.01	25.01	29.90	4.89
5 ^s	3.04	3.97	13.01	18.60	5.59
6	9.01	12.90	27.91	35.10	7.19
7 ^s	5.38	3.32	14.70	17.20	2.50
8	0.53	15.90	22.43	29.50	7.07
9	9.27	9.80	25.07	19.80	−5.27
10	2.57	0.89	9.46	17.30	7.84
11 ^k	4.23	3.52	13.75	16.00	2.25
12 ^k	5.69	3.69	15.38	23.30	7.92
13 ^k	2.99	0.99	9.98	17.40	7.42
14 ^k	5.93	2.99	14.92	21.60	6.68
15 ^k	3.00	0.85	9.85	15.20	5.35
16 ^k	2.90	0.84	9.74	9.10	−0.64
17 ^k	4.04	1.19	11.23	12.10	0.87
18	0.76	0.15	6.90	7.20	0.30
19 ^k	4.04	1.19	11.23	12.00	0.77
20 ^k	3.51	0.96	10.47	10.10	−0.37
21 ^k	3.13	0.92	10.06	8.10	−1.96
22	3.17	14.62	23.79	16.70	−7.09
23 ^k	2.53	0.86	9.39	11.60	2.21
24	5.35	1.95	13.31	18.20	4.89
25 ^k	2.53	1.04	9.57	12.00	2.43
26	5.88	3.02	14.90	24.00	9.10
27	5.88	3.02	14.90	23.00	8.10
28 ^k	2.45	1.03	9.48	12.00	2.52
29 ^k	2.30	0.82	9.12	13.20	4.08
30	0.00	3.48	9.48	17.30	7.82
31	7.80	11.00	24.80	24.00	−0.80
32	7.80	11.00	24.80	18.00	−6.80
33	0.03	0.34	6.37	24.20	17.83
34	4.00	2.38	12.37	24.10	11.73
35	2.27	3.07	11.34	17.70	6.36
36	1.09	1.65	8.74	12.00	3.26
37	3.54	2.51	12.05	23.30	11.25
38	1.23	1.08	8.31	13.30	4.99
39	1.27	1.15	8.42	16.10	7.68
40	4.20	3.15	13.36	18.40	5.04
41	0.57	0.43	7.00	13.90	6.90
42	5.34	6.31	17.64	23.00	5.36
43	5.15	4.88	16.03	14.80	−1.23
44	4.92	5.11	16.03	19.80	3.77
45	3.75	13.73	23.48	8.72	−14.76
46	5.10	6.17	17.27	20.80	3.53
47	6.24	8.05	20.29	21.60	1.31
48	6.02	5.53	17.55	14.80	−2.75
49	0.15	7.90	14.05	9.60	−4.45
50 ^H	3.17	4.49	13.67	22.50	8.83

51 ^H	3.49	4.62	14.10	22.40	8.30
52 ^H	5.04	5.23	16.27	21.70	5.43
53 ^H	4.43	4.59	15.01	19.60	4.59
54 ^H	4.77	4.78	15.55	16.80	1.25
55 ^H	5.14	5.49	16.63	21.70	5.07
56 ^H	5.32	5.54	16.85	20.00	3.15
57	5.44	5.10	16.54	21.20	4.66
58 ^{***}	14.79	4.43	25.22	21.90	-3.32
59	2.29	18.49	26.77	14.20	-12.57
60 ^{***}	3.97	13.83	23.80	16.60	-7.20

^HSum of the modeled impacts from the sewer system, agriculture with an assumed natural background of 6 mg/l).

^{**}Difference between observed and modeled total concentration.

^{***}Spring.

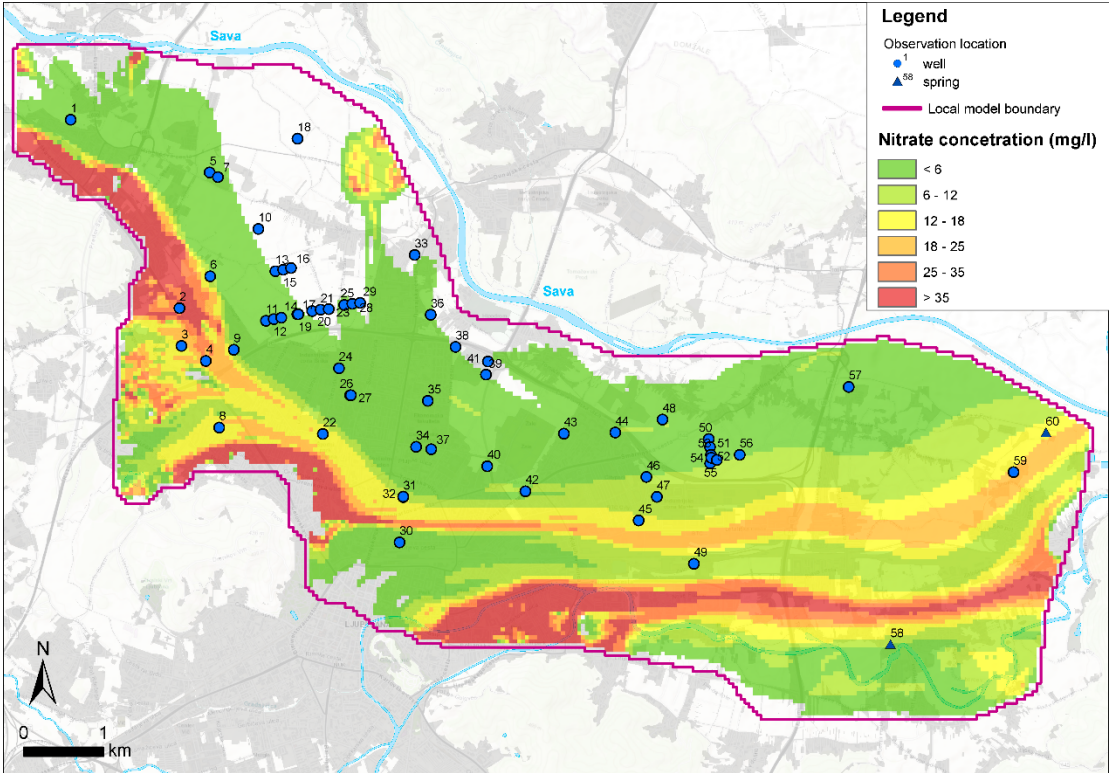


Figure S1. The spatial distribution of the modeled nitrate concentration arising from the sewer system.

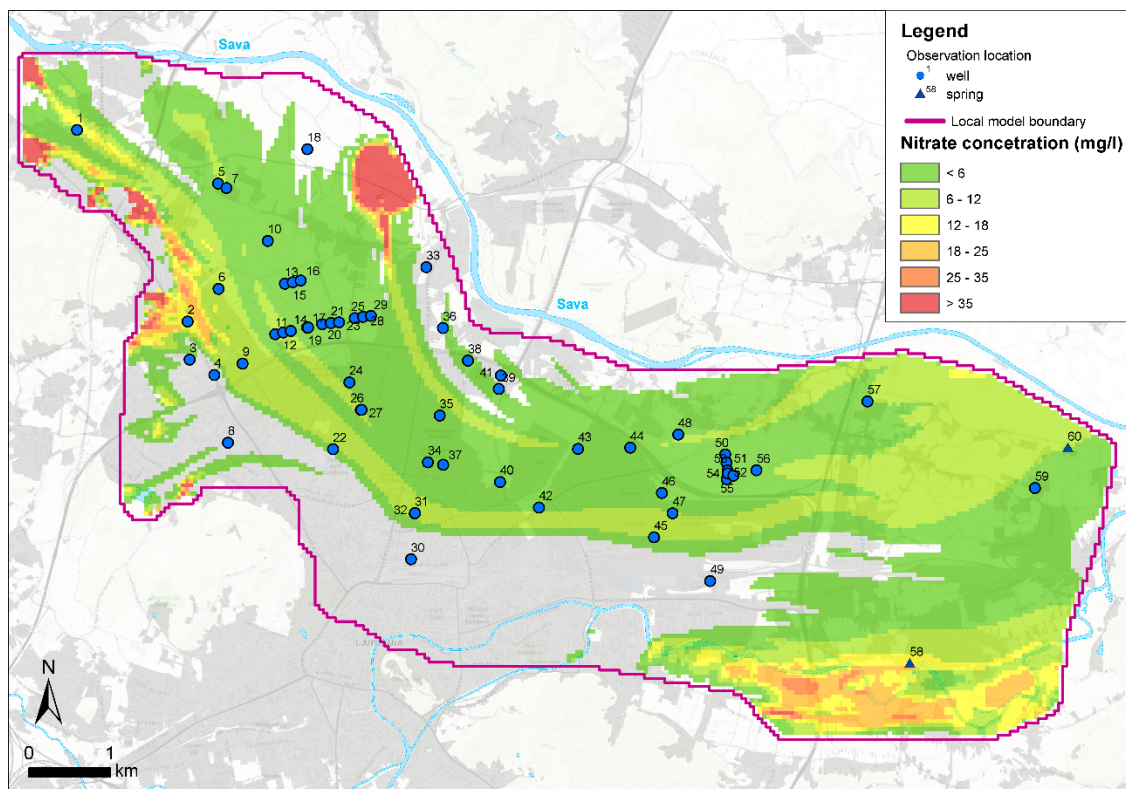


Figure S2. The spatial distribution of the modeled nitrate concentration arising from agriculture.