

Appendix

The data used for the artificial neural network model in this study.

Table S1. Data of pH at “influent”, “anoxic”, “MBR” and “effluent” were used for the prediction of TMP.

Days	pH				TMP (cmHg)
	Influent	Anoxic	MBR	Effluent	
12	7.54	7.35	7.26	7.33	1
15	7.64	7.38	7.3	7.42	2
19	7.53	7.32	7.26	7.34	2
22	7.56	7.34	7.27	7.3	2
26	7.42	7.33	7.28	7.33	2.5
29	7.36	7.35	7.26	7.35	2.5
33	7.45	7.32	7.24	7.3	2.5
36	7.6	7.34	7.3	7.25	2.5
40	7.48	7.32	7.32	7.35	2.5
43	7.56	7.36	7.3	7.38	2.5
47	7.42	7.34	7.28	7.42	2.5
50	7.53	7.3	7.26	7.3	2.5
54	7.61	7.32	7.26	7.31	2.5
57	7.42	7.35	7.25	7.28	2.5
61	7.54	7.34	7.28	7.32	2.5
64	7.53	7.38	7.3	7.35	2.5
68	7.46	7.39	7.28	7.34	2.5
71	7.56	7.42	7.26	7.28	3
75	7.62	7.45	7.24	7.34	3
78	7.6	7.36	7.22	7.3	3
82	7.48	7.42	7.28	7.38	3
85	7.46	7.36	7.3	7.28	3
89	7.62	7.38	7.3	7.35	3
92	7.58	7.43	7.28	7.3	3

96	7.54	7.38	7.28	7.34	3
99	7.56	7.42	7.33	7.35	3
103	7.44	7.41	7.31	7.36	3
106	7.53	7.43	7.28	7.43	3
110	7.48	7.43	7.28	7.35	3
113	7.42	7.4	7.26	7.45	4
117	7.38	7.32	7.24	7.27	4
120	7.58	7.34	7.24	7.35	4
124	7.45	7.45	7.26	7.43	4
127	7.68	7.46	7.33	7.45	4
131	7.56	7.35	7.25	7.35	4
134	7.42	7.25	7.21	7.25	4
138	7.56	7.4	7.32	7.36	4
141	7.46	7.32	7.25	7.35	4
145	7.46	7.36	7.28	7.42	4
148	7.56	7.26	7.22	7.35	4
152	7.52	7.28	7.23	7.28	4.5
155	7.48	7.3	7.25	7.26	4.5
159	7.55	7.28	7.19	7.33	4.5
162	7.48	7.3	7.26	7.28	4.5
164	7.55	7.28	7.16	7.19	4.5
166	7.46	7.24	7.18	7.2	4.5
169	7.54	7.28	7.24	7.26	4.5
173	7.42	7.3	7.26	7.32	4.5
176	7.46	7.25	7.22	7.25	4.5
180	7.52	7.27	7.25	7.28	4.5

Table S2. Data of Alkalinity at “influent”, “anoxic”, “MBR” and “effluent” were used for the prediction of TMP.

Days	Alkalinity (mgCaCO ₃ /L)				TMP (cmHg)
	Influent	Anoxic	MBR	Effluent	
12	258	170	134	106	1
15	246	176	128	104	2
19	252	164	134	120	2
22	250	160	136	110	2
26	262	162	134	104	2.5
29	242	164	138	98	2.5
33	264	164	140	98	2.5
36	260	160	134	110	2.5
40	260	160	134	100	2.5
43	252	154	136	112	2.5
47	254	164	142	114	2.5
50	258	166	140	104	2.5
54	260	168	132	106	2.5
57	246	174	138	120	2.5
61	248	166	136	112	2.5
64	240	168	128	112	2.5
68	244	158	126	114	2.5
71	246	174	134	100	3
75	260	180	136	120	3
78	264	168	130	110	3
82	248	170	138	102	3
85	236	174	140	122	3
89	248	168	142	114	3
92	230	174	144	106	3
96	242	166	140	106	3
99	240	176	138	108	3
103	268	172	136	110	3

106	246	170	134	116	3
110	246	180	134	102	3
113	240	172	136	96	4
117	252	176	138	94	4
120	256	180	136	100	4
124	240	160	136	98	4
127	262	164	128	106	4
131	264	164	124	96	4
134	248	160	124	98	4
138	266	168	124	98	4
141	246	164	128	100	4
145	250	168	126	104	4
148	244	154	138	110	4
152	248	162	130	88	4.5
155	264	162	124	72	4.5
159	260	162	118	74	4.5
162	264	168	128	76	4.5
164	248	166	124	70	4.5
166	242	170	126	70	4.5
169	240	170	130	72	4.5
173	264	164	118	86	4.5
176	242	162	126	80	4.5
180	258	176	126	82	4.5

Table S3. Data of nitrate at “influent”, “anoxic”, “MBR” and “effluent” were used for the prediction of TMP.

Days	Nitrate (mg/L)				TMP (cmHg)
	Influent	Anoxic	MBR	Effluent	
12	0.4	2.8	16.5	15.9	1
15	0.1	2.7	16	15.8	2
19	0.9	1.8	15.4	14.5	2
22	0.3	1.2	12.8	13.4	2
26	0.2	1.2	16.3	16.2	2.5
29	1.1	3.2	13.1	12.8	2.5
33	0.8	2.3	14.7	17.3	2.5
36	1.2	1.8	17.2	16.9	2.5
40	0.2	1.2	16.8	18.2	2.5
43	0.8	1.1	18	16.7	2.5
47	0.6	2.6	15.2	13.4	2.5
50	0.4	1.6	15.7	14.8	2.5
54	0.1	1.2	15.6	16.2	2.5
57	0.3	1.1	17	16.9	2.5
61	0.5	1.1	16.2	14.3	2.5
64	1.4	1.9	17	15.2	2.5
68	0.8	1.2	15.5	18	2.5
71	0.3	1.1	13.6	14.8	3
75	0.5	1.1	14.4	13.7	3
78	0.6	0.9	17	15.5	3
82	0.1	2.5	19.2	18.2	3
85	0.4	2.2	14.8	15.4	3
89	0.6	2.4	12.5	12.7	3
92	0.9	2.6	13.2	12.5	3
96	0.1	0.8	14.6	16.3	3
99	0.1	1.2	13.8	12.8	3
103	0.3	1.2	14.7	15.6	3

106	0.6	1.9	12.6	10.8	3
110	1	2	10.2	9.4	3
113	1.2	1.4	10.5	11.6	4
117	0.2	1.2	12.3	14.2	4
120	0.6	1.2	11.8	12.9	4
124	0.8	0.9	7.6	6.8	4
127	0.2	0.9	10.3	8.4	4
131	0.3	2.4	10.2	9.8	4
134	0.3	2.3	11.4	9.9	4
138	0.8	1.6	7.9	8.3	4
141	0.6	0.9	9.8	7.8	4
145	0.2	1.5	9.5	10.6	4
148	0.7	1.6	12.3	9.2	4
152	0.4	1.5	12.2	10.4	4.5
155	0.7	1.5	9.4	9.8	4.5
159	0.2	2.8	11.6	10.7	4.5
162	0.3	2.5	8.4	5.9	4.5
164	0.8	2.5	12.4	10.2	4.5
166	0.8	2.4	10.9	12.5	4.5
169	1.2	2.3	12.2	10.3	4.5
173	0.6	1.7	7.1	6.4	4.5
176	0.4	1.2	9.5	8.2	4.5
180	0.6	1.2	6.3	5.8	4.5

Table S4. Data of ammonium at “influent”, “anoxic”, “MBR” and “effluent” used for prediction of TMP.

Days	Ammonium (mg/L)				TMP (cmHg)
	Influent	Anoxic	MBR	Effluent	
12	52.6	12	1.25	0.24	1
15	46.9	10.3	0.94	0.1	2
19	44.58	15.7	0.29	0.26	2
22	42.6	9.2	0.39	0.34	2
26	51.5	13.5	0.68	0.4	2.5
29	43.5	9.8	1.25	0.61	2.5
33	39.8	10.2	1.2	0.42	2.5
36	53.1	6.8	0.54	0.3	2.5
40	52.8	8.2	0.83	0.36	2.5
43	49.8	9.8	0.91	0.38	2.5
47	46.8	10.2	0.42	0.38	2.5
50	50.2	5.3	0.59	0.47	2.5
54	56.4	8.4	0.58	0.28	2.5
57	46.5	6.9	0.82	0.24	2.5
61	48.2	8.3	0.24	0.17	2.5
64	49.2	9.8	0.61	0.08	2.5
68	57.1	5.9	0.22	0.04	2.5
71	50.2	12.4	0.26	0.05	3
75	53.4	4.6	0.34	0.04	3
78	46.7	8.2	0.38	0.26	3
82	43.8	6.3	0.21	0.05	3
85	39.7	9.8	0.12	0.08	3
89	45.9	7.4	0.23	0.12	3
92	42.3	10.2	0.21	0.2	3
96	42.8	8.6	0.18	0.05	3
99	39.7	9.4	0.16	0.04	3

103	37.8	5.3	0.21	0.08	3
106	49.2	6.5	1.26	0.25	3
110	54.3	12.5	0.64	0.03	3
113	35.9	9.4	0.26	0.12	4
117	37.6	13.2	0.64	0.05	4
120	32.6	10.4	0.86	0.03	4
124	45.6	6.8	0.68	0.16	4
127	38.1	5.9	0.16	0.12	4
131	46.6	6.7	1.62	0.5	4
134	39.8	10.2	0.66	0.03	4
138	34.9	6.3	1.2	0.08	4
141	46.2	8.4	0.89	0.12	4
145	34.2	4.9	0.92	0.05	4
148	39.7	9.2	1.25	0.03	4
152	36.1	8.3	0.84	0.2	4.5
155	41.5	6.6	0.67	0.14	4.5
159	43.8	12.8	1.13	0.37	4.5
162	35.2	8.16	0.77	0.252	4.5
164	38.3	9.53	0.16	0.044	4.5
166	34.5	10.25	0.38	0.15	4.5
169	30.5	9.42	1.45	0.24	4.5
173	38.4	6.5	0.56	0.31	4.5
176	42.3	4.9	0.84	0.06	4.5
180	48.6	12.3	0.69	0.04	4.5