

## Article

# Short-Term Effects of the EU Nitrate Directive Reintroduction: Reduced N Loads to River from an Alluvial Aquifer in Northern Italy

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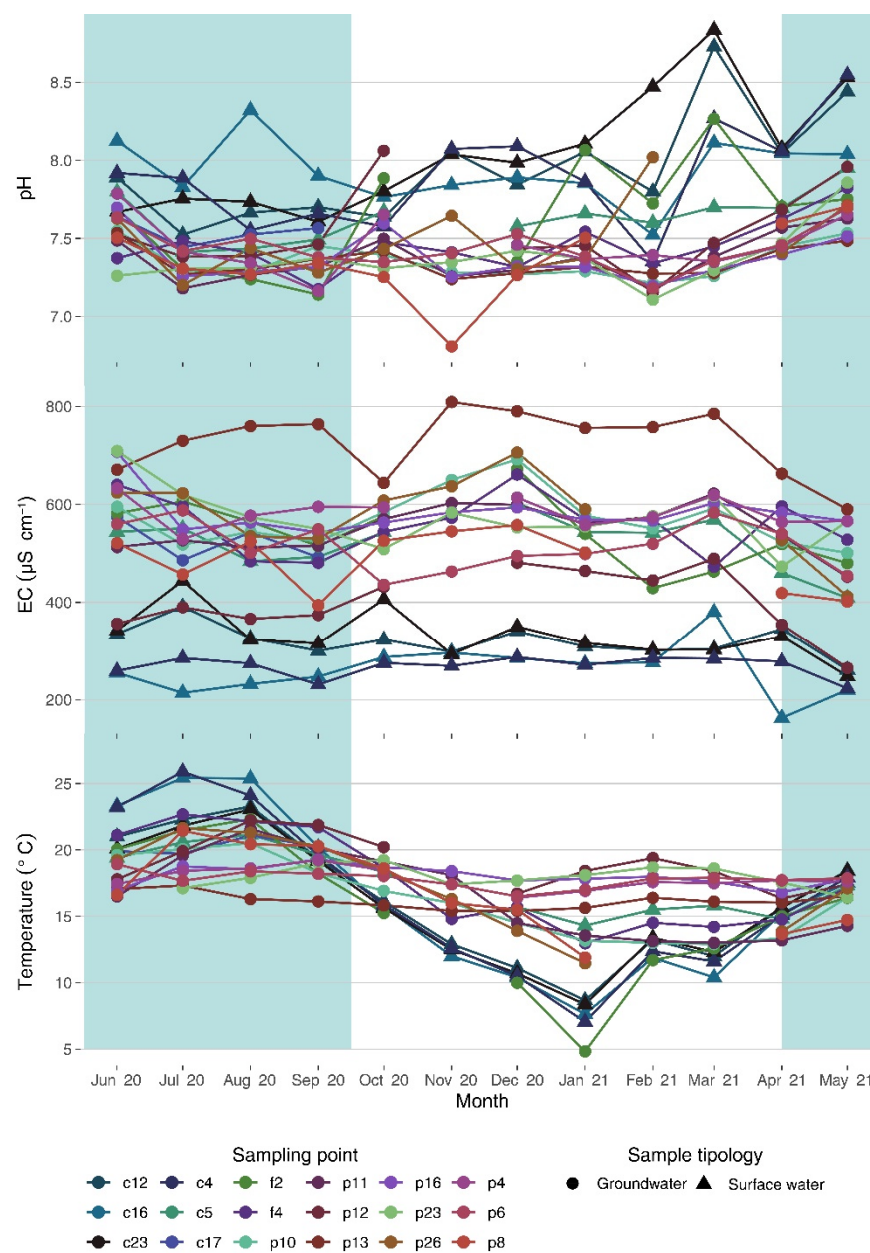
**Table S1.** NO<sub>3</sub><sup>−</sup> concentrations (mg L<sup>−1</sup>) during the investigated period, from June 2020 to May 2021. NA represents not analysed samples, due to dry conditions (e.g. c17) or inaccessibility to the sampling point (e.g. absent owner).

Sampling point	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
c12	5.603	7.321	7.011	3.843	3.130	3.483	10.412	4.534	2.741	3.546	8.567	2.613
c16	2.104	2.401	1.516	1.835	3.268	3.228	3.263	2.806	2.741	5.730	2.912	1.252
c23	5.751	10.925	9.224	5.264	8.558	2.847	8.971	4.820	3.292	3.610	8.163	2.359
c4	2.677	3.419	3.175	1.512	2.568	2.571	3.500	2.339	2.083	2.783	3.737	0.637
c5	15.421	12.176	15.617	10.586	12.333	NA	32.797	21.953	15.739	14.085	14.882	11.536
c17	17.880	7.278	12.493	11.222	NA	NA	NA	NA	NA	NA	NA	NA
f2	10.353	8.063	24.032	9.823	14.156	NA	47.498	15.533	4.797	4.691	14.583	13.924
f4	3.122	10.013	23.977	6.108	14.765	10.480	67.169	18.873	11.371	17.138	59.924	37.012
p10	16.035	12.240	23.696	12.119	14.570	15.039	36.907	13.906	5.582	13.088	28.072	24.375
p11	14.085	13.427	15.547	10.183	11.760	12.685	26.228	15.369	7.681	13.533	28.766	20.783
p12	4.161	3.631	5.353	2.996	4.434	NA	15.971	5.954	6.197	11.052	6.381	2.183
p13	24.899	22.630	71.399	53.971	23.115	42.901	88.342	65.235	19.280	39.678	63.832	35.203
p16	39.614	9.250	17.127	11.625	17.526	8.656	25.595	18.269	7.172	17.265	75.538	52.073
p23	47.693	14.700	37.477	12.199	5.021	5.094	12.150	15.236	12.579	19.364	15.690	4.730
p26	29.839	23.160	31.038	17.477	15.322	21.336	95.034	33.392	10.819	NA	42.088	10.043
p4	20.552	14.360	37.767	15.883	48.193	NA	37.179	22.138	8.720	16.014	30.215	23.286
p6	11.879	10.374	21.986	12.024	9.184	7.914	14.144	11.515	7.363	14.339	31.435	13.556
p8	11.201	3.758	13.053	5.562	7.975	NA	26.403	23.267	NA	NA	13.468	10.535
p9	18.877	6.854	4.036	11.265	9.067	NA	33.482	NA	NA	NA	2.719	9.410

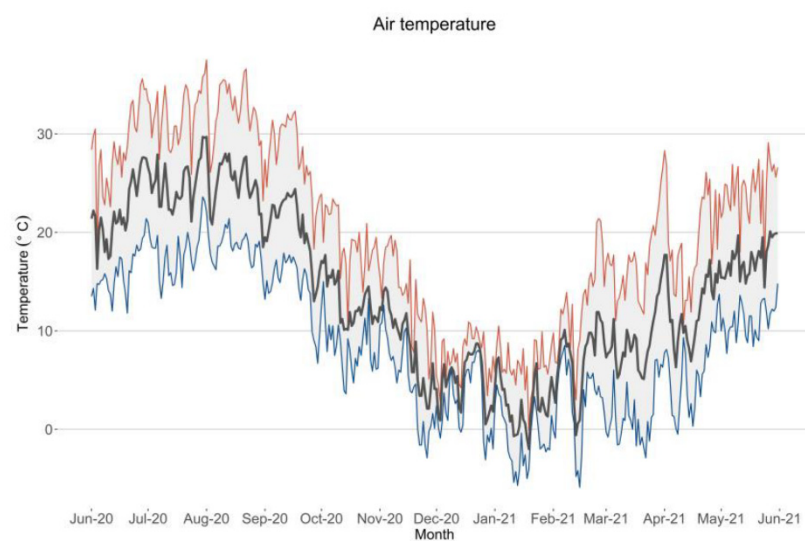
**Table S2.** NO<sub>3</sub><sup>−</sup> concentrations (mg L<sup>−1</sup>) during autumn 2019. Cumulated monthly precipitations are expressed in mm.

Month	Sep	Oct	Nov	Dec	Jan	Feb
Precipitation	117.6	52.4	215	92	16.8	6.2
f2	NA	NA	NA	22.906	3.461	7.321
f4	NA	NA	NA	23.088	25.280	14.063
p10	19.932	16.494	12.840	13.606	14.806	18.219
p11	21.280	29.368	32.533	29.015	6.154	19.004
p12	6.218	18.574	7.233	8.392	17.350	6.727
p13	95.342	101.974	74.536	62.371	4.712	52.315
p16	26.779	27.082	31.527	20.805	15.208	12.134
p23	64.181	46.267	42.584	23.975	17.202	15.208
p26	NA	NA	NA	NA	NA	NA
p4	NA	NA	NA	NA	NA	16.247
p6	40.767	33.051	16.191	15.242	7.299	14.106

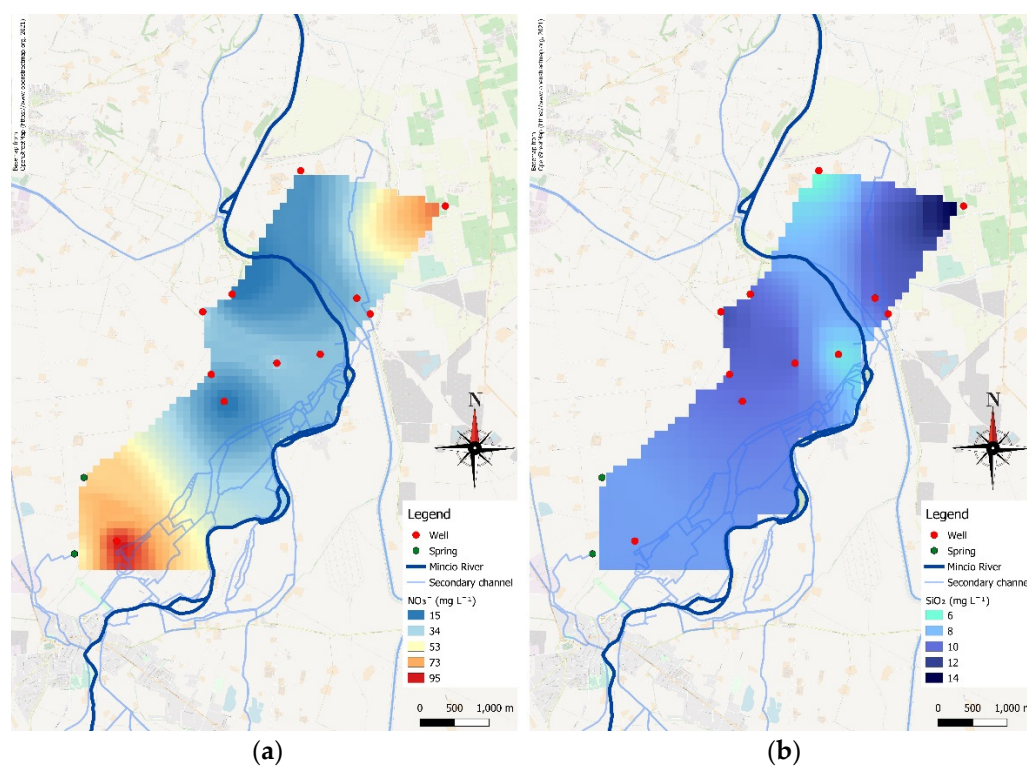
p8	18.242	7.898	25.656	23.925	NA	NA
p9	34.145	31.693	30.745	NA	NA	NA



**Figure S1.** Ephemeral physico-chemical parameters. Variation of the ephemeral (measured on the field) physico-chemical parameters among the hydrological year. The shaded area includes the irrigation period.



**Figure S2.** Air temperature. Average air temperature (black line), max temperature (red line) and min temperature (blue line) measured at the Goito meteorological station.



**Figure S3.**  $\text{NO}_3^-$  and  $\text{SiO}_2$  concentrations in the study area during December 2020. (a)  $\text{NO}_3^-$  concentrations; (b)  $\text{SiO}_2$  concentrations.

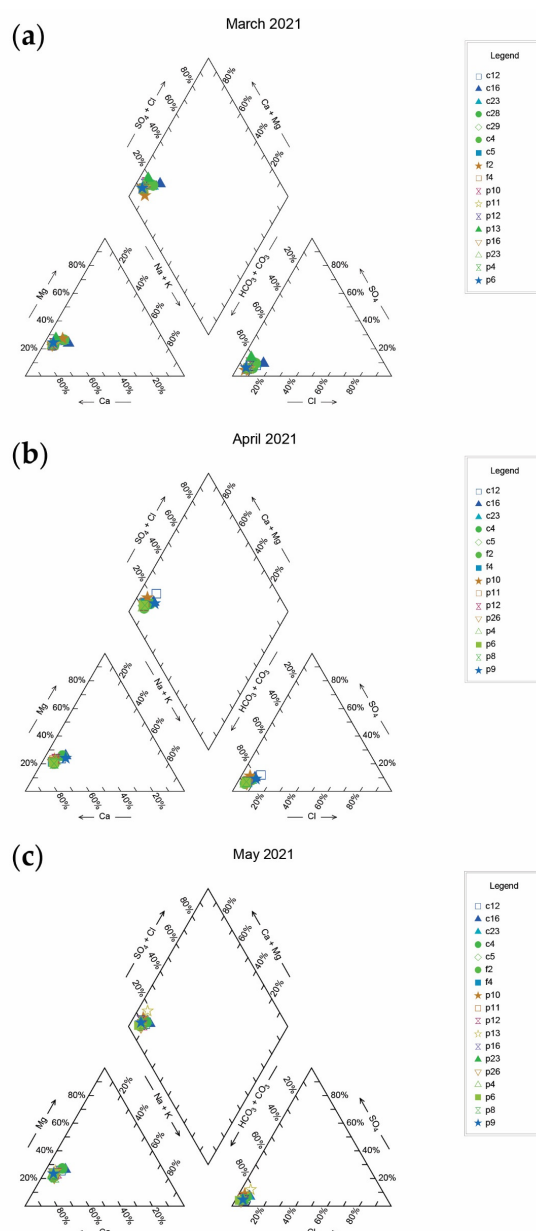


Figure S4. Piper plot. (a) March; (b) April; (c) May.



Figure S5. The spring f2. The pipes in the background are used to pump water for the irrigation.