Additional file 1. Ecological parameters for the sampling sites. Group indicates the GENELAND group association of the sampling sites. Site is the abbreviation for the sampling sites and geographic coordinates are given in the Gauss-Krüger coordinate system. NA means that no data were available for this site.

group	site	longitude [GK3]	latitude [GK3]	sub-catchment [no.]	altitude [m]	distance to spring [m]	nature reserve? [1 = yes, 0 = no]	urban area [%]	broadleaf forest [%]	mixed forest [%]	conifer forest [%]	waters [%]	farmland [%]	grassland [%]	channel pattern (MP1) [class]	longitudinal profile (MP2) [class]	water bed structure (MP3) [class]	ecological status [class]	calcium [mg/l]	iron [µg/l]	oxygen [mg/l]	chloride [mg/l]	ammonium [mg/l]	total organic carbon (TOC) [mg/l]	total nitrogen [mg/l]	pH
A	AA	3467971	5696423	Möhne	423	3444	1	15.4	2.1	0.0	1.4	0.0	13.1	68.0	5	4	4	NA	78.9	199	11.1	13.6	0.07	1.2	4.3	8.3
	AL	3473840	5701645	Lippe	365	0	1	NA	NA	NA	NA	NA	NA	NA	2	2	1	4	NA	NA	NA	NA	NA	NA	NA	NA
	QB12	3461411	5681944	Ruhr	474	5626	1	0.0	0.0	0.0	3.1	0.0	0.0	96.9	3	3	2	5	NA	NA	NA	NA	0.05	NA	NA	8.3
	E11	3438640	5672688	Lenne	382	1486	0	0.0	0.0	0.0	16.8	0.0	0.0	83.2	2	1	1	3	NA	NA	NA	NA	0.09	NA	NA	7.7
	E06	3434942	5674699	Lenne	334	4874	0	21.2	8.3	0.0	0.0	0.0	0.0	70.5	6	5	4	4	47.7	92	11.2	11.8	NA	1.4	3.1	NA
	E02	3453327	5672099	Lenne	447	3973	0	24.3	0.9	3.6	0.0	0.0	0.0	71.2	5	4	5	5	37.1	147	10.3	14.6	0.03	2.4	2.8	7.8
	GS	3441171	5701881	Möhne	270	11525	1	0.0	0.0	0.0	65.0	0.0	0.0	35.0	2	1	1	2	8.5	1100	10.6	6.5	NA	6.2	1.2	NA
	QB24	3442318	5677813	Ruhr	347	4706	0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	NA	NA	NA	NA	45.1	111	10.5	12.8	0.03	1.6	3.7	7.6
	QB10	3453286	5701356	Möhne	314	8716	0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	NA	NA	NA	NA	58.6	197	10.5	24.8	0.09	3.3	3.7	7.7
	QB17	3445686	5678146	Ruhr	342	6845	0	0.0	7.1	24.7	0.0	0.0	0.0	68.2	2	1	1	2	43.8	48	10.3	9.0	0.07	1.3	4.1	8.3
	QB23	3447495	5677478	Ruhr	369	4550	0	13.6	13.0	0.0	0.0	0.0	0.0	73.4	4	7	3	2	30.7	76	9.8	11.8	0.08	1.4	3.4	7.9
	VR7	3445543	5686406	Ruhr	399	2172	0	0.0	0.0	0.0	68.8	1.2	0.0	29.9	3	3	2	4	68.0	172	10.8	10.6	0.08	1.4	5.9	7.4
	QB22	3453172	5688126	Ruhr	312	13895	0	9.4	22.8	0.0	0.6	0.0	27.9	39.4	3	5	4	2	43.4	98	10.8	12.1	0.04	1.3	4.1	7.9
	LE	3452684	5673900	Ruhr	502	785	0	0.0	14.2	6.6	49.8	0.0	0.0	29.4	5	4	2	2	20.3	67	10.2	8.1	0.09	1.0	2.2	7.9
	LO	3458556	5702557	Möhne	309	11034	1	0.0	4.2	0.0	0.0	0.0	0.0	95.8	3	3	3	2	74.6	63	10.1	35.3	NA	1.7	3.4	NA
	ME	3466980	5687670	Ruhr	442	5723	0	98.8	0.0	0.0	0.5	0.0	0.0	0.7	6	5	6	4	32.3	40	10.5	8.2	0.08	1.2	2.5	7.8
	KL6	3465023	5697740	Möhne	451	1420	1	11.4	0.0	3.0	0.0	0.0	0.0	85.6	NA	NA	NA	NA	NA	NA	NA	NA	0.08	NA	NA	7.8
	VR17	3457758	5678654	Ruhr	509	3363	0	12.0	13.0	8.7	13.0	0.0	0.0	53.3	7	7	7	2	24.5	62	10.8	8.7	0.06	1.2	2.6	8.1
	RO1	3434318	5679606	Ruhr	527	1500	0	19.8	0.0	0.0	34.2	0.4	0.0	45.6	2	7	3	5	NA	NA	NA	NA	NA	NA	NA	NA
	RO2	3431365	5686987	Ruhr	272	11754	0	4.9	0.8	24.1	33.1	0.0	0.0	37.0	5	5	5	5	23.6	107	10.2	6.6	0.12	1.3	3.0	7.9
	KL9	3434351	5682378	Ruhr	401	5187	0	45.6	37.1	0.0	0.0	0.0	0.2	17.1	3	5	4	5	23.6	107	10.2	6.6	0.07	1.3	3.0	7.8
	SB	3460026	5694422	Ruhr	346	3615	0	4.2	0.0	5.9	13.7	0.3	0.0	75.8	2	3	2	3	23.8	187	10.5	8.5	0.08	2.4	2.2	8.2
	QB27	3446183	5688992	Ruhr	295	5697	0	14.2	16.4	0.0	0.0	0.0	0.0	69.5	NA	NA	NA	NA	68.0	78	10.8	10.6	0.07	1.4	5.9	8.1
	KL3	3432816	5681104	Ruhr	403	3219	0	1.4	14.2	0.0	29.0	1.2	0.0	54.2	5	5	5	2	16.2	80	10.6	4.8	0.08	1.3	2.3	8.0
B	BB	3466645	5668829	Eder	524	2506	0	0.0	16.9	0.2	11.5	0.0	0.0	71.3	3	4	2	2	16.9	90	10.4	5.9	0.08	1.6	1.3	7.6
	HSK10	3458921	5685865	Ruhr	433	1435	0	0.1	40.1	40.1	9.8	0.0	0.0	9.9	NA	NA	NA	NA	30.9	93	10.8	10.2	0.08	1.5	2.6	7.4
	E04	3409316	5681433	Lenne	305	2163	0	0.0	55.1	3.2	29.8	0.0	0.0	11.9	NA	NA	NA	NA	NA	NA	NA	NA	0.05	NA	NA	8.2
	NL	3464929	5675392	Ruhr	611	4134	1	0.0	2.9	0.0	4.5	0.0	0.0	92.6	3	4	2	3	20.4	554	10.8	17.4	0.11	2.4	1.2	8.1
	HSK6b	3455374	5686738	Ruhr	399	4394	0	24.1	16.1	0.0	6.5	0.0	0.0	53.3	4	3	2	4	NA	NA	NA	NA	NA	NA	NA	NA
	PL1	3457450	5680116	Ruhr	466	5145	0	53.6	1.5	0.0	8.3	0.0	1.0	35.7	3	1	1	2	24.5	62	10.8	8.7	NA	1.2	2.6	NA
	PL2	3458169	5676718	Ruhr	629	1156	1	0.0	30.3	6.7	16.2	0.0	0.0	46.8	3	4	3	2	24.5	62	10.8	8.7	0.08	1.2	2.6	7.8
	NG	3462376	5675757	Ruhr	574	4783	1	0.0	57.6	0.0	35.8	0.0	0.0	6.6	NA	NA	NA	NA	17.0	53	11.1	9.0	NA	1.4	1.2	NA
	KL13	3410745	5675226	Lenne	307	5840	0	16.5	23.0	5.0	1.9	0.0	15.3	38.2	4	3	4	3	23.1	155	10.7	17.1	NA	2.0	2.5	NA
	SO	3458196	5673862	Lenne	537	2980	1	26.8	0.0	0.0	15.5	0.0	0.0	57.6	3	3	5	2	NA	NA	NA	NA	0.04	NA	NA	7.5
	VR2	3460431	5673996	Lenne	654	385	1	0.0	77.6	1.2	21.2	0.0	0.0	0.0	2	3	2	2	NA	NA	NA	NA	0.09	NA	NA	7.6
	VA1	3459155	5678350	Ruhr	593	3040	0	0.0	0.8	0.0	45.5	0.0	0.0	53.7	3	5	3	2	NA	NA	NA	NA	0.08	NA	NA	7.8
	VR5	3458707	5683775	Ruhr	411	9494	0	19.1	8.5	0.0	36.9	0.0	0.0	35.5	5	6	4	2	26.7	44	11.1	7.6	0.08	1.6	2.8	7.8
C	HB1	3478675	5677590	Eder	458	7277	0	0.0	18.9	0.0	23.2	1.4	0.0	56.5	2	2	1	2	28.4	87	10.5	14.7	0.08	1.9	1.4	7.8
	HB2	3474569	5675459	Eder	554	1850	1	0.0	4.4	31.9	55.1	0.0	0.0	8.6	4	5	2	2	NA	NA	NA	NA	0.07	NA	NA	7.7
	ND	3478218	5682426	Eder	564	2076	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.08	NA	NA	7.8
	NH	3467985	5671089	Eder	540	3751	1	8.4	0.0	18.7	0.0	0.0	0.0	72.9	4	4	2	2	18.7	82	10.6	6.5	NA	1.6	1.5	NA
	RU3	3466754	5681626	Ruhr	504	8222	1	40.1	11.0	0.0	6.2	0.0	0.0	42.7	6	6	4	3	18.4	181	10.8	11.6	0.07	2.1	1.8	7.8
	RU4	3467531	5676847	Ruhr	622	2614	1	0.0	3.1	0.0	41.0	0.0	0.0	55.9	4	5	2	3	18.4	181	10.8	11.6	0.07	2.1	1.8	7.8
D	VR16	3404615	5697289	Ruhr	184	2789	1	0.0	6.2	0.0	39.0	0.0	0.0	54.8	3	4	3	3	28.4	469	10.8	22.3	0.07	4.2	2.9	7.9
	VR12	3395008	5671675	Volme	391	1919	1	0.0	43.4	1.2	37.7	0.0	0.0	17.7	2	3	2	3	24.0	140	9.9	17.0	0.07	1.6	3.0	7.9
	VR23	3393785	5683027	Volme	291	2012	0	1.1	0.0	0.5	0.3	0.0	0.0	98.1	7	7	7	4	23.4	115	11.1	33.1	0.10	2.3	4.3	8.0
	GB	3408047	5691018	Lenne	268	5884	0	3.0	1.2	0.0	38.6	0.0	0.0	57.2	6	4	4	2	31.5	64	10.7	18.8	0.08	1.9	3.6	8.2
	NB	3400329	5688143	Lenne	224	3502	0	6.5	23.6	9.5	28.9	0.0	0.0	31.4	NA	NA	NA	NA	19.9	121	10.6	18.3	0.03	1.9	3.5	7.7
	VR11	3406403	5698078	Ruhr	184	3511	0	0.0	59.4	0.0	0.0	0.0	0.0	40.6	1	1	1	4	43.9	244	10.2	24.9	NA	3.9	3.4	NA
E	KL14	3426167	5696529	Ruhr	294	2215	1	5.3	10.8	0.0	8.0	2.6	7.7	65.6	4	3	3	2	76.0	218	11.1	18.0	NA	1.4	4.9	NA
	QB29	3425599	5681574	Ruhr	402	2682	0	0.0	3.8	0.0	69.7	0.0	0.0	26.5	NA	NA	NA	NA	42.1	186	10.7	11.9	NA	1.9	3.9	NA
	E01	3410771	5681557	Lenne	237	1843	0	0.0	12.8	0.0	68.5	0.0	0.0	18.8	NA	NA	NA	NA	NA	NA	NA	NA	0.08	NA	NA	7.9
F	KL2	3417114	5663535	Lenne	347	1861	0	16.5	0.0	0.2	0.0	0.0	0.0	83.3	NA	NA	NA	NA	21.5	290	9.9	41.8	0.07	3.7	3.8	7.6
G	KL15	3409854	5660640	Lenne	416	3276	0	0.0	2.0	0.0	0.0	0.0	0.0	98.0	2	3	1	3	19.4	1055	10.5	18.5	0.29	3.5	3.4	7.6