



*Supplement of*

## **Temporal shift in groundwater fauna in southwestern Germany**

**Fabien Koch et al.**

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**Table S 1: List of all parameters of the LUBW annual catalogue used in this study (Landesanstalt für Umwelt 2022).**

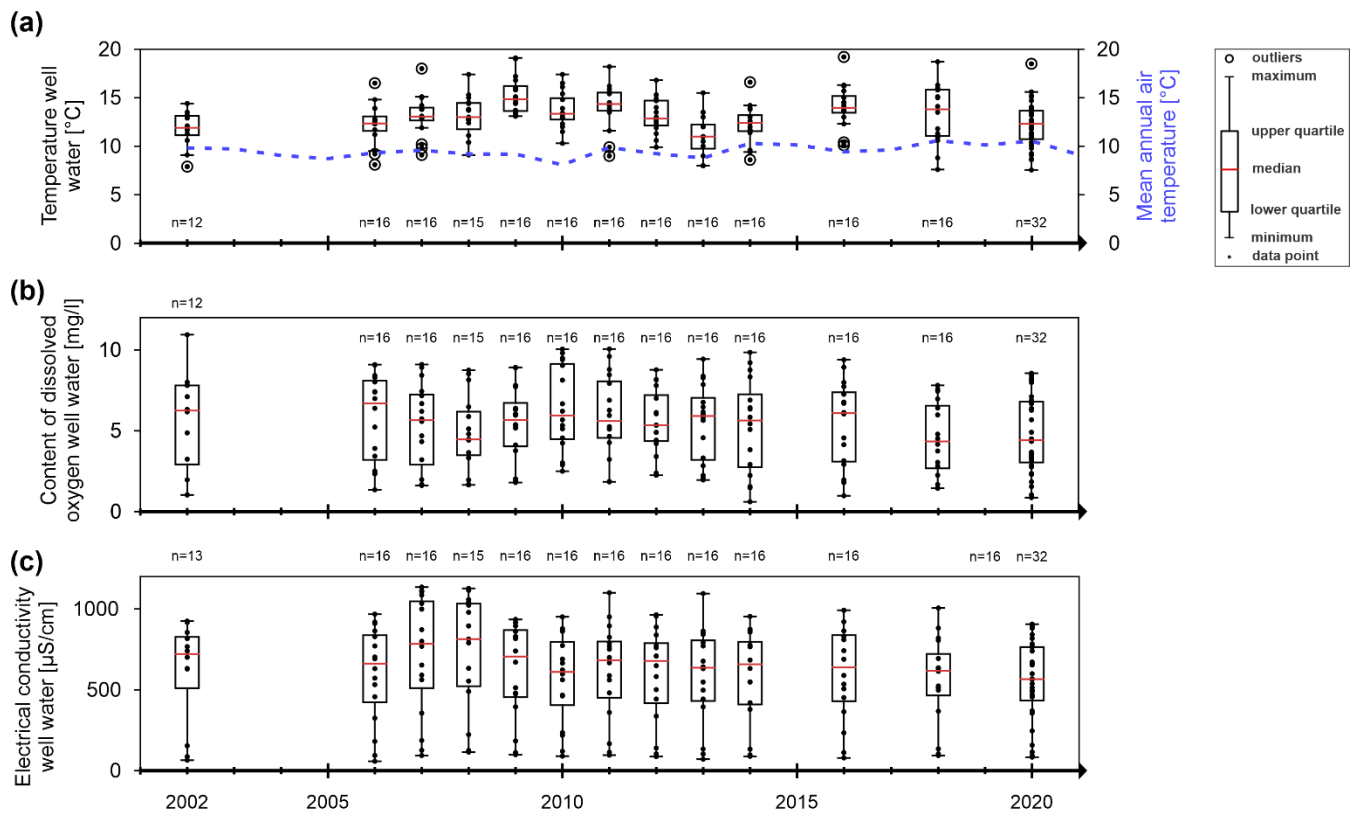
Parameter	Unit	Parameter	Unit	Parameter	Unit	Parameter	Unit
<b>Physicochemical complete analysis</b>		<b>Heavy metals</b>		<b>Pesticides</b>		<b>Hydrocarbons</b>	
acid capacity up to pH 4.3	[mmol/l]	arsenic	[mg/l]	atrazine	[µg/l]	benzene	[µg/l]
calcium	[mg/l]	barium	[mg/l]	bromacil	[µg/l]		
chloride	[mg/l]	beryllium	[mg/l]				
dissolved oxygen concentration	[-]	boron	[mg/l]				
dissolved oxygen saturation	[mg/l]	cadmium	[mg/l]				
DOC (dissolved organic carbon)	[mg/l]	cobalt	[mg/l]				
electrical conductivity	[%]	cooper	[mg/l]				
fluoride	[mg/l]	lead	[mg/l]				
iron	[mg/l]	lithium	[mg/l]				
magnesium	[mg/l]	molybdenum	[mg/l]				
manganese	[mg/l]	nickel	[mg/l]				
nitrate	[mg/l]	mercury	[mg/l]				
ortho-phosphate	[mg/l]	selenium	[mg/l]				
pH-value	[-]	silicate	[mg/l]				
phosphorous	[mg/l]	strontium	[mg/l]				
potassium	[mg/l]	thallium	[mg/l]				
sodium	[mg/l]	uranium	[mg/l]				
spectral absorption coefficient at 436nm	[1/m]	zinc	[mg/l]				
sulphate	[mg/l]						
sum alkali metals	[mmol/l]						
temperature	[°C]						

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15 **Table S 2: Parameters of the PHATE-analysis.**

<b>Parameters</b>	<b>Unit</b>
<b>Physical</b>	
temperature well water	[°C]
detritus content (classes with estimated values)	[-]
amount of sediment	[ml]
<b>Biotical</b>	
number of taxa	[-]
total abundance	[-]
proportion of crustaceans (acc. to Griebler et al., 2014b)	[%]
proportion of oligochaetes (acc. to Griebler et al., 2014b)	[%]
proportion of stygobiont to non-stygobiont individuals	[-]
abundance amphipods	[-]
abundance cyclopoids	[-]
abundance harpacticoids	[-]
abundance nematodes	[-]
<b>(Hydro-)geological</b>	
geological unit	[-]
well depth	[m]
<b>Assessment scheme</b>	
Groundwater-Fauna-Index (GFI)	[-]



20 **Figure S 1: Box plots of important abiotic parameters between 2022 and 2020: (a) temperature of the well water; (b) content of dissolved oxygen of the well water and (c) electrical conductivity of the well water. For comparability of results, only data from June to September were used for 2002 and 2020, and the same monitoring sites as in subsequent years. "n" indicates the number of measuring points. No sampling was conducted in years with no box plot.**

**Table S 3: Standard deviation of different faunistic and hydrochemical parameters over time for each well. Wells with an asterisk \* show stable hydrochemical and faunistic conditions and a variance of less than 13.**

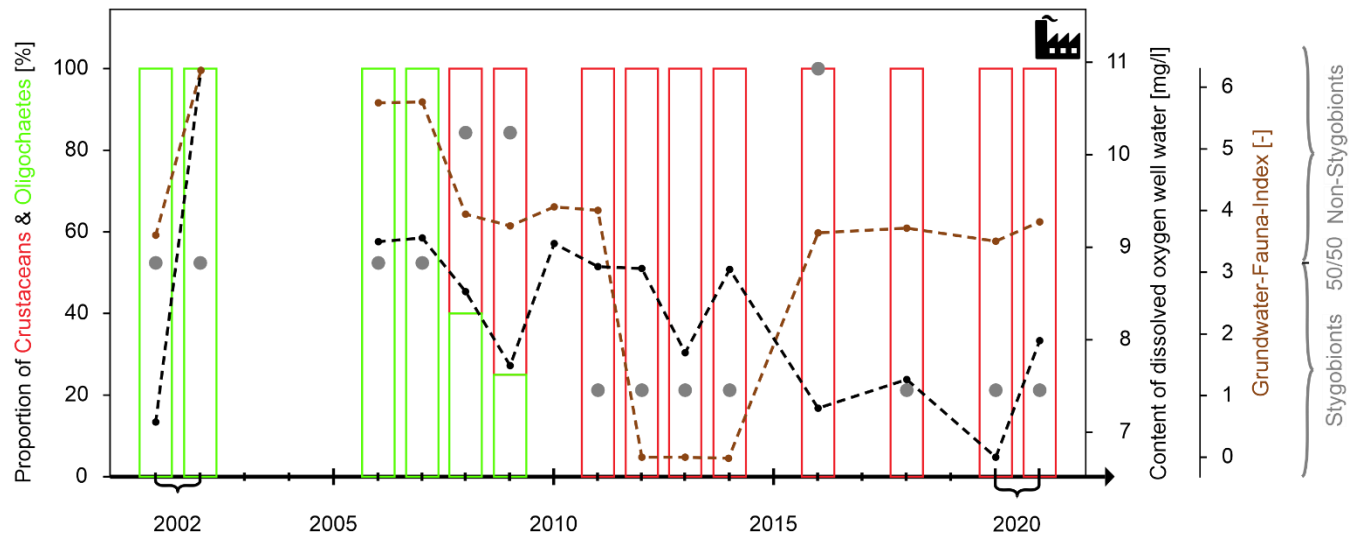
Location of the well	Temperature well water [°C]	Content of dissolved oxygen well water [mg/l]	Electrical conductivity well water [µS/cm]	Standard deviation of the:				Proportion of stygobionts to no-stygobionts [-]	Total standard deviation [-]
				Total abundance [-]	Number of species [-]	Proportion of crustaceans [%]	Proportion of oligochaetes [%]		
Dahenfeld*	1.08	0.51	90.41	3.33	1.06	35.73	14.92	1.98	13.73
Zienken	1.41	2.61	53.47	77.32	1.49	0.62	0.62	1.12	30.32
Efringen-Kirchen	1.11	0.74	124.08	192.46	1.67	5.39	5.39	0.37	76.11
Kadelburg*	2.00	0.55	57.88	11.40	2.17	16.25	16.25	0.29	6.22
Schwäbisch Hall	1.56	1.45	97.23	115.85	2.12	22.26	22.26	4.01	44.32
Rohrdorf*	1.41	0.93	54.38	31.53	2.19	23.38	23.38	1.16	12.98
Furtwangen*	2.07	0.50	37.81	30.66	1.79	4.86	4.86	0.89	11.43
Riedlingen*	1.14	0.86	114.06	8.96	1.33	1.48	1.48	1.16	3.11
Weingarten	1.27	1.13	98.01	9.34	1.08	44.71	29.00	1.55	16.90
Hausen*	1.53	0.70	81.65	19.61	1.40	2.05	2.05	0.92	7.29
Balgheim*	0.87	1.16	107.63	21.25	1.02	2.77	2.77	0.75	7.95
Sankt Leon	1.25	0.78	47.08	46.23	2.25	35.38	35.38	3.55	19.60
Neckargartach	1.30	1.02	86.41	2.60	0.96	45.42	43.06	0.59	17.59
Todtnau*	1.41	0.54	12.20	3.42	1.60	34.77	4.29	2.64	13.24
Gaggenau	1.51	1.60	41.63	37.73	1.60	13.01	13.01	3.51	14.04
Brenden*	1.93	0.93	16.60	10.29	1.76	2.11	2.11	3.12	3.47
Threshold value	2 <sup>1</sup>	1 <sup>2</sup>	-	-	-	-	-	-	14 <sup>3</sup>

25 <sup>1</sup>annual fluctuation of groundwater temperature 1-2°C (Hahn 2006; Taylor and Stefan 2009)

<sup>2</sup>value of 1mg/l, as this is a limiting factor for faunal colonisation (Griebler et al. 2014b)

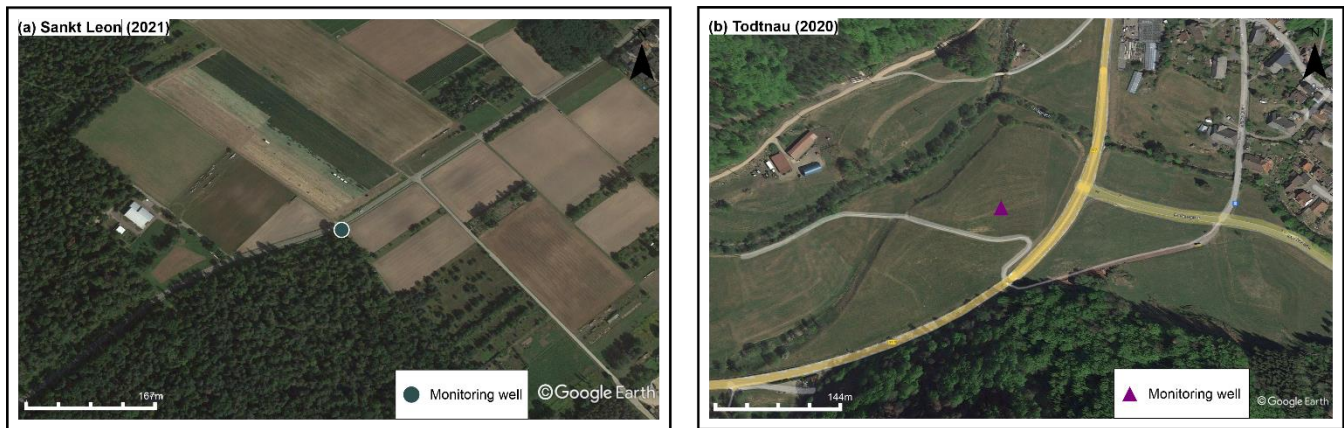
<sup>3</sup>electrical conductivity, proportion of oligochaetes and stygobionts not taken into account

## Neckargartach



- 30 **Figure S 2: Temporal change of abiotic and faunal parameters over time in Neckargartach. The Groundwater-Fauna-Index (GFI) changes from 6.3 in 2002 to 5.8 in 2007 and finally to 3.4 in 2020, which can be due to a decrease in the surface influence. This shows a clear connection between changes in GFI and land development. No sampling was conducted in years with no bar.**

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**Figure S 3: Aerial image of the location of the monitoring well in Sankt Leon (a) and Todtnau (b) (Source: Google Earth Pro (Google LLC. 2022)). The surroundings of the wells have not changed over the investigation period (2002 – 2020).**

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**Table S 4: Spearman correlation coefficient. Bold letters stand for correlations between biotic and abiotic parameters. *Italic letters* stand for correlations between abiotic parameters and temperature values.**

<b>Parameter 1</b>	<b>Parameter 2</b>	<b>Spearman correlation coefficient</b>
Abundance_Amphipoda	Number_Species	0.51
Abundance_Amphipoda	Number_Species_Amphipoda	0.97
<b>Abundance_Amphipoda</b>	<b>Arsenic_LUBW</b>	<b>0.54</b>
Abundance_Amphipoda	Crangonyx subterraneus	0.58
Abundance_Annelida	Number_Species_Annelida	0.95
Abundance_Cladocera	Number_Species_Cladocera	1.00
Abundance_Cladocera	Chydorus sphaericus	1.00
Abundance_Cladocera	Cladocera	1.00
Abundance_Cyclopoida	Abundance_total	0.74
Abundance_Cyclopoida	Number_Species	0.58
Abundance_Cyclopoida	Number_Species_Cyclopoida	0.77
Abundance_Cyclopoida	Cyclopoida juvenil	0.86
Abundance_Cyclopoida	Diacyclops languidoides	0.59
Abundance_Gastropoda	Number_Species_Gastropoda	1.00
Abundance_Gastropoda	Gastropoda spec.	0.67
Abundance_Harpacticoida	Number_Species_Harpacticoida	1.00
Abundance_Harpacticoida	Harpacticoida juvenil	0.60
Abundance_Isopoda	Number_Species	0.52
Abundance_Isopoda	Number_Species_Isopoda	0.98
Abundance_Isopoda	Proasellus slavus	0.71
<b>Abundance_Isopoda</b>	<b>Strontium_LUBW</b>	<b>-0.57</b>
Abundance_total	Number_Species	0.68
Abundance_total	Number_Taxa	0.74
Abundance_total	Cyclopoida juvenil	0.64
<b>Abundance_Ostracoda</b>	<b>Depth current</b>	<b>-0.51</b>
Abundance_Ostracoda	Number_Species	0.52
Abundance_Ostracoda	Number_Species_Ostracoda	0.98
Abundance_Ostracoda	Number_Taxa	0.60
<b>Abundance_Ostracoda</b>	<b>Dissolved organic carbon (DOC)_LUBW</b>	<b>0.51</b>
<b>Abundance_Ostracoda</b>	<b>Ortho-Phosphate_LUBW</b>	<b>0.53</b>
<b>Abundance_Ostracoda</b>	<b>Phosphor_total_LUBW</b>	<b>0.53</b>
<b>Abundance_Ostracoda</b>	<b>Spectral absorption coefficient at 436nm_LUBW</b>	<b>0.51</b>
Abundance_Syncarida	Number_Species_Syncarida	1.00
Abundance_Syncarida	Bathynella freiburgensis	0.56
Abundance_Syncarida	Parabathynella badenwuerttembergensis	0.68
<b>Abundance_Syncarida</b>	<b>Silicate_LUBW</b>	<b>0.50</b>

Aeolosoma quaternarium	Aeolosoma haedleyi	0.70
Proportion_Crustacea	Abundance_Annelida	-0.70
Proportion_Crustacea	Proportion_Oligochaeta	-0.84
Proportion_Crustacea	Number_Species_Annelida	-0.70
Proportion_Oligochaeta	Abundance_Annelida	0.86
Proportion_Oligochaeta	Number_Species_Annelida	0.85
Number_Species	Number_Taxa	0.80
Number_Species	Cyclopoida juvenil	0.50
<b>Number_Species</b>	<b>Depth current</b>	<b>-0.51</b>
<b>Number_Species_Amphipoda</b>	<b>Arsenic_LUBW</b>	<b>0.57</b>
Number_Species_Amphipoda	Crangonyx subterraneus	0.56
Number_Species_Cladocera	Chydorus sphaericus	1.00
Number_Species_Cladocera	Cladocera	1.00
Number_Species_Cyclopoida	Abundance_total	0.53
Number_Species_Cyclopoida	Number_Species	0.71
Number_Species_Cyclopoida	Cyclopoida juvenil	0.70
Number_Species_Cyclopoida	Diacyclops languidoides	0.54
<b>Number_Species_Cyclopoida</b>	<b>Mercury_LUBW</b>	<b>0.58</b>
Number_Species_Gastropoda	Gastropoda spec.	0.67
Number_Species_Harpacticoida	Harpacticoida juvenil	0.62
Number_Species_Isopoda	Number_Species	0.51
Number_Species_Isopoda	Proasellus slavus	0.71
<b>Number_Species_Isopoda</b>	<b>Strontium_LUBW</b>	<b>-0.57</b>
Number_Species_Ostracoda	Number_Species	0.52
Number_Species_Ostracoda	Number_Taxa	0.59
<b>Number_Species_Ostracoda</b>	<b>Dissolved organic carbon (DOC)_LUBW</b>	<b>0.53</b>
<b>Number_Species_Ostracoda</b>	<b>Ortho-Phosphate_LUBW</b>	<b>0.50</b>
Number_Species_Ostracoda	Ostracoda juvenil	0.56
Number_Species_Syncarida	Bathynella freiburgensis	0.54
Number_Species_Syncarida	Parabathynella badenwuerttembergensis	0.68
Arsenic_LUBW	Nitrate_LUBW	-0.55
Atrazin_LUBW	Cobalt_LUBW	0.58
Bathynellidea juvenil	Vejdovskiiella intermedia	0.71
Benzol_LUBW	Mercury_LUBW	1.00
Benzol_LUBW	Thallium_LUBW	0.54
Lead_LUBW	Cadmium_LUBW	0.61
Boron_LUBW	Chloride_LUBW	0.61
Boron_LUBW	Electrical conductivity_LUBW	0.55
<i>Boron_LUBW</i>	<i>Temperature_LUBW</i>	<i>0.60</i>
Carbonate hardness	Calcium_LUBW	0.79



Carbonate hardness	Chloride_LUBW	0.65
Carbonate hardness	Electrical conductivity_LUBW	0.81
Carbonate hardness	Electrical conductivity well water	0.86
Carbonate hardness	Lithium_LUBW	0.62
Carbonate hardness	Magnesium_LUBW	0.59
Carbonate hardness	Nitrate_LUBW	0.51
Carbonate hardness	Acid capacity at pH 4.3_LUBW	0.86
Carbonate hardness	Strontium_LUBW	0.75
Carbonate hardness	Sum alkali metals_LUBW	0.83
<i>Carbonate hardness</i>	<i>Temperature_LUBW</i>	<i>0.65</i>
Calcium_LUBW	Electrical conductivity_LUBW	0.91
Calcium_LUBW	Sum alkali metals_LUBW	0.92
<i>Calcium_LUBW</i>	<i>Electrical conductivity_LUBW</i>	<i>0.54</i>
Chloride_LUBW	Calcium_LUBW	0.68
Chloride_LUBW	Electrical conductivity_LUBW	0.78
Chloride_LUBW	Sum alkali metals_LUBW	0.69
<i>Chloride_LUBW</i>	<i>Temperature_LUBW</i>	<i>0.81</i>
<b>Chrom_LUBW</b>	<b>Parabathynella badenwuerttembergensis</b>	<b>0.52</b>
Chydorus sphaericus	Cladocera	1.00
C (TOC)/ organic N ratio calculated	Benzol_LUBW	0.55
C (TOC)/ organic N ratio calculated	Lead_LUBW	-0.80
C (TOC)/ organic N ratio calculated	Cadmium_LUBW	-0.71
C (TOC)/ organic N ratio calculated	C (TOC)/N (TKN)_ ratio calculated	0.89
C (TOC)/ organic N ratio calculated	Iron_LUBW	0.58
C (TOC)/ organic N ratio calculated	Organic nitrogen	-0.68
C (TOC)/ organic N ratio calculated	Thallium_LUBW	-0.80
C (TOC)/ organic N ratio calculated	Kjeldahl nitrogen (TKN)	-0.72
C (TOC)/ organic N ratio calculated	Total organic carbon (TOC)	0.73
C (TOC)/N (TKN)_ ratio calculated	Lead_LUBW	-0.57
C (TOC)/N (TKN)_ ratio calculated	Dissolved organic carbon (DOC)_LUBW	0.55
C (TOC)/N (TKN)_ ratio calculated	Iron_LUBW	0.58
C (TOC)/N (TKN)_ ratio calculated	Copper_LUBW	0.57
C (TOC)/N (TKN)_ ratio calculated	Manganese_LUBW	0.61
C (TOC)/N (TKN)_ ratio calculated	Organic nitrogen	-0.68
C (TOC)/N (TKN)_ ratio calculated	Selenium_LUBW	0.71
C (TOC)/N (TKN)_ ratio calculated	Thallium_LUBW	-0.61
C (TOC)/N (TKN)_ ratio calculated	Kjeldahl nitrogen (TKN)	-0.51
C (TOC)/N (TKN)_ ratio calculated	Total organic carbon (TOC)	0.86
Detritus	Groundwater fauna index (GFI)	0.60
Detritus	Usable sediment	0.94

Dissolved organic carbon (DOC) well water	Dissolved organic carbon (DOC)_LUBW	0.67
Dissolved organic carbon (DOC) well water	Selenium_LUBW	0.54
<b>Dissolved organic carbon (DOC)_LUBW</b>	<b>Cyclopoida juvenil</b>	<b>0.51</b>
Dissolved organic carbon (DOC)_LUBW	Dissolved oxygen_saturated_LUBW	-0.82
Dissolved organic carbon (DOC)_LUBW	Dissolved oxygen_saturation_LUBW	-0.80
<i>Electrical conductivity_LUBW</i>	<i>Temperature_LUBW</i>	0.62
Fabaeformiscandona juvenil	Diacyclops bisetosus	0.57
Fabaeformiscandona juvenil	Niphargus rhenorhodanensis	0.57
Fabaeformiscandona wegelini	Aeolosoma haedleyi	0.58
Fluoride_LUBW	Barium_LUBW	0.68
Fluoride_LUBW	Boron_LUBW	0.52
Fluoride_LUBW	Magnesium_LUBW	0.63
Groundwater fauna index (GFI)	Calcium_LUBW	-0.51
Groundwater fauna index (GFI)	Standard deviation_Temperature	0.55
Usable sediment	Benzol_LUBW	0.60
Usable sediment	Cobalt_LUBW	-0.50
<i>Annual air temperature DWD</i>	<i>Potassium_LUBW</i>	0.51
Annual air temperature DWD	Air temperature GEE	0.56
<i>Annual air temperature DWD</i>	<i>Mercury_LUBW</i>	0.62
<i>Annual air temperature DWD</i>	<i>Silicate_LUBW</i>	0.53
<i>Annual air temperature DWD</i>	<i>Strontium_LUBW</i>	0.52
Potassium_LUBW	Dissolved oxygen_saturated_LUBW	-0.59
Potassium_LUBW	Dissolved oxygen_saturation_LUBW	-0.57
Electrical conductivity	Calcium_LUBW	0.84
Electrical conductivity	Chloride_LUBW	0.71
Electrical conductivity	Chrom_LUBW	0.52
Electrical conductivity	Electrical conductivity_LUBW	0.90
Electrical conductivity	Lithium_LUBW	0.70
Electrical conductivity	Magnesium_LUBW	0.70
Electrical conductivity	Nitrate_LUBW	0.72
Electrical conductivity	Acid capacity_pH4_LUBW	0.86
Electrical conductivity	Strontium_LUBW	0.84
Electrical conductivity	Sulphate_LUBW	0.59
Electrical conductivity	Sum alkali metals_LUBW	0.92
Electrical conductivity	Temperature well water	0.52
<i>Electrical conductivity</i>	<i>Temperature_LUBW</i>	0.61
Lithium_LUBW	Boron_LUBW	0.61
Lithium_LUBW	Chloride_LUBW	0.53
Lithium_LUBW	Electrical conductivity_LUBW	0.68
Lithium_LUBW	Fluoride_LUBW	0.71

Lithium_LUBW	Magnesium_LUBW	0.84
Lithium_LUBW	Nitrate_LUBW	0.54
Lithium_LUBW	Acid capacity_pH 4.3_LUBW	0.69
Lithium_LUBW	Sum alkali metals_LUBW	0.68
<i>Lithium_LUBW</i>	<i>Temperature_LUBW</i>	<i>0.59</i>
Air temperature GEE	C (TOC)/ organic N ratio calculated	-0.59
Air temperature GEE	Mercury_LUBW	0.55
Magnesium_LUBW	Electrical conductivity_LUBW	0.62
Magnesium_LUBW	Sum alkali metals_LUBW	0.70
Molybdän_LUBW	Boron_LUBW	0.69
Molybdän_LUBW	Dissolved organic carbon (DOC)_LUBW	0.53
Molybdän_LUBW	Fluoride_LUBW	0.52
Molybdän_LUBW	Lithium_LUBW	0.54
Moraria varica	Elaphoidella elaphoides	0.71
Sodium_LUBW	Electrical conductivity_LUBW	0.50
Sodium_LUBW	Potassium_LUBW	0.56
Sodium_LUBW	Dissolved oxygen_saturated_LUBW	-0.55
Sodium_LUBW	Dissolved oxygen_saturation_LUBW	-0.50
Sodium_LUBW	<i>Temperature_LUBW</i>	<i>0.64</i>
Ammonium_Nitrogen_well water	Ammonium well water	0.85
Nickel_LUBW	Electrical conductivity_LUBW	0.52
Nickel_LUBW	Acid capacity_pH 4.3_LUBW	0.54
Niphargus juvenil	Niphargus cf. foreli	0.53
Nitrate_LUBW	Calcium_LUBW	0.75
Nitrate_LUBW	Electrical conductivity_LUBW	0.71
Nitrate_LUBW	Sulphate_LUBW	0.62
Nitrate_LUBW	Sum alkali metals_LUBW	0.70
Dissolved oxygen_saturated	Dissolved organic carbon (DOC)_LUBW	-0.59
Dissolved oxygen_saturated	Potassium_LUBW	-0.55
Dissolved oxygen_saturated	Dissolved oxygen_saturated_LUBW	0.72
Dissolved oxygen_saturated	Dissolved oxygen_saturation	0.99
Dissolved oxygen_saturated	Dissolved oxygen_saturation_LUBW	0.72
Dissolved oxygen_saturated	Sodium_LUBW	-0.50
Dissolved oxygen_saturation	Dissolved organic carbon (DOC)_LUBW	-0.59
Dissolved oxygen_saturation	Potassium_LUBW	-0.53
Dissolved oxygen_saturation	Dissolved oxygen_saturated_LUBW	0.72
Dissolved oxygen_saturation	Dissolved oxygen_saturation_LUBW	0.72
Dissolved oxygen_saturation_LUBW	Dissolved oxygen_saturated_LUBW	0.99
Organic nitrogen	Bromacil_LUBW	0.54
Organic nitrogen	Cobalt_LUBW	-0.61

Organic nitrogen	Manganese_LUBW	-0.66
Organic nitrogen	Kjeldahl nitrogen (TKN)	0.98
Phosphate_total_LUBW	Ortho-Phosphate_LUBW	0.78
Paracampton schmeili	Bythiospeum sterkianum sterkianum	0.71
Parastenocaris brevipes	Bythiospeum sterkianum lauterborni	0.58
Parastenocaris glareola	Lumbricillus lineatus	0.71
Parastenocaris juvenil	Chappuisius inopinus	0.70
Parastenocaris spec.	Moraria fontinalis	0.52
pH well water	pH_LUBW	0.77
Particulate organic carbon (POC)	C (TOC)/ organic N ratio calculated	0.60
Particulate organic carbon (POC)	C (TOC)/N (TKN)_ ratio calculated	0.78
Particulate organic carbon (POC)	Selenium_LUBW	0.56
Particulate organic carbon (POC)	Total organic carbon (TOC)	0.80
Proportion usable sediment	Dissolved organic carbon (DOC)_LUBW	0.53
Proportion usable sediment	Copper_LUBW	0.58
Proportion usable sediment	Lithium_LUBW	0.67
Proportion usable sediment	Molybdenum_LUBW	0.56
Proportion usable sediment	Strontium_LUBW	0.66
Proportion usable sediment	Uranium_LUBW	0.74
Pristina sima	Pristinella bilobata	0.70
Pristina spec.	Parastenocaris juvenil	0.70
Pristina spec.	Haplotaxis gordioides	0.71
<b>Mercury_LUBW</b>	<b>Achaeta spec.</b>	<b>0.55</b>
Mercury_LUBW	Lead_LUBW	0.74
Mercury_LUBW	Cadmium_LUBW	0.51
Mercury_LUBW	Cobalt_LUBW	0.69
<b>Mercury_LUBW</b>	<b>Cyclopoida juvenil</b>	<b>0.52</b>
<b>Mercury_LUBW</b>	<b>Cypris</b>	<b>0.79</b>
Mercury_LUBW	Dissolved organic carbon (DOC)_LUBW	0.62
Mercury_LUBW	Iron_LUBW	0.70
<b>Mercury_LUBW</b>	<b>Ostracoda juvenil</b>	<b>0.56</b>
<b>Mercury_LUBW</b>	<b>Schellencandona triquetra</b>	<b>0.79</b>
<b>Mercury_LUBW</b>	<b>Tropocyclops prasinus</b>	<b>0.79</b>
Quistadrilus multisetosus	Parastenocaris brevipes	0.57
Acid capacity_pH 4.3_LUBW	Calcium_LUBW	0.84
Acid capacity_pH 4.3_LUBW	Chloride_LUBW	0.59
Acid capacity_pH 4.3_LUBW	Electrical conductivity_LUBW	0.89
Acid capacity_pH 4.3_LUBW	Magnesium_LUBW	0.72
Acid capacity_pH 4.3_LUBW	Nitrate_LUBW	0.62
Acid capacity_pH 4.3_LUBW	Sulphate_LUBW	0.55

Acid capacity_pH 4.3_LUBW	Sum alkali metals_LUBW	0.94
<i>Acid capacity_pH 4.3_LUBW</i>	<i>Temperature_LUBW</i>	<i>0.55</i>
Standard deviation_Temperature	Carbonate hardness	-0.60
Standard deviation_Temperature	Calcium_LUBW	-0.63
Standard deviation_Temperature	Nitrate_LUBW	-0.61
Standard deviation_Temperature	Electrical conductivity_LUBW	-0.51
Standard deviation_Temperature	Electrical conductivity	-0.61
Standard deviation_Temperature	Strontium_LUBW	-0.53
Standard deviation_Temperature	Sum alkali elements_LUBW	-0.57
Sediment_ml	Usable sediment	0.85
Selenium_LUBW	Boron_LUBW	0.54
Selenium_LUBW	Potassium_LUBW	0.55
Selenium_LUBW	Molybdenum_LUBW	0.53
Selenium_LUBW	Dissolved oxygen_LUBW	-0.51
Silicate_LUBW	Boron_LUBW	0.55
<b>Silicate_LUBW</b>	<b>Parabathynella badenwuerttembergensis</b>	<b>0.51</b>
Spirosperma speciosus	Fabaeformiscandona brevicornis	0.57
Spirosperma speciosus	Niphargus fontanus	0.58
Strontium_LUBW	Boron_LUBW	0.60
Strontium_LUBW	Calcium_LUBW	0.75
Strontium_LUBW	Chloride_LUBW	0.61
Strontium_LUBW	Electrical conductivity_LUBW	0.83
Strontium_LUBW	Potassium_LUBW	0.51
Strontium_LUBW	Lithium_LUBW	0.76
Strontium_LUBW	Magnesium_LUBW	0.66
Strontium_LUBW	Nitrate_LUBW	0.76
Strontium_LUBW	Acid capacity_pH 4.3_LUBW	0.78
Strontium_LUBW	Sulphate_LUBW	0.68
Strontium_LUBW	Sum alkali metals_LUBW	0.82
<i>Strontium_LUBW</i>	<i>Temperature_LUBW</i>	<i>0.61</i>
Sulphate_LUBW	Calcium_LUBW	0.69
Sulphate_LUBW	Electrical conductivity_LUBW	0.65
Sulphate_LUBW	Potassium_LUBW	0.59
Sulphate_LUBW	Sodium_LUBW	0.58
Sulphate_LUBW	Sum alkali metals_LUBW	0.64
Summe_Proportion_eury	Proportionl_SB	-0.87
Sum alkali metals_LUBW	Electrical conductivity_LUBW	0.94
<i>Sum alkali metals_LUBW</i>	<i>Temperature_LUBW</i>	<i>0.55</i>
<i>Temperature well water</i>	<i>Chloride_LUBW</i>	<i>0.63</i>
<i>Temperature well water</i>	<i>Temperature_LUBW</i>	<i>0.68</i>

Thallium_LUBW	Lead_LUBW	0.63
Thallium_LUBW	Cadmium_LUBW	0.59
<b>Thallium_LUBW</b>	<b>Harpacticoida juvenil</b>	<b>0.53</b>
Thallium_LUBW	Mercury_LUBW	1.00
Depth	Strontium_LUBW	0.53
Depth	Depth_current	0.99
Depth_current	Strontium_LUBW	0.59
Kjeldahl nitrogen (TKN)	Silicate_LUBW	-0.56
Total organic carbon (TOC)	Dissolved organic carbon (DOC)	0.63
Total organic carbon (TOC)	Selenium_LUBW	0.52
Troglochaetus beranecki	Parastenocaris spec.	0.52
Trichodrilus spec.	Marionina spec.	0.70
Trichodrilus spec.	Bathynellidea juvenil	1.00
Troglodrilus spec.	Vejdovskiella intermedia	0.71
Tubificidae juvenil	Phyllognathopus viguieri	0.71
Tubifex juvenil	Achaeta spec.	0.71
Tubifex juvenil	Parastenocaris tumida	0.70
Uranium_LUBW	Boron_LUBW	0.57
Uranium_LUBW	Dissolved organic carbon (DOC)_LUBW	0.52
Uranium_LUBW	Electrical conductivity_LUBW	0.61
Uranium_LUBW	Potassium_LUBW	0.73
Uranium_LUBW	Lithium_LUBW	0.65
Uranium_LUBW	Molybdenum_LUBW	0.67
Uranium_LUBW	Dissolved oxygen_saturated_LUBW	-0.54
Uranium_LUBW	Dissolved oxygen_saturation_LUBW	-0.52
Uranium_LUBW	Acid capacity_pH 4_LUBW	0.54
Uranium_LUBW	Selenium_LUBW	0.60
Uranium_LUBW	Strontium_LUBW	0.54
Uranium_LUBW	Sulphate_LUBW	0.61