

**Complex effects of acidification, habitat properties and fish stock on littoral
macroinvertebrate assemblages in montane standing waters**

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Tab. S1. Spearman's correlations of measured variables. Three types of variables (chemical, littoral and fish stock) are separated by lines. Significant correlations are in **bold**.

	pH	O ₂ saturation	DOC	P _t	NO ₃ -N	Cond.	Al _i	Water temperature	Sedges	Mosses	Vegetation belt	Organic substrate	Littoral depth
O ₂ saturation	0.505												
DOC	-0.164	-0.318											
P _t	0.025	-0.099	0.757***										
NO ₃ -N	0.068	0.021	-0.369	-0.500									
Conductivity	0.515	0.362	0.026	0.366	-0.096								
Al _i	-0.705***	-0.205	-0.034	-0.308	0.171	-0.636**							
Water temperature	0.043	0.148	0.148	0.252	-0.181	0.253	-0.267						
Sedges	0.143	-0.406	0.601**	0.517	-0.159	0.047	-0.349	-0.002					
Mosses	-0.248	-0.492	0.659***	0.600**	-0.504	-0.246	0.093	0.027	0.533**				
Vegetation belt	-0.045	-0.324	0.604**	0.422	-0.132	-0.279	0.130	-0.051	0.680***	0.576**			
Organic substrate	0.064	-0.478	0.641***	0.544**	-0.290	-0.046	-0.239	-0.123	0.726***	0.623**	0.610**		
Water depth	-0.024	-0.342	0.295	0.263	-0.121	-0.079	-0.051	-0.485**	0.582**	0.430*	0.377	0.589**	
Fish stock	0.767***	0.340	0.133	0.201	0.066	0.466	-0.674***	0.366	0.289	-0.099	0.035	0.228	-0.056

***p<0.001; **p<0.01; *p<0.05

Tab. S2. List of taxa recorded at 23 montane standing water bodies. For site code explanations see Tab. 1.

	Water level manipulation:		Without water level manipulation												Manipulated water level									
	Type:		Lakes						Ponds						Reservoirs									
Site code:	CernJ	CertJ	GrosA	KleiA	Laka	PlesJ	PrasJ	Rachel	JeleJ	PoleN	Tokan	ZdarJ	CernR	Liech	MrtvR	StarR	VolarR	BlatR	Bedr	Flaje	JoseD	Prise	Sous	
Ephemeroptera																								
Ameletus inopinatus Eaton, 1887	X		X									X											X	
Arthroplea congener Bengtsson, 1908									X	X	X	X												
Baetis vernus Curtis, 1834					X													X						
Caenis horaria (Linnaeus, 1758)													X	X						X		X	X	
Cloeon dipterum (Linnaeus, 1761)			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X	X	
Leptophlebia marginata (Linnaeus, 1767)					X																			
Leptophlebia vespertina (Linnaeus, 1758)	X	X	X	X		X	X	X	X			X		X		X								
Siphonurus lacustris (Eaton, 1870)					X				X	X	X	X						X	X	X	X		X	
Odonata																								
Aeshna cyanea (Müller, 1764)	X	X	X	X	X	X	X	X	X		X	X	X		X	X		X			X		X	
Aeshna juncea (Linnaeus, 1758)			X	X	X	X		X		X	X	X	X	X	X	X	X		X					
Coenagrion hastulatum (Charpentier, 1825)			X	X	X	X		X	X	X	X	X	X	X	X	X	X		X					
Coenagrion puella (Linnaeus, 1758)			X		X				X	X	X		X											
Cordulia aenea (Linnaeus, 1758)			X	X	X				X			X		X										
Enallagma cyathigerum (Charpentier, 1840)			X	X					X		X		X			X	X		X	X	X	X	X	
Lestes sponsa (Hansemann, 1823)								X		X	X	X				X	X			X			X	
Lestes virens (Charpentier, 1825)														X	X		X							
Leucorrhinia dubia (Van der Linden, 1825)			X	X					X					X	X		X							
Libellula quadrimaculata Linnaeus, 1758				X		X	X	X	X	X		X	X	X	X		X		X	X			X	
Pyrrhosoma nymphula (Sulzer, 1776)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X			X	
Somatochlora metallica (Van der Linden, 1825)	X	X		X	X		X	X		X	X		X	X	X	X			X	X	X		X	
Sympetrum danae (Sulzer, 1776)				X										X		X	X		X	X			X	
Plecoptera																								
Amphinemura sulcicollis (Stephens, 1836)									X									X						
Leuctra digitata Kempny, 1899																		X		X				
Leuctra inermis Gr.									X															
Leuctra nigra (Olivier, 1811)	X						X											X						
Leuctra pseudocingulata Mendl, 1968	X																							
Nemoura avicularis Morton, 1894	X																							
Nemoura cinerea (Retzius, 1783)	X	X		X	X	X	X	X	X	X	X							X	X					
Nemurella pictetii Klapálek, 1900	X				X	X	X	X	X	X								X			X			
Protonemura auberti Illies, 1954	X																							

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Heteroptera																							
Aquarius paludum (Fabricius, 1794)	X							X	X		X	X	X	X					X			X	
Callicorixa praeusta (Fieber, 1848)					X									X	X		X					X	
Corixa dentipes Thomson, 1869															X								
Corixinae gen. sp. juv.	X	X		X	X	X	X	X		X		X	X	X	X	X	X	X	X		X		X
Cymatia bondsdorffii (C.R. Sahlberg, 1819)							X	X				X		X	X	X							
Cymatia rogenhoferi (Fieber, 1864)		X																					
Gerris gibbifer Schummel, 1832							X			X			X		X								
Gerris lacustris (Linnaeus, 1758)	X			X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X
Gerris odontogaster (Zetterstedt, 1828)			X		X	X		X		X			X	X		X	X					X	X
Gerris thoracicus Schummel, 1832															X								
Glaenocoris propinqua (Fieber, 1860)		X				X	X	X									X						
Hebrus pusillus (Fallen, 1807)							X			X		X											
Hebrus ruficeps Thomson, 1871			X	X	X				X	X		X	X		X	X	X						
Hesperocorixa linnaei (Fieber, 1848)															X		X						
Hesperocorixa sahlbergi (Fieber, 1848)					X					X	X	X		X	X		X						
Hydrometra gracilentia Horváth, 1899										X	X												
Hydrometra stagnorum (Linnaeus, 1758)				X						X						X				X		X	
Limnopus rufoscutellatus (Latreille, 1807)						X			X	X													
Mesovelis furcata Mulsant & Rey, 1852						X						X								X			X
Microvelia reticulata (Burmeister, 1835)				X	X	X	X	X	X	X	X	X	X	X		X	X			X		X	
Nepa cinerea Linnaeus, 1758								X						X		X	X						
Notonecta glauca Linnaeus, 1758		X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X		X	X
Notonecta lutea Müller, 1776														X			X						
Notonecta obliqua Thunberg, 1787											X												
Notonecta reuteri Hungerford, 1928					X																		
Notonecta viridis Delcourt, 1909											X				X								
Plea minutissima Leach, 1817	X		X	X		X		X		X					X					X		X	
Ranatra linearis (Linnaeus, 1758)															X								
Sigara distincta (Fieber, 1848)		X		X	X	X		X				X		X	X	X		X	X	X	X		
Sigara falleni (Fieber, 1848)						X									X						X		X
Sigara fossarum (Leach, 1817)	X	X		X	X		X	X	X		X					X							
Sigara lateralis (Leach, 1817)															X								
Sigara nigrolineata (Fieber, 1848)	X	X	X			X			X														
Sigara scotti (Douglas & Scott, 1868)														X									

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<i>Sigara semistriata</i> (Fieber, 1848)			X	X	X		X	X		X				X	X		X						
<i>Sigara striata</i> (Linnaeus, 1758)							X		X			X											
<i>Velia caprai</i> Tamanini, 1947									X														
Megaloptera																							
<i>Sialis fuliginosa</i> Pictet, 1836	X	X			X						X												
<i>Sialis lutaria</i> (Linnaeus, 1758)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X
Coleoptera																							
<i>Acilius sulcatus</i> (Linnaeus, 1758)														X	X		X						
<i>Agabus affinis</i> (Paykull, 1798)								X	X	X		X		X	X		X						
<i>Agabus bipustulatus</i> (Linnaeus, 1767)					X					X					X					X			
<i>Agabus congener</i> (Thunberg, 1794)										X			X										
<i>Agabus guttatus</i> (Paykull, 1794)		X						X															
<i>Agabus sturmii</i> (Gyllenhål, 1808)			X		X	X	X	X	X	X	X	X	X	X	X		X	X		X	X		
<i>Agabus undulatus</i> (Schränk, 1776)									X														
<i>Agabus unguicularis</i> Thomson, 1867										X													
<i>Anacaena globulus</i> (Paykull, 1798)							X		X	X	X		X			X							
<i>Anacaena lutescens</i> (Stephens, 1829)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
<i>Coelostoma orbiculare</i> (Fabricius, 1775)			X	X	X		X	X	X		X	X				X	X						
<i>Crenitis punctatostriata</i> (Letzner, 1840)				X					X	X			X		X	X		X	X		X		X
<i>Cyphon</i> sp.			X	X	X	X		X	X		X	X	X	X	X	X	X						
<i>Deronectes latus</i> (Stephens, 1829)	X	X					X																
<i>Dytiscus marginalis</i> Linnaeus, 1759			X		X		X	X		X	X	X	X	X	X	X	X	X				X	X
<i>Elmis aenea</i> (Müller, 1806)																							X
<i>Elmis rioloides</i> Kuwert, 1890																							X
<i>Enochrus affinis</i> (Thunberg, 1794)			X	X								X											
<i>Enochrus coarctatus</i> (Gredler, 1863)														X									
<i>Enochrus fuscipennis</i> (Thomson, 1884)																							X
<i>Enochrus ochropterus</i> (Marsham, 1802)			X	X	X	X			X	X	X	X	X	X	X	X	X						
<i>Enochrus testaceus</i> (Fabricius, 1801)																X							
<i>Graptodytes pictus</i> (Fabricius, 1787)					X		X		X	X	X	X	X			X	X			X			X
<i>Gyrinus marinus</i> Gyllenhal, 1808									X							X							
<i>Gyrinus substriatus</i> Stephens, 1828	X	X			X				X		X												
<i>Haliphus flavicollis</i> Sturm, 1834															X						X	X	
<i>Haliphus heydeni</i> Wehncke, 1875									X	X	X	X				X							
<i>Haliphus lineatocollis</i> (Marsham, 1802)					X						X												

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<i>Haliphus sibiricus</i> Motschulsky, 1860					X			X	X	X	X			X						X			
<i>Helochares obscurus</i> (Müller, 1776)				X		X		X	X	X		X	X	X	X	X	X	X					X
<i>Helophorus aquaticus</i> (Linnaeus, 1758)									X					X	X			X					
<i>Helophorus brevipalpis</i> Bedel, 1881																						X	
<i>Helophorus flavipes</i> Fabricius, 1792			X	X		X	X		X	X	X	X	X							X			
<i>Helophorus granularis</i> (Linnaeus, 1761)									X						X			X					
<i>Helophorus</i> cf. <i>griseus</i> Herbst, 1793													X										
<i>Helophorus nanus</i> Sturm, 1836																				X			
<i>Hydaticus seminiger</i> (De Geer, 1774)									X														
<i>Hydraena britteni</i> Joy, 1907									X		X					X							
<i>Hydraena melas</i> Dalla Torre, 1877											X									X			
<i>Hydrobius fuscipes</i> (Linnaeus, 1758)				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
<i>Hydroglyphus geminus</i> (Fabricius, 1792)				X	X	X		X		X	X	X				X							X
<i>Hydroporus erythrocephalus</i> (Linnaeus, 1758)						X			X	X					X	X	X						
<i>Hydroporus ferrugineus</i> Stephens, 1828		X													X								
<i>Hydroporus gyllenhalii</i> Schiödte, 1841													X										
<i>Hydroporus incognitus</i> Sharp, 1869					X	X	X	X	X	X	X	X	X			X	X			X			
<i>Hydroporus melanarius</i> Sturm, 1835													X		X								
<i>Hydroporus memnonius</i> Nicolai, 1822		X			X	X	X	X		X					X								
<i>Hydroporus nigrata</i> (Fabricius, 1792)									X	X													
<i>Hydroporus obscurus</i> Sturm, 1835			X	X										X	X								
<i>Hydroporus palustris</i> (Linnaeus, 1761)	X	X	X		X	X	X	X	X	X	X	X				X				X			X
<i>Hydroporus planus</i> (Fabricius, 1781)													X										
<i>Hydroporus striola</i> (Gyllenhål, 1826)																				X			
<i>Hydroporus tristis</i> (Paykull, 1798)				X		X		X	X	X	X	X	X	X	X	X	X						X
<i>Hydroporus umbrosus</i> (Gyllenhål, 1808)						X			X	X		X	X	X	X	X	X						
<i>Hydrovatus cuspidatus</i> (Kunze, 1818)												X											
<i>Hygrotus decoratus</i> (Gyllenhål, 1810)									X														
<i>Hygrotus impressopunctatus</i> (Schaller, 1783)													X			X				X			
<i>Hygrotus inaequalis</i> (Fabricius, 1777)																				X			
<i>Hygrotus versicolor</i> (Schaller, 1783)																				X			
<i>Hyphydrus ovatus</i> (Linnaeus, 1761)					X				X							X	X			X			
<i>Ilybius aenescens</i> Thomson, 1870																	X						
<i>Ilybius crassus</i> Thomson, 1854			X		X	X	X	X	X	X	X		X		X								
<i>Ilybius fenestratus</i> (Fabricius, 1781)							X		X							X	X						

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<i>Ilybius fuliginosus</i> (Fabricius, 1792)									X	X	X		X					X	X		X		
<i>Laccobius bipunctatus</i> (Fabricius, 1775)										X	X												
<i>Laccobius minutus</i> (Fabricius, 1758)					X	X	X		X	X		X				X		X	X	X	X	X	X
<i>Laccobius obscurus</i> Rottenberg, 1874										X													
<i>Laccobius striatulus</i> (Fabricius, 1801)												X											
<i>Laccobius ytenensis</i> Sharp, 1910											X												
<i>Laccophilus minutus</i> (Fabricius, 1758)					X			X		X					X		X						
<i>Laccophilus poecilus</i> Klug, 1834																		X					
<i>Limnebius truncatellus</i> (Thunberg, 1794)					X		X			X													
<i>Limnius perrisi</i> (Dufour, 1843)		X			X	X		X	X	X	X	X				X		X					X
<i>Limnius volckmari</i> (Panzer, 1793)											X												
<i>Nebrioporus assimilis</i> (Paykull, 1798)							X																
<i>Nebrioporus canaliculatus</i> (Lacordaire, 1835)						X																	
<i>Nebrioporus elegans</i> (Panzer, 1794)																						X	
<i>Noterus clavicornis</i> (De Geer, 1774)					X	X	X	X		X		X								X			
<i>Noterus crassicornis</i> (Müller, 1776)				X	X	X	X		X	X				X	X	X	X						X
<i>Oreodytes sanmarkii</i> (Sahlberg, 1834)							X											X					
<i>Platambus maculatus</i> (Linnaeus, 1758)											X							X			X		
<i>Rhantus exsoletus</i> (Forster, 1771)			X		X					X	X	X		X	X	X	X		X	X		X	X
<i>Rhantus suturalis</i> (Mac Leay, 1825)						X	X		X						X								
<i>Scirtes</i> sp.													X										
<i>Spercheus emarginatus</i> (Schaller, 1783)									X														
<i>Stictotarsus duodecimpustulatus</i> (Fabricius, 1792)				X								X									X		X
Trichoptera																							
<i>Agrypnia</i> cf. <i>obsoleta</i> (Hagen, 1864)																X	X						
<i>Agrypnia</i> cf. <i>varia</i> Fabricius, 1793	X		X	X	X	X	X	X		X				X							X		X
<i>Anabolia furcata</i> Brauer, 1857																		X					
<i>Anabolia nervosa</i> (Curtis, 1834)										X			X							X	X		
<i>Anomalopterygella chauviniana</i> (Stein, 1874)																		X					
<i>Athripsodes aterrimus</i> (Stephens, 1836)																X				X			
<i>Beraea pullata</i> (Curtis, 1834)											X												
<i>Beraeodes minutus</i> (Linnaeus, 1761)											X												
<i>Chaetopteryx villosa</i> (Fabricius, 1789)	X	X	X		X		X	X	X		X	X						X	X		X		
<i>Cyrnus flavidus</i> McLachlan, 1864	X		X	X		X							X			X			X				X
<i>Cyrnus insolutus</i> McLachlan, 1878													X										

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<i>Drusus annulatus</i> (Stephens, 1837)																		X					
<i>Halesus digitatus</i> (Schränk, 1781) / <i>tesselatus</i> (Rambur, 1842)											X												
<i>Halesus radiatus</i> (Curtis, 1834)											X												
<i>Holocentropus dubius</i> (Rambur, 1842)			X	X	X		X	X	X	X				X	X	X	X						
<i>Holocentropus picicornis</i> (Stephens, 1836)					X	X				X	X					X							
<i>Limnephilus centralis</i> Curtis, 1834		X																			X		
<i>Limnephilus decipiens</i> (Kolenati, 1848)																			X				X
<i>Limnephilus</i> cf. <i>extricatus</i> McLachlan, 1865											X												
<i>Limnephilus ignavus</i> McLachlan, 1865																						X	
<i>Limnephilus lunatus</i> Curtis, 1834													X						X		X		
<i>Limnephilus nigriceps</i> (Zetterstedt, 1840)													X			X							
<i>Limnephilus rhombicus</i> (Linnaeus, 1758)	X	X			X	X	X		X	X	X					X				X			
<i>Limnephilus stigma</i> Curtis, 1834										X	X	X											
<i>Limnephilus subcentralis</i> (Brauer, 1857)										X		X											X
<i>Limnephilus vittatus</i> (Fabricius, 1798)																							X
<i>Molanna angustata</i> Curtis, 1834																					X		
<i>Molanna nigra</i> (Zetterstedt, 1840)	X	X					X																
<i>Molannodes tinctus</i> (Zetterstedt, 1840)					X	X					X												
<i>Mystacides azurea</i> (Linnaeus, 1761)	X	X	X																		X		
<i>Mystacides longicornis</i> (Linnaeus, 1758)																				X		X	
<i>Oecetis furva</i> (Rambur, 1842)																X							
<i>Oecetis lacustris</i> (Pictet, 1834)																X			X	X			
<i>Oecetis ochracea</i> (Curtis, 1825)																				X		X	
<i>Oligotricha striata</i> (Linnaeus, 1758)			X	X	X	X	X	X	X	X	X			X	X	X	X						
<i>Phryganea bipunctata</i> Retzius, 1783	X		X			X	X	X		X	X												
<i>Plectrocnemia conspersa</i> (Curtis, 1834)							X																
<i>Polycentropus flavomaculatus</i> (Pictet, 1834)						X																X	
<i>Potamophylax</i> sp.											X												
<i>Pseudopsilopteryx zimneri</i> (McLachlan, 1876)																		X					
<i>Sericostoma personatum</i> Kirby & Spencer, 1826 / <i>schneideri</i> (Kolenati, 1848)												X											
<i>Triaenodes bicolor</i> (Curtis, 1834)																X				X			
Chironomidae																							
<i>Ablabesmyia longistyla</i> Fittkau, 1962														X						X	X	X	
<i>Ablabesmyia monilis</i> (Linnaeus, 1758)	X	X	X	X	X	X		X	X	X	X	X		X	X		X		X	X		X	X

Water level manipulation: Type:	Without water level manipulation																Manipulated water level						
	Lakes								Ponds								Reservoirs						
Site code:	CernJ	CertJ	GrosA	KleiA	Laka	PlesJ	PrasJ	Rachel	JeleJ	PoleN	Tokan	ZdarJ	CernR	Liech	MrtvR	StarR	VolarR	BlatR	Bedr	Flaje	Joscd	Prise	Sous
<i>Ablabesmyia phatta</i> (Egger, 1863)																	X						
<i>Acricotopus lucens</i> (Zetterstedt, 1850)																		X					
<i>Apsectrotanypus trifascipennis</i> (Zetterstedt, 1838)											X							X					
<i>Chaetocladius piger</i> Gr.									X									X	X				X
<i>Chironomus</i> cf. <i>abberatus</i> Keyl, 1961						X																	
<i>Chironomus acutiventris</i> Wülker, Ryser & Scholl, 1983 / <i>obtusidens</i> Goetghebuer, 1921												X										X	
<i>Chironomus dorsalis</i> (Meigen, 1818)						X	X							X			X						
<i>Chironomus luridus</i> Gr.			X		X	X									X		X						X
<i>Chironomus</i> sp. juv.	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X					X
<i>Cladotanytarsus vanderwulpi</i> (Edwards, 1929)										X												X	
<i>Conchapelopia</i> sp.				X	X		X		X	X										X			
<i>Corynoneura scutellata</i> Gr.	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X
<i>Cricotopus annulator</i> Gr.												X	X										
<i>Cricotopus cylindraceus</i> (Kieffer, 1908) / <i>albiforceps</i> (Kieffer, 1916)										X								X					
<i>Cricotopus intersectus</i> (Staeger, 1839) / <i>reversus</i> Hirvenoja, 1973																				X			
<i>Cricotopus sylvestris</i> Gr.			X						X		X	X	X			X		X		X		X	X
<i>Diamesa cinerella</i> Gr.							X											X					
<i>Dicrotendipes</i> sp.		X			X	X	X				X	X					X	X	X	X	X	X	X
<i>Endochironomus</i> sp.	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X		X		
<i>Endochironomus tendens</i> (Fabricius, 1775)		X					X			X			X			X	X						
<i>Eukiefferiella claripennis</i> (Lundbeck, 1898)																		X					
<i>Glyptotendipes</i> sp. A	X	X						X		X		X	X	X	X	X	X		X		X		
<i>Glyptotendipes</i> sp. B	X	X						X		X		X		X					X				
<i>Heterotanytarsus apicalis</i> (Kieffer, 1921)					X																		
<i>Heterotrissocladius marcidus</i> (Walker, 1856)	X	X	X		X	X	X		X		X								X				X
<i>Krenopelopia</i> sp.												X											
<i>Larsia</i> sp.																				X			
<i>Limnophyes</i> sp.				X	X	X	X		X	X	X	X	X		X	X	X		X				
<i>Macropelopia</i> sp.	X	X	X	X	X					X	X			X				X	X				
<i>Metriocnemus fuscipes</i> Gr.									X														
<i>Metriocnemus hygropetricus</i> Gr.									X				X			X		X			X		
<i>Micropsectra</i> spp.					X						X	X	X										
<i>Microtendipes pedellus</i> Gr.											X		X			X			X			X	

Water level manipulation: Type:	Without water level manipulation														Manipulated water level								
	Lakes							Ponds							Reservoirs								
Site code:	CernJ	CertJ	GrosA	KleiA	Laka	PlesJ	PrasJ	Rachel	JeleJ	PoleN	Tokan	ZdarJ	CernR	Liech	MrtvR	StarR	VolarR	BlatR	Bedr	Flaje	Joscd	Prise	Sous
<i>Monopelopia tenuicalcar</i> (Kieffer, 1918)	X		X			X		X	X			X	X	X		X							
<i>Nanocladius</i> cf. <i>balticus</i> (Palmen, 1959)																							X
<i>Nanocladius</i> cf. <i>dichromus</i> (Kieffer, 1906)													X										
<i>Natarsia</i> sp.			X	X	X	X	X	X	X		X	X			X	X	X	X		X			
<i>Neozavrelia</i> sp.																			X				
<i>Orthocladius rubicundus</i> Gr.																		X					
<i>Pagastiella orophila</i> (Edwards, 1929)							X	X															X
<i>Paracladopelma</i> sp.													X						X		X		
<i>Parachironomus varus</i> (Goetghebuer, 1921)									X	X	X	X	X				X						
<i>Parakiefferiella</i> sp.						X		X														X	
<i>Paratanytarsus</i> sp.					X				X		X	X					X	X		X	X		
<i>Paratendipes nudisquama</i> (Edwards, 1929)													X										
<i>Phaenopsectra</i> sp.	X	X	X	X		X	X	X							X	X		X	X	X			
<i>Polypedilum pedestre</i> (Meigen, 1830)	X	X	X							X	X	X	X				X				X		
<i>Polypedilum uncinatum</i> (Goetghebuer, 1921)	X		X	X	X			X	X	X	X	X	X		X	X	X		X	X	X		
<i>Procladius</i> sp.	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X		X
<i>Prodiamesa olivacea</i> (Meigen, 1818)	X				X													X					
<i>Psectrocladius</i> (<i>Allopsectrocladius</i>) sp.					X				X	X		X		X	X			X					
<i>Psectrocladius</i> (<i>Mesopsectrocladius</i>) <i>barbatipes</i> Kieffer, 1923					X	X				X					X	X							X
<i>Psectrocladius</i> (<i>Monopsectrocladius</i>) <i>calcaratus</i> (Edwards, 1929)				X	X				X			X	X										
<i>Psectrocladius limbatellus</i> (Holmgren, 1869) / <i>sordidellus</i> (Zetterstedt, 1838)		X	X		X	X	X	X	X	X		X	X	X		X		X		X	X	X	X
<i>Psectrocladius psilopterus</i> Gr.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Psectrotanypus varius</i> (Fabricius, 1787)											X												
<i>Pseudorthocladius</i> sp.															X								
<i>Pseudosmittia</i> sp.															X								
<i>Smittia</i> sp.									X														
<i>Stempelinella brevis</i> (Edwards, 1929) / <i>flavidula</i> (Edwards, 1929)					X				X	X		X				X							
<i>Stempellina</i> sp.								X															
<i>Stenochironomus</i> sp.				X																			
<i>Synorthocladius semivirens</i> (Kieffer, 1909)																		X					
<i>Tanytarsus</i> spp.	X	X	X	X	X	X	X	X		X		X	X	X				X	X	X	X	X	X
<i>Thienemannimyia</i> sp.																							X
<i>Trissopelopia</i> sp.	X	X	X	X	X	X	X	X	X			X		X	X					X			X
<i>Zavrelimyia</i> sp.			X		X				X		X		X			X		X					

Water level manipulation: Type:	Without water level manipulation														Manipulated water level								
	Lakes								Ponds						Reservoirs								
Site code:	CernJ	CertJ	GrosA	KleIA	Laka	PlesJ	PrasJ	Rachel	JeleJ	PoleN	Tokan	ZdarJ	CernR	Liech	MrtvR	StarR	VolarR	BlatR	Bedr	Flaje	JoseD	Prise	Sous
Diptera (exc. Chironomidae)																							
Anopheles maculipennis s. lato												X	X										
Ceratopogoninae g. sp.	X		X	X	X	X	X	X	X	X	X	X											
Chaoborus flavicans (Meigen, 1830)																	X						
Chaoborus cf. obscuripes (Van der Wulp, 1859)			X		X												X						
Chrysops sp.	X		X																				
Culex pipiens Linnaeus, 1758												X											
Dicranota sp.												X											
Dixella cf. aestivalis (Meigen, 1818)				X	X	X			X	X	X	X											
Dixella cf. autumnalis (Meigen, 1838)						X																	
Eloeophila cf. maculata (Meigen, 1804)									X														
Helius cf. longirostris (Meigen, 1818)				X							X	X											
Helius sp.											X												
Hexatoma sp.							X																
Hybomitra cf. arpadi (Szilady, 1923)			X			X			X	X	X	X											
Hybomitra lundbecki Lyneborg, 1959 / tropica (Linnaeus, 1758)				X								X											
Myolepta sp.															X								
Pedicia sp.	X																						
Phalacrocerca replicata (Linnaeus, 1758)									X	X													
Simuliidae g. sp.											X												
Syrphidae g. sp.							X	X	X						X		X						
Tipula lateralis Meigen, 1804									X														
Tipula obscuriventris Strobl, 1900				X																			
Non-insect fauna																							
Galba truncatula (O.F. Müller, 1774)															X					X		X	
Gammarus fossarum Koch, 1836											X												
Helobdella stagnalis (Linnaeus, 1758)			X		X																		
Pisidium casertanum (Poli, 1791)	X			X	X		X	X	X	X	X	X	X		X		X	X	X	X	X	X	X
Polycelis nigra Mueller, 1774				X											X	X				X			
Radix peregra (O.F. Müller, 1774)			X								X									X			

Tab. S3. Differences in environmental variables and macroinvertebrate species richness and abundances between sites with manipulated water levels and sites with stable water levels. Median, interquartile range (Q1–Q3) and Mann-Whitney test p-values are shown. Rows with significant difference between the two groups are in **bold**.

Variables	Manipulated (6 sites)	Stable (17 sites)	p-value (M.-W. test)
pH	6.6 (6.4–6.9)	5.5 (4.9–6.2)	0.014 *
O₂ saturation (%)	107.3 (105.8–110.6)	95.5 (86.5–100.5)	0.004 **
P _t (µg L ⁻¹)	13.4 (9.4–18.0)	18.5 (6.6–33.6)	0.575
NO ₃ -N (mg L ⁻¹)	0.2 (0.1–0.3)	0.2 (0.1–0.5)	0.562
DOC (mg L ⁻¹)	4.8 (3.8–5.4)	6.5 (4.9–11.9)	0.052
Conductivity (µS cm⁻¹)	50.8 (38.1–69.3)	20.5 (16.3–34.1)	0.006 **
Al_i (µg L⁻¹)	4.5 (0.5–9.5)	38 (24.7–68.0)	0.005 **
Water temperature	16.75 (16–17.9)	16 (15.5–16.5)	0.318
Sedges (%)	12 (5–73)	80 (60–95)	0.130
Mosses (%)	1 (0–8)	20 (5–50)	0.026 *
Vegetation belt (m)	0 (0–1.5)	5.0 (3.0–6.0)	0.004 **
Organic substrate (%)	60 (45–75)	90 (75–99)	0.057
Fish stock	2 (2–3)	1 (1–3)	0.240
Water depth	50 (46.3–53.8)	60 (50–65)	0.065
Species richness			
Ephemeroptera	3 (2–3)	2 (2–3)	0.461
Plecoptera	1 (0–1)	1 (0–2)	0.884
Odonata	4 (2–6)	8 (7–8)	0.012 *
Heteroptera	6 (4–7)	11 (9–12)	0.002 **
Coleoptera	11 (7–16)	21 (17–26)	0.017 *
Trichoptera	5 (5–6)	5 (4–8)	0.859
Diptera	17 (14–19)	21 (20–25)	0.017 *
Non-insect fauna	1 (1–2)	1 (1–2)	0.403
Total sp. richness	50 (39–58)	73 (64–88)	0.003 **
Species abundance			
Ephemeroptera	80 (23–136)	185 (88–404)	0.135
Plecoptera	0 (0–0.75)	0 (0–39)	0.395
Odonata	23 (8–55)	69 (47–212)	0.054
Heteroptera	8 (4–18)	61 (26–109)	0.001 **
Coleoptera	45 (15–68)	56 (31–125)	0.293
Trichoptera	12 (9–16)	72 (28–97)	0.004 **
Diptera	597 (286–890)	785 (656–1,148)	0.256
Non-insect fauna	16 (8–38)	2 (0–7)	0.005 **
Total abundance	959 (581–1,142)	1,711 (1,292–1,960)	0.003 **

***p<0.001; **p<0.01; *p<0.05.

Tab. S4. Results of simple linear regression analysis of macroinvertebrate species richness and abundance with environmental variables performed on the whole (23 sites) and reduced dataset (sites with stable water levels; 17 sites) separately. F-statistics, adjusted R² values, trends (positive or negative relationships) and p-values are provided. Significant relationships are in **bold**.

Species richness									
	Whole dataset					Reduced dataset			
	F-value	Adj. R ² (x100)	Trend	p		F-value	Adj. R ² (x100)	Trend	p
pH	0	-4.7	+	0.951		5	19.9	+	0.041 *
O ₂	1.7	3.3	-	0.2		0.3	-4.3	+	0.568
P _t	3.7	11	+	0.068		3.7	14.6	+	0.072
NO ₃ -N	0	-4.7	+	0.96		0.2	-5.2	-	0.659
DOC	18	43.6	+	<0.001 ***		14.34	45.5	+	0.002 **
Conductivity	1.1	0.7	-	0.296		0.9	-0.9	+	0.371
Al _i	0	-4.6	+	0.862		6.1	24.1	-	0.026 *
Water temperature	1.2	0.9	-	0.284		0	-6.5	-	0.894
Sedges	19.9	46.2	+	<0.001 ***		11.8	40.4	+	0.004 **
Mosses	9.4	27.7	+	0.006 **		2.7	9.5	+	0.123
Vegetation belt	30.4	57.2	+	<0.001 ***		10.7	37.7	+	0.005 **
Organic substrate	13.8	36.7	+	0.001 **		7	27.4	+	0.018 *
Fish stock	0.3	-3.4	+	0.61		3.2	12.2	+	0.093
Water depth	7.8	23.6	+	0.011 *		1.6	3.8	+	0.22
Abundance									
	Whole dataset					Reduced dataset			
	F-value	Adj. R ² (x100)	Trend	p		F-value	Adj. R ² (x100)	Trend	p
pH	4.6	14.2	-	0.043 *		0.6	-2.6	-	0.454
O ₂	0.4	-2.8	-	0.534		2.6	9.3	+	0.125
P _t	0	-4.6	+	0.839		0.2	-5.6	-	0.696
NO ₃ -N	0.3	-3.5	+	0.613		0.2	-5.5	+	0.69
DOC	0.6	-2	+	0.458		0.3	-4.5	-	0.587
Conductivity	5	15.2	-	0.037 *		0.4	-4	-	0.547
Al _i	8.8	26.3	+	0.007 **		1.3	2	+	0.267
Water temperature	1.9	3.8	-	0.186		0.2	-5.6	-	0.702
Sedges	0	-4.6	+	0.842		2	5.7	-	0.181
Mosses	1.4	1.8	+	0.248		0.7	-2.2	-	0.431
Vegetation belt	4.4	13.4	+	0.048 *		0.1	-5.7	+	0.718
Organic substrate	1.9	4.1	+	0.179		0	-6.5	-	0.867
Fish stock	4.7	14.5	-	0.041 *		2.7	9.7	-	0.12
Water depth	3	8.5	+	0.095		0.6	-2.4	+	0.44

***p<0.001; **p<0.01; *p<0.05.

Fig. S1. Variability in littoral zone properties studied: M – manipulated water level; R – reservoir, L – lake, P – pond; JIZ – Jizerské hory Mts., SUM – Šumava and Bavarian Forest, KRU – Krušné hory Mts.

