

Table S4: Linear correlations ($p \leq 0.05$, unadjusted) between diversity metrics, IFO and GRs and local environmental variables, setting variables and MEMs. * $p_{Holm} \leq 0.05$ –0.01, ** $p_{Holm} \leq 0.01$ –0.001, *** $p_{Holm} \leq 0.001$; adjusted by group. Note that MEMs for all and non-acid sites differ.

Group	Feature	Variable	S_obs	S_rar	H'	H'_true	D1	LCBD	LCBDrich	LCBDrepl	LCBD_non-acid	IFO	GRrc	GRmm
local	pH	pH	-	-	-	-	-	0.30*	-	-0.18	-	-0.40***	-0.23	-
	total ions	EC	-0.23	-0.24	-0.25	-0.26	-0.21	-	-	-0.18	-	-0.39***	-0.15	-
	cations	Na	-0.23	-0.24	-0.24	-0.21	-0.19	-0.15	0.17	-0.26	-	-0.28	-0.16	-
		K	-	-	-	-	-	0.30**	-	-0.26	-0.17	-0.35***	-0.16	-
		Ca	-	-	-	-0.14	-	-0.18	-	-	-	-0.43***	-0.25	-
		Fe	-	-	-	-	-	-	-	-	-	-	-	0.21
		Mg	-0.19	-0.19	-0.18	-0.19	-	-	-	-0.18	-	-0.37***	-0.18	-
		Al	-0.27	-0.26	-0.24	-0.22	-0.21	0.31**	-	-	0.20	0.15	-	-
	anions	Cl	-0.19	-0.2	-0.22	-0.20	-0.19	-0.17	-	-0.25	-	-0.32**	-	-
		SO ₄	-	-	-	-	-	-	-	-	-	-0.22	-	-
	phosphorus	ortho-P	-0.23	-0.24	-0.2	-0.24	-	-	-	-	-	-0.24	-	-
		ortho-Pmax.	-0.27	-0.28	-0.21	-0.25	-	-	-	-	-	-0.28*	-	-
		TP	-0.25	-0.26	-0.21	-0.25	-0.15	-	-	-	-	-0.29*	-	-
		TPmax.	-0.24	-0.25	-0.19	-0.24	-0.15	-	-	-	-	-0.26*	-	-
	nitrogen	NO ₃ max.	-	-	-	-	-	-	-	-	-	-0.15	-	-
		NO ₂	-	-	-0.14	-0.14	-	-	-	-	-	-0.24*	-	-
		NO ₂ max.	-	-	-	-	-	-	-	-	-	-0.24*	-	-
		NH ₄	-0.19	-0.2	-0.19	-0.19	-0.17	-	-	-	-	-	-	-
		NH ₄ max.	-0.17	-0.17	-0.15	-0.16	-	-	-	-	-	-	-	-
		KjN	-0.25	-0.25	-0.18	-0.21	-	-	-	-	-	-0.26	-	-
		KjNmax.	-0.18	-0.17	-0.15	-	-	-	-	-	-	-0.17	-	-
		TON	-0.22	-0.21	-0.14	-0.18	-	-	-	-	-	-0.30*	-	-
		TONmax.	-0.16	-0.15	-	-	-	-	-	-0.16	-	-0.18	-	-
		TN	-0.22	-0.22	-0.18	-0.20	-	-	-	-	-	-0.28	-	-
	silica	SiO ₂	-0.17	-0.16	-	-	-	-	-	-	-	-0.22	-	-
	organics	COD	-	-	-	-	-	-	-	-	-	-0.22	-	-
		CODf	-	-	-	-	-	-0.18	-	-	-	-0.18	-	-

		CODp	-	-	-	-	-	-	-	-	-0.16	-	-
		a440	-0.18	-0.18	-0.16	-	-0.18	-	0.18	-	0.19	-	-
		a254	-	-	-	-	-0.15	-	-	-	-	-	-
	phytoplankton	chl <i>a</i>	-	-	-	-	-	-	-	-	-0.16	-	-
		chl <i>a</i> max.	-	-	-	-	-	-	-	-	-0.15	-	-
		phaeopigments	-	-	-	-	-	-	-	-	-0.19	-	-
	metabolism	pGOP	-	-	-	-	-	-	-	-	-0.19	-0.15	-0.21
		BOD	-	-	-	-	-	-	-	-	-0.27**	-	-
	morphometry	depth	-	-	-	-	-0.16	-	-	-	-0.17	-	-
		surface	-	-	-	-	-	-	-0.18	-	-	-	-0.20
		width	-	-	-	-	-	-	-	-	-	-	-0.18
		length	-	-	-	-	-	-	-0.18	-	-	-	-0.23
		shoreline length	-	-	-	-	-	-	-0.17	-	-	-	-0.16
		Dsl	-	-	-	-	-	-	0.15	-	-	-	0.22
		shoreline slope	-	-	-	-	-0.20	-	-	-	-0.22	-	-
	vegetation	wooded shore	-	-	0.16	0.20	-	-	-	-	-	-0.20	-
		submerged	0.16	-	-	-	-	-	-	-	0.23	-	-
		macrophytes	0.37***	0.34***	0.26	0.27	0.20	-0.20	-	-	-0.24	-	-
setting	connectivity	ponds	0.17	0.15	0.16	0.15	0.15	-0.19	-	-	-	-	-
	soil	sand	-	-	-	-	-	-	-	-	0.38***	-	-
		clay	-	-	-	-0.14	-	-	-	-	-0.24	-	-
		peat	-	-	-	-	-	-	-	-	-0.17	-	-
	land cover	dune	-0.15	-0.15	-	-	-	-	0.15	-	-	0.19	-
		heath	-	-	-	-	-	0.24	-	0.22	-	0.33***	0.25
		deciduous	-	-	-	-	-	-	-	0.15	-	-	-
		coniferous	-	-	-	-	-	0.15	-	-	-	0.27	-
		poplar	-	-	-	-	-	-	-	-	-	-0.17	-
		pasture	-	-	-	-	-	-	-	-	-	-0.31**	-
		field	-	-	-	-	-0.15	-	-	-	-	-	-
		built	-	-	-	-	-	-	-	-	-	-	-
spatial		MEM1	0.29*	0.29*	0.24	0.29*	0.16	-	-	-	-	0.26	-

MEM2	0.24	0.25	0.23	0.16	0.22	-	-0.20	-	-0.19	-	-	-
MEM3	-	-	-	-	-	-	-	-	-	-	0.19	-
MEM7	-	-	-	-	-	-0.17	-	-	-0.19	-	-	-
MEM8	0.15	-	-	-	-	-	-	-	-	-	-	-
MEM9	-	-	-	-	-	-	-	-	-	-0.21	-	-
MEM10	-	-	-	-	-	-	-	-	-	-	0.22	-
MEM12	-	-	-	-	-	-	-	-	-	0.14	-	-
MEM16	0.16	0.17	0.16	-	-	-	-0.21	0.18	-	-	-	-
MEM21	-	-	-	-	-	-	-	-	-	-	-0.21	-
MEM22	-	-	-	-	-	-	-	-	-	0.15	0.2	-
MEM23	-	-	-	-	-	-0.16	-	-0.15	-0.21	-	-	-
MEM24	-	-	-	-	-	-	-	-	-	-	-0.16	-
MEM26	-	-	-	-0.15	-	-	-	-	-0.17	-	-	-
MEM27	-	-	-	-	-	-	-	-	-	-	0.19	-
MEM28	-	-	-0.18	-	-0.27	-	0.16	-	-	-	-	-
MEM29	-	-	-	-	-	-	-	-	-	-0.16	-	-
MEM30	-	-	-	-	-	-0.18	-	-	-	-	-	-
MEM37	-	-	-	-	-	-	-	-	-	-	0.22	-
MEM45	-	-	-	-	-	0.15	-	-	-	-	-	-
X	0.27	0.27	0.20	0.26	-	-	-	-	-	0.29*	-	-
Y	-	-	-	-	-	-	-	-	-	0.20	0.16	-
