

Tab. S2 Level-wise evaluation. Results of the level-wise evaluation of significant interaction terms (“Type:Temp:Week” and “CO₂:Week”) based on Redundancy Analysis (RDA). F-, *p*- and *q*-values (Benjamini-Hochberg-adjusted *p*-values) as well as adjusted R² values are given for each evaluated term, along with the RDA model formula applied for testing. F_(dfn,dfd), F value with numerator and denominator degrees of freedom; TOC, transformed OTU counts; Temp, Temperature.

Evaluated Term	RDA model formula	F _(dfn,dfd)	<i>p</i>	<i>q</i>	adjusted R ²
Temp:Week within constant Type	TOC ~ Temp:Week + Condition(Temp + CO₂ + Week + CO₂:Week)	F_{3,36}			
Biofilm_Fucus.Temp:Week		1.66	0.006	0.012	0.03
Water.Temp:Week		1.66	0.015	0.015	0.02
Temp within constant Type and Week	TOC ~ Temp + Condition(CO₂)	F_{1,9}			
Biofilm_Fucus.Temp.Week_00		0.96	0.509	0.509	0.00
Biofilm_Fucus.Temp.Week_04		2.15	0.007	0.009	0.10
Biofilm_Fucus.Temp.Week_08		1.75	0.002	0.004	0.07
Biofilm_Fucus.Temp.Week_11		2.04	0.001	0.004	0.10
Water.Temp.Week_00		0.94	0.549	0.549	-0.01
Water.Temp.Week_04		3.16	0.004	0.016	0.18
Water.Temp.Week_08		2.02	0.008	0.016	0.09
Water.Temp.Week_11		1.53	0.074	0.099	0.05
CO₂ within constant Week	TOC ~ CO₂ + Condition(Type + Temp + Type:Temp)	F_{1,19}			
CO ₂ .Week_00		1.04	0.406	0.406	0.00
CO ₂ .Week_04		1.13	0.266	0.355	0.00
CO ₂ .Week_08		1.44	0.014	0.056	0.01
CO ₂ .Week_11		1.31	0.079	0.158	0.01