



Supplement of

Different paths, same destination: similar benthic nitrogen cycling sustained by distinct biogeochemical mechanisms in artificialized coastal systems

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Table S1: *Statistical analyses:* ANOVA results of *Site* effect on macrobenthic community structure (total biomass, total density and species richness), oxygen dynamic (diffusive oxygen uptake (DOU) and oxygen penetration depth (OPD)) and benthic fluxes (oxygen, ammonium, nitrate and dinitrogen). Bold p-value indicates significant effect (< 0.05). Magnitude of effect sizes is reported as generalized eta squared (ges, see methods for details).

Variable	Source	Df	F value	p value	ges
Macrobenthic community					
Biomass	Site	3	5.598	0.023	0.677
	Residuals	8	--	--	
Density	Site	3	23.664	<0.001	0.899
	Residuals	8	--	--	
Richness	Site	3	7.606	0.01	0.74
	Residuals	8	--	--	
FRic	Site	3	4.218	0.046	0.613
	Residuals	8			
FEve	Site	3	1.685	0.247	0.387
	Residuals	8			
Oxygen dynamic					
DOU	Site	4	26.509	<0.001	0.862
	Residuals	17	--	--	
OPD	Site	4	10.381	<0.001	0.71
	Residuals	17	--	--	
Benthic fluxes					
O ₂	Site	4	41.832	<0.001	0.879
	Residuals	23	--	--	
NH ₄ ⁺	Site	4	8.916	<0.001	0.608
	Residuals	23	--	--	
NO ₃ ⁻	Site	4	6.429	0.001	0.528
	Residuals	23	--	--	
N ₂	Site	3	28.605	<0.001	0.811
	Residuals	20	--	--	

Table S2: List and density (ind. m⁻²) of species collected

Site	Replicate	<i>Gammarus</i> sp.	<i>Hediste diversicolor</i>	Oligochaeta sp	<i>Acari</i> sp.	<i>Macoma balthica</i>	Insecta sp.	<i>Ostracoda</i> sp.	<i>Mya</i> sp.	<i>Copepoda</i> sp.	<i>Ecrobia truncata</i>	<i>Gasteropoda</i> sp.
LBWN	C1	6.25	687.5	218.75	0	0	0	0	0	0	0	0
LBWN	C2	0	856.25	1000	6.25	0	0	0	0	0	0	0
LBWN	C3	0	750	337.5	0	6.25	0	0	0	0	0	0
LBWS	C1	0	1125	1725	0	6.25	6.25	12.5	0	0	0	12.5
LBWS	C2	0	1081.25	1206.25	0	12.5	0	0	12.5	0	0	6.25
LBWS	C3	0	1187.5	1706.25	0	12.5	0	6.25	0	6.25	6.25	6.25
VS	C1	6.25	462.5	56.25	0	56.25	0	0	12.5	0	25	75
VS	C2	18.75	431.25	175	0	81.25	0	6.25	6.25	0	31.25	75
VS	C3	25	431.25	18.75	0	87.5	0	0	0	0	12.5	137.5
US	C1	0	706.25	12.5	0	162.5	0	0	112.5	0	6.25	0
US	C2	0	575	62.5	18.75	93.75	0	12.5	37.5	31.25	31.25	0
US	C3	0	393.75	6.25	0	112.5	0	6.25	43.75	0	6.25	0

Table S3: *Statistical analysis.* MANOVA results of *Cluster* effect on macrobenthic community structure

	Df	Variance	F value	p value	model adj. R ²
Cluster	1	0.097	15.996	0.001	0.58
Residuals	10	0.061	--	--	--

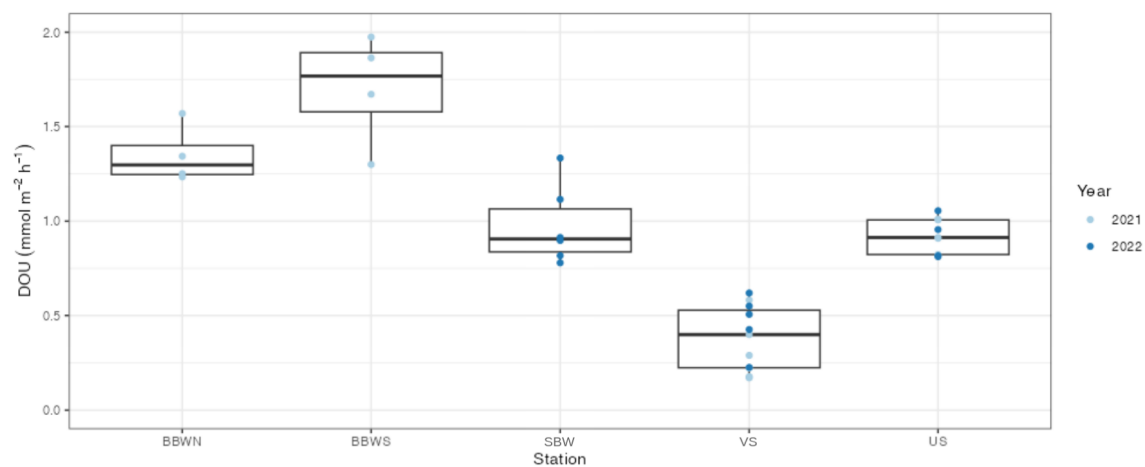


Figure S1: Computed diffusive oxygen uptake (DOU in $\text{mmol m}^{-2} \text{h}^{-1}$) at the different stations in 2021 and 2022.

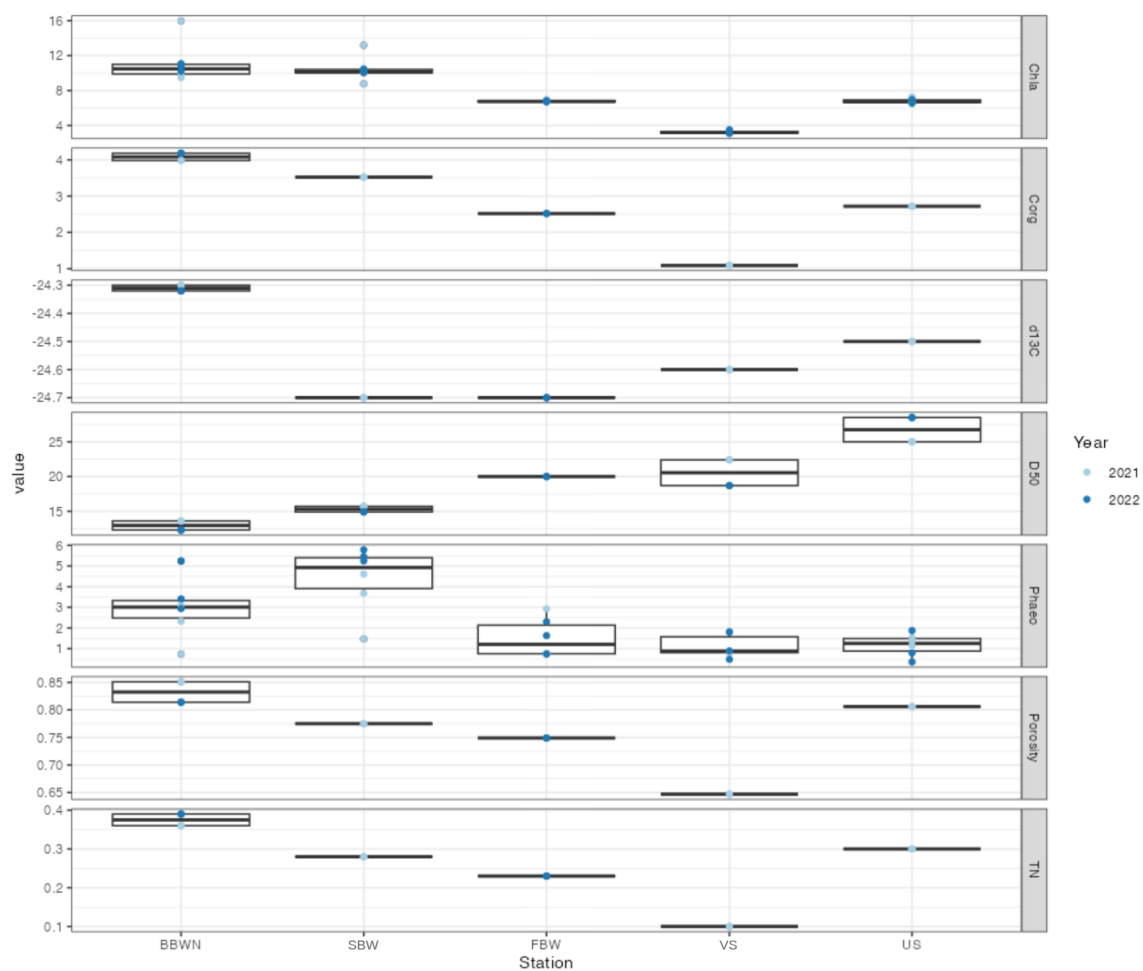


Figure S2: Sediment characteristics in 2021 and 2022. Median grain size (D₅₀ in μm), porosity (volume ratio), chlorophyll a and phaeopigments (in $\mu g\ g^{-1}$), organic carbon and total nitrogen (C_{org} and TN in %) content along with $\delta^{13}C$ isotopic signature (in ‰)