Amani et al., 2024. **Exposed sediments in a temperate-climate reservoir under dam decommissioning contain large stocks of highly bioreactive organic matter. Limnetica 43-1, 2024**

SUPPLEMENTAL INFORMATION

Table S1. Campaign and date (day/month/year) of the samplings, site, and the last inundation date and sediment exposure time (i.e., time since last inundation) for each site. *Campaña y día (día/mes/año) de los muestreos, sitio de muestreo, último día de inundación y tiempo de exposición del sedimento (tiempo desde la última inundación) para cada sitio.*

Campaign	Sampling date	Site	Last inundation date	Sediment exposure time
C1	10/09/2018	A	04/08/2018	37
C1	10/09/2018	B	27/07/2018	44
C1	10/09/2018	C	18/07/2018	54
C1	10/09/2018	D	01/09/2018	9
C1	10/09/2018	E	21/08/2018	20
C1	10/09/2018	F	13/08/2018	28
C2	22/10/2018	A	04/08/2018	79
C2	22/10/2018	B	27/07/2018	86
C2	22/10/2018	C	18/07/2018	96
C2	22/10/2018	D	01/09/2018	51
C2	22/10/2018	E	21/08/2018	62
C2	22/10/2018	F	13/08/2018	70
C3	21/01/2019	A	04/08/2018	170
C3	21/01/2019	B	27/07/2018	177
C3	21/01/2019	C	18/07/2018	187
C3	21/01/2019	D	01/09/2018	142
C3	21/01/2019	E	21/08/2018	153
C4	21/01/2019	F	13/08/2018	161
C4	09/04/2019	A	04/08/2018	248

C4	09/04/2019	B	27/07/2018	255
C4	09/04/2019	C	18/07/2018	265
C4	09/04/2019	D	01/09/2018	220
C4	09/04/2019	E	21/08/2018	231
C4	09/04/2019	F	13/08/2018	239
C5	02/07/2019	A	04/08/2018	454
C5	02/07/2019	B	27/07/2018	339
C5	02/07/2019	C	18/07/2018	349
C5	02/07/2019	D	01/09/2018	304
C5	02/07/2019	E	21/08/2018	315
C5	02/07/2019	F	13/08/2018	323
C6	18/02/2020	A	04/08/2018	563
C6	18/02/2020	B	27/07/2018	570
C6	18/02/2020	C	18/07/2018	580
C6	18/02/2020	D	01/09/2018	535
C6	18/02/2020	E	21/08/2018	546
C6	18/02/2020	F	13/08/2018	554

Table S2. Site, number of samples collected at each site for each campaign (n), longitude, latitude, and elevation of each site. *Punto de muestreo, número de muestras recogidas en cada punto para cada campaña (n), longitud, latitud y elevación de cada punto.*

Site	**n**	**Longitude (º)**	**Latitude (º)**	**Elevation (m)**
A	3	-1.784684	43.21684	339.2
B	3	-1.784684	43.216885	342.3
C	3	-1.7847	43.216953	345.2
D	3	-1.786541	43.216628	335.2
E	3	-1.78645	43.216686	335.2
F	3	-1.786456	43.216755	335.2

Table S3–7. The content and respiration of bulk and water-extractable organic matter (WEOM) in dry sediments from inland waters and dry soils. We calculated the mean, standard error (SE), and the range of each parameter by considering each row as a data point. We converted respiration rates in µg CO_2 g^{-1} dry sediment/soil h^{-1} to µg O_2 g^{-1} dry sediment/soil h^{-1} by assuming a respiratory coefficient of 1 between CO_2 and O_2 for aerobic incubation, and, thus, by multiplying the magnitude of respiration rate by 0.73 (32 g of consumed O_2/44 g of produced CO_2). *Contenido y respiración de la MO en peso seco y WEOM en sedimentos secos de aguas continentales y suelos secos. Calculamos la media, error estándar (SE), y el rango de cada parámetro considerando cada fila como un punto de datos. Convertimos los ratios de respiración en µg CO_2 g^{-1} sedimento seco/suelo h^{-1} a µg O_2 g^{-1} sedimento seco/suelo h^{-1}asumiento un coeficiente de respiración de 1 entre CO_2 y O_2 para la incubación aeróbica y, por tanto, multiplicando la magnitud del ratio de respiración por 0.73 (32g de O_2 consumido/44 g de CO_2* producido).

Table S3. The content of WEOM (mean ± SE; range: 0.52 ± 0.06, 0.01–1.06 mg C g^{-1} dry sediment) in dry sediments from lakes, and %BDOC (mean = 57.97 %) in 3 reservoirs and 1 wetland for incubations of an average time of 28 days at 28 ºC. *Contenido de WEOM (media ± SE; rango: 0.52 ± 0.06, 0.01–1.06 mg C g^{-1} sedimento seco) en sedimentos secos de lagos, y %BDOC (media=57.97 %) en 3 embalses y 1 humedal para incubaciones a 28ºC de 28 días de media.*

Reference	System	Name, location	Sed/soil	Drying	Extractant	[WEOC] Mean	Unit	Incub time (days)	BDOC (%)	Comment
Han et al. (2021)	Lake	Yangtze River, China	Sediment	Freeze-dried	Ultrapure water	0.01	mg C/g sed			
Wang et al. (2022)	Lake	Lake Hulun, China	Sediment	Freeze-dried	Ultrapure water	0.63	mg C/g sed			
Li et al. (2016)	Lake	Dongting Lake, China	Sediment	Freeze-dried	Milli-Q water	0.2	mg C/g sed			
Li et al. (2014)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q Water	0.3	mg C/g sed			
Gu et al. (2020)	Wetland	Wetland	Soil	Dried at 45 ºC	Milli-Q water	0.2	mg C/g sed	30	56.3	
(Li et al. 2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.5	mg C/g sed			January-Northern
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.37	mg C/g sed			January-Central
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.58	mg C/g sed			January-Southern
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.54	mg C/g sed			April-Northern

Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.35	mg C/g sed	April-central
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.23	mg C/g sed	April-southern
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.47	mg C/g sed	July-Northern
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.31	mg C/g sed	July-Central
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.38	mg C/g sed	July-Southern
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.39	mg C/g sed	October-Northern
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.34	mg C/g sed	October-Central
Li et al. (2015)	Lake	Lake Erhai, China	Sediment	Freeze-dried	Milli-Q water	0.39	mg C/g sed	October-Southern
Wang et al. (2011)	Lake	Lake Poyang, China	Sediment	Freeze-dried	Distilled water	0.76	mg C/g sed	B-1
Wang et al. (2011)	Lake	Lake Poyang, China	Sediment	Freeze-dried	Distilled water	0.56	mg C/g sed	B-2
Wang et al. (2011)	Lake	Dongting Lake, China	Sediment	Freeze-dried	Distilled water	0.82	mg C/g sed	
Wang et al. (2011)	Lake	Lake Hongze, China	Sediment	Freeze-dried	Distilled water	0.76	mg C/g sed	
Wang et al. (2011)	Lake	Lake Xuanwu, China	Sediment	Freeze-dried	Distilled water	1.04	mg C/g sed	
Wang et al. (2011)	Lake	Lake Yue, China	Sediment	Freeze-dried	Distilled water	1.06	mg C/g sed	site 1
Wang et al. (2011)	Lake	Lake Yue, China	Sediment	Freeze-dried	Distilled water	1.06	mg C/g sed	Site 2
Wang et al. (2011)	Lake	Lake Wuli, China	Sediment	Freeze-dried	Distilled water	1.06	mg C/g sed	
Wang et al. (2011)	Lake	Lake Gong, China	Sediment	Freeze-dried	Distilled water	0.48	mg C/g sed	
Wang et al. (2011)	Lake	Lake East Taihu, China	Sediment	Freeze-dried	Distilled water	0.5	mg C/g sed	

Liu et al. (2021)	Lake	Hafeng Lake of Kaixian, China	Sediment	Air-dried	Distilled water	NA		28	46.6	WEOC in mg L^{-1}
Heslop et al. (2017)	Lake	Vault Lake, US	Sediment	Oven-dried		0.25				Slurry filtration
Heslop et al. (2017)	Lake	Vault Lake, US	Sediment	Oven-dried		0.19				Slurry filtration
Liu et al. (2021)	Reservoir	Zhenxi of Fulin, China	Sediment	Air-dried	Distilled water	NA		28	58.6	WEOC in mg L^{-1}
(Liu et al. 2021)	Reservoir	Shibaozhai of Zhongxian, China	Sediment	Air-dried	Distilled water	NA		28	59.2	WEOC in mg L^{-1}
Liu et al. (2021)	Reservoir	Tujing Zhongxian, China	Sediment	Air-dried	Distilled water	NA		28	57.8	WEOC in mg L^{-1}

Table S4. The global content of soil WEOM (mean ± SE, range: 0.35 ± 0.03, 0–1.7 mg C/g dry soil) and %BDOC (22.07 ± 1.36, 4.08–60.73 %) in dry soils. The average incubation temperature is 16.90 ºC and average incubation time is 50 days. *Contenido global de WEOM del suelo (media ± SE, rango: 0.35 ± 0.03, 0–1.7 mg C/g suelo seco) y %BDOC (22.07 ± 1.36, 4.08–60.73 %) en suelos secos. La temperatura media de incubación es de 16.90 ºC y el tiempo medio de incubación de 50 días.*

Reference	**Ecosystem**	**Soil layer**	**Drying method**	**Extraction medium**	**Filter size (µm)**	**Incubation temp (º C)**	**Incubation time (days)**	**[WEOC]**	**BDOC (% loss)**	**Comment**
Liu et al. (2019)	Arable soil	Top 20 cm	Air dried	Distilled water	0.45	35	60	0.02	39.7	Sloped cropland
Liu et al. (2019)	Grassland soil	Top 20 cm	Air dried	Distilled water	0.45	35	60	0.04	28.9	Grassland
Liu et al. (2019)	Shrubland soil	Top 20 cm	Air dried	Distilled water	0.45	35	60	0.06	29.9	Shrubland
Liu et al. (2019)	Woodland soil	Top 20 cm	Air dried	Distilled water	0.45	35	60	0.04	25.2	Woodland
Liu et al. (2019)	Arable soil	Top 20 cm	Air dried	Distilled water	0.45	20	60	0.02	32.6	Sloped cropland
Liu et al. (2019)	Grassland soil	Top 20 cm	Air dried	Distilled water	0.45	20	60	0.04	22.7	Grassland
Liu et al. (2019)	Shrubland soil	Top 20 cm	Air dried	Distilled water	0.45	20	60	0.06	27	Shrubland
Liu et al. (2019)	Woodland soil	Top 20 cm	Air dried	Distilled water	0.45	20	60	0.04	22.1	Woodland
Liu et al. (2019)	Arable soil	Top 20 cm	Air dried	Distilled water	0.45	4	60	0.02	18.2	Sloped cropland
Liu et al. (2019)	Grassland soil	Top 20 cm	Air dried	Distilled water	0.45	4	60	0.04	15.9	Grassland

Liu et al. (2019)	Shrubland soil	Top 20 cm	Air dried	Distilled water	0.45	4	60	0.06	23.5	Shrubland
Liu et al. (2019)	Woodland soil	Top 20 cm	Air dried	Distilled water	0.45	4	60	0.04	19.3	Woodland
Gu et al. (2020)	Cropland soil	Surface	Dried at 45 ºC	Milli-Q water	0.22	NM	30	0.25	46.7	Cropland soil
Xu et al. (2018)	Arable soil	Surface	Air-dried	Deionized water	0.45	Room Temp (NM)	21	0.02	23.9	Non fertilized soil
Xu et al. (2018)	Arable soil	Surface	Air-dried	Deionized water	0.45	Room Temp (NM)	21	0.02	28.7	Soil fertilized with NPK
Xu et al. (2018)	Arable soil	Surface	Air-dried	Deionized water	0.45	Room Temp (NM)	21	0.04	34.2	Soil fertilized with NPK and and straw
Xu et al. (2018)	Arable soil	Surface	Air-dried	Deionized water	0.45	Room Temp (NM)	21	0.06	42.7	Soil fertilized with manure
Chantigny et al. (2014)	Arable soil	Top 15 cm	Air-dried	Deionized water	NM	NM	NM	0.2	ND	No incubation
Chantigny et al. (2014)	Arable soil	Top 15 cm	Air-dried	Deionized water	NM	NM	NM	0.25	ND	No incubation
Chantigny et al. (2014)	Grassland soil	Top 15 cm	Air-dried	Deionized water	NM	NM	NM	0.5	ND	No incubation
Chantigny et al. (2014)	Grassland soil	Top 15 cm	Air-dried	Deionized water	NM	NM	NM	0.55	ND	No incubation
Gregorich et al. (2003)	Arable soil	Top 15 cm	Air-dried	Deionized water	0.45	35	40	0.57	40	Fertilized with manure
Gregorich et al. (2003)	Arable soil	Top 15 cm	Air-dried	Deionized water	0.45	35	40	0.28	40	No fertilizer
Gregorich et al. (2003)	Arable soil	Top 15 cm	Air-dried	Deionized water	0.45	35	40	0.4	45	Crop rotation + manure
Gregorich et al. (2003)	Arable soil	Top 15 cm	Air-dried	Deionized water	0.45	35	40	0.4	50	Crop rotation + inorganic fertilizer
Boyer and Groffman (1996)	Forest soil	10 cm	Moist soil	Nanopure water	NM (Whatman GF/F)	20	14	0.2	21	Dw estimated
Boyer and Groffman (1996)	Arable soil	10 cm	Moist soil	Nanopure water	NM (Whatman GF/F)	20	14	0.4	26	Dw estimated
Boyer and Groffman (1996)	Forest soil	30 cm	Moist soil	Nanopure water	NM (Whatman GF/F)	20	14	0.1	25	Dw estimated
Boyer and Groffman (1996)	Arable soil	30 cm	Moist soil	Nanopure water	NM (Whatman GF/F)	20	14	0.36	17	Dw estimated

Boyer and Groffman (1996)	Forest soil	50 cm	Moist soil	Nanopure water	NM (Whatman GF/F)	20	14	0.2	25	Dw estimated
Boyer and Groffman (1996)	Arable soil	50 cm	Moist soil	Nanopure water	NM (Whatman GF/F)	20	14	0.2	11	Dw estimated
Boyer and Groffman (1996)	Forest soil	70 cm	Moist soil	Nanopure water	NM (Whatman GF/F)	20	14	0.1	11	Dw estimated
Boyer and Groffman (1996)	Arable soil	70 cm	Moist soil	Nanopure water	NM (Whatman GF/F)	20	14	0.1	11	Dw estimated
Saviozzi et al. (1994)	Glassland soil	Surface	Air-dried	Distilled water	0.2	ND	ND	0.1	ND	After fire, sediment dw estimated
Saviozzi et al. (1994)	Arable soil	Surface	Air-dried	Distilled water	0.2	ND	ND	0.02	ND	After fire, sediment dw estimated
Vergnoux et al. (2011)	Forest soil	Top 15 cm	Moist soil	Ultrapure water	0.45	ND	ND	0.13	ND	After fire, sediment dw estimated
Vergnoux et al. (2011)	Forest soil	Top 15 cm	Moist soil	Ultrapure water	0.45	ND	ND	0.07	ND	After fire, sediment dw estimated
Vergnoux et al. (2011)	Forest soil	Top 15 cm	Moist soil	Ultrapure water	0.45	ND	ND	0.1	ND	After fire, sediment dw estimated
Vergnoux et al. (2011)	Forest soil	Top 15 cm	Moist soil	Ultrapure water	0.45	ND	ND	0.2	ND	After fire, sediment dw estimated
Vergnoux et al. (2011)	Forest soil	Top 15 cm	Moist soil	Ultrapure water	0.45	ND	ND	0.2	ND	After fire, sediment dw estimated
Vergnoux et al. (2011)	Forest soil	Top 15 cm	Moist soil	Ultrapure water	0.45	ND	ND	0.2	ND	No fire sediment dw estimated
Wu and Jiang (2016)	Forest soil	0–10 cm	Air dried	Distilled water	0.45	20	90	0.1	30.06	Dw estimated
Wu and Jiang (2016)	Forest soil	0–10 cm	Air dried	Distilled water	0.45	20	90	0.1	41.03	Dw estimated
Wu and Jiang (2016)	Forest soil	0–10 cm	Air dried	Distilled water	0.45	20	90	0.11	24.97	Dw estimated
Wu and Jiang (2016)	Forest soil	0–10 cm	Air dried	Distilled water	0.45	20	90	0.15	38.69	Dw estimated
Wagai and Sollins (2002)	Forest soil	0–8 cm		Deionized water	0.2	26	90	0.05	38.67	Dw estimated
Wagai and Sollins (2002)	Forest soil	0–8 cm		Deionized water	0.2	26	90	0	22.74	Dw estimated
Wagai and Sollins (2002)	Forest soil	0–8 cm		Deionized water	0.2	26	90	0	15.93	Dw estimated
Wagai and Sollins (2002)	Forest soil	0–8 cm		Deionized water	0.2	26	90	0	12.96	Dw estimated

Wagai and Sollins (2002)	Forest soil	0–8 cm		Deionized water	0.2	26	90	0.02	27.36	Dw estimated
Wagai and Sollins (2002)	Forest soil	0–8 cm		Deionized water	0.2	26	90	0.02	23.13	Dw estimated
Wagai and Sollins (2002)	Forest soil	0–8 cm		Deionized water	0.2	26	90	0.01	17.69	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	35–50 cm	No drying	Deionized water	NM	5	90	0.05	12	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	35–50 cm	No drying	Deionized water	NM	5	90	0.11	22	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	35–50 cm	No drying	Deionized water	NM	5	90	0.03	9	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	65–80 cm	No drying	Deionized water	NM	5	90	0.03	36	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	66–80 cm	No drying	Deionized water	NM	5	90	0.17	19	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	67–80 cm	No drying	Deionized water	NM	5	90	0.06	16	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	35–50 cm	No drying	Deionized water	NM	5	90	0.49	13	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	35–50 cm	No drying	Deionized water	NM	5	90	0.43	13	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	35–50 cm	No drying	Deionized water	NM	5	90	0.45	9	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	85–100 cm	No drying	Deionized water	NM	5	90	0.61	10	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	86–100 cm	No drying	Deionized water	NM	5	90	0.52	5	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	87–100 cm	No drying	Deionized water	NM	5	90	1.04	5	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	30–45 cm	No drying	Deionized water	NM	5	90	0.02	12	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	35–50 cm	No drying	Deionized water	NM	5	90	0.15	5	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	35–50 cm	No drying	Deionized water	NM	5	90	0.14	11	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	87–102 cm	No drying	Deionized water	NM	5	90	0.48	11	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	78–90 cm	No drying	Deionized water	NM	5	90	0.43	8	Dw estimated
Wickland et al. (2018)	Permafrost and seasonally frozen soil	74–89 cm	No drying	Deionized water	NM	5	90	0.16	8	Dw estimated

Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.42	14.17	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.54	12.73	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.32	17.26	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.35	4.15	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.51	13.72	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.31	10.74	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.75	13	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.55	10.62	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.41	15.21	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.46	4.08	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.27	22.07	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.44	9.06	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.39	12.07	Cold extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.36	30.21	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	1.3	23.04	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	1.51	19.33	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.97	14.17	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	1.38	9.91	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	1.38	12.24	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.76	12.1	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	1.7	28.11	Hot extraction

Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	1.65	29.77	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	1.28	19.37	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.95	15.79	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.7	60.73	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.6	14.67	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.68	22.31	Hot extraction
Zhao et al. (2013)	Arable and forest soil	0–15 cm	Air dried	Deionized water	0.45	15	21	0.72	8.18	Hot extraction
Zhao et al. (2012)	Arable and forest soil	0–10 cm	Air dried	Deionized water	0.45			0.45	ND	
Zhao et al. (2012)	Arable and forest soil	0–10 cm	Air dried	Deionized water	0.45			0.44	ND	
Zhao et al. (2012)	Arable and forest soil	0–10 cm	Air dried	Deionized water	0.45			0.38	ND	
Zhao et al. (2012)	Arable and forest soil	0–10 cm	Field moist	Deionized water	0.45			0.18	ND	Dw estimated
Zhao et al. (2012)	Arable and forest soil	0–10 cm	Field moist	Deionized water	0.45			0.24	ND	Dw estimated
Zhao et al. (2012)	Arable and forest soil	0–10 cm	Field moist	Deionized water	0.45			0.16	ND	Dw estimated
(Rizinjirabake et al. 2019)	Soil	0–20 cm	Oven dried	Distilled water	0.45			1.68	ND	Natural forest
(Rizinjirabake et al. 2019)	Soil	0–20 cm	Oven dried	Distilled water	0.45			1.21	ND	Tree plantation
(Rizinjirabake et al. 2019)	Soil	0–20 cm	Oven dried	Distilled water	0.45			1.15	ND	Tea plantation
(Rizinjirabake et al. 2019)	Soil	0–20 cm	Oven dried	Distilled water	0.45			0.75	ND	Cropland soil
Guigue et al. (2014)	Woodland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.16	17.48	Dystric Andosol
Guigue et al. (2014)	Forest soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.34	18.18	Entic Podzol
Guigue et al. (2014)	Pastureland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.24	20.28	Dystric Cambisol
Guigue et al. (2014)	Pastureland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.36	18.18	Gleyic Luvisol

Guigue et al. (2014)	Arable soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.25	42.66	Eutric Cambisol
Guigue et al. (2014)	Woodland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.04	39.16	Dystric Andosol
Guigue et al. (2014)	Forest soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.09	30.77	Entic Podzol
Guigue et al. (2014)	Pastureland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.07	42.66	Dystric Cambisol
Guigue et al. (2014)	Pastureland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.16	23.08	Gleyic Luvisol
Guigue et al. (2014)	Arable soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.03	16.08	Eutric Cambisol
Guigue et al. (2014)	Woodland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.06	41.26	Dystric Andosol
Guigue et al. (2014)	Forest soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.12	22.38	Entic Podzol
Guigue et al. (2014)	Pastureland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.08	39.86	Dystric Cambisol
Guigue et al. (2014)	Pastureland soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.16	26.57	Gleyic Luvisol
Guigue et al. (2014)	Arable soil	A-horizon	Air dried	Ultrapure water	0.22	21	48	0.02	32.17	Eutric Cambisol

Table S5. The content of sediment WEOM (mean ± SE, range: 0.29 ± 0.02, 0.01–0.5 mg C/g dry sediment) in dry sediments from rivers.
Contenido de WEOM del sedimento (media ± SE, rango: 0.29 ± 0.02, 0.01–0.5 mg C/g sedimento seco) en sedimentos secos de ríos.

Reference	System	Name, location	Sed/soil	Drying	Extractant	[WEOC] Mean	Unit	Comment
Dong et al. (2020)	River	Yunxi River	Sediment	Air-dried	Milli-Q water	0.5	mg C/g sed	
Dong et al. (2020)	River	Yunxi River	Sediment	Air-dried	Milli-Q water	0.4	mg C/g sed	
Dong et al. (2020)	River	Yunxi River	Sediment	Air-dried	Milli-Q water	0.3	mg C/g sed	
Dong et al. (2020)	River	Yunxi River	Sediment	Air-dried	Milli-Q water	0.5	mg C/g sed	
Dong et al. (2020)	River	Taoyuan River	Sediment	Air-dried	Milli-Q water	0.3	mg C/g sed	
Dong et al. (2020)	River	Taoyuan River	Sediment	Air-dried	Milli-Q water	0.2	mg C/g sed	
Dong et al. (2020)	River	Taoyuan River	Sediment	Air-dried	Milli-Q water	0.1	mg C/g sed	
Dong et al. (2020)	River	Taoyuan River	Sediment	Air-dried	Milli-Q water	0.2	mg C/g sed	
Dong et al. (2020)	River	Jiaolai River	Sediment	Air-dried	Milli-Q water	0.4	mg C/g sed	
Dong et al. (2020)	River	Jiaolai River	Sediment	Air-dried	Milli-Q water	0.4	mg C/g sed	
Dong et al. (2020)	River	Jiaolai River	Sediment	Air-dried	Milli-Q water	0.2	mg C/g sed	
Dong et al. (2020)	River	Jiaolai River	Sediment	Air-dried	Milli-Q water	0.2	mg C/g sed	
Fox et al. (2017)	River	Colorado River, US	Sediment	Air-dried	Milli-Q water	0.04	mg C/g sed	
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.2	mg C/g sed	0–10 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.3	mg C/g sed	0–10 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.2	mg C/g sed	0–10 cm

Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.25	mg C/g sed	0–10 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.2	mg C/g sed	0–10 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.45	mg C/g sed	0–10 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.4	mg C/g sed	0–10 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.45	mg C/g sed	0–10 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.3	mg C/g sed	10–20 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.3	mg C/g sed	10–20 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.3	mg C/g sed	10–20 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.16	mg C/g sed	10–20 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.5	mg C/g sed	10–20 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.45	mg C/g sed	10–20 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.3	mg C/g sed	10–20 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.25	mg C/g sed	20– 30 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.25	mg C/g sed	20– 30 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.25	mg C/g sed	20– 30 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.3	mg C/g sed	20– 30 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.4	mg C/g sed	20– 30 cm
Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.5	mg C/g sed	20– 30 cm

Zhu et al. (2017)	River	Hao River, China	Sediment	Air-dried	Distilled water	0.3	mg C/g sed	20– 30 cm
Han et al. (2021)	River	Yangtze River, China	Sediment	Freeze-dried	Ultrapure water	0.01	mg C/g sed	
Han et al. (2021)	River	Yangtze River, China	Sediment	Freeze-dried	Ultrapure water	0.01	mg C/g sed	

Table S6 Respiration rate of bulk OM in dry soils of wetlands (mean ± SE, range: 3.74 ± 0.39, 0.30–28.16 μg O_2 g^{-1} dry soil h^{-1}). *Ratio de respiración de la OM en peso seco en suelos secos de humedales (media ± SE, rango: 3.74 ± 0.39, 0.30–28.16 μg O_2 g^{-1} suelo seco h^{-1})*

Reference	**System**	**Incubation Temp (ºC)**	**Mean resp. rate**	**Unit**	**Comment**
Magnusson (1993)	Wetland (fen)	16	10.0448	μg O_2 g^{-1} dry soil h^{-1}	
Magnusson (1993)	Wetland (fen)	16	8.5337	μg O_2 g^{-1} dry soil h^{-1}	
Magnusson (1993)	Wetland (fen)	16	9.0009	μg O_2 g^{-1} dry soil h^{-1}	
Magnusson (1993)	Wetland (fen)	16	7.0372	μg O_2 g^{-1} dry soil h^{-1}	
Magnusson (1993)	Wetland (fen)	16	7.7453	μg O_2 g^{-1} dry soil h^{-1}	
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	1.216666667	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture

Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.304166667	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.520833333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.825	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.216666667	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.825	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	18.25	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.520833333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.520833333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.216666667	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	14.90416667	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	12.775	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	6.691666667	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	5.170833333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	13.38333333	μg O_2 g^{-1} dry soil h^{-1}	Natural moisture

Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	9.429166667	µg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	6.3875	µg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	6.691666667	µg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	6.995833333	µg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	7.604166667	µg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	7.3	µg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	4.5625	µg O_2 g^{-1} dry soil h^{-1}	Natural moisture
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.9125	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.304166667	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	0.608333333	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	1.216666667	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	5	1.216666667	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.520833333	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.825	µg O_2 g^{-1} dry soil h^{-1}	Flooded

Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.304166667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.9125	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.216666667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.216666667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	1.216666667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.304166667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.304166667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	10	0.304166667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	3.65	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	3.041666667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	1.520833333	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	1.520833333	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	4.258333333	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	3.345833333	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	2.129166667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	1.216666667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	6.691666667	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	3.65	μg O_2 g^{-1} dry soil h^{-1}	Flooded
Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	3.345833333	μg O_2 g^{-1} dry soil h^{-1}	Flooded

Szafranek-Nakonieczna and Stêpniewska (2014)	Wetland (moor)	20	1.825	µg O_2 g^{-1} dry soil h^{-1}	Flooded
Brouns et al. (2014)	Wetland (bog)	20	28.16	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	10	2.3725	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Tropical Wetland	10	3.1901	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Tropical Wetland	10	3.6135	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	10	3.285	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	10	2.3725	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	20	4.015	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	20	5.5334	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	20	5.1976	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	20	5.0808	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	20	3.3142	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	30	7.2343	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	30	8.1833	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	30	8.6651	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	30	7.3876	µg O_2 g^{-1} dry soil h^{-1}	
Inglett et al. (2012)	Wetland	30	10.001	µg O_2 g^{-1} dry soil h^{-1}	
Duval and Radu (2018)	Wetland (fen)	25	2.001096491	µg O_2 g^{-1} dry soil h^{-1}	
Duval and Radu (2018)	Wetland (fen)	25	3.842105263	µg O_2 g^{-1} dry soil h^{-1}	
Duval and Radu (2018)	Wetland (fen)	25	6.963815789	µg O_2 g^{-1} dry soil h^{-1}	
Duval and Radu (2018)	Wetland (fen)	25	5.603070175	µg O_2 g^{-1} dry soil h^{-1}	

Duval and Radu (2018)	Wetland (fen)	25	7.283991228	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	25	4.882675439	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	15	1.584201389	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	15	3.089192708	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	15	3.247612847	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	15	3.564453125	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	15	5.703125	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	15	3.406032986	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	5	1.280701754	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	5	3.201754386	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	5	2.721491228	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	5	1.520833333	µg O_2 g^{-1} dry soil h^{-1}
Duval and Radu (2018)	Wetland (fen)	5	2.801535088	µg O_2 g^{-1} dry soil h^{-1}
Turetsky and Ripley (2005)	Wetland (fen)	NM	2.32	µg O_2 g^{-1} dry soil h^{-1}
Glatzel et al. (2004)	Wetland	NM	3.65	µg O_2 g^{-1} dry sed h^{-1}
Glatzel et al. (2004)	Wetland	NM	4.234	µg O_2 g^{-1} dry sed h^{-1}

Table S7 Respiration rate of bulk sediment OM (mean ± SE, range: 1.43 ± 0.31, 0–11.39 µg O_2 g^{-1} dry sediment h^{-1}) in dry sediments of perennial and intermittent rivers and ephemeral streams (IRES). *Ratio de respiración de de la OM en peso seco de sedimento (media ± SE, rango: 1.43 ± 0.31, 0–11.39 µg O_2 g^{-1} sedimento seco h^{-1}) en sedimentos secos de ríos perennes e intermitentes y arroyos efímeros (IRES).*

Reference	**System**	**Location**	**Mean**	**Unit**	**Comment**
Harvey et al. (2011)	Perennial stream	Northern California	5.92	µg O_2 g^{-1} dry sed h^{-1}	Gravel
Harvey et al. (2011)	Perennial stream	Northern California	1.48	µg O_2 g^{-1} dry sed h^{-1}	Sand
Pusch 1996)	Perennial stream	Southern Germany, mountain stream	0.06	µg O_2 g^{-1} dry sed h^{-1}	Sand-gravel
Pusch (1996)	Perennial stream	Austria and Pyrenees	1.5	µg O_2 g^{-1} dry sed h^{-1}	Sand-gravel
Battin et al. (1999)	Perennial stream	Austria and Pyrenees	0.16	µg O_2 g^{-1} dry sed h^{-1}	Sand
Battin et al. (1999)	Perennial stream	Austria and Pyrenees	1.06	µg O_2 g^{-1} dry sed h^{-1}	Sand
Battin et al. (1999)	Perennial stream	Austria and Pyrenees	1.06	µg O_2 g^{-1} dry sed h^{-1}	Sand
Battin et al. (1999)	Perennial stream	Austria and Pyrenees	0.89	µg O_2 g^{-1} dry sed h^{-1}	Sand
Battin et al. (1999)	Perennial stream	Austria and Pyrenees	1.64	µg O_2 g^{-1} dry sed h^{-1}	Sand
Battin et al. (1999)	Perennial stream	Austria and Pyrenees	2.62	µg O_2 g^{-1} dry sed h^{-1}	Sand
Battin et al. (1999)	Perennial stream	Austria and Pyrenees	0.5	µg O_2 g^{-1} dry sed h^{-1}	Sand
Battin et al. (1999)	Perennial stream	Austria and Pyrenees	1.04	µg O_2 g^{-1} dry sed h^{-1}	Sand
C Raft et al. (2002)	Perennial stream	North-western Montana	0.01	µg O_2 g^{-1} dry sed h^{-1}	Gravel
C Raft et al. (2002)	Perennial stream	North-western Montana	0.43	µg O_2 g^{-1} dry sed h^{-1}	Gravel

Crenshaw et al. (2002)	Perennial stream	North Carolina	0.03	µg O_2 g^{-1} dry sed h^{-1}	Gravel
Crenshaw et al. (2002)	Perennial stream	North Carolina	0.04	µg O_2 g^{-1} dry sed h^{-1}	Gravel
Findlay and Sinsabaugh (2003)	Perennial stream	NM	0.02	µg O_2 g^{-1} dry sed h^{-1}	
Findlay and Sinsabaugh (2003)	Perennial stream	NM	0.03	µg O_2 g^{-1} dry sed h^{-1}	
Findlay and Sinsabaugh (2003)	Perennial stream	NM	0.04	µg O_2 g^{-1} dry sed h^{-1}	
Jones (1995)	Perennial stream	Sonoran desert, Arizona	0	µg O_2 g^{-1} dry sed h^{-1}	
Logue et al. (2004)	Perennial stream	Switzerland	0.6	µg O_2 g^{-1} dry sed h^{-1}	
Logue et al. (2004)	Perennial stream	Switzerland	0.8	µg O_2 g^{-1} dry sed h^{-1}	
Logue et al. (2004)	Perennial stream	Switzerland	0.56	µg O_2 g^{-1} dry sed h^{-1}	
Logue et al. (2004)	Perennial stream	Switzerland	0.96	µg O_2 g^{-1} dry sed h^{-1}	
Mermillod-Blondin et al. (2005)	Perennial stream	NM	0	µg O_2 g^{-1} dry sed h^{-1}	Sand
Pusch and Schwoerbel (1994)	Perennial stream	Germany	0.08	µg O_2 g^{-1} dry sed h^{-1}	Gravel
Pusch and Schwoerbel (1994)	Perennial stream	Germany	1.26	µg O_2 g^{-1} dry sed h^{-1}	Gravel
Uehlinger et al. (2002)	Perennial stream	Sonoran desert, Arizona	0	µg O_2 g^{-1} dry sed h^{-1}	Sand
Uehlinger et al. (2002)	Perennial stream	Sonoran desert, Arizona	0	µg O_2 g^{-1} dry sed h^{-1}	Sand
Uehlinger et al. (2002)	Perennial stream	Sonoran desert, Arizona	0	µg O_2 g^{-1} dry sed h^{-1}	Sand
Uehlinger et al. (2002)	Perennial stream	Sonoran desert, Arizona	0	µg O_2 g^{-1} dry sed h^{-1}	Sand

Wilczek et al. (2004)	Perennial stream	Germany	1	μg O_2 g^{-1} dry sed h^{-1}	Gravel
Wilczek et al. (2004)	Perennial stream	Germany	3.81	μg O_2 g^{-1} dry sed h^{-1}	Gravel
Mendoza-Lera and Mutz (2013)	Perennial stream	NM	2.28	μg O_2 g^{-1} dry sed h^{-1}	Sand
Mendoza-Lera and Mutz (2013)	Perennial stream	NM	1	μg O_2 g^{-1} dry sed h^{-1}	Sand
Gerull et al. (2011)	Perennial stream	Germany	0.6	μg O_2 g^{-1} dry sed h^{-1}	Sand
Gerull et al. (2011)	Perennial stream	Germany	5.89	μg O_2 g^{-1} dry sed h^{-1}	Sand
Ingendahl et al. (2009)	Perennial stream	Germany	0	μg O_2 g^{-1} dry sed h^{-1}	Sandy loam
Ingendahl et al. (2009)	Perennial stream	Germany	5.37	μg O_2 g^{-1} dry sed h^{-1}	Sandy loam
Foulquier et al. (2010)	Perennial stream	France (aquifer)	0	μg O_2 g^{-1} dry sed h^{-1}	Gravel
Foulquier et al. (2010)	Perennial stream	France (aquifer)	0.36	μg O_2 g^{-1} dry sed h^{-1}	Gravel
Mendoza-Lera et al. (2017)	Perennial stream	NM	1	μg O_2 g^{-1} dry sed h^{-1}	Gravel/sand and gravel+ sand
Mendoza-Lera et al. (2017)	Perennial stream	NM	4.99	μg O_2 g^{-1} dry sed h^{-1}	Gravel/sand and gravel+ sand
Gerull et al. (2012)	Perennial stream	NM	0.49	μg O_2 g^{-1} dry sed h^{-1}	Sandy loam
Gerull et al. (2012)	Perennial stream	NM	2.99	μg O_2 g^{-1} dry sed h^{-1}	Sandy loam
Mendoza-Lera et al. (2017)	Perennial stream	Germany	2.4	μg O_2 g^{-1} dry sed h^{-1}	Sand
Mendoza-Lera et al. (2017)	Perennial stream	Germany	11.39	μg O_2 g^{-1} dry sed h^{-1}	Sand
von Schiller et al. (2019)	IRES	Global	2.3	μg O_2 g^{-1} dry sed h^{-1}	

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Figures

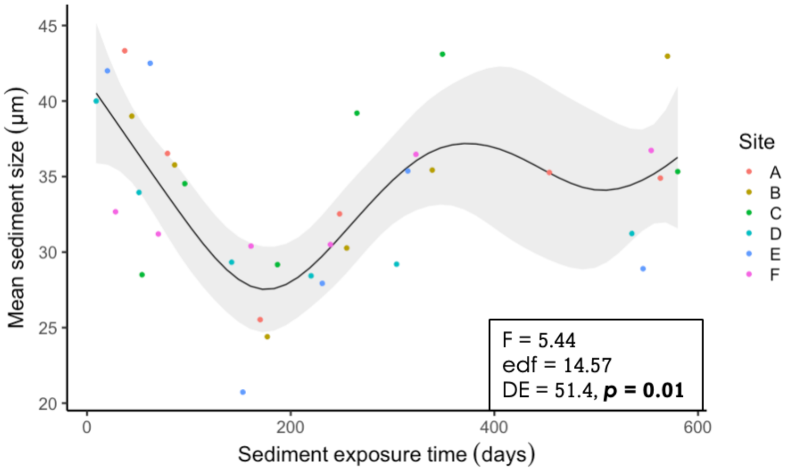

Figure S1. Temporal changes in mean sediment size during sediment exposure time. The line and shaded area represent the mean and 95 % confidence interval of the GAMMs; each point represents the average of three sediment samples collected for each sampling date at each site; edf is effective degrees of freedom; DE is deviance explained (%); *p*-value is significant and shown in bold. *Cambios temporales en el tamaño medio del sedimento durante el tiempo de exposición del sedimento. Las líneas y espacios sombreados representan, respectivamente, la media y un intervalo de confianza del 95 % de los modelos aditivos generalizados mixtos; cada punto representa la media de tres muestras de sedimentos, recogidas en cada punto para cada día; edf hace referencia a los grados de libertad efectivos; DE a la desviación explicada (%); en negrita se muestra el p-valor significativo.*

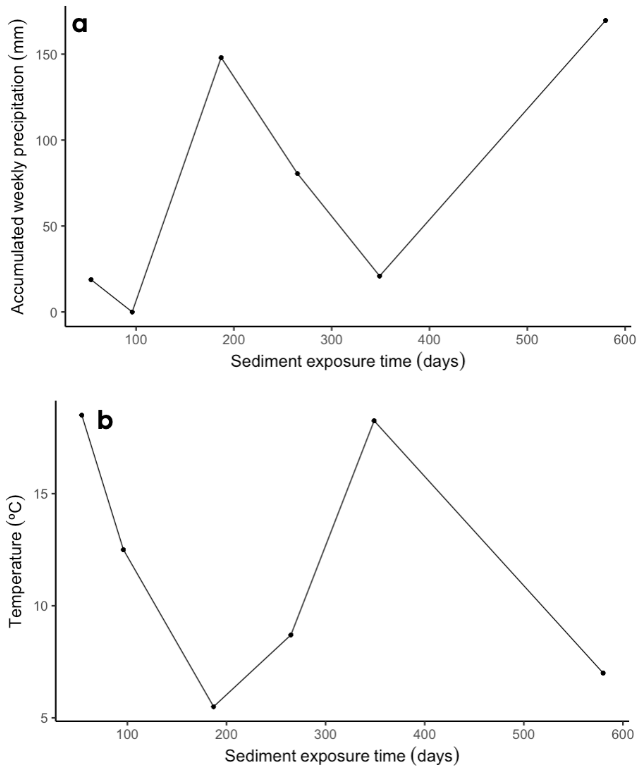

Figure S2. Temporal changes in the accumulated weekly precipitation for each sampling date (a) and mean daily temperature registered by the meteorological station of Artikutza on the sampling date (b). *Gráficos de líneas de los cambios temporales de la precipitación semanal acumulada para cada día de muestreo (a) y temperatura registrada por la estación meteorológica de Artikutza en el día de muestreo.*