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SUPPLEMENTARY MATERIAL

Table S1. Location, construction year, and morphometric description of the study reservoirs. Further information on the data and indexes provided in the table can be found in in León-Palmero et al. (2020b). *Localización, año de construcción y descripción morfométrica de los embalses estudiados. Puede encontrarse más información sobre los datos y los índices que se presentan en la tabla en León-Palmero et al. (2020b).*

Reservoir	Latitude, longitude (º, decimal degrees)	Altitude (m)	Construction year	Reservoir area (km^2)	Reservoir volume (hm^3)	Mean depth (m)	Shoreline development index (D_L)	Shallowness index (m^{-1})
Cubillas	37.27, -3.68	640	1956	1.94	18.74	9.66	2.00	0.21
Colomera	37.40, -3.72	810	1990	2.76	40.18	14.56	3.35	0.23
Negratín	37.56, -2.95	618	1984	23.51	567.12	24.12	5.90	0.24
La Bolera	37.76, -2.90	950	1967	2.89	53.19	18.40	4.05	0.22
Los Bermejales	36.99, -3.89	852	1958	5.95	103.12	17.33	2.90	0.17
Iznájar	37.26, -4.33	425	1969	26.13	981.12	37.55	5.76	0.15
Francisco Abellán	37.31, -3.27	942	1991	2.43	58.21	23.95	3.80	0.16
Béznar	36.92, -3.55	486	1986	1.60	52.90	33.06	2.65	0.08
San Clemente	37.86, -2.65	1050	1990	3.76	117.92	31.36	3.43	0.11
El Portillo	37.81, -2.79	920	1999	1.18	32.90	27.88	3.69	0.13
Jándula	38.23, -3.97	350	1932	8.43	321.99	38.20	7.10	0.19
Rules	36.86, -3.49	239	2003	3.06	110.78	36.20	3.09	0.09

Table S2. Sampling date, and mean values of the chlorophyll-*a*, DOC, DIC, TN and TP concentrations. More information on the physical, chemical, and biological characterization of the reservoir water column can be found in León-Palmero et al. (2020b). *Fecha de muestreo, y valores medios de la concentración de clorofila-a, COD, CID, NT y PT. Puede encontrar más información sobre la caracterización física, química y biológica de la columna de agua de estos embalses en León-Palmero et al. (2020b).*

Reservoir	Period	Sampling Date	Chl-*a* (µg/L)	DOC (mgC/L)	DIC (mgC/L)	TN (mgN/L)	TP (µgP/L)
Cubillas	Stratification	July 15, 2016	17.8	2.07	30.81	0.85	57.0
	Mixing	February 6, 2017	8.4	2.89	42.84	1.62	24.2
Colomera	Stratification	July 22, 2016	2.1	1.19	27.54	2.54	24.1
	Mixing	March 7, 2017	0.7	1.48	30.71	1.57	13.7
Negratín	Stratification	June 27, 2016	1.2	1.32	29.91	0.30	24.8
	Mixing	February 16, 2017	0.6	1.79	32.51	0.28	7.3
La Bolera	Stratification	June 28, 2016	2.1	1.48	40.04	0.24	18.8
	Mixing	April 8, 2017	3.3	1.29	43.56	0.48	4.6
Los Bermejales	Stratification	September 7, 2016	1.8	1.13	33.09	0.43	13.2
	Mixing	March 17, 2017	1.1	1.22	38.51	0.43	9.6
Iznájar	Stratification	September 9, 2016	5.1	1.40	34.35	3.90	12.2
	Mixing	March 15, 2017	13.1	1.77	38.31	4.18	35.9
Francisco Abellán	Stratification	September 28, 2016	1.9	1.09	39.31	0.39	8.7
	Mixing	March 21, 2017	1.1	1.42	42.36	0.41	14.7
Béznar	Stratification	October 7, 2016	6.0	0.89	47.26	1.04	21.0
	Mixing	February 23, 2017	9.8	1.46	52.81	1.58	29.2
San Clemente	Stratification	July 17, 2017	3.5	1.25	41.47	0.45	11.9
	Mixing	March 28, 2017	3.8	1.43	40.24	0.50	6.4
El Portillo	Stratification	July 18, 2017	2.4	0.94	36.15	0.32	5.1
	Mixing	March 30, 2017	1.2	0.92	35.95	0.48	8.1
Jándula	Stratification	July 24, 2017	2.3	4.32	20.09	0.52	24.2
	Mixing	April 5, 2017	1.7	4.80	17.94	0.65	11.5
Rules	Stratification	July 10, 2017	3.7	0.98	28.89	0.32	6.7
	Mixing	April 7, 2017	1.2	0.82	30.67	0.53	13.4

Table S3. Daily gross primary production (GPP), daily net ecosystem production (NEP), and daily respiration (R) rates measured during the stratification period as O_2 production ($gO_2\ m^{-3}\ d^{-1}$) and C production ($gC\ m^{-2}\ d^{-1}$) in the epilimnion of the study reservoirs. A further description on the methodology can be found in León-Palmero et al. (2020b). *Tasas diarias de producción primaria bruta (PPB), producción neta (PN), y respiración (R) medidas durante el periodo de estratificación como producción de oxígeno ($gO_2\ m^{-3}\ d^{-1}$) y producción de C ($gC\ m^{-2}\ d^{-1}$) en el epilimnion de los embalses estudiados. En León-Palmero et al. (2020b) se describe la metodología en detalle.*

Reservoir	O_2 production in the water column ($gO_2\ m^{-3}\ d^{-1}$)			C production in the water column ($gC\ m^{-2}\ d^{-1}$)		
	GPP	NEP	R	GPP	NEP	R
Cubillas	2.40	-0.040	-2.44	-4.49	0.07	4.57
Colomera	0.68	-0.042	-0.72	-1.66	0.10	1.76
Negratín	0.55	-0.013	-0.56	-2.68	0.06	2.74
La Bolera	0.80	-0.065	-0.86	-1.19	0.10	1.29
Los Bermejales	0.50	-0.019	-0.52	-2.44	0.09	2.53
Iznájar	1.49	-0.057	-1.55	-5.60	0.21	5.81
Francisco Abellán	0.24	0.027	-0.21	-1.27	-0.14	1.13
Béznar	1.25	-0.022	-1.27	-7.50	0.13	7.63
San Clemente	0.60	0.324	-0.27	-1.12	-0.61	0.51
El Portillo	0.16	-0.002	-0.16	-0.35	0.00	0.36
Jándula	0.51	0.023	-0.49	-1.73	-0.08	1.65
Rules	0.90	0.269	-0.63	-4.72	-1.41	3.31

Table S4. CO_2, CH_4 and N_2O fluxes from the study reservoirs during the stratification and the mixing periods. These fluxes were previously described in León-Palmero et al. (2020a). *Flujos de CO_2, CH_4 y N_2O medidos en los embalses durante el periodo de estratificación y de mezcla. Estos flujos fueron previamente publicados en León-Palmero et al. (2020a).*

Reservoir	Period	Sampling Date	CO_2 fluxes (mean ± SE, mgC m^{-2} d^{-1})	CH_4 fluxes (mean ± SE, mgC m^{-2} d^{-1})	N_2O fluxes (mean ± SE, µgN m^{-2} d-1)
Cubillas	Stratification	July 15, 2016	244.4 ± 37.1	678.84 ± 226.35	352 ± 84
	Mixing	February 6, 2017	123.1 ± 32.5	4.41 ± 1.56	150 ± 119
Colomera	Stratification	July 22, 2016	393.1 ± 138.7	71.39 ± 48.64	456 ± 192
	Mixing	March 7, 2017	54.6 ± 6.4	0.64 ± 0.16	-120 ± 112
Negratín	Stratification	June 27, 2016	155.8 ± 50.7	0.51 ± 0.23	0 ± 0
	Mixing	February 16, 2017	39.6 ± 2.8	0.10 ± 0.01	-107 ± 88
La Bolera	Stratification	June 28, 2016	209.5 ± 8.5	1.40 ± 0.11	0 ± 0
	Mixing	April 8, 2017	97.8 ± 16.5	0.78 ± 0.14	-18 ± 18
Los Bermejales	Stratification	September 7, 2016	162.5 ± 20.5	4.21 ± 1.15	-118 ± 82
	Mixing	March 17, 2017	141.3 ± 15.0	0.63 ± 0.10	0 ± 0
Iznájar	Stratification	September 9, 2016	161.1 ± 34.5	19.78 ± 5.62	3601 ± 1032
	Mixing	March 15, 2017	123.4 ± 16.1	1.29 ± 0.24	313 ± 67
Francisco Abellán	Stratification	September 28, 2016	287.6 ± 27.4	6.33 ± 0.81	-132 ± 101
	Mixing	March 21, 2017	104.9 ± 0.0	0.54 ± 0.00	-238 ± 0
Béznar	Stratification	October 7, 2016	162.3 ± 37.7	2.06 ± 0.43	26 ± 60
	Mixing	February 23, 2017	82.7 ± 11.7	0.46 ± 0.02	0 ± 0
San Clemente	Stratification	July 17, 2017	69.0 ± 2.6	1.76 ± 0.15	-154 ± 126
	Mixing	March 28, 2017	87.0 ± 8.0	0.38 ± 0.05	-43 ± 43
El Portillo	Stratification	July 18, 2017	26.6 ± 10.6	125.73 ± 11.83	0 ± 0
	Mixing	March 30, 2017	69.6 ± 20.1	3.09 ± 0.82	-22 ± 22
Jándula	Stratification	July 24, 2017	-132.0 ± 11.3	7.18 ± 1.26	-63 ± 63
	Mixing	April 5, 2017	-52.5 ± 10.6	0.34 ± 0.08	28 ± 28
Rules	Stratification	July 10, 2017	-62.0 ± 4.6	2.74 ± 0.27	-20 ± 20
	Mixing	April 7, 2017	149.6 ± 21.3	0.76 ± 0.15	0 ± 0

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