Marine and Freshwater Research 2016, **67**, 1709–1724
http://dx.doi.org/10.1071/MF15169_AC

Supplementary material

Evaluating the hydrological, geothermal and anthropic factors in the Baños tarn (Spanish Pyrenees)

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Table S1. Results of the calculations performed to estimate Brazatos drainage system flow rate

Only anions and cations above detection limit in most samples were used for calculations. Lake ionic budget was calculated using lake water volume (Table 1) and lake ionic concentration data (Table 2). Caldarés, Argualas, Tiberio, Belleza and Laguna ionic inputs were computed from measured ionic content and flow rates (Table 4) and lake water retention time (Table 1). Brazatos drainage system ionic inputs was estimated as the difference between the lake ionic budget and the sum of measured ionic inputs. Brazatos drainage system flow rate was obtained from lake water retention time (Table 1) and Brazatos hydrochemical data (Table 4)

	Lake ionic budget (MEq)	Caldarés stream ionic inputs (MEq)	Argualas stream ionic inputs (MEq)	Tiberio spring ionic inputs (MEq)	Belleza spring ionic inputs (MEq)	Laguna spring ionic inputs (MEq)	Brazatos drainage system ionic inputs (MEq)	Brazatos drainage system flow rate ($m^3\ s^{-1}$)
Na^+	11900	7409	588	379	12	29	3483	0.35
Ca^{2+}	146230	106732	7892	298	10	25	31274	0.41
Mg^{2+}	4429	3109	348	2	0.04	0.3	970	0.30
Alk	142609	98954	7303	394	13	25	35920	0.48
Cl^-	4138	2331	152	106	3.3	9	1536	0.60
NO_3^-	4587	3109	255	2	0.06	0.2	1221	0.37
SO_4^{2-}	20194	13470	1000	215	4.4	21	5482	0.61

Table S2. Results of the ANOVA tests to check depth influence on Baños hydrochemisty

T, temperature; $Cond_{20°C}$, conductivity; Alk, alkalinity; TP, total phosphorus; IN, inorganic nitrogen; ON, organic nitrogen; Chl-*a*, chlorophyll-a; TSS, total suspended solids. *n*; number of samples analysed. *P*-values are significant at $P < 0.05$

	Winter ($n = 6$)		Spring ($n = 8$)		Summer ($n = 6$)		Autumn ($n = 6$)	
	F	*P*	*F*	*P*	*F*	*P*	*F*	*P*
T	0.00	0.98	0.40	0.55	0.11	0.76	0.04	0.85
pH	0.51	0.51	0.01	0.94	0.26	0.64	1.90	0.24
$Cond_{20°C}$	0.01	0.94	1.28	0.30	3.40	0.14	0.09	0.77
Na^+	0.00	1.00	8.67	0.05	2.35	0.20	0.00	0.98
Ca^{2+}	0.24	0.65	0.07	0.81	0.39	0.57	2.67	0.18
Mg^{2+}	0.55	0.50	0.27	0.62	0.21	0.67	4.80	0.09
Alk	0.37	0.57	0.31	0.60	0.23	0.66	0.02	0.91
Cl^-	2.28	0.21	0.40	0.55	0.77	0.43	0.21	0.67
NO_3^-	0.21	0.67	0.07	0.80	0.40	0.56	0.34	0.59
SO_4^{2-}	0.15	0.72	0.00	0.96	0.27	0.63	0.20	0.68
TP	2.77	0.17	1.30	0.30	0.14	0.73	3.05	0.16
TN	0.00	0.95	0.00	0.95	0.02	0.91	0.01	0.95
Chl-*a*	2.35	0.20	0.33	0.59	1.33	0.31	0.08	0.79
TSS	0.77	0.43	0.02	0.91	0.08	0.80	0.02	0.91

Table S3. Results of the ANOVA tests to identify seasonal influence on Baños hydrochemistry

Number of samples for calculation: 13. As Baños hydrochemistry is not influenced by sampling depth, this ANOVA was performed with the two depths mean values. Significant *P*-values ($P < 0.05$) are highlighted in bold. Abbreviations as in Table S2

	F	*P*
T	12.13	**0.00**
pH	1.69	0.20
$Cond_{20°C}$	10.21	**0.00**
Na^+	0.95	0.43
Ca^{2+}	5.39	**0.01**
Mg^{2+}	0.96	0.43
Alk	3.27	**0.04**
Cl^-	1.30	0.30
NO_3^-	0.75	0.54
SO_4^{2-}	3.05	**0.04**
TP	3.28	**0.04**
TN	1.32	0.29
Chl-*a*	2.11	0.13
TSS	7.42	**0.00**