

Orduna et al., 2025. Spatio-temporal variation in the zooplankton community of the Zahara-El Gastor reservoir (Cádiz, Spain). *Limnetica* 44(1), 2025.

SUPPLEMENTARY INFORMATION

Table S1. Results of the Principal Component Analysis of the physical-chemical variables of the Zahara-El Gastor Reservoir collected in the study period. *Resultados del Análisis de Componentes Principales de las variables físico-químicas en el embalse de Zahara-El Gastor registradas durante el periodo del estudio.*

	PC1	PC2
Explained Variance	20.93%	19.22%
Nitrates (NO ₃)	-0.75	0.268
Carbonates (HCO ₃)	-0.416	0.504
Phosphates (PO ₄)	0.171	-0.043
Ammonia (NH ₄)	0.300	0.461
Chlorophyll-a	-0.066	0.705
Water transparency (SD)	-0.290	-0.822
Depth	-0.080	-0.843
pH	-0.459	0.109
Conductivity	0.945	-0.206
Temperature	0.307	0.184
Dissolved oxygen	-0.464	0.035
Total dissolved solids (TDS)	0.808	-0.267
Volume	-0.573	-0.007
Precipitation	-0.438	-0.089
Turbidity	0.402	0.540

Table S2. Annual density of dominant zooplankton species (ind/l) at sampling sites S1, S2, S3, and S4. *Densidad anual de especies dominantes de zooplancton (ind/l) en los puntos de muestreo S1, S2, S3 y S4.*

	S1				S2				S3				S4			
	WN	SP	SU	AU	WN	SP	SU	AU	WN	SP	SU	AU	WN	SP	SU	AU
Rotifera																
<i>Asplancha priodonta</i>	5.491	6.527	0.744	7.063	1.588	0.835	0.374	2.355	1.630	0.053	0.174	2.098	0.006	0.210	0.030	0.016
<i>Keratella cochlearis</i>	0.000	1.755	0.000	13.469	0.000	0.000	0.000	0.358	0.000	0.000	0.000	0.017	0.000	0.025	0.024	0.060
<i>Keratella quadrata</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.000	0.000	0.083	0.000	0.018	0.065	0.004	0.000
<i>Keratella tropica</i>	0.180	0.000	1.556	6.170	0.180	0.000	1.237	0.223	0.019	0.000	0.045	0.030	0.019	0.000	0.000	0.022
<i>Hexarthra fennica</i>	0.000	0.000	0.000	1.080	0.000	0.000	0.363	0.000	0.000	0.145	0.442	0.000	1.000	0.055	0.002	0.000
<i>Brachionus angularis</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.000	0.000	0.000	0.000
<i>Lecane hastata</i>	0.000	0.000	0.000	1.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Notholca acuminata</i>	0.000	0.000	0.000	3.550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Notholca squamula</i>	0.000	0.000	0.000	3.554	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Colurella obtusa</i>	0.000	0.167	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.003	0.033	0.000	0.000
<i>Polyarthra vulgaris</i>	6.723	39.028	15.168	94.307	1.734	0.418	4.067	0.799	0.391	1.595	0.381	0.706	1.022	1.292	0.033	0.022
<i>Polyarthra dolichoptera</i>	26.470	1.359	0.351	148.655	0.839	0.000	0.005	1.423	4.298	0.044	0.000	0.339	0.000	0.016	0.007	0.000
<i>Lepidella ovalis</i>	0.000	0.000	0.213	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Eosphora anthadis</i>	0.000	0.000	0.106	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Trichotria tetractis</i>	0.250	0.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Branchiopoda																
<i>Diaphanosoma mongolianum</i>	2.575	0.175	0.562	2.000	6.904	1.047	0.882	1.478	0.935	1.411	1.423	2.602	0.196	3.414	0.615	1.404
<i>Bosmina longirostris</i>	1.497	0.175	0.000	27.300	1.091	0.000	0.000	0.000	0.064	0.000	0.000	0.016	0.365	0.000	0.000	0.018
<i>Ceriodaphnia quadrangula</i>	0.000	0.000	22.785	2.004	1.683	0.091	0.153	0.614	1.479	0.601	0.087	0.343	0.054	0.106	0.973	0.216
<i>Daphnia longispina</i>	2.537	1.834	15.992	0.000	6.801	3.916	0.720	0.000	7.422	1.813	2.069	0.168	1.022	2.118	0.984	0.132
<i>Daphnia pulicaria</i>	0.000	0.000	0.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Chydorus sphaericus</i>	1.497	0.175	0.000	0.919	0.000	0.000	0.000	0.000	0.064	0.000	0.000	0.016	0.365	0.016	0.000	0.018
Copepoda																
<i>Copiodiaptomus numidicus</i>	4.750	9.150	24.460	16.800	19.05	6.696	5.660	10.11	2.582	6.412	8.108	2.983	0.632	4.528	1.793	3.164
<i>Acanthocyclops robustus</i>	0.180	1.579	0.000	2.765	0.598	0.045	0.000	0.163	0.152	0.249	0.000	0.367	0.069	0.046	0.000	0.180
<i>Acanthocyclops vernalis</i>	0.000	0.000	0.495	1.128	0.000	0.000	0.155	0.035	0.047	0.070	0.343	0.067	0.012	0.032	0.102	0.059
Cyclopidae nauplius	0.000	0.000	0.290	1.180	0.000	0.000	0.104	0.163	0.094	0.097	0.312	0.159	0.032	0.042	0.033	0.016
Diaptomidae nauplius	3.448	4.302	5.362	11.281	4.044	1.290	1.392	0.570	2.832	1.628	3.453	0.734	0.631	2.419	0.572	0.161

Table S3. Kruskal-Wallis (*H*) test results showing differences in zooplankton species density among seasons. Only species with significant densities are shown. *Test de Kruskal-Wallis (H) con diferencias significativas entre densidad de especies de zooplancton entre estaciones. Solo se presentan las especies con densidades significativas.*

	H	gl	<i>p</i>
Rotifera			
<i>Hexarthra fennica</i>	12.464	3	0.006
<i>Keratella cochlearis</i>	18.584	3	0.000
<i>Keratella quadrata</i>	13.055	3	0.005
<i>Keratella tropica</i>	8.224	3	0.042
<i>Polyarthra dolichoptera</i>	7.808	3	0.050
<i>Testudinella patina</i>	9.3	3	0.026
Branchiopoda			
<i>Bosmina longirostris</i>	16.452	3	0.001
<i>Chydorus sphaericus</i>	12.428	3	0.006
<i>Daphnia longispina</i>	15.060	3	0.002
Copepoda			
<i>Acanthocyclops robustus</i>	14.617	3	0.002
<i>Acanthocyclops vernalis</i>	13.044	3	0.005
Cyclopidae nauplius	11.410	3	0.010

Table S4. Kruskal-Wallis (*H*) test results showing differences in zooplankton species density among sampling sites. Only species with significant density are shown. *Test de Kruskal-Wallis (H) con diferencias significativas entre densidad de especies de zooplancton entre puntos de muestreo. Solo se presentan las especies con densidades significativas.*

	H	gl	<i>p</i>
Rotifera			
<i>Polyarthra dolichoptera</i>	7.859	3	0.049
<i>Polyarthra vulgaris</i>	15.392	3	0.002
Branchiopoda			
<i>Bosmina longirostris</i>	10.964	3	0.012
Copepoda			
<i>Copidodiaptomus numidicus</i>	9.811	3	0.020

Table S5. Pooled within-groups correlations between discriminating zooplankton species and the first two canonical discriminant functions for the grouping variables from the Zahara-El Gator Reservoir for the four seasons and sampling sites. Percentages indicate variance explained by each canonical discriminant function. *Correlaciones entre las especies de zooplancton discriminantes y las dos primeras funciones discriminantes canónicas zooplancton en el embalse de Zahara-El Gator durante las cuatro temporadas y puntos de muestreo. Los porcentajes indican la varianza explicada por cada función discriminante canónica.*

	Season		Sampling site	
	F1 (54.4%)	F2 (34.0%)	F1 (85.1%)	F2 (10.3%)
Zooplankton taxa				
Rotifera				
<i>Asplancha priodonta</i>	0.114*	0.030	0.095	-0.140*
<i>Keratella cochlearis</i>	0.051	0.223*	0.094*	-0.002
<i>Keratella quadrata</i>	-0.085	-0.084	-0.015	0.201*
<i>Keratella tropica</i>	-0.011	0.186*	0.085*	-0.035
<i>Hexartha fennica</i>	-0.017	0.165*	0.056*	-0.014
<i>Lecane hastata</i>	0.042	0.190*	0.115*	-0.008
<i>Lecane luna</i>	0.075	-0.045	0.071*	-0.001
<i>Anuraeopsis fissa</i>	0.088	0.191*	-0.023	0.179*
<i>Brachionus angularis</i>	0.042	0.191*	-0.023	0.179*
<i>Brachionus calcyflorus</i>	-0.127*	-0.010	-0.110*	-0.061
<i>Notholca acuminata</i>	0.042	0.191*	0.109*	-0.008
<i>Notholca squamula</i>	0.042	0.191*	0.109*	-0.008
<i>Colurella obtusa</i>	-0.074	0.058	-0.269*	-0.064
<i>Colurella adriatica</i>	0.077	-0.046	0.72*	0.001
<i>Polyarthra vulgaris</i>	0.024	0.145*	0.113*	-0.006
<i>Polyarthra dolichoptera</i>	0.061	0.180*	0.088*	-0.001
<i>Lepidella ovalis</i>	-0.164	0.018	0.056*	0.054
<i>Monostyla bulla</i>	0.077	-0.046	0.072*	0.001
<i>Filinia longiseta</i>	-0.096	0.046	-0.035	-0.058
<i>Eosphora anthadis</i>	-0.164	0.018	0.056*	-0.054
<i>Macrochaetus altamira</i>	0.063	0.145*	0.090*	0.036
<i>Trichotria tetractis</i>	0.068	-0.105*	0.106*	0.001
<i>Monommata grandis</i>	0.014	-0.043	-0.191*	-0.051
<i>Monommata longiseta</i>	-0.084	0.023	-0.042	-0.077
<i>Testudinella patina</i>	0.088	0.210*	0.099*	-0.019
<i>Synchaeta pectinata</i>	-0.041	-0.084	0.042	-0.072*
Branchiopoda				
<i>Diaphanosoma mongolianum</i>	0.134*	0.039	-0.022	-0.110
<i>Bosmina longirostris</i>	0.164	0.053	0.141*	-0.051
<i>Ceriodaphnia quadrangula</i>	-0.131	-0.003	0.069*	0.022
<i>Daphnia longispina</i>	-0.051	-0.135	0.047	0.003
<i>Daphnia pulex</i>	-0.127*	-0.010	-0.023	0.179*
<i>Chydorus sphaericus</i>	0.173	0.032	0.097	-0.096
<i>Macrothrix laticornis</i>	-0.127*	-0.010	0.072*	0.001
<i>Chydorus sphaericus</i>	0.173	0.032	0.097*	-0.096
Copepoda				
<i>Copidodiaptomus numidicus</i>	-0.048	0.036	0.084	-0.100
<i>Acanthocyclops robustus</i>	0.032	0.187*	0.118*	0.003
<i>Acanthocyclops vernalis</i>	-0.087	0.251*	0.102*	0.060
Cyclopidae nauplius	-0.055	0.215*	0.066	0.113*
Diaptomidae nauplius	0.021	0.075*	0.138*	0.022

*Significant correlations for each discriminant function. *Correlaciones significativas para cada función discriminante.*

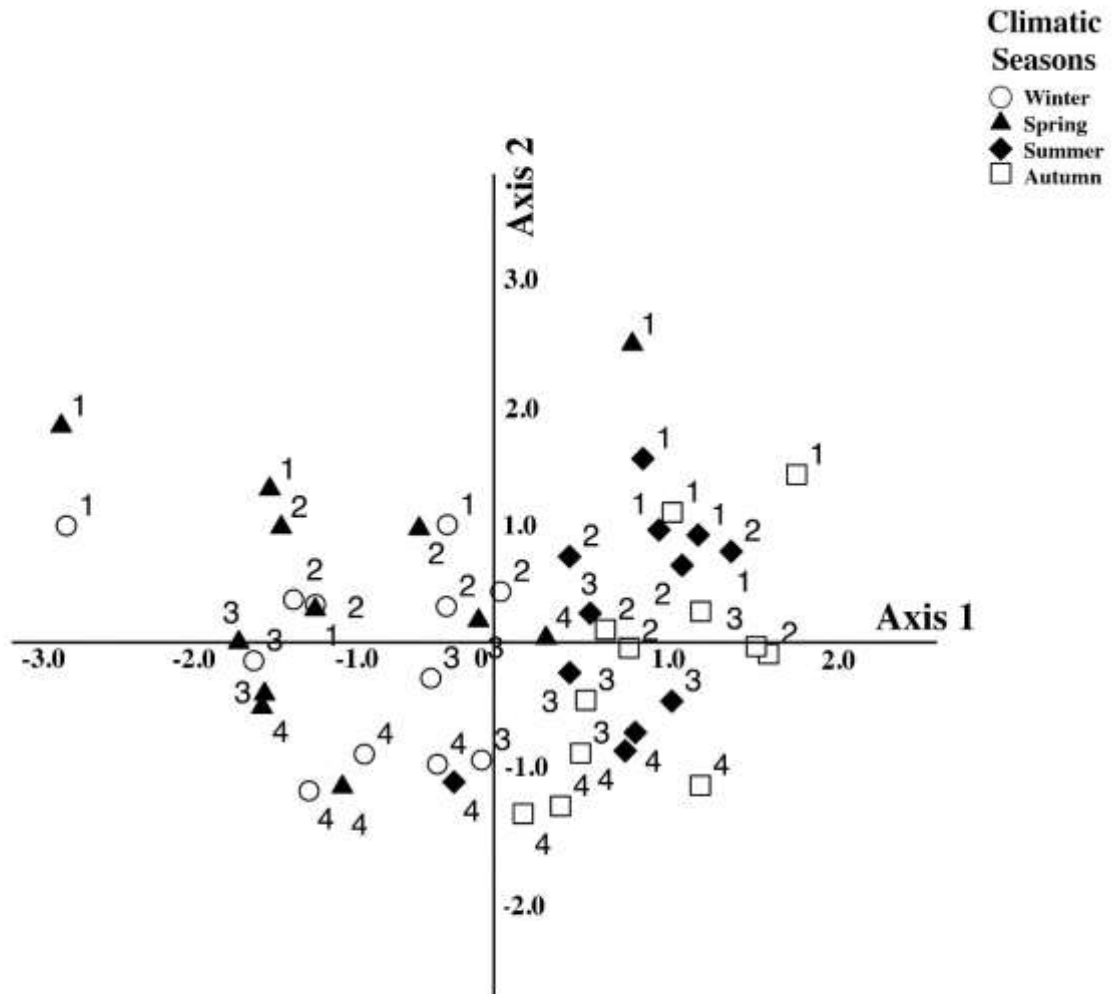


Figure S1. Scatterplot of Principal Component Analysis of the physical-chemical variables of the Zahara-El Gastor Reservoir measured during the study period. Sampling locations are numbered according to Sampling site (1=S1; 2=S2; 3=S3; 4=S4). *Análisis de Componentes Principales de las variables físico-químicas del embalse de Zahara-El Gastor medidas durante el periodo de estudio. Los puntos de muestreo están numerados como los puntos de muestreo (1=S1; 2=S2; 3=S3; 4=S4).*

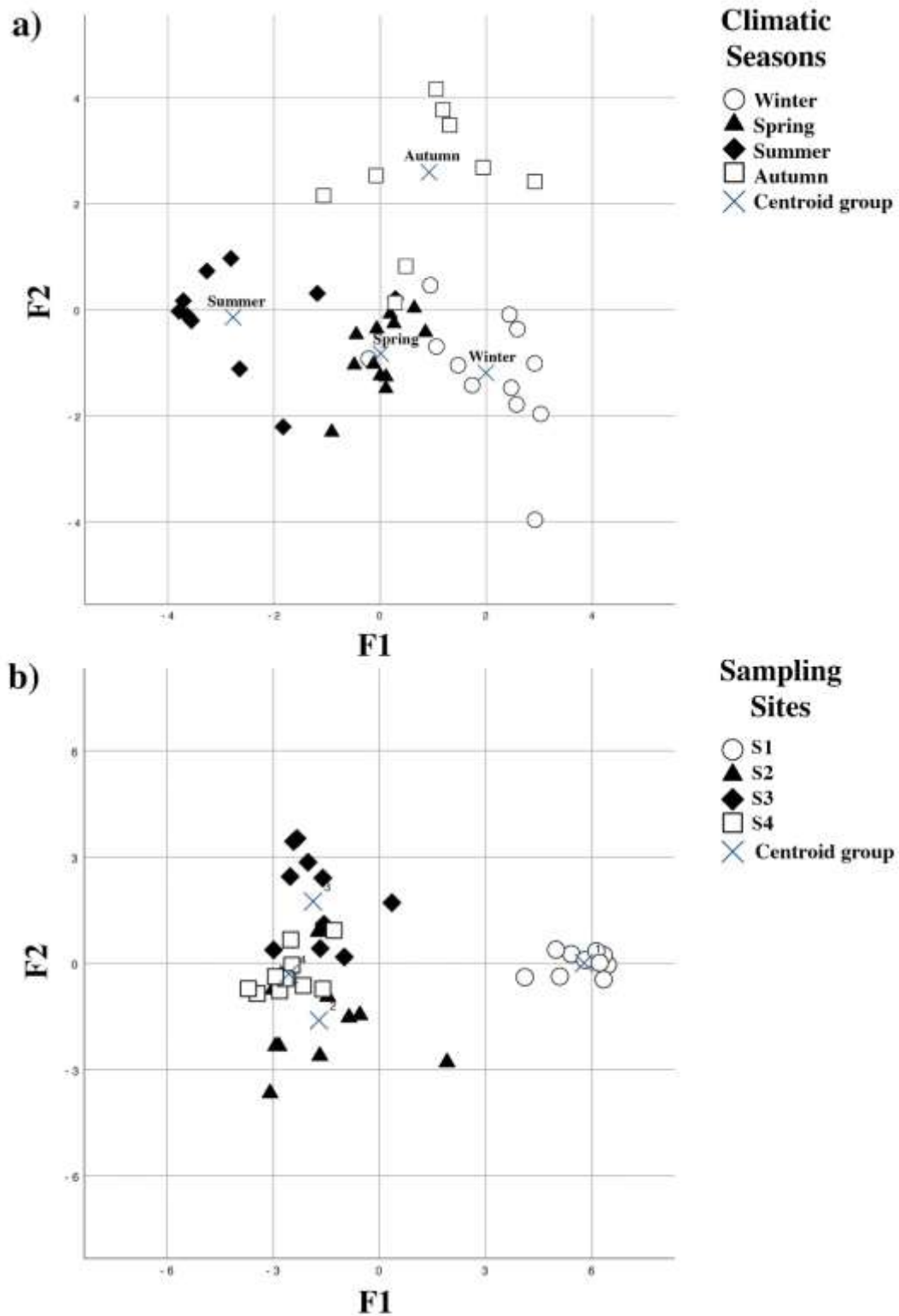


Figure S2. Scatterplot of the Discriminant Function Analysis (DFA) of zooplankton species densities between seasons (a) and sampling sites (b) in the Zahara-El Gastor Reservoir. *Resultados del análisis discriminantes de especies de zooplancton entre estaciones (a) y puntos de muestreo (b) en el embalse de Zahara-El Gastor.*