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Article

Applying Electrical Resistivity Tomography and Biological Methods to Assess the Hyporheic Zone Water Exchanges in Two Mediterranean Stream Reaches

Sanda Iepure [1,] *, David Gomez-Ortiz [2], Javier Lillo [2,3], Rubén Rasines-Ladero [4] and Tiziana Di Lorenzo [1,5,6]

Supplementary Material

Table S1. Environmental variables measurements in the study sites (Site 1, HEN—Heras de Ayuso, Henares River; Site 2, TAJ—Romanones, Tajuna River (Guadalajara, central Spain).

Sites / *Environmental variables*	**Site 1**				**Site 2**			
	2013		**2014**		**2013**		**2014**	
	SW	HW	SW	HW	SW	HW	SW	HW
Conductivity (µS/cm)	1107	1102.5	1024	1017	549.33	555	738.67	779.5
Temperatura (ºC)	15.63	16.7	13.2	13.75	11.87	12.45	6.43	7.1
pH	8.05	8.18	8.4	8.25	8.36	8.16	8.1	7.7
Total Suspended Solids (ppm)	2.10	6328	45.5	9439	94.10	6684.21	71.8	16669.7
NPOC	2.36	10.57	2.11	3.32	1.86	3.13	1.64	3.49
TOC (ppm)	2.34	11.03	2.81	4.12	1.70	3.21	2.44	4.18
TC (ppm)	44.5	50.75	33.3	34.30	34.31	42.25	36.30	39.2
IC (ppm)	42.20	39.72	30.5	30.20	32.61	39.04	33.80	35
DQO (mg/L)	6.60	7.1	4.8	4.9	4.7	4	4.8	6.3
Alcalinidad (ppm CaCO3)	179.2	171.2	133.3	145.2	141.69	166.56	160.50	168.9
Cl- (mg/L)	91.49	97.55	83.8	80.60	29.02	29.16	36.10	43.6
NO3- (mg/L)	6.57	5.27	9.81	9.38	10.99	11.11	14.50	13.9
SO42- (mg/L)	218	222.1	219.6	218.1	67.1	70.37	66.00	66.8
K+ (mg/L)	2.29	6.52	3.26	3.26	2.71	2.28	7.71	15.7
Mg2+ (mg/L)	25.2	25.85	25.3	24.60	21.65	21.06	20.00	20.1
Ca2+ (mg/L)	126.2	124.16	109.5	110.6	56.94	69.14	64.80	67

Table S2 Mean total and taxon-specific invertebrates' abundances and higher-level taxon richness in Site 1, HEN (Heras de Ayuso, Henares River) and Sites 2, TAJ (Romanones, Tajuna River).

Sites / *Taxa*	**Code**	**Site 1** *Heras de Ayuso*		**Site 2** *Romanones*	
		2013	2014	2013	2014
NEMATODA	NEM	28	29	3	55
OLIGOCHAETA	OLI	7	11	0	11
TARDIGRADA	TAR	0	3	0	11
ACARINA	ACA	34	20	6	17
HARPACTICOIDA	HAR	85	78	72	390
***Parastenocaris* sp. 1**	**Psp1**	**81**	**15**	**0**	**0**
***Parastenocaris* sp. 2**	**Psp2**	**0**	**0**	**0**	**92**
Bryocampthus sp. 1	Bsp1	4	45	0	0
Bryocampthus sp. 2	Bsp2	0	0	72	298
CYCLOPOIDA. COPEPODA.	CYC	16	27	2	31

Macrocyclops albidus (Jurine, 1820)	Mal	2	0	0	0
Paracyclops fimbriatus Fischer, 1853	Paf	7	11	0	6
Paracyclops imminutus Kiefer, 1929	Pai	2	0	2	3
***Eucyclops hadjebensis* Kiefer, 1926**	**Euh**	**2**	**1**	**0**	**0**
Microcyclops rubellus (Lilljeborg, 1901)	Mir	2	0	0	1
***Acanthocyclops* n. sp.**	**Asp**	**1**	**0**	**0**	**0**
Acanthocyclops sp. 1	Asp1	0	1	0	0
Diacyclops languidoides languidoides (Lilljeborg, 1901)	Dil	0	0	0	21
CLADOCERA	CLA	32	4	7	17
OSTRACODA	OST	15	4	4	30
Darwinula stevensoni (Brady & Robertson, 1870)	Das	0	3	0	0
Herpetocypris reptans Baird, 1835	Her	9	0	6	6
Candona candida (O. F. Muller, 1776)	Cac	0	0	0	12
Ostracoda (valves)					
Candoninae		0	0	8	21
Prionocypris zenkeri (Chyzer and Toth, 1858)	Prz	2	4	2	3
Cyclocypris sp.	Csp.	1	0	0	0
Ilyocypris bradyi Sars 1890	Ilb	1	0	0	1
AMPHIPODA	AMP	137	18	0	7
LAMELIBRANHIATA	LAM	7	2	1	4
GASTEROPODA	GAS	25	31	55	272
INSECTA	INS	174	153	17	282
BIVALVIA	BIV	2	0	0	0

Table S3: List of copepods and ostracods from the hyporheic zone of the two investigated sites, Sites 1, HEN—Henares River and Site 2, TAJ—Tajuna River (central Spain) between 2012–2014.

Site name	***Heras de Ayuso***							***Romanones***						
Date	02/2012	06/2012	09/2012	12/2012	02/2013	06/2013	04/ 2014	02/2012	06/2012	09/2012	12/2012	02/2013	06/2013	04/2014
COPEPODA. HARPACTICOIDA														
Parastenocaris sp.1	0	0	0	0	0	81	15	0	0	0	0	0	0	0
Parastenocaris sp.2	0	0	0	0	0	0	0	0	0	0	0	0	0	92
Bryocampthus sp.1	0	0	0	0	0	4	45	0	0	0	0	0	0	0
Bryocampthus sp.2	0	0	0	0	0	0	0	0	0	0	0	0	72	298
COPEPODA. CYCLOPOIDA														
Paracyclops imminutus	0	0	0	0	1	2	0	8	0	1	3	0	2	3
Paracyclops fimbriatus	0	0	0	0	0	7	11	0	0	0	0	0	0	6
*Eucyclops hadjebensis**	0	0	0	0	0	2	1	0	0	0	0	0	0	0
Eucyclops serrulatus	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Microcyclops rubellus	28	0	0	3	0	2	0	0	0	0	0	0	0	1
Microcyclops sp.	0	0	0	0	0	0	0	0	0	1	1	4	0	0
Acanthocyslops sp.	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Acanthocylops n. sp.*	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Diacyclops lang. languidoides	0	0	0	0	0	0	0	0	2	0	1	0	0	21
Diacyclops sp.	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Macrocyclops albidus	0	0	0	0	0	2	0	0	0	9	2	2	0	0
Cyclopoida indet. (juveniles)	0	0	0	3	1	0	0	0	0	2	3	22	0	0
OSTRACODA														
Darwinula stevensoni	1	0	0	0	0	0	3	0	0	0	0	0	0	0
Candona sp.	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Candona candida	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Pseudocandona albicans	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ilyocypris brady	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Pryonocypris zenkeri	0	1	0	0	0	0	0	1	0	0	0	0	0	0
Herpetocypris brevicaudata	0	39	0	0	0	0	0	0	0	0	0	0	0	0
Herpetocypris reptans	0	0	0	0	0	9	0	0	0	0	0	0	6	6
Prionocypris zenkeri	0	0	0	0	0	2	4	0	0	0	0	0	2	3

Cyclocypris sp.	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Ilyocypris bradyi	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Candoninae	0	0	0	0	0	0	0	0	0	0	0	0	8	21

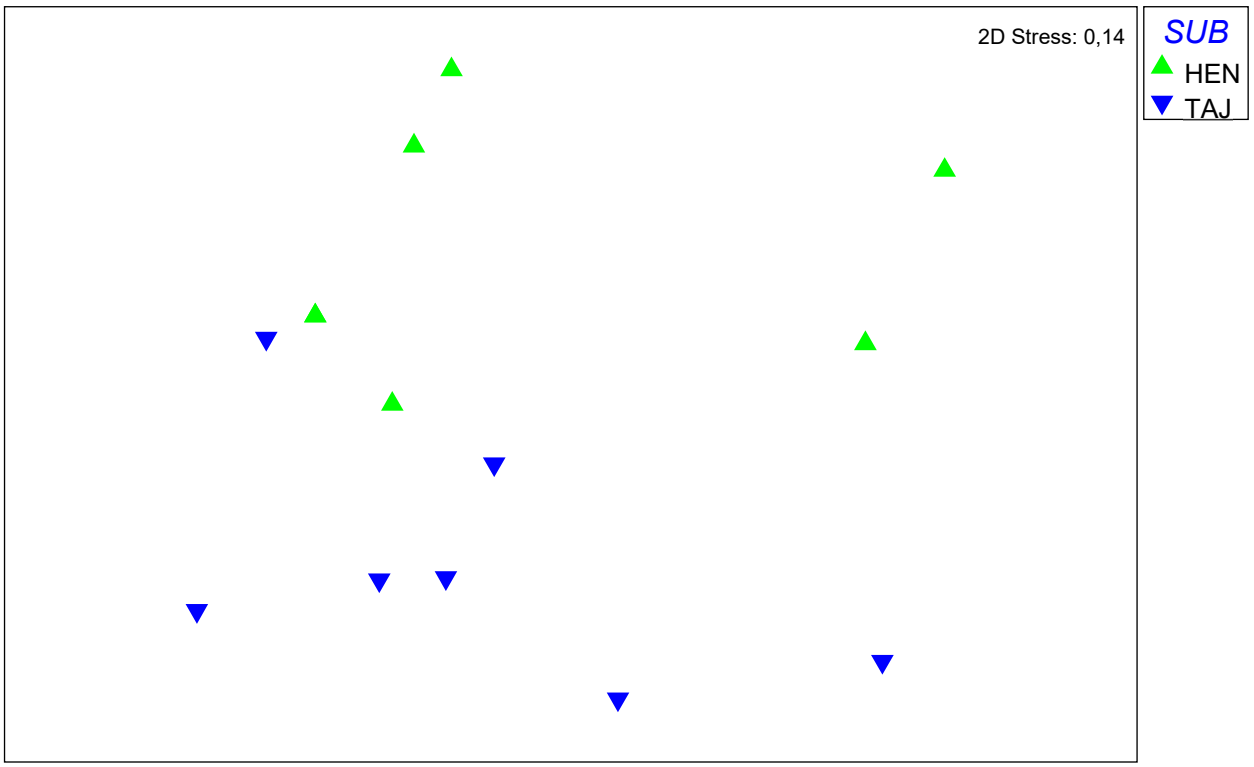


Figure S1. Non metric multidimensional scaling (nMDS) plot of samples from the two investigated sub-basins (HEN - Heras de Ayuso, Henares River; and TAJ – Romanones, Tajuna River) based on copepod abundances.