The following supplement accompanies the article

Response of intertidal benthic macrofauna to migrating megaripples and hydrodynamics

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Table S1. Average density and biomass of troughs, flanks and crests in megaripples (sampled in September 2011 for sites BAN and VAL, and September 2012 for site BAS. Feeding trait is indicated by SDF=surface deposit feeder, DF=deposit feeder, SF = suspension feeder and C=carnivore. Mobility trait is obtained from Queiros et al. (2013), as: 1 = organism that lives in a fixed tube, 2 = limited movement, 3 = slow free movement through the sediment matrix, and 4 =free movement via burrow system.

Taxa	Feeding	Mobility	Density (ind/m^2)			lnden			Biomass (mg/m^2)			lnbio		
			Trough	Flank	Crest	Trough	Flank	Crest	Trough	Flank	Crest	Trough	Flank	Crest
Aphelochaeta	SDF	2	320.889	265.778	383.111	1.040	0.916	1.060	85.653	70.682	97.416	0.802	0.756	0.842
Arenicola spp	DF	2	35.557	36.446	30.223	2.060	1.924	1.572	1147.197	2156.117	1401.575	3.424	3.450	2.703
Bathyporeia spp	SDF	3	889.778	1116.445	1785.778	3.685	3.731	4.639	141.334	169.100	268.099	2.662	2.704	3.525
Capitella	DF	2	59.556	48.000	50.667	1.542	1.243	1.508	18.389	14.677	11.721	1.068	0.914	1.037
Corophium spp	SDF	4	440.889	370.667	584.000	2.989	2.889	3.370	98.132	65.544	105.091	2.295	2.081	2.398
Crangon	C	4	80.000	15.111	10.667	2.734	0.763	0.627	98.999	5.782	5.964	2.501	0.540	0.467
Eteone spp	C	3	56.889	29.334	40.890	2.283	1.427	1.855	18.963	9.888	12.340	1.664	1.052	1.249
Heteromastus	DF	2	643.556	662.222	661.334	5.887	6.047	5.896	2123.816	2720.306	2488.708	6.806	7.344	7.116
Limecola	SDF	2	165.333	154.667	184.889	3.978	4.425	4.324	2341.017	2457.117	3001.051	5.511	6.329	6.289
NEMERTEA	C	3	23.112	16.000	15.111	1.124	0.820	0.767	20.419	12.831	13.037	1.023	0.768	0.713
Peringia ulvae	SDF	3	378.667	275.555	226.667	3.888	3.324	3.241	38.821	28.561	25.759	2.382	1.908	1.898
Pygospio	SDF	1	58.667	41.778	26.667	2.082	1.819	1.251	7.598	4.617	2.461	0.926	0.685	0.390
Tellinoidea	DF	2	168.889	60.445	112.889	3.315	2.240	2.844	20.790	7.324	19.973	1.807	1.159	1.737

Table S2. Mixed effect modelling (GLM) of position (trough, flank, crest) (with random factor transect nested in site) for characteristic taxa based on logtransformed densities, for September data (Sites BAN, VAL and BAS), with degrees of freedom df, F statistic, probability P and post-hoc Tukey contrasts for significant (P<0.05) geoposition effects. N.S. denotes Not Significant.

Taxa	n	Effect	df	F	P	Post-hoc Tukey (Geo)
Aphelochaeta marioni	225	(Intercept)	1,198	1.006	0.317	
		Geo	2,198	1.402	0.249	
Arenicola spp	225	(Intercept)	1,198	15.649	0.000	
		Geo	2,198	1.492	0.228	
Bathyporeia spp	225	(Intercept)	1,198	3.365	0.068	
		Geo	2,198	9.645	<0.0001	Crest highest
Capitella (capitata)	225	(Intercept)	1,198	2.625	0.107	
		Geo	2,198	0.875	0.419	
Corophium spp	225	(Intercept)	1,198	7.489	0.007	
		Geo	2,198	31.921	<0.0001	Flank>crest
Crangon (crangon)	225	(Intercept)	1,198	1.746	0.188	
		Geo	2,198	3.937	0.021	Trough highest
Eteone spp	225	(Intercept)	1,198	33.476	<0.0001	
		Geo	2,198	3.289	0.039	Trough>flank
Heteromatus filiformis	225	(Intercept)	1,198	777.458	<.0001	
		Geo	2,198	0.923	0.399	
Limecola balthica	225	(Intercept)	1,198	318.222	<0.0001	
		Geo	2,198	1.476	0.231	
NEMERTEA	225	(Intercept)	1,198	2.447	0.119	
		Geo	2,198	1.081	0.341	
Peringa ulvae	225	(Intercept)	1,198	7.625	0.006	
		Geo	2,198	3.108	0.047	N.S.
Pygospio elegans	225	(Intercept)	1,198	24.462	<0.0001	
		Geo	2,198	3.420	0.035	Trough>crest
Tellinoidea	225	(Intercept)	1,198	46.008	<0.0001	
		Geo	2,198	4.281	0.015	Trough>flank

Table S3. Mixed effect modelling of season (Apr, Jun, Sep) and geoposition (trough, flank, crest) (with random factor transect nested in site) on conditions and macrofauna, for sites BAN and VAL only, with degrees of freedom df, F statistic, and probability P. Post-hoc Tukey contrasts for significant (P<0.05) geoposition effects or interactions effects are based on multiple comparisons of means.

Variable	N	Effect	df	F	P	Post-hoc Tukey
Conditions						
Z	540	(Intercept)	1,512	1.735	0.1884	
		Month	2,512	1.211	0.2989	
		Geo	2,512	993.506	<0.0001	Interactions:
		Month×Geo	4,512	7.096	<0.0001	Trough<flank<crest
Mud (%)	540	(Intercept)	1,512	1.253	0.2636	
		Month	2,512	0.304	0.7383	
		Geo	2,512	79.931	<0.0001	Trough highest
		Month×Geo	4,512	0.427	0.7891	
D50	540	(Intercept)	1,512	226.219	<0.0001	
		Month	2,512	7.323	7e-04	
		Geo	2,512	642.652	<0.0001	Interactions:
		Month×Geo	4,512	4.300	2e-03	Trough<flank<crest
Chla	540	(Intercept)	1,512	164.317	<0.0001	
		Month	2,512	15.438	<0.0001	
		Geo	2,512	117.678	<0.0001	Interactions:
		Month×Geo	4,512	3.836	0.0044	Trough<flank<crest, but trough=flank in Apr and Sep
Organic C (%)	324	(Intercept)	1,304	180.665	<0.0001	
		Month	2,304	1.578	0.2082	
		Geo	2,304	15.023	<0.0001	Trough highest
		Month×Geo	4,304	0.5339	0.7110	
Macrofauna						
ln density	540	(Intercept)	1,512	184.608	<0.001	
		Month	2,512	14.764	<0.001	
		Geo	2,512	16.041	<0.001	Flank lowest
		Month×Geo	4,512	2.337	0.0544	
ln biomass	540	(Intercept)	1,512	9130.079	<0.0001	
		Month	2,512	3.820	0.0225	
		Geo	2,512	3.754	0.0241	No Tukey differences
		Month×Geo	4,512	0.853	0.4919	
# Species	540	(Intercept)	1,512	2276.624	<0.0001	

Variable	N	Effect	df	F	P	Post-hoc Tukey
		Month	2,512	15.361	<0.0001	
		Geo	2,512	17.044	<0.0001	Trough > flank
		Month×Geo	4,512	0.768	0.5465	
Macrofauna feeding traits						
lnden (Deposit Feeders+1)	540	(Intercept)	1,512	547.428	<0.0001	
		Month	2,512	85.002	<0.0001	
		Geo	2,512	4.750	0.0090	Interactions:
		Month×Geo	4,512	3.914	0.0039	Trough highest in June
lnden (Surface Deposit Feeders +1)	540	(Intercept)	1,512	34.345	<0.001	
		Month	2,512	38.290	<0.0001	
		Geo	2,512	5.892	0.0030	No Tukey differences
		Month×Geo	4,512	1.072	0.3697	
lnden (Suspension Feeders +1)	540	(Intercept)	1,512	10.812	0.0011	
		Month	2,512	25.813	<0.0001	
		Geo	2,512	0.672	0.5110	
		Month×Geo	4,512	1.571	0.1807	

LITERATURE CITED

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