Supplementary Table 1. Average values and standard deviation of abiotic variables measured during the experiment in each treatment.

		Sediment				Water column	
Day	**Treatment**	Redox potential (mV)	Total organic carbon (%)	Total organic nitrogen (%)	Organic matter degradation rate ROM/LOM[1]	Dissolved oxygen (mg L^{-1})	POC[2] sedimentation rate (mg m^2d^{-1})
0	control	63±8.5	1.761±0.24	0.098±0.03	1.48±0	7.9±0	26.5±5.7
	low	38±11.3	1.542±0	0.068±0.02	2.06±0.32	7.8±0	22.13±2.55
	high	36±17.7	1.832±0.24	0.092±0.04	2.07±0.46	7.8±0.15	23.56±0.79
6	control	59±4.9	2±0.23	0.092±0.01	2.36±0.38	9.5±0.36	58.7±0.05
	low	39±4.9	1.978±0	0.113±0.01	1.97±0.01	11.2±1.16	75.57±29.91
	high	64±1.4	1.952±0.01	0.091±0.03	2.1±0.12	11±0.07	117.54±5.04
12	control	60±16.3	2.139±0.19	0.121±0.04	2.47±0.08	9.4±0.27	24.94±3.38
	low	62±37.5	1.565±0.08	0.12±0.01	2.67±0.29	13.7±0.3	111.61±4.29
	high	51±10.6	1.515±0.21	0.099±0.04	2.72±0.25	14±0.22	170.59±12.85
24	control	55±24	2.325±0.24	0.111±0.03	2.61±0.6	8.7±0.09	65.02±8.7
	low	43±9.9	2.797±0.1	0.111±0.06	2.83±0.47	17.4±0.46	137.01±3.45
	high	58±5.7	3.038±0.19	0.11±0.04	2.74±0.1	16.5±2.14	201.5±37.26
44	control	83±11.3	1.282±0.01	0.102±0.01	2.72±0.06	7.3±1.14	6.11±0.09
	low	29±0.7	1.525±0.28	0.101±0.01	3.09±0.27	8.3±0.21	162.34±53.6
	high	14±4.9	1.671±0.42	0.11±0.04	2.83±0.28	8.1±0.08	262.41±63.34
58	control	44±24	1.318±0	0.074±0.02	2.82±0.35	8.7±0.69	20.3±8.07
	low	36±4.2	1.343±0.1	0.068±0.02	2.55±0.47	10.4±1.04	90.68±8.28
	high	23±7.1	2.294±0.11	0.087±0.01	2.46±0.04	8.6±0.66	240.71±0

[1]ROM/LOM: refractory to labile organic matter ratio

[2]POC: particulate organic carbon

Supplementary Table 2. Correlations of supplementary environmental variables with benthic community variables in the PCA plot.

	Eh	TOC	TON	ROM/LOM	DO	POC flux
Chlorophytes	0.332	0.0334	0.102	-0.162	0.401	-0.0998
Diatoms	-0.1	-0.572	-0.4	0.00662	-0.507	-0.24
Cyanobacteria	-0.00728	0.655	0.535	0.226	0.252	0.355
Euglenophytes	-0.276	-0.437	-0.49	-0.12	-0.37	-0.162
Live bacteria	-0.186	-0.0688	-0.0116	0.0378	-0.449	-0.155