Supplementary Material accompanying the manuscript submission to the specialty *Marine Conservation and Sustainability* in *Frontiers in Marine Science* entitled:

First field-based evidence that the seagrass-lucinid mutualism can mitigate stress in seagrasses

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Table S1

Type III Analyses of Variance tables for linear mixed effect models with Satterthwaite approximation for denominator degrees of freedom showing the effect of each experimental treatment (L= addition of *Loripes orbiculatus* clams, OM=addition of labile organic matter, L x OM = addition of both *Loripes orbiculatus* clams and labile organic matter).

Response variable	Treatment	df	*F*	*P*
sediment $\delta^{34}S_{CRS}$ (‰)	L	20.00	0.05	0.83
	OM	20.00	2.85	0.11
	L x OM	20.00	0.09	0.76
$\delta^{34}S_{leaves}$ (‰)	L	20.00	3.57	0.073
	OM	20.00	10.59	**0.004**
	L x OM	20.00	0.47	0.50
$F_{sulfide}$ (%)	L	20.00	4.44	**0.048**
	OM	20.00	17.81	**< 0.001**
	L x OM	20.00	0.90	0.35
TS_{leaves} (% DW)	L	15.00	0.57	0.46
	OM	15.00	6.40	**0.023**
	L x OM	15.00	0.32	0.58
SS_{leaves} (% DW)	L	15.00	1.89	0.19
	OM	15.00	59.93	**< 0.001**
	L x OM	15.00	0.85	0.37

Z. noltei shoot density (nr. m^{-2})	L	20.00	0.53	0.47
	OM	20.00	0.70	0.41
	L x OM	20.00	1.32	0.26
Z. noltei leaf biomass (g DW m^{-2})	L	14.82	0.36	0.56
	OM	14.82	0.03	0.86
	L x OM	14.82	1.34	0.27
Z. noltei rhizome biomass (g DW m^{-2})	L	20.00	0.067	0.80
	OM	20.00	4.46	**0.048**
	L x OM	20.00	0.050	0.82
Z. noltei root biomass (g DW m^{-2})	L	20.00	0.92	0.35
	OM	20.00	2.44	0.13
	L x OM	20.00	0.57	0.46
$\delta^{34}S_{Loripes}$ (‰)	L	20.22	0.15	0.7
	OM	20.22	31.17	**< 0.001**
	L x OM	20.22	0.96	0.34
$TS_{Loripes}$ (% DW)	L	14.54	0.17	0.68
	OM	14.54	28.51	**< 0.001**
	L x OM	14.54	0.07	0.79
L. orbiculatus condition (flesh/shell DW ratio)	L	15.42	9.36	**0.0078**
	OM	15.33	25.20	**< 0.001**
	L x OM	15.44	3.60	0.077
L. orbiculatus biomass (g DW m^{-2})	L	15.00	7.67	**0.014**
	OM	15.00	10.05	**0.0063**
	L x OM	15.00	0.46	0.51
L. orbiculatus density (ind. m^{-2})	L	15.00	0.04	0.84
	OM	15.00	38.74	**< 0.001**
	L x OM	15.00	0.24	0.63
L. orbiculatus shell length (mm)	L	15.51	19.74	**< 0.001**
	OM	15.45	30.92	**< 0.001**
	L x OM	15.68	2.76	0.12

Significant *P*-values at α=0.05 indicated in bold text

Figure S1

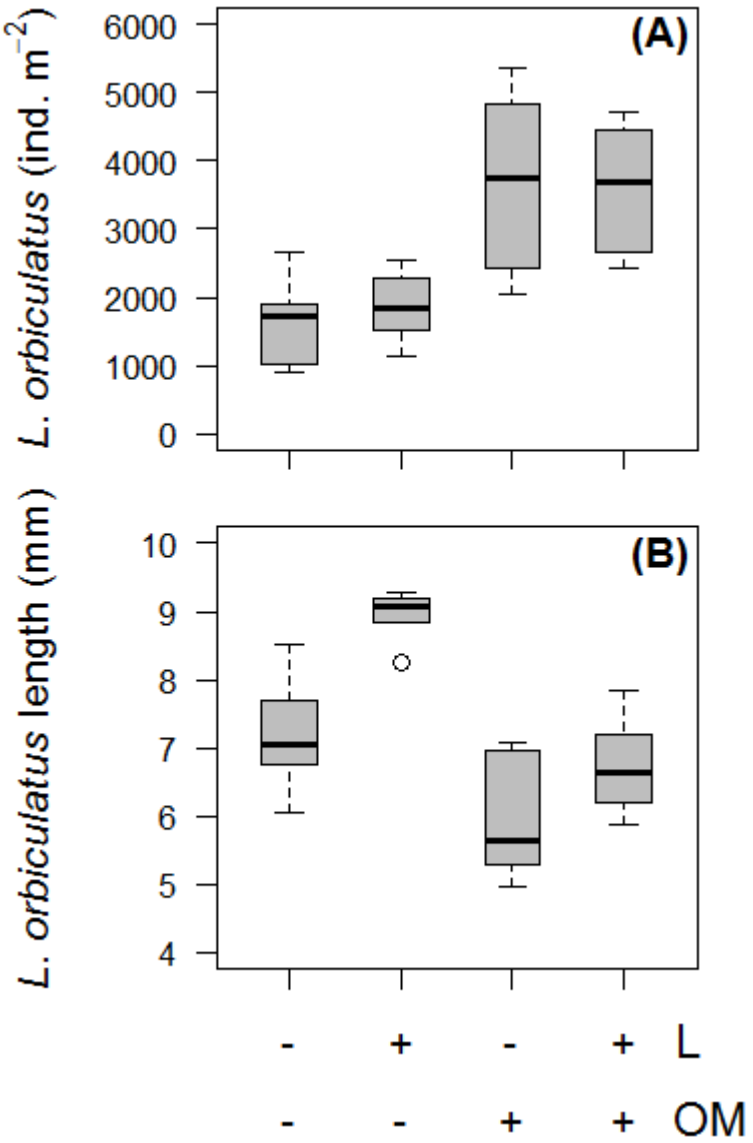

Fig. S1 Boxplots of **(A)** *Loripes orbiculatus* density and **(B)** *L. orbiculatus* length (mean length taken of all *L. orbiculatus* clams per benthic core) per treatment (*n* = 6 per treatment) after 50 days. L=addition of *L. orbiculatus* clams, OM=addition of organic matter. Midline in box; median; box: 25th and 75th percentiles; whiskers: 1.5× interquartile range; circles: outliers.