

The following supplement accompanies the article

Thresholds of irradiance for seagrass *Posidonia oceanica* meadow metabolism

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Supplement 1. Compilation of the variables tested under the different light treatments plus controls at the different sampling times over the course of the shading experiment and the recovery phase. Mean \pm SE. The statistical models resulting from testing the time effect on community metabolism (NPP, GCP and Respiration), carbohydrate reserves, and sediment sulfur dynamics in response to irradiance are provided

Table S1. Mean, standard error (SE) and minimum and maximum values of light irradiance, net community production (NCP), community respiration (R), gross community production (GCP), sulfate reduction rates (SRR), sediment sulfides (acid volatile [AVS] and total reducible [TRS]) pools, *Posidonia oceanica* rhizome carbohydrate (sucrose and starch) content, shoot growth rate and leaf meristematic activity (percentage of nuclei in the G1, G2 and S phases) in the experimental treatments during shading and recovery phases. Mean and SE values calculated from measurements conducted in different (n = 3 to 4) sampling events or from replicates (n_{shoot growth} = 10, n_{carbohydrates} = 3; n_{meristematic activity} = 6) when measured only once (indicated with SE*)

		Treatment (% IL)								
		100	92	82	76	31	21	19	12	2
Shading phase										
Light irradiance ($\mu\text{E m}^{-2} \text{s}^{-1}$)	Mean	441	403	359	335	138	94.0	85.5	50.9	7.21
	SE	73.4	103	91.4	85.0	35.1	23.9	21.7	12.9	1.83
	Min.	168	154	138	127	52.6	35.8	32.6	19.4	2.75
	Max.	632	578	515	480	198	135	123	73.0	10.3
NCP ($\text{mmol C m}^{-2} \text{d}^{-1}$)	Mean	24.8	1.86	15.6	0.09	-38.4	-31.0	-22.4	-15.1	-73.1
	SE	6.84	8.37	6.01	14.9	4.20	9.7	9.92	5.8	2.94
	Min.	5.61	-23.0	7.44	-18.5	-46.3	-47.4	-40.5	-23.2	-77.4
	Max.	64.0	12.2	29.6	34.6	-26.6	-9.72	4.74	-1.82	-64.6
R ($\text{mmol C m}^{-2} \text{d}^{-1}$)	Mean	44.3	51.3	39.5	55.1	57.2	67.7	62.1	27.5	80.2
	SE	10.3	15.4	14.7	15.7	10.1	3.2	14.6	5.80	5.2
	Min.	3.7	22.9	14.4	30.8	39.0	60.2	42.3	13.9	64.8
	Max.	103.2	95.0	71.9	101	82.4	73.2	105	41.3	88.0
GCP ($\text{mmol C m}^{-2} \text{d}^{-1}$)	Mean	66.7	53.2	55.1	60.6	18.8	37.9	39.8	11.1	7.3
	SE	14.7	18.0	15.2	32.6	8.14	6.1	14.5	5.96	2.8
	Min.	27.4	18.6	21.9	15.0	0	26.0	1.82	0.26	0.3
	Max.	167	102	81.7	135	40.9	50.4	71.5	20.8	14.0

AVS pool (mol m ⁻²)	Mean	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.02
	SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	Min.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	Max.	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.06
TRS pool (mol m ⁻²)	Mean	0.24	0.31	0.15	0.37	0.20	0.21	0.14	0.29	0.27
	SE	0.09	0.11	0.08	0.10	0.03	0.12	0.03	0.06	0.03
	Min.	0.01	0.16	0.01	0.19	0.15	0.01	0.08	0.18	0.21
	Max.	0.46	0.53	0.29	0.53	0.25	0.42	0.20	0.39	0.33
SRR (mmol m ⁻² d ⁻¹)	Mean	3.56	2.38	6.05	3.53	2.80	3.54	2.05	5.85	13.6
	SE	1.20	1.00	3.22	0.98	0.30	1.34	0.43	1.64	7.16
	Min.	1.17	0.82	1.15	1.77	2.21	1.33	1.25	2.79	6.32
	Max.	7.66	4.25	12.1	5.18	3.13	5.96	2.74	8.41	27.9
Sucrose (% DW)	Mean	9.90	6.71	8.94	9.72	9.65	6.46	8.25	6.99	9.96
	SE	4.61	4.08	4.06	5.69	5.02	2.21	4.47	3.81	5.31
	Min.	2.93	1.69	4.07	4.23	3.44	3.73	2.65	1.66	3.02
	Max.	17.42	12.38	16,51	19.53	19.24	10.53	17.87	14.61	15.92
Starch (% DW)	Mean	1.22	2.20	1.27	2.03	0.84	1.09	1.62	1.43	0.71
	SE	0.94	1.60	1.47	1.86	0.59	0.86	1.67	1.02	0.51
	Min.	0.09	0.67	0.27	0.23	0.02	0.04	0.25	0.21	0.09
	Max.	3.88	4.44	4.20	5.08	1.90	2.55	4.83	3.21	1.73
Shoot growth rate (cm shoot ⁻¹ d ⁻¹)	Mean	0.60	0.57	0.41	0.25	0.29	0.63	0.82		0.29
	SE*	0.03	0.03	0.05	0.02	0.08	0.08	0.05		0.03
% G1	Mean	73.1	74.1		75.2	75.5		69.7	72.3	73.0
	SE	2.84			3.78	4.15		5.22	2.30	4.93
	Min.	67.8	74.1		67.0	70.7		56.8	70.0	67.3
	Max.	81.0	74.1		83.3	83.8		82.1	74.6	82.8
% G2	Mean	4.50	0.94		2.33	4.08		0.75	0.82	2.81
	SE	1.38			1.51	2.08		0.26	0.38	1.85

	Min.	1.63	0.94		0.00	0.37		0.00	0.44	0.03
	Max.	7.36	0.94		6.76	7.57		1.17	1.20	6.32
% S	Mean	22.4	26.7		22.5	20.4		29.6	26.9	24.22
	SE	2.49			2.78	4.57		5.07	2.68	3.60
	Min.	16.3	26.7		16.7	11.9		17.8	24.2	17.2
	Max.	27.8	26.7		28.1	27.6		42.4	29.6	29.1
Recovery phase										
Light irradiance ($\mu\text{E m}^{-2} \text{s}^{-1}$)	Mean	784	784	784	784	784	784	784	784	784
NCP ($\text{mmol C m}^{-2} \text{d}^{-1}$)	Mean	20.7	3.96	73.4			6.05	58.3	73.7	29.2
R ($\text{mmol C m}^{-2} \text{d}^{-1}$)	Mean	51.2	45.4	3.14	67.7	129	9.34	22.5	17.7	50.3
GPP ($\text{mmol C m}^{-2} \text{d}^{-1}$)	Mean	71.9	49.4	76.5	68.7	67.9	15.4	80.8	91.4	79.5
AVS pool (mol m^{-2})	Mean	0.01	0.02	0.01	0.02	0.00	0.00	0.00	0.01	0.01
TRS pool (mol m^{-2})	Mean	0.37	0.27	0.28	0.28	0.09	0.16	0.34	0.29	0.11
SRR ($\text{mmol m}^{-2} \text{d}^{-1}$)	Mean	9.32	5.03	1.82	9.01	13.9	8.25	13.9	6.94	2.01
Sucrose (% DW)	Mean	16.27	15.82	10.02	17.21	8.41	13.43	10.51	8.09	10.54
	SE*	1.61	3.60	1.52	1.78	0.55	3.32	1.47	1.30	3.36
Starch (% DW)	Mean	3.48	3.52	3.41	3.56	6.40	2.12	3.37	2.13	2.45
	SE*	1.22	1.57	0.89	0.82	1.27	0.93	1.93	0.89	2.30
% G1	Mean	65.9	66.2		66.8	74.0		68.0	67.7	58.3
	SE*	2.88	7.42		5.14	2.18		3.13	2.08	4.84
% G2	Mean	0.76	0.41		0.75	1.67		1.99	2.56	0.00
	SE*	0.24	0.43		0.67	1.15		1.05	2.47	0.00
% S	Mean	33.4	33.4		32.5	23.4		30.1	29.7	41.7
	SE*	3.06	7.57		5.79	2.58		4.03	4.49	4.84