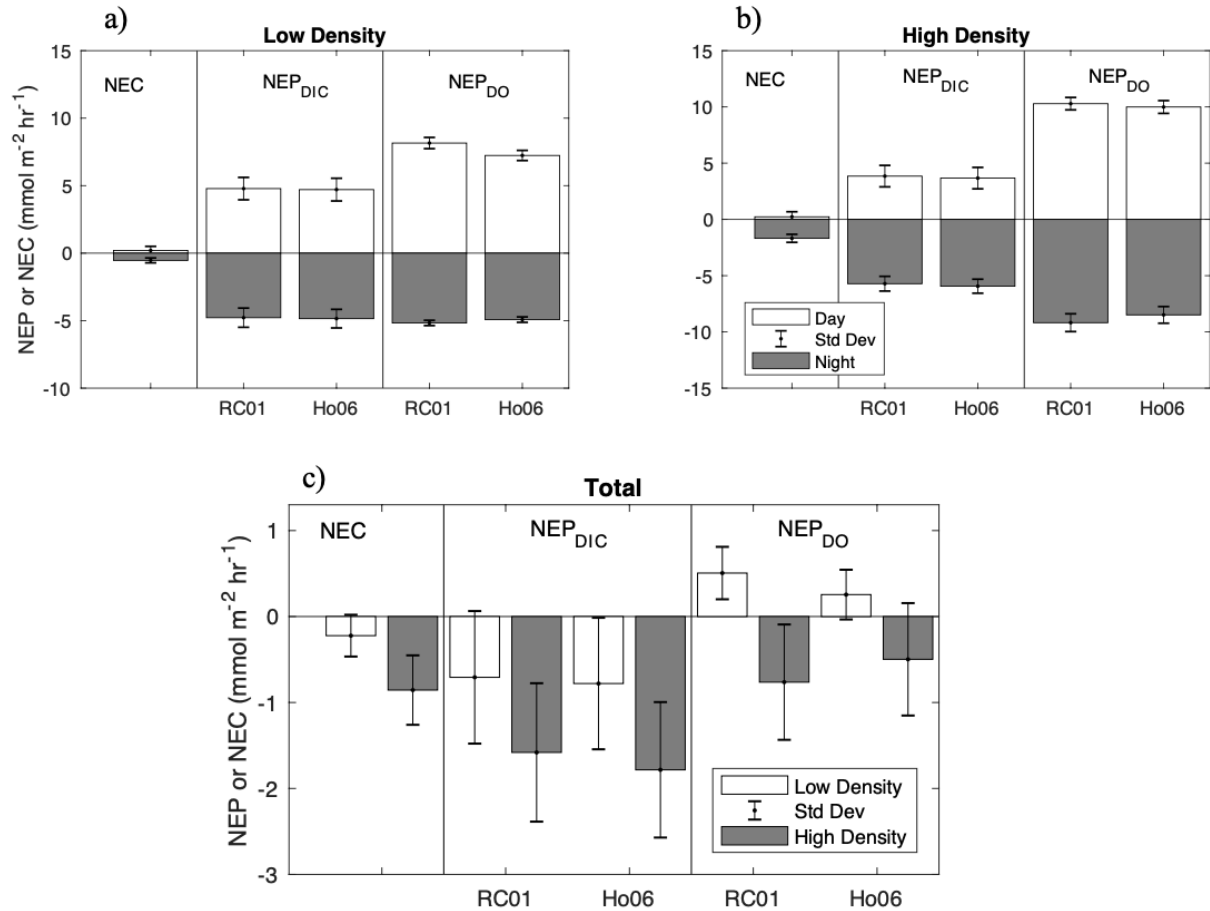


1 **Supplemental Information**

2 **Table S1.** Table of physicochemical conditions (TA, DIC, Salinity), as well as seagrass and  
 3 sediment chemical characteristics (average  $\pm$  SD).

	High Density	Low Density		High Density	Low Density
Sediment C <sub>org</sub> (%)	5.8	1.4	$\Omega_{calcite}$	5.83 $\pm$ 0.84	6.23 $\pm$ 1.15
Productivity ( $\mu\text{mol C m}^{-2} \text{hr}^{-1}$ )	2.05 $\pm$ 0.90	1.42 $\pm$ 1.25	$p\text{CO}_2$ ( $\mu\text{atm}$ )	538.8 $\pm$ 123.5	390.3 $\pm$ 129.4
Sediment C <sub>org</sub> (% of dry weight)	5.8	1.4	pH	8.10 $\pm$ 0.055	8.17 $\pm$ 0.062
Sediment C <sub>inorg</sub> (% of dry weight)	7.9	10.1	CO <sub>2</sub> Flux–Ho06 ( $\text{mmol m}^{-2} \text{hr}^{-1}$ )	0.38 $\pm$ 0.20	0.13 $\pm$ 0.62
C <sub>org</sub> : C <sub>inorg</sub>	0.74	0.14	O <sub>2</sub> Flux–Ho06 ( $\text{mmol m}^{-2} \text{hr}^{-1}$ )	0.034 $\pm$ 1.2	0.75 $\pm$ 1.9
Below-ground Biomass (g m <sup>-2</sup> )	22.9	14.8	Seagrass N:P	82.7	102.1
Above-ground Biomass (g m <sup>-2</sup> )	2.0	0.79	Seagrass C:P	1303.4	1892.7
Salinity	33.8 $\pm$ 0.49	33.0 $\pm$ 1.3	Seagrass C:N	15.8	18.5
DIC ( $\mu\text{mol kg}^{-1}$ )	2489.4 $\pm$ 74.7	2212.2 $\pm$ 134.0	Sediment N:P	12.3	8.3
TA ( $\mu\text{mol kg}^{-1}$ )	2810.6 $\pm$ 51.4	2550.5 $\pm$ 83.2	Sediment C:P	321.8	1187.4
Water Depth (m)	2.1	1.7	Sediment C:N	26.3	142.3



5

6 **Figure S1.** Average NEC, NEP<sub>DIC</sub>, and NEP<sub>DO</sub> during day and nighttime periods for a) high-  
 7 density and b) low-density sites, and c) expressed as a total for the study period. NEP values are  
 8 shown for upper and lower estimates of  $k_{600}$ , from Raymond and Cole 2001 (RC01), and Ho et  
 9 al., 2006 (Ho06) respectively.

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