

## Supplementary Material – Extended Results

Supplementary Material for ‘Regional variation in seagrass complexity drives blue crab *Callinectes sapidus* mortality and growth across the northern Gulf of Mexico’ by Christian Todd Hayes, Scott B. Alford, Benjamin A. Belgrad, Kelly M. Correia, M. Zachary Darnell, Bradley T. Furman, Margaret O. Hall, Charles W. Martin, Ashley M. McDonald, Delbert L. Smee, Kelly M. Darnell. *Marine Ecology Progress Series*.

Table S1. Seagrass quadrat complexity measurements (mean  $\pm$  SD) measured for all seagrass species collected during blue crab tether experiments across the northern GOM in summer 2018.

Site	Stations	Total cover (%)	Drift macroalgae cover (%)	Attached macroalgae cover (%)	Shoot density (# shoots m <sup>-2</sup> )	Shoot max length (mm)
LM	119	98.03 $\pm$ 8.58	27.85 $\pm$ 33.53	4.17 $\pm$ 13.63	556.84 $\pm$ 263.45	197.95 $\pm$ 86.35
CB	95	97.96 $\pm$ 8.66	9.23 $\pm$ 19.96	0	711.27 $\pm$ 786.15	437.76 $\pm$ 110.18
LA	74	99.86 $\pm$ 0.96	0.18 $\pm$ 0.85	0.04 $\pm$ 0.26	1165.16 $\pm$ 450.45	462.77 $\pm$ 69.62
SG	97	91.94 $\pm$ 20.52	0	0	667.17 $\pm$ 465.46	514.43 $\pm$ 166.28
CK	97	99.01 $\pm$ 4.15	2.46 $\pm$ 9.8	98.88 $\pm$ 5.1	780.09 $\pm$ 446.74	453.71 $\pm$ 159.36
CH	96	99.27 $\pm$ 2.28	13.57 $\pm$ 29.11	0.02 $\pm$ 0.14	429.98 $\pm$ 247.77	355.52 $\pm$ 93.91

Sites: (LM) Laguna Madre, Texas; (CB) Coastal Bend, Texas; (LA), Chandeleur Islands, Louisiana; (SG) St. George Sound, Florida; (CK) Cedar Key, Florida; and (CH) Charlotte Harbor, Florida.

Table S2. Seagrass core complexity measurements (mean  $\pm$  SD) measured for all seagrass species collected during blue crab tether experiments across the northern GOM in summer 2018.

Site	Stations	Shoot density (# shoots m <sup>-2</sup> )	Leaf length (mm)	Leaf width (mm)	LPS	LAI	Seagrass above mass (g)	Seagrass below mass (g)	Epiphyte mass (g g <sup>-1</sup> m <sup>-1</sup> )
LM	119	1675.78 $\pm$ 660.67	269.41 $\pm$ 76.74	4.63 $\pm$ 0.64	2.88 $\pm$ 0.39	3.37 $\pm$ 2.04	159.79 $\pm$ 100.66	1042.88 $\pm$ 519.69	0.05 $\pm$ 0.09
CB	95	2013.95 $\pm$ 1496.2	504.66 $\pm$ 111.86	4.74 $\pm$ 1.34	2.36 $\pm$ 0.48	5.19 $\pm$ 2.56	234.1 $\pm$ 102.39	528.71 $\pm$ 280.32	0.15 $\pm$ 0.12
LA	74	1240.29 $\pm$ 510.23	356.92 $\pm$ 73.84	3.97 $\pm$ 0.55	2.54 $\pm$ 0.54	2.03 $\pm$ 1.2	151.63 $\pm$ 64.59	NA	0.15 $\pm$ 0.19
SG	97	820.24 $\pm$ 566.42	411.05 $\pm$ 131.12	3.81 $\pm$ 1.35	2.08 $\pm$ 0.4	1.31 $\pm$ 0.93	93.05 $\pm$ 65.41	215.82 $\pm$ 155.44	0.11 $\pm$ 0.32
CK	97	939.6 $\pm$ 425.02	374.58 $\pm$ 119.32	4.55 $\pm$ 1.45	2.64 $\pm$ 0.73	2.15 $\pm$ 1.4	148.69 $\pm$ 101.94	422.77 $\pm$ 304.33	0.58 $\pm$ 0.74
CH	96	563.53 $\pm$ 393.51	264.78 $\pm$ 87.17	5.83 $\pm$ 1.54	3.41 $\pm$ 0.72	1.41 $\pm$ 0.91	270.33 $\pm$ 210.5	NA	0.04 $\pm$ 0.03

LPS: leaves per shoot, LAI: leaf area index. Note: seagrass belowground biomass was not collected at LA and CH. See Table S.1. for site abbreviations.

Table S3. Seagrass quadrat complexity measurements (mean  $\pm$  SD) measured for all seagrass species collected in turtle grass-dominated sites during blue crab growth experiments across the northern GOM in summer 2018.

Site	Stations	Total cover (%)	Drift macroalgae cover (%)	Attached macroalgae cover (%)	Shoot density (# shoots m <sup>-2</sup> )	Shoot max length (mm)
LM	13	100	23.85 $\pm$ 34.5	0	736.23 $\pm$ 292.52	278.69 $\pm$ 127.85
CB	13	100	6.46 $\pm$ 13.3	0	1264.46 $\pm$ 366.82	423.08 $\pm$ 69.87
LA	9	100	0	0	955.56 $\pm$ 255.5	417.22 $\pm$ 55.91
SG	8	99.12 $\pm$ 2.47	0	0.88 $\pm$ 2.47	828.88 $\pm$ 330.3	570 $\pm$ 141.12
CK	11	99.45 $\pm$ 1.29	3.36 $\pm$ 9.9	0.55 $\pm$ 1.29	1099.91 $\pm$ 709.31	390 $\pm$ 212.56
CH	10	95.1 $\pm$ 4.28	11.7 $\pm$ 19.61	4.9 $\pm$ 4.28	314 $\pm$ 155.89	314 $\pm$ 95.71

See Table S.1. for site abbreviations.

Table S4. Seagrass core complexity measurements (mean ± SD) measured for all seagrass species collected during blue crab growth experiments across the northern GOM in summer 2018.

Site	Stations	Shoot density (# shoots m <sup>-2</sup> )	Leaf length (mm)	Leaf width (mm)	LPS	LAI	Seagrass above mass (g)	Seagrass below mass (g)	Epiphyte mass (g g <sup>-1</sup> m <sup>-1</sup> )
LM	13	1558.36 ± 845.87	262.38 ± 64.71	5.15 ± 0.63	2.61 ± 0.31	5.62 ± 3.16	203.39 ± 97.72	1167.05 ± 986.14	0.06 ± 0.06
CB	13	1371.18 ± 873.05	416.46 ± 78.41	4.79 ± 1.61	2.74 ± 0.66	6.82 ± 4.04	222.71 ± 122.46	455.24 ± 275.49	0.28 ± 0.14
LA	9	1263.81 ± 463.2	341.22 ± 58.52	4.06 ± 0.45	2.84 ± 0.74	4.2 ± 2.1	124.18 ± 24.38	566.96 ± 197.79	0.11 ± 0.16
SG	8	700.28 ± 338.1	469.12 ± 118.23	3.88 ± 0.94	2.08 ± 0.34	2.83 ± 1.23	103.83 ± 41.49	199.63 ± 101.21	0.05 ± 0.05
CK	11	967.15 ± 658.21	373.73 ± 170.31	4.59 ± 1.05	2.6 ± 0.72	3.4 ± 1.45	175.5 ± 100.96	360.94 ± 270.2	0.07 ± 0.07
CH	10	865.8 ± 398.4	347.8 ± 66.5	6.08 ± 1.37	3.26 ± 0.95	5.86 ± 1.88	399.67 ± 144.06	344.18 ± 173.79	0.06 ± 0.05

LPS: leaves per shoot, LAI: leaf area index. See Table S.1. for site abbreviations.

Table S5. Reanalysis of Tukey’s HSD pairwise comparisons of blue crab growth rate for six sites across the northern GOM. A single crab with a very high growth rate (1.88 mm d<sup>-1</sup>) at CH was removed for the analysis.

Comparison	diff	lwr	upr	p.adj
LA-LM	0.08	-0.12	0.29	0.84
AP-LM	0.09	-0.12	0.30	0.82
CK-LM	0.15	-0.05	0.34	0.23
CB-LM	0.15	-0.03	0.34	0.17
CH-LM	0.30	0.09	0.50	< 0.01
AP-LA	0.01	-0.22	0.24	1.00
CK-LA	0.07	-0.15	0.28	0.94
CB-LA	0.07	-0.14	0.28	0.91
CH-LA	0.22	-0.01	0.44	0.06
CK-AP	0.06	-0.16	0.28	0.97
CB-AP	0.06	-0.15	0.28	0.95
CH-AP	0.21	-0.02	0.44	0.09
CB-CK	0.00	-0.19	0.20	1.00
CH-CK	0.15	-0.06	0.36	0.31
CH-CB	0.15	-0.06	0.35	0.30

Asterisk (\*) indicates significance at alpha = 0.05. Sites: (LM) Laguna Madre, Texas; (CB) Coastal Bend, Texas; (LA), Chandeleur Islands, Louisiana; (SG) St. George Sound, Florida; (CK) Cedar Key, Florida; and (CH) Charlotte Harbor, Florida.