

Table S1: Water temperature, salinity, and dissolved oxygen at two collection sites within the Grand Bay National Estuarine Research Reserve from 22–25 August 2018. Data at both sites were recorded by permanently moored sensors every 15 min (Sonde) and by hand at the exact times and locations of fish collection (YSI). All measurements were made between 06:30 and 18:30 and are reported as the mean and range (in parentheses) for the number of measurements shown (n).

Site (Method)	n	Temperature (°C)	Salinity	Dissolved Oxygen (% as)
Bayou Cumbest (Sonde)	195	30.9 (29.1 – 33.4)	17.7 (2.6 – 25.7)	72.4 (42.1 – 109.2)
Bayou Heron (Sonde)	195	28.9 (26.2 – 29.8)	17.5 (0.0 – 24.6)	28.9 (9.5 – 57.6)
Bayou Cumbest (YSI)	20	30.7 (26.3 – 34.0)	10.4 (3.2 – 18.0)	69.6 (31.0 – 135.3)
Bayou Heron (YSI)	18	28.9 (25.6 – 33.0)	4.1 (0.0 – 12.4)	51.2 (26.0 – 70.0)

Table S2: Water temperature, salinity, and dissolved oxygen during laboratory acclimation of *F. grandis*. Each interval was 4 weeks long and included 2 weeks of acclimation followed by 2 weeks of respirometry. Water quality was measured daily, except during control interval 1 and transitions to new acclimation conditions. The variable altered in each acclimation condition is shown in bold type.

Interval	n	Temperature (°C)	Salinity	Dissolved Oxygen (% as)
Control 1	17	25.0 (22.6 – 26.0)	10.1 (9.4 – 10.6)	89.6 (84.1 – 97.1)
Low Salinity	25	25.0 (24.0 – 26.2)	1.0 (0.8 – 1.2)	84.6 (70.0 – 93.4)
Control 2	27	24.7 (22.7 – 26.5)	10.1 (8.9 – 10.6)	87.6 (74.5 – 94.3)
High Temperature	27	32.0 (31.0 – 33.0)	10.6 (9.7 – 11.5)	85.2 (75.0 – 90.7)
Control 3	26	24.9 (23.9 – 25.8)	10.3 (9.2 – 11.1)	88.2 (76.3 – 93.4)
Low Oxygen	26	25.0 (24.0 – 25.7)	10.4 (9.4 – 11.4)	31.8 (24.2 – 53.2)
Control 4	27	25.2 (24.5 – 25.8)	10.6 (9.6 – 11.6)	90.2 (84.2 – 94.9)

Table S3: Morphological measurements of *F. grandis* during laboratory acclimation. Mass (M) and standard length (SL) were measured at the end of every experimental interval and used to calculate Fulton's condition factor (K) and specific growth rate (SGR). Values presented as means \pm S.D. for 43 fish with the range shown in parentheses.

Interval	M (g)	SL (cm)	K	SGR ($\% \text{ day}^{-1}$)
Control 1	3.92 ± 0.96 (2.06 – 6.35)	5.7 ± 0.5 (4.7 – 6.7)	2.1 ± 0.1 (1.8 – 2.4)	0.04 ± 0.23 (-0.54 – 0.59)
Low Salinity	3.96 ± 0.96 (2.03 – 6.50)	5.8 ± 0.5 (4.8 – 6.9)	2.0 ± 0.2 (1.6 – 2.3)	0.04 ± 0.14 (-0.22 – 0.35)
Control 2	3.99 ± 0.99 (2.08 – 6.71)	5.9 ± 0.5 (4.9 – 7.1)	1.9 ± 0.1 (1.6 – 2.2)	0.03 ± 0.13 (-0.36 – 0.36)
High Temperature	4.53 ± 1.03 (2.52 – 7.39)	6.0 ± 0.4 (4.9 – 7.1)	2.1 ± 0.1 (1.8 – 2.4)	0.47 ± 0.20 (0.15 – 0.92)
Control 3	4.83 ± 1.12 (2.63 – 8.12)	6.3 ± 0.5 (5.1 – 7.5)	1.9 ± 0.1 (1.7 – 2.2)	0.23 ± 0.18 (-0.27 – 0.77)
Low Oxygen	4.93 ± 1.15 (2.67 – 8.27)	6.3 ± 0.4 (5.2 – 7.5)	1.9 ± 0.1 (1.7 – 2.2)	0.07 ± 0.14 (-0.26 – 0.33)
Control 4	5.04 ± 1.23 (2.88 – 8.91)	6.3 ± 0.5 (5.3 – 7.8)	2.0 ± 0.1 (1.8 – 2.3)	0.07 ± 0.15 (-0.27 – 0.47)

Table S4: Pearson's product moment correlation coefficients (*r*) comparing SMR, MMR, AAS, and P_{crit} between experimental intervals. Analyses were conducted on body mass corrected residuals for 36 fish that were measured in every interval. Significant correlations are shown in bold type.

		High				
SMR	Low Salinity	Control 2	Temperature	Control 3	Low Oxygen	Control 4
Control 1	0.53***	0.43**	0.17	0.28	0.25	0.36*
Low Salinity	-	0.53***	0.15	0.50**	0.40*	0.49**
Control 2	-	-	0.28	0.33	0.22	0.49**
High Temperature	-	-	-	0.29	0.48**	0.54***
Control 3	-	-	-	-	0.54***	0.63***
Low Oxygen	-	-	-	-	-	0.37*
		High				
MMR	Low Salinity	Control 2	Temperature	Control 3	Low Oxygen	Control 4
Control 1	0.42*	0.61***	0.48**	0.39*	0.44**	0.37*
Low Salinity	-	0.50**	0.36*	0.56***	0.50**	0.19
Control 2	-	-	0.48**	0.53***	0.44**	0.47**
High Temperature	-	-	-	0.11	0.31	0.20
Control 3	-	-	-	-	0.52**	0.35*
Low Oxygen	-	-	-	-	-	0.09
		High				
AAS	Low Salinity	Control 2	Temperature	Control 3	Low Oxygen	Control 4
Control 1	0.38*	0.64***	0.47**	0.40*	0.19	0.26
Low Salinity	-	0.47**	0.35*	0.44**	0.30	0.09
Control 2	-	-	0.36*	0.44**	0.23	0.37*
High Temperature	-	-	-	-0.04	0.13	0.11
Control 3	-	-	-	-	0.17	0.34*
Low Oxygen	-	-	-	-	-	0.01
		High				
Pcrit	Low Salinity	Control 2	Temperature	Control 3	Low Oxygen	Control 4
Low Salinity	-	0.48**	0.37*	0.14	0.28	-0.13
Control 2	-	-	0.31	0.24	0.05	0.07
High Temperature	-	-	-	0.07	0.24	0.34*
Control 3	-	-	-	-	0.18	0.07
Low Oxygen	-	-	-	-	-	0.14

* $P \leq 0.05$

** $P \leq 0.01$

*** $P \leq 0.001$

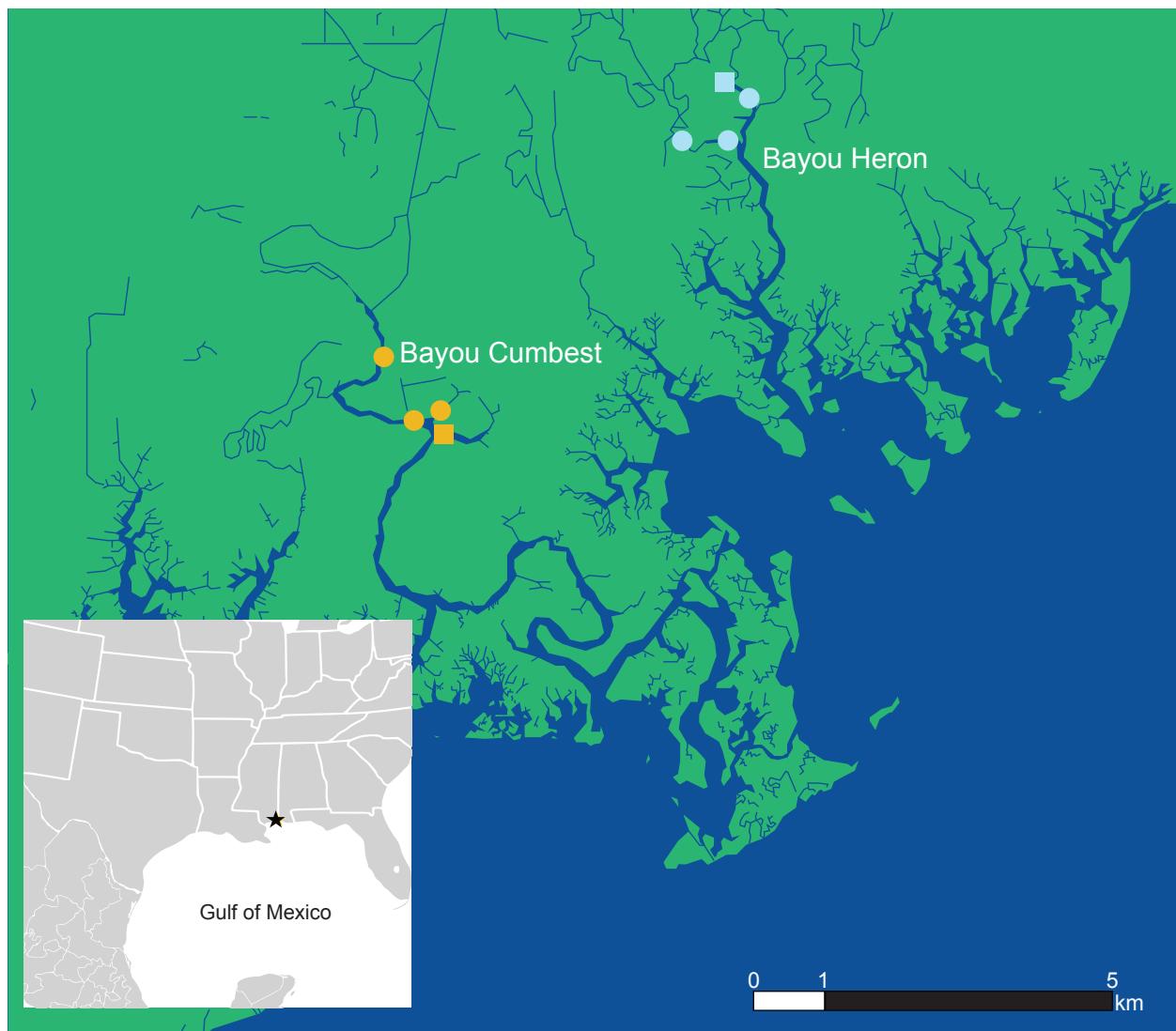


Figure S1: Location of Bayou Cumbest (orange) and Bayou Heron (blue) sites within the Grand Bay National Estuarine Research Reserve. Squares represent the permanent water quality monitoring sondes at each site, while circles represent where fish were collected.

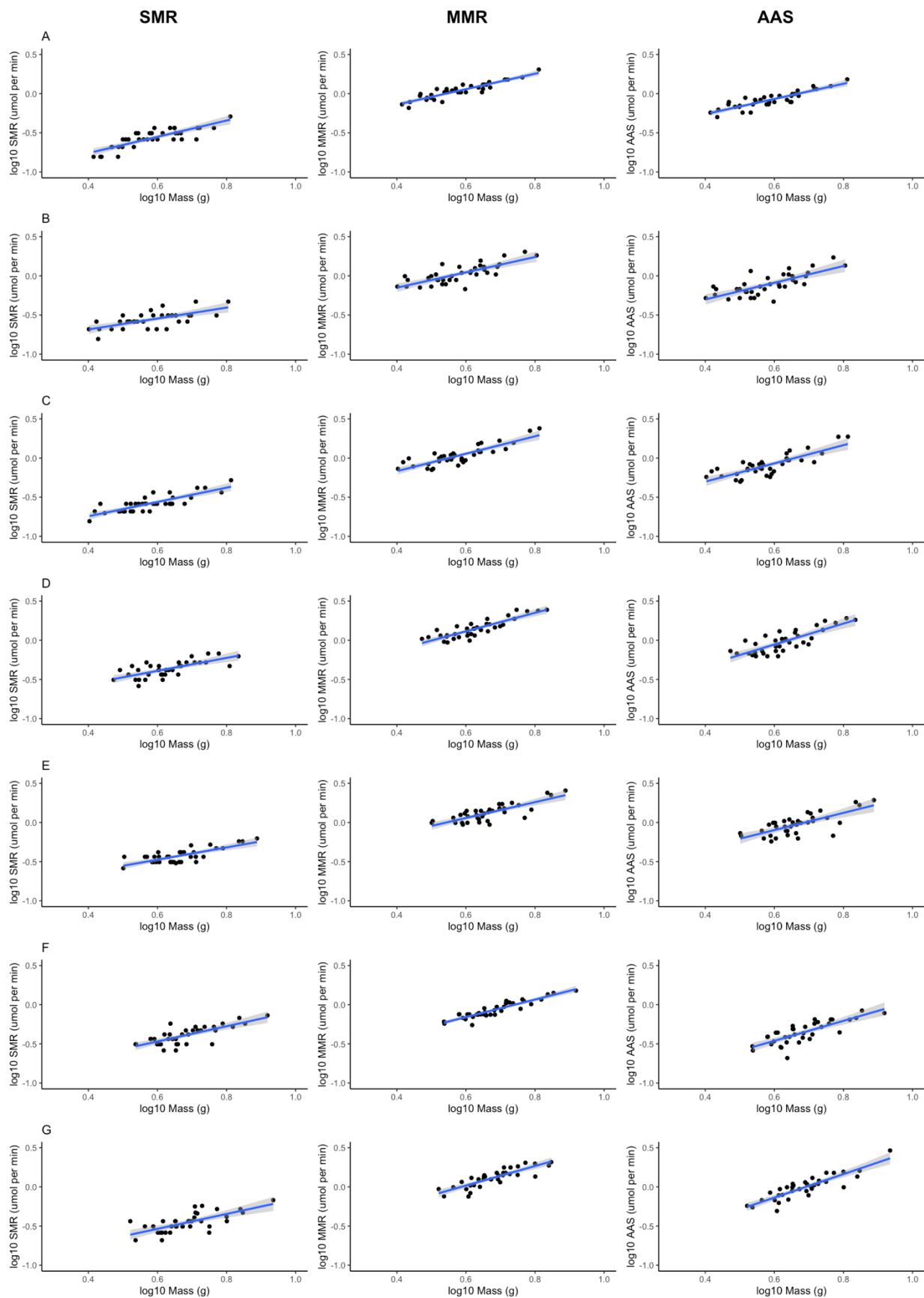


Figure S2: Relationship between aerobic metabolism (SMR, MMR, and AAS) and mass of *F. grandis* measured during laboratory acclimation: control 1 (A); low salinity (B); control 2 (C); high temperature (D); control 3 (E); low oxygen (F); control 4 (G). See Table 1 for regression statistics and sample sizes.