

Appendix A

Supplemental results

Supplemental table

Table S1. Statistical comparison of seawater quality data. Since there were two flow orientations in each tank (backwards vs. forwards; forwards only in the feeding tank), a repeated-measures (RM), split-plot design was undertaken for the flow regime comparison; the flow orientation x tank was the repeated subject, the month x tank was the RM, and the orientation of flow(tank) was the random effect that accommodated the split plot. For the photosynthetically active radiation (PAR) data, the split-plot was the tank area(tank x month). For the *Artemia* nauplii concentration data, the analysis day was the RM, and nubbin(tank) was the repeated subject. Statistically significant findings ($\alpha=0.01$) have been highlighted in bold.

Source of variation	df	F	p	Post-hoc comparisons
Flow (cm s ⁻¹)				
month	2	7.00	<0.01	Sept.(a)=Oct.(a)>Nov.(b)
tank	2	4.94	0.01	
month x tank	4	1.50	0.23	
orientation	1	10.53	<0.01	forwards>backwards
month x orientation	2	2.23	0.13	
tank x orientation	2	4.08	0.02	
month x tank x orientation	4	1.71	0.17	
week(month)	9	1.16	0.36	
PAR^a (μmol quanta m ⁻² s ⁻¹)				
month	2	17.97	<0.01	Nov.(a)=Oct.(a)>Sept.(b)
tank	2	3.63	0.03	
month x tank	4	0.11	0.98	
light level (low vs. high)	1	1701	<0.01	high(a)>low(b)
month x light level	2	24.50	<0.01	high light levels rose over time; low did not
tank x light level	2	1.01	0.37	
month x tank x light level	4	0.77	0.55	
day(month)	15	1.02	0.45	
Artemia concentration (individuals ml ⁻¹)				
feeding regime (low vs. high)	1	3,717	<0.01	high(a)>low(b)
feeding time (0, 3, or 6 hr)	2	794.2	<0.01	0(a)>3 hr(b)>6 hr(c)
feeding regime x time	2	126.1	<0.01	larger drop over time for low-food regime
day	8	63.70	<0.01	lower food administered on days 14 & 28
feeding regime x day	8	13.79	<0.01	larger temporal variation for high-food regime
feeding time x day	16	7.42	<0.01	
feeding regime x time x day	16	3.99	<0.01	

^aCompound symmetry mixed-model design for RM-split plot.

Supplemental figures

Figure S1. Additional seawater quality data. Temperature (A), calcium (Ca^{2+}) concentration (B), salinity (C), magnesium (Mg^{2+}) concentration (D), pH (E), and carbonate hardness (F) were measured regularly in the three recirculating aquaculture system tanks as described in the main text, and error bars represent standard deviation. When a statistically significant tank effect was uncovered ($\alpha=0.01$), results of Tukey's *post-hoc* tests are shown as lowercase letters ($p<0.05$).

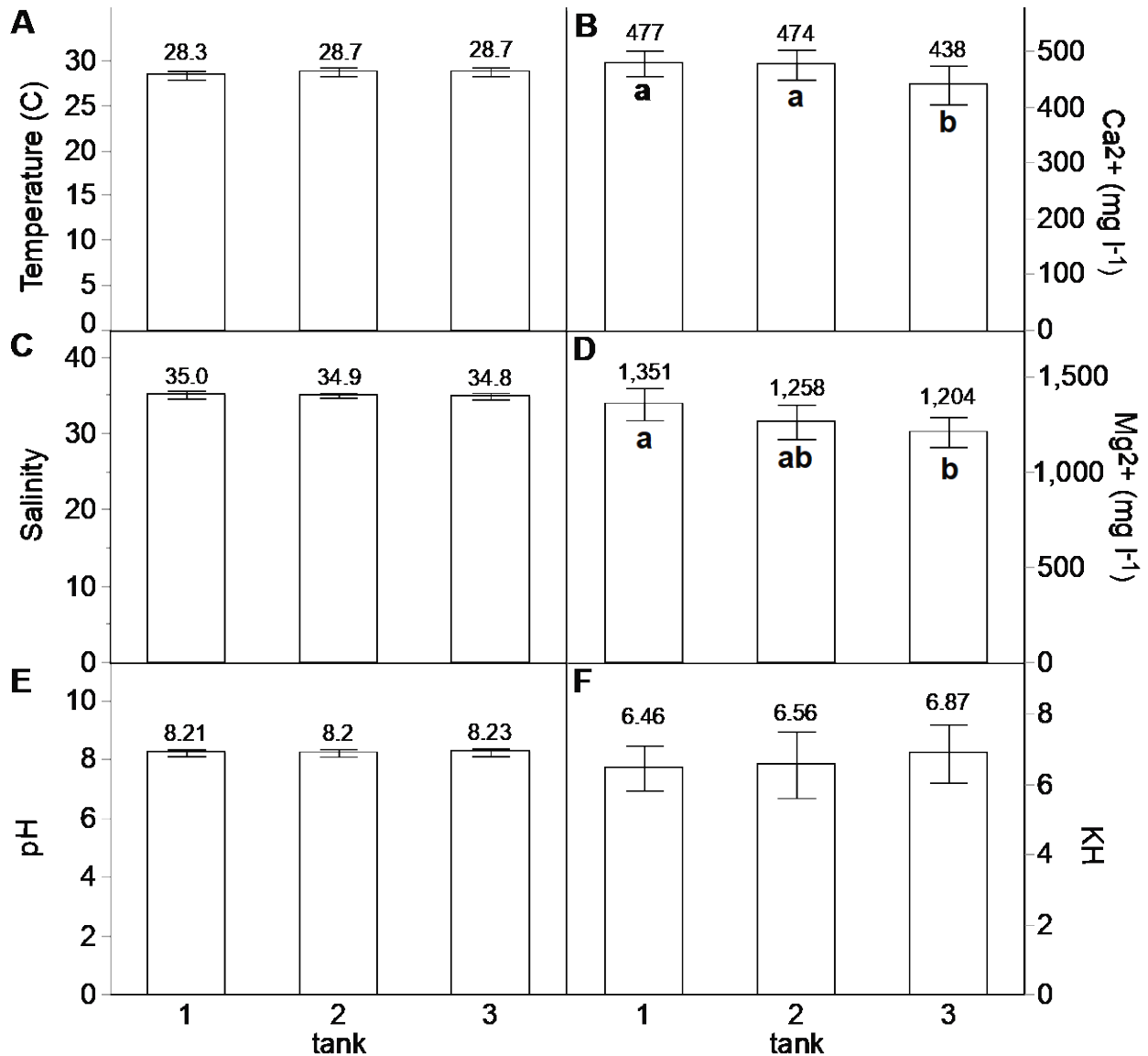


Figure S2. Coral feeding rate. Aliquots of seawater were taken from the feeding tank thrice per feeding event (just upon feeding [0 hr] & after three & six hours) for quantification of *Artemia* nauplii concentrations to estimate coral feeding rate for both the low (red; 33 ind ml^{-1}) and high (blue; 78 ind ml^{-1}) feeding treatments. Bands about the solid mean lines represent standard error of the mean.

