

## Supplement

**Table S1.** Mean ( $\pm$ SD) cover values of all benthic substrates at each reef zone (BR = back-reef, RP = reef flat, RF = reef front, RS = reef slope) of both coral reefs (La Azufrada and Playa Blanca). CCA: Crustose coralline algae; CYA.: Cyanophyta; POCB: *Pocillopora* spp.; PSAM: *Psammocora stellata*; GARP: *Gardineroseris planulata*; PORL: *Porites lobata*; DC: Dead coral.

Type of substrate	La Azufrada				Playa Blanca			
	BR	RP	RF	RS	BR	RP	RF	RS
POCB	12.21 (21.69)	16.75 (19.66)	91.95 (9.41)	26.13 (25.24)	19.15 (6.40)	26.43 (18.75)	94.70 (5.88)	39.41 (30.34)
CCA	3.98 (4.11)	28.22 (25.06)	7.65 (9.60)	42.91 (31.50)	13.30 (13.98)	35.95 (29.26)	2.50 (1.48)	18.37 (14.79)
Rubble	28.12 (32.61)	1.37 (2.31)	0.078 (0.25)	2.34 (4.28)	11.07 (13.71)	1.93 (2.74)	0.19 (0.30)	14.34 (11.55)
Turf	8.08 (6.19)	49.57 (24.71)	0.29 (0.41)	11.39 (15.27)	44.50 (19.17)	26.63 (20.75)	2.50 (5.56)	11.80 (15.29)
Sand	15.91 (20.84)	0.88 (1.86)	-	16.27 (16.47)	5.35 (6.06)	0.40 (0.83)	-	15.88 (15.98)
CYA	21.57 (30.14)	-	-	0.73 (1.23)	0.12 (0.26)	0.15 (0.48)	-	-
PSAM	0.38 (0.59)	1.33 (2.16)	-	0.24 (0.75)	2.77 (4.70)	0.57 (0.82)	-	-
GARP	0.0 (0.0)	-	-	-	-	-	0.066 (0.21)	-
PORL	0.076 (0.24)	-	-	-	-	-	-	-
DC	9.55 (16.11)	1.88 (2.98)	-	-	3.70 (6.42)	7.93 (12.02)	-	-
Gap	0.11 (0.24)	-	0.036 (0.11)	-	0.028 (0.056)	-	0.055 (0.13)	0.20 (0.56)

**Table S2.** Statistical information on the models (Model-1 & Model-2) used to fit the CaCO<sub>3</sub> production rates (kg m<sup>-2</sup> yr<sup>-1</sup>) at each reef zone (Backreef – BR, Reef flat – RP, Reef front – RF, and Reef slope – RS) in Gorgona Island coral reefs: La Azufrada (LA) and Playa Blanca (PB).

Model-1: Generalized least-squares fit by REML. Model: log(Rate + 1) ~ Reef \* Zone

ANOVA results for Models-1&2

Model-1 Denom. DF: 66

Model-2 Denom. DF: 69

Source	Model-1			Model-2		
	numDF	F-value	p-value	numDF	F-value	p-value
(Intercept)	1	36594.52	<.0001	1	35834.92	<.0001
Reef	1	139.44	<.0001	1	166.49	<.0001
Zone	3	325.39	<.0001	3	77.87	<.0001
Reef:Zone	3	45.53	<.0001			

Normality test (Shapiro-Wilks) for the residuals of the models:

Model	Statistic (W)	p-value
Model-1	0.96734	0.0524
Model-2	0.97493	0.1481

Homogeneity of variances test (Bartlett test) for the residuals of the models:

Model	Source	Bartlett's K-squared	DF	p-value
Model-1	Reef × Zone	65.17	7	1.388e-11
Model-2	Reef	0.0280	1	0.8672
	Zone	65.30	3	4.326e-14

Model-1 (Interaction) Post-hoc (Contrast: LA - PB) test within reef zones.

Zone	Estimate	SE	DF	t-ratio	p-value
BR	-0.940	0.116	16	-8.126	<.0001
RP	-0.446	0.248	18	-1.799	0.089
RF	0.341	0.025	16	13.607	<.0001
RS	-0.474	0.226	16	-2.099	0.052

Model-1 (Interaction) Post-hoc (Contrast) test between reef zones (BR, RP, RF, RS) within reefs.

Reef	Contrast	Estimate	SE	DF	t-ratio	p-value
LA	BR - RF	-2.370	0.088	17.4	-26.912	<.0001
	BR - RP	-0.718	0.196	26.0	-3.674	0.0056
	BR - RS	-0.768	0.189	23.9	-4.058	0.0024
	RF - RP	1.651	0.176	18.4	9.363	<.0001
	RF - RS	1.602	0.169	16.4	9.465	<.0001
	RP - RS	-0.049	0.243	34.0	-0.203	0.9970
PB	BR - RF	-1.088	0.079	17.7	-13.751	<.0001
	BR - RP	-0.224	0.192	24.6	-1.171	0.6504
	BR - RS	-0.301	0.169	23.9	-1.780	0.3070
	RF - RP	0.864	0.176	18.4	4.899	0.0006
	RF - RS	0.787	0.152	16.4	5.193	0.0004
	RP - RS	-0.077	0.231	33.7	-0.332	0.9871

Model-2 Post-hoc (Contrast) test between reef zones (BR, RP, RF, RS) within reefs.

Source	Contrast	Estimate	SE	DF	t-ratio	p-value
Reef	LA - PB	0.321	0.025	15.5	12.740	<.0001
Reef Zone	BR - RF	-1.659	0.163	17.0	-10.208	<.0001
	BR - RP	-0.401	0.220	34.8	-1.820	0.2813
	BR - RS	-0.508	0.217	33.5	-2.338	0.1096
	RF - RP	1.258	0.150	19.7	8.381	<.0001
	RF - RS	1.150	0.146	17.3	7.898	<.0001
	RP - RS	-0.107	0.208	35.4	-0.515	0.9551