

Table S1. Abiotic variables derived from point count surveys in the two seascape configuration categories. $N_{\text{dense}} = 42$, $N_{\text{sparse}} = 43$.

	Dense (mean \pm SE)	Sparse (mean \pm SE)
No of bommies	6.38 \pm 0.46	4.00 \pm 0.30
Sand cover (%)	30.83 \pm 1.93	56.41 \pm 2.80

Table S2. Mean values of focal bommie diameter in the two different seascape configuration categories. $N_{\text{dense}} = 42$, $N_{\text{sparse}} = 43$.

	Dense (mean \pm SE)	Sparse (mean \pm SE)
Bommie diameter (m)	1.07 \pm 0.08	0.95 \pm 0.08

Table S3. Mean values \pm SE of fish abundance from point count surveys (19.625 m²). Letters in brackets indicate functional group; B: browser, C: corallivore, D: detritivore, G: grazer, I: invertivore, O: omnivore, P: piscivore, Pl: planktivore, S/E: scraper/excavator, TG: territorial grazer.

Species	Lifestage	Abundance	Species	Lifestage	Abundance
<i>Abudefduf septemfasciatus</i> (O)	AD	0.07 \pm 0.03	<i>Grammistes sexlineatus</i> (P)	AD	0.01 \pm 0.01
	JUV	0		JUV	0
<i>Abudefduf sexfasciatus</i> (Pl)	AD	0.09 \pm 0.04	<i>Gymnothorax javanicus</i> (P)	AD	0.01 \pm 0.01
	JUV	0		JUV	0
<i>Acanthurus leucopareius</i> (G)	AD	0	<i>Gymnothorax sp.</i> (P)	AD	0.01 \pm 0.01
	JUV	0.01 \pm 0.01		JUV	0.01 \pm 0.01
<i>Acanthurus nigrofasciatus</i> (G)	AD	1.12 \pm 0.12	<i>Halichoeres hortulanus</i> (I)	AD	0.26 \pm 0.06
	JUV	0		JUV	0.19 \pm 0.05
<i>Acanthurus olivaceus</i> (D)	AD	0.01 \pm 0.01	<i>Halichoeres trimaculatus</i> (I)	AD	0.44 \pm 0.09
	JUV	0		JUV	0.78 \pm 0.12
<i>Acanthurus pyroferus</i> (G)	AD	0.01 \pm 0.01	<i>Heniochus chrysostomus</i> (I)	AD	0.02 \pm 0.02
	JUV	0		JUV	0
<i>Acanthurus triostegus</i> (G)	AD	0.07 \pm 0.03	<i>Labridae sp.</i> (I)	AD	0.02 \pm 0.02
	JUV	0.04 \pm 0.02		JUV	0.04 \pm 0.02
<i>Aulostomus chinensis</i> (P)	AD	0.01 \pm 0.01	<i>Labroides bicolor</i> (I)	AD	0
	JUV	0		JUV	0.02 \pm 0.02
<i>Balistapus undulatus</i> (I)	AD	0.1 \pm 0.04	<i>Labroides dimidiatus</i> (I)	AD	0.01 \pm 0.01
	JUV	0		JUV	0.01 \pm 0.01
<i>Bothus pantherinus</i> (I)	AD	0.01 \pm 0.01	<i>Leptoscarus vaigiensis</i> (B)	AD	0.01 \pm 0.01
	JUV	0		JUV	0
<i>Canthigaster janthinoptera</i> (O)	AD	0.05 \pm 0.02	<i>Lutjanus fulvus</i> (I)	AD	0.05 \pm 0.02
	JUV	0.01 \pm 0.01		JUV	0
<i>Canthigaster solandri</i> (O)	AD	0.01 \pm 0.01	<i>Monotaxis grandoculis</i> (I)	AD	0.01 \pm 0.01
	JUV	0.01 \pm 0.01		JUV	0
<i>Canthigaster valentini</i> (O)	AD	0	<i>Myripristis sp.</i> (I)	AD	0.02 \pm 0.02
	JUV	0.02 \pm 0.02		JUV	0
<i>Caranx melampygus</i> (P)	AD	0.01 \pm 0.01	<i>Myripristis violacea</i> (Pl)	AD	0.01 \pm 0.01
	JUV	0		JUV	0.01 \pm 0.01
<i>Carcharhinus melanopterus</i> (P)	AD	0.01 \pm 0.01	<i>Neoniphon sammara</i> (I)	AD	0.01 \pm 0.01
	JUV	0		JUV	0.01 \pm 0.01
<i>Centropyge flavissima</i> (O)	AD	0.16 \pm 0.04	<i>Ostorhinchus nigrofasciatus</i> (I)	AD	0.05 \pm 0.02
	JUV	0.1 \pm 0.04		JUV	0.04 \pm 0.03
<i>Cephalopholis argus</i> (P)	AD	0.06 \pm 0.03	<i>Paracirrhites bicolor</i> (I)	AD	0.01 \pm 0.01
	JUV	0		JUV	0
<i>Chaetodon auriga</i> (O)	AD	0.02 \pm 0.02	<i>Parapercis millepunctata</i> (I)	AD	0.07 \pm 0.03
	JUV	0		JUV	0
<i>Chaetodon citrinellus</i> (O)	AD	0.13 \pm 0.03	<i>Parupeneus ciliatus</i> (I)	AD	0.01 \pm 0.01
	JUV	0.11 \pm 0.03		JUV	0

<i>Chaetodon lunula</i> (O)	AD	0.01 ± 0.01	<i>Parupeneus multifasciatus</i> (I)	AD	0.04 ± 0.02
	JUV	0.01 ± 0.01		JUV	0
<i>Chaetodon lunulatus</i> (C)	AD	0.1 ± 0.04	<i>Pomacentrus coelestis</i> (O)	AD	0.17 ± 0.05
	JUV	0.02 ± 0.02		JUV	0.15 ± 0.05
<i>Chaetodon ornatissimus</i> (C)	AD	0.04 ± 0.03	<i>Pristiapogon fraenatus</i> (I)	AD	0.04 ± 0.02
	JUV	0		JUV	0.02 ± 0.02
<i>Chaetodon vagabundus</i> (O)	AD	0.1 ± 0.04	<i>Pseudocheilinus hexataenia</i> (I)	AD	0
	JUV	0		JUV	0.09 ± 0.03
<i>Cheilinus chlorurus</i> (I)	AD	0.12 ± 0.04	<i>Rhinecanthus acuelatus</i> (I)	AD	0.01 ± 0.01
	JUV	0.02 ± 0.02		JUV	0.01 ± 0.01
<i>Cheilinus trilobatus</i> (I)	AD	0.01 ± 0.01	<i>Sargocentron diadema</i> (I)	AD	0.04 ± 0.03
	JUV	0		JUV	0
<i>Cheilodipterus quinquelineatus</i> (I)	AD	0.02 ± 0.02	<i>Sargocentron microstoma</i> (I)	AD	0.02 ± 0.02
	JUV	0.05 ± 0.03		JUV	0
<i>Chlorurus spilurus</i> (S/E)	AD	0.83 ± 0.17	<i>Sargocentron sp.</i> (I)	AD	0.01 ± 0.01
	JUV	0.55 ± 0.12		JUV	0
<i>Chromis leucura</i> (O)	AD	0.01 ± 0.01	<i>Saurida gracilis</i> (P)	AD	0.01 ± 0.01
	JUV	0		JUV	0
<i>Chromis margaritifer</i> (O)	AD	0.05 ± 0.02	<i>Saurida nebulosa</i> (P)	AD	0.02 ± 0.02
	JUV	0.02 ± 0.02		JUV	0
<i>Chromis viridis</i> (Pl)	AD	0.02 ± 0.02	<i>Scarus altipinnis</i> (S/E)	AD	0
	JUV	0		JUV	0.04 ± 0.02
<i>Chrysiptera brownriggii</i> (O)	AD	0.32 ± 0.06	<i>Scarus globiceps</i> (S/E)	AD	0.31 ± 0.08
	JUV	0.3 ± 0.06		JUV	0.04 ± 0.04
<i>Ctenochaetus striatus</i> (D)	AD	1.71 ± 0.19	<i>Scarus niger</i> (S/E)	AD	0
	JUV	0.12 ± 0.04		JUV	0.01 ± 0.01
<i>Ctenogobiops feroculus</i> (I)	AD	0.06 ± 0.03	<i>Scarus oviceps</i> (S/E)	AD	0.01 ± 0.01
	JUV	0.05 ± 0.03		JUV	0.01 ± 0.01
<i>Dascyllus aruanus</i> (Pl)	AD	0.02 ± 0.02	<i>Scarus psittacus</i> (S/E)	AD	0.07 ± 0.03
	JUV	0.04 ± 0.03		JUV	0
<i>Dascyllus flavicaudus</i> (Pl)	AD	0.02 ± 0.02	<i>Scarus sp</i> (S/E)	AD	0.4 ± 0.09
	JUV	0		JUV	1.35 ± 0.26
<i>Dascyllus trimaculatus</i> (O)	AD	0.02 ± 0.02	<i>Scorpaenopsis sp.</i> (P)	AD	0
	JUV	0		JUV	0.02 ± 0.02
<i>Epinephelus merra</i> (P)	AD	0.05 ± 0.02	<i>Siganus spinus</i> (B)	AD	0.04 ± 0.02
	JUV	0		JUV	0.09 ± 0.04
<i>Eviota guttata</i> (I)	AD	0.02 ± 0.02	<i>Stegastes nigricans</i> (TR)	AD	1.16 ± 0.26
	JUV	0		JUV	0.63 ± 0.09
<i>Eviota hinanoe</i> (I)	AD	0.01 ± 0.01	<i>Stethojulis bandanensis</i> (I)	AD	0.19 ± 0.05
	JUV	0		JUV	0.91 ± 0.14
<i>Fusigobius neophytus</i> (I)	AD	0.01 ± 0.01	<i>Thalassoma hardwicke</i> (I)	AD	1.37 ± 0.23
	JUV	0.01 ± 0.01		JUV	0.83 ± 0.13
<i>Fusigobius sp.</i> (I)	AD	0.01 ± 0.01	<i>Valencienna strigata</i> (I)	AD	0.02 ± 0.02
	JUV	0		JUV	0
<i>Glyptoparus delicatulus</i> (G)	AD	0.01 ± 0.01	<i>Zanclus cornutus</i> (I)	AD	0.01 ± 0.01
	JUV	0.05 ± 0.04		JUV	0
<i>Glyptoparus sp.</i> (G)	AD	0	<i>Zebrasoma scopas</i> (G)	AD	0.35 ± 0.07
	JUV	0.01 ± 0.01		JUV	0.06 ± 0.04
<i>Gnatholepis anjerensis</i> (O)	AD	0.15 ± 0.04			
	JUV	0.01 ± 0.01			
<i>Gnatholepis sp.</i> (O)	AD	0.1 ± 0.04			
	JUV	0.01 ± 0.01			
<i>Gobiidae sp.</i> (I)	AD	0.16 ± 0.04			
	JUV	0.02 ± 0.02			
<i>Gomphosus varius</i> (I)	AD	0.01 ± 0.01			
	JUV	0.01 ± 0.01			

Table S4. Summary statistics from ANOVA models of the interactive effects of seascape configuration (dense versus sparse bommies), bommie height (short or tall), and the presence/absence of macroalgae on the abundances of all fishes and on herbivorous fishes.

	Df	MS	F-value	p-value
Total fish abundance				
Configuration x Bommie height	1	3.919	0.114	0.737
Configuration x Macroalgal presence/absence	1	4.420	0.106	0.745
Bommie height x Macroalgal presence/absence	1	0.337	1.348	0.249
Configuration x Bommie height x Macroalgal presence/absence	1	0.003	0.012	0.915
Residuals	78	0.250		
Herbivorous fish abundance				
Configuration x Bommie height	1	0.02	0.023	0.880
Configuration x Macroalgal presence/absence	1	0.747	0.724	0.397
Bommie height x Macroalgal presence/absence	1	0.26	0.250	0.619
Configuration x Bommie height x Macroalgal presence/absence	1	0.027	0.026	0.872
Residuals	77	1.031		

Table 5. Summary statistics from ANOVA models of the interactive effects of seascape configuration (dense versus sparse bommies), bommie height (short or tall), and the presence/absence of macroalgae on the abundances of adult and juvenile parrotfishes.

	Df	MS	F	p – value
Abundance adult parrotfishes				
Configuration x Bommie height	1	1.124	1.407	0.239
Configuration x Macroalgal presence/absence	1	0.038	0.048	0.827
Bommie height x Macroalgal presence/absence	1	0.767	0.960	0.330
Configuration x Bommie height x Macroalgal presence/absence	1	0.005	0.006	0.937
Residuals	77	0.798		
Abundance juvenile parrotfishes				
Configuration x Bommie height	1	0.498	0.486	0.488
Configuration x Macroalgal presence/absence	1	0.851	0.829	0.365
Bommie height x Macroalgal presence/absence	1	0.960	0.935	0.336
Configuration x Bommie height x Macroalgal presence/absence	1	0.019	0.018	0.893
Residuals	77	1.026		

Table 6. ANOVA-table of mean distance travelled per min, by *C. spilurus* in different habitat types and size classes (n = 53). Numbers in bold indicate significant p - values (p < 0.05).

	Df	MS	F	p – value
Bommie configuration (dense/sparse)	1	1.291	2.457	0.123
Bommie height	1	1.130	2.150	0.149

Life stage/size class	1	2.445	4.652	0.036
Residuals	49	0.526		

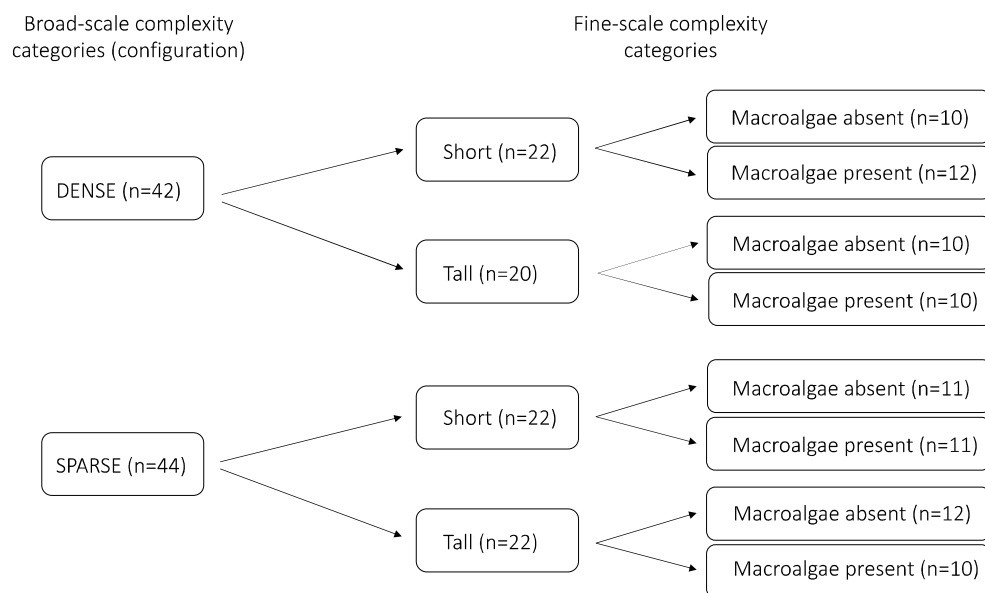
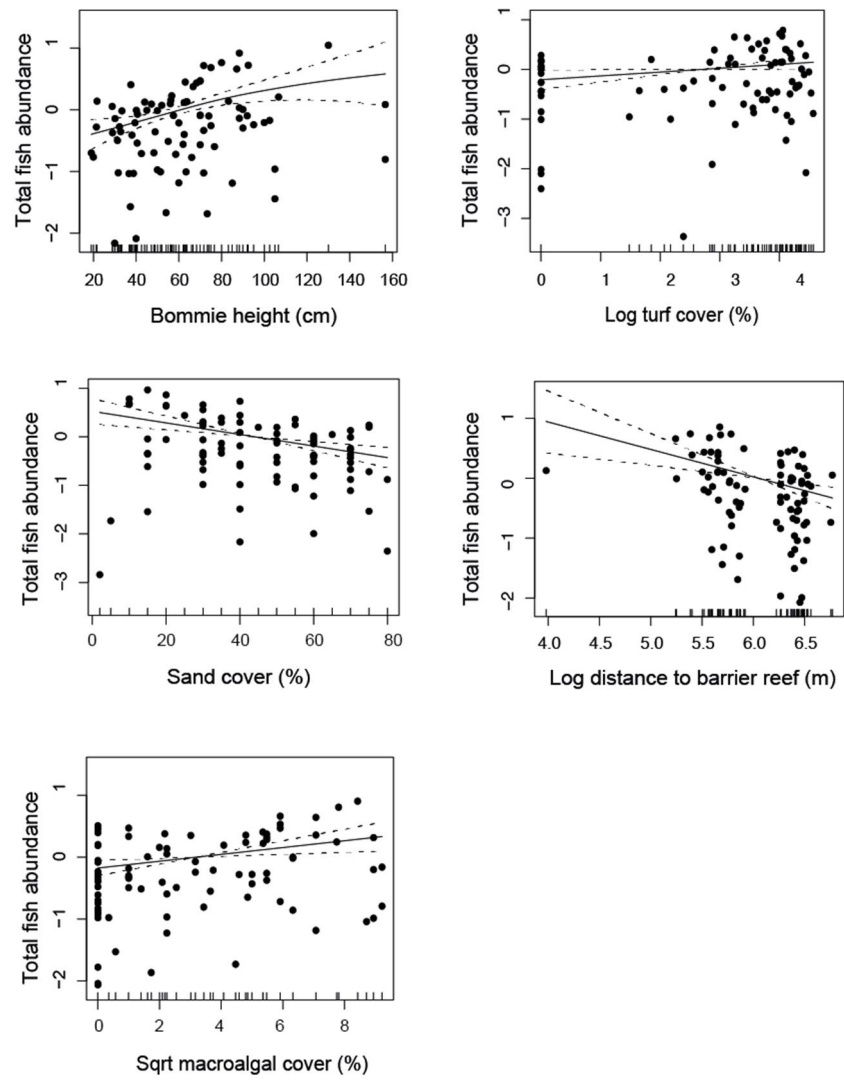
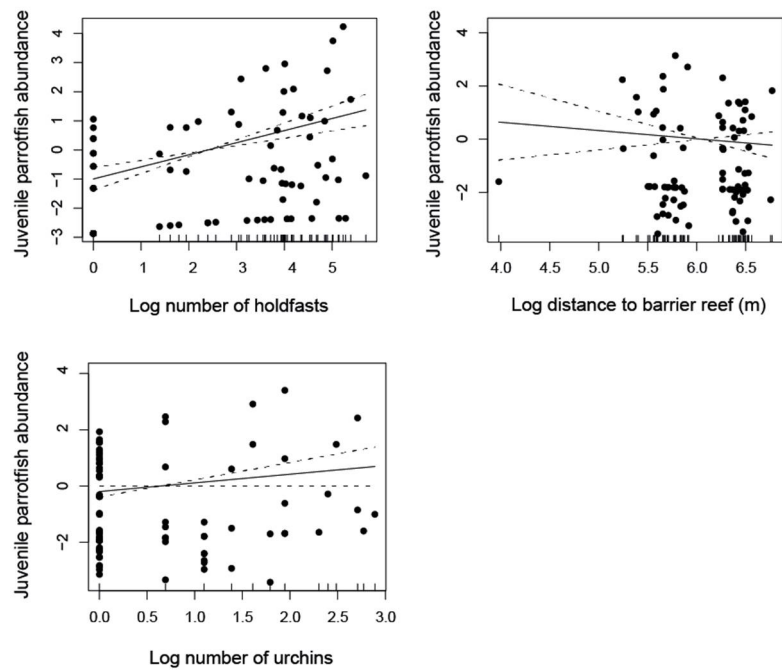


Figure 1. Schematic of the complexity categories at different scales and the number of point count surveys in each.

a).



b).



c).

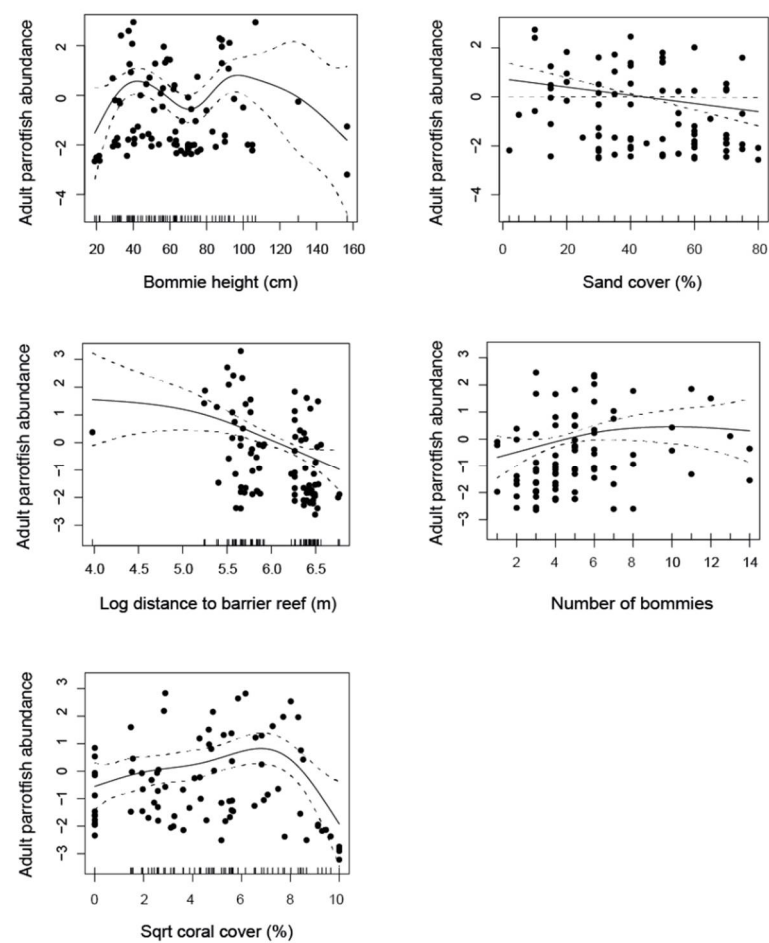


Figure 2. Plots showing variables included in the most parsimonious GAM models for explaining fish abundance a) total fish b) juvenile parrotfish and c) adult parrotfish.