The following supplement accompanies the article

Species diversity, abundance, biomass, size and trophic structure of fish assemblages on coral reefs in relation to shark abundance

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SUPPLEMENTARY METHODS

Stereo-DOVS

The design of the stereo-DOVS followed Watson *et al*. (2005). Each rig consisted of two waterproof, pressure-resistant camera housings attached to a base bar with two hand grips. The PVC pipe camera housings converged inwardly at an angle of 8 degrees. Sony^{TM} high definition Handycam® Camcorders (HDRCX110B) fitted with a 0.6x wide adapter were placed in the housings. Exposure and focus were set to 'Auto' and 'Infinity/Manual', respectively, and **'**Standard Play**'** mode was selected. A diode with a flashing light was visible in the field of view so that the videos could be synchronized during analysis. Each rig was calibrated prior to fieldwork to account for possible differences in construction using Cal software (v1.32, www.seagis.com.au). The operator swam slowly along the transect, approximately 70 cm above the substrate, with the cameras pointing forward (Watson et al. 2005). Due to differences in design and deployment, stereo-DOVS and stereo-BRUVS sample different aspects of the fish assemblage (Watson et al. 2010). For example, the presence of divers may cause large, flighty fishes to leave the area , an artefact that can cause declines of over 50% in the mean number of fishes recorded (Dickens et al. 2011). Moreover, stereo-DOVS can only be used at diver-accessible depths (Langlois et al. 2010).

Stereo-BRUVS design

The design and camera settings of the stereo-BRUVS followed Cappo et al. (2007). The camera housings were placed within a trapezium-shaped steel frame that was lowered from a boat using polypropylene ropes attached to polystyrene surface floats and allowed to film on the seabed for a minimum of one hour. In addition, a bait bag was attached to each rig at the end of a 1.5 m plastic rod made of 15 mm diameter plastic pipe (Cappo et al. 2004). The bait bag was made of 350 mm plastic mesh and contained one kilogram of freshly defrosted and crushed pilchards (*Sardinops* spp., sourced frozen in Western Australia). Stereo-BRUVS were randomly deployed within a sampling design stratified by site. A minimum distance of 450 m was maintained between stations to minimise spatial autocorrelation of the samples, as recommended by Cappo et al. (2004). The time, depth and GPS coordinates of each rig were recorded. BRUVS can be deployed at great depths and the collection of samples requires less manpower than do DOVS, allowing for larger sample sizes (Willis et al. 2000). Langlois *et al*. (2010) concluded that BRUVS-based samples typically display less variability than those collected using DOVS and therefore improve the power of tests to detect subtle changes in fish assemblages (Bernard and Götz 2012). However, the results of BRUVS may be affected by currents and fish traits such as motivation, appetite and search behaviour, in addition to inter- or intra-specific interactions (Stoner et al. 2008).

Image analysis

Video imagery from the stereo-DOVS and stereo-BRUVS was converted from MPE4 to AVI format using Xilisoft™ video conversion software.

Length and Biomass estimation

We only measured fish which could be clearly distinguished from conspecifics, were fully in the field of view and were less than 8 m distance from the cameras, following Johansson et al. (2008). To ensure the accuracy of length measurements, we removed measures that significantly exceeded the maximum length of the species reported on Fishbase (Froese and Pauly 2016).

Where a species had only been measured at a single location, we used linear regression to estimate the length of an individual at the other location. We log-transformed the lengths of species present at both locations and then linearly regressed the lengths from the Rowley Shoals against the Scott Reefs, and vice versa. This approach recognized the mean difference in species length between the two locations and allowed for the estimation of the missing length from one location based on the length observed at the other location. While this approach had the potential to exaggerate differences in lengths between the two locations, it is based on the observed average of differences. This allowed us to include species that would have otherwise been counted but not measured, avoiding biasing the comparison between abundance and biomass. To generate the antilog values for length, the formula $L_{Unknown} = 10^{(a\times(\log L_{known})+b)}$ was used.

Some species could not be measured at either location due to their small size and/or complex schooling behaviour. For these species, we either used a common length as reported on Fishbase (Froese and Pauly 2016), or generated the length of the individual as 75% of the maximum length reported on Fishbase for the species or a similar-sized congener (Froese and Pauly 2016). **Supp. TableS S1 & S2** provide details of method and estimated lengths for all species. To estimate the weight of individual fish, we preferentially used values for *a* and *b* associated with fork lengths, however when length-weight relationships were only available for total length or standard length, we converted fork length measurements into total or standard lengths using the appropriate equations (Froese and Pauly 2016). Length-weight relationships for sea snakes were sourced from Feldman & Meiri (2013).

Dietary Guilds

In order to understand whether prey respond differently to removal of sharks based on diet, we assigned fishes into eight guilds: piscivores (Pis), mesopredators or secondary consumers of fish and benthos (SecFB), secondary consumers of benthos (SecB), corallivores (SecC), secondary consumers of parasites such as cleaner wrasses (SecP), detritivores (Det), primary consumers (Pri) and Zooplanktivores (Zoo) (Sandin and Williams 2010; Froese and Pauly 2016). Relative differences between locations in each guild in terms of abundance $(\%\Delta A)$ and biomass $(\%\Delta B)$ of guilds per sample were calculated using $EQ1$.

SUPPLEMENTARY RESULTS

Shark assemblage

See Supp. Table S4 for summary statistics for individual shark species at the Scott Reefs and the Rowley Shoals and Supp. Table S5 for summary statistics for the entire shark assemblages. See Supp. Fig. S1 for PERMANOVA results for shark abundance on stereo-BRUVS, with site nested in location at the Scott Reefs and the Rowley Shoals. Differences between sites were insignificant (p=0.0584). White tip reef sharks *Triaenodon obesus* contributed 29% of the difference in abundance between locations, followed by *C. amblyrhynchos* (28.9%), *C. albimaginatus* (20.5%), *G. cuvier* (9.4%), *S. lewini* (9.1%), *S. fasciatum* (2.0%) and *N. ferrugineus* (1.1%). In terms of biomass, the primary driver of differences between locations was *C. amblyrhynchos* (26% of the difference), followed by *C. albimarginatus* (25.9%).

Fish assemblage: length estimation

We used linear regression to estimate the lengths of 0.36% of fishes on stereo-DOVS and 1.20% of all fishes on stereo-BRUVS. For stereo-DOVs, the formula $L_R = 10^{(0.946\times \log L_S + 0.0743)}$ was used to estimate the length of a given species at the Rowley Shoals (L_R) from a known mean length at the Scott Reefs (L_S). The equation $L_S = 10^{(0.902\times \log L_R + 0.122)}$ was used to estimate the length of a species at the Scott Reefs from its mean length at the Rowley Shoals. For stereo-BRUVs, the respective formulas were $L_R = 10^{(1.01\times \log L_S + 0.031)}$ and $L_S = 10^{(0.840\times \log L_R + 0.170)}$ (Supp. Table S3). The weighted mean length of congeners was used to estimate the lengths of 0.19% of fishes on stereo-DOVS and 0.52% of fishes on stereo-BRUVS. Some species, particularly *Pseudanthias pascalus*, *Thalassoma amblycephalum* and *Chromis margaritifer*, were both small and present in large numbers, precluding accurate measurement. In this case, common lengths from Fishbase were used to estimate the lengths of these types of fishes, which together accounted for 16.5% of total biomass recorded on stereo-DOVS and 0.73% of fishes on stereo-BRUVS. For 64.3% of species, *a* and *b* coefficients were available on Fishbase. For 23.4% of species, *a* and *b* coefficients from a similar-sized congener were used. For 4.9% of species, a mean value for the genus was used. For a further 7.3% of species, *a* and *b* coefficients for a similar-sized or shaped member of the sub-family was used. For 237 species, there was no need to convert fork length to standard or total length. For 11 species, standard length was converted to fork length. For 38 species, total length was converted to fork length.

SUPPLEMENTARY TABLES

Table S1 Methods used to estimate lengths of fishes. The methods include: (A) Lengths measured directly using software, (B) Lengths estimated by taking the mean of lengths of conspecifics in the same video, (C) mean of lengths of conspecifics at the same location, (D) linear regression of the lengths of all species that were measured at both locations, (E) the common length of the species or a congener on Fishbase, and (F) weighted mean length of congeners at the same location.

	Stereo-DOVS		**Stereo-BRUVS**	
Method	**n**	**% total**	**n**	**% total**
A	878	32.9	623	30.2
B	335	12.6	703	34.1
C	1118	42	649	31.5
D	39	1.5	42	2
E	281	10.5	30	1.5
F	14	0.5	15	0.7

Table S2. List of species that lacked length measurements at either one or both locations and the methods used to estimate their lengths, including (1) linear regression, (2) the common length of the species or a congener on Fishbase or 0.75×maximum reported length and (3) the weighted mean length of congeners at the same location.

Species	**Location**	**Method**	**Estimated length (cm)**
Caranx ignobilis	Scott Reefs	Common Length	84
Chaetodon octofasciatus	Scott Reefs	Common Length	10
Chromis weberi	Scott Reefs	Common Length	9.45
Dasyatis kuhlii	Scott Reefs	Common Length	50
Diproctacanthus xanthurus	Scott Reefs	Common Length	9
Epinephelus areolatus	Scott Reefs	Common Length	30
Gomphosus varius	Rowley Shoals	Common Length	20
Gymnothorax fimbriatus	Scott Reefs	Common Length	50
Gymnothorax javanicus	Rowley Shoals	Common Length	100
Heniochus chrysostomus	Scott Reefs	Common Length	10
Lethrinus ravus	Scott Reefs	Common Length	20
Naso brevirostris	Scott Reefs	Common Length	40
Nemipterus furcosus	Rowley Shoals	Common Length	20
Novaculichthys taeniourus	Scott Reefs	Common Length	20
Parapercis sp	Rowley Shoals	Common Length	24
Pomacanthus imperator	Rowley Shoals	Common Length	30
Sargocentron sp	Scott Reefs	Common Length	33.2
Scarus xanthopleura	Rowley Shoals	Common Length	40

Species	Location	Method	Estimated length (cm)
Taeniura lymma	Scott Reefs	Common Length	25
Variola albimarginata	Rowley Shoals	Common Length	40
Acanthurus thompsoni	Rowley Shoals	Linear regression	16.74
Arothron hispidus	Scott Reefs	Linear regression	40.39
Arothron nigropunctatus	Scott Reefs	Linear regression	18.05
Arothron stellatus	Scott Reefs	Linear regression	35.8
Balistoides viridescens	Rowley Shoals	Linear regression	39.75
Centropyge bispinosa	Scott Reefs	Linear regression	9.06
Cephalopholis argus	Scott Reefs	Linear regression	22.85
Cephalopholis boenak	Scott Reefs	Linear regression	12.52
Elapidae sp	Rowley Shoals	Linear regression	104.9
Labridae sp	Scott Reefs	Linear regression	9.57
Naso caesius	Rowley Shoals	Linear regression	48.03
Naso lituratus	Rowley Shoals	Linear regression	22.41
Naso unicornis	Rowley Shoals	Linear regression	63.1
Pomacentridae sp	Rowley Shoals	Linear regression	8.48
Pseudanthias lori	Scott Reefs	Linear regression	6.09
Scarus rubroviolaceus	Rowley Shoals	Linear regression	20.4
Scomberoides lysan	Scott Reefs	Linear regression	30.61
Taeniura meyeni	Scott Reefs	Linear regression	117.4
Balistidae sp	Scott Reefs	Weighted Mean	19.42
Caranx sp	Rowley Shoals	Weighted Mean	33.39
Caranx sp	Scott Reefs	Weighted Mean	39.63
Centropyge sp	Scott Reefs	Weighted Mean	7.72
Cephalopholis sp	Rowley Shoals	Weighted Mean	14.89
Cephalopholis sp	Scott Reefs	Weighted Mean	11.52
Chaetodontidae sp	Scott Reefs	Weighted Mean	11.73
Lethrinus sp	Scott Reefs	Weighted Mean	28.82
Myripristis sp	Rowley Shoals	Weighted Mean	12.89
Platax sp	Rowley Shoals	Weighted Mean	32.69
Pseudanthias sp	Rowley Shoals	Weighted Mean	9.94
Pseudanthias sp	Scott Reefs	Weighted Mean	7.85
Sufflamen sp	Rowley Shoals	Weighted Mean	23.89

Table S3 Linear regression of Log Length (L) at the Scott Reefs (S) and the Rowley Shoals (R). For stereo-DOVS, Log L_S = 0.122 + 0.9015×Log L_R and Log L_R = 0.0743 + 0.9461 ×Log L_S. For the stereo-BRUVS, Log L_S = 0.1704 + 0.8401×Log L_R and Log L_R = 0.0305 + 1.0123 ×Log L_S where b_o was the coefficient of the intercept and b_1 was the coefficient of log L.

Stereo-DOVS	**n**	**df**	**R^2**	***p***	**MSE**	**b_0**	**b_1**	**SE b_0**	**SE b_1**	**F**	**adjR^2**
Scott Reefs	55	54	0.99	<0.001	3.18	0.02	0.98	0.015	0.011	7878.1	0.99
Rowley Shoals	55	54	0.99	<0.001	3.28	-4.92	9.84	1.57	1.14	7878.07	0.99
Stereo-BRUVS											
Scott Reefs	92	91	0.85	<0.001	7.68	0.17	0.84	5.2	3.71	511.7	0.85
Rowley Shoals	92	91	0.85	<0.001	9.26	0.031	1.01	0.06	0.04	511.7	0.85

Table S4 Summary statistics for shark species at the Scott Reefs and the Rowley Shoals. All measures are presented as per sample-site, except for encounter rate (ER), which is the % of samples that contained a shark. Standard errors [SE] are presented in parentheses.

Scott Reefs	**Family**	***Species***	***n***	**ER (%)**	**Abundance**	**Length (cm)**	**Biomass (kg)**
BRUVS (n=56)	Carcharhinidae	*Carcharhinus amblyrhynchos*	21	32	0.38 [0]	99.4 [2.26]	4.71 [0.053]
		Carcharhinus albimarginatus	1	1.8	0.013 [0.013]	123.9	1.07 [1.07]
		Galeocerdo cuvier	2	3.6	0.043 [0.018]	152.2	1.44 [0.62]
		Triaenodon obesus	15	25	0.281 [0.031]	92.6 [3.32]	1.89 [0.043]
	Stegastomidae	*Stegostoma fasciatum*	1	1.8	0.013 [0.013]	139.1	0.99 0.99]
Rowley Shoals							
DOVS (n=9)	Carcharhinidae	*Carcharhinus amblyrhynchos*	4	22.2	0.28 [0.19]	72.2	1.17 [0.79]
BRUVS (n=64)	Carcharhinidae	*Carcharhinus amblyrhynchos*	44	56.3	0.70 [0.13]	94.7 [2.87]	9.49 [3.10]
		Carcharhinus albimarginatus	36	35.9	0.47 [0.20]	105.8 [5.24]	32.4 [14.6]
		Galeocerdo cuvier	8	12.5	0.15 [0.055]	342.6 [13.1]	74.6 [31.9]
		Triaenodon obesus	3	4.69	0.042 [0.020]	118.8	0.65 [0.32]
	Sphyrnidae	*Sphyrna lewini*	7	9.38	0.14 [0.063]	198.5 [13.04]	12.3 [7.74]
	Ginglymostomatidae	*Nebrius ferrugineus*	1	1.56	0.010 [0.010]	215.91	1.27 [1.27]

Table S5 Summary statistics for the shark assemblages. All measures are mean values per sample-site [SE], except for encounter rate, which is the % of sample-sites that contained a shark. One-tailed t-tests assumed unequal variance and unequal sample sizes. Chi Square tests were Yates Corrections with one degree of freedom ($X_{0.05}$=3.84 and $X_{0.01}$=6.63). Mean values were log-transformed for PERMANOVA analysis (9999 permutations with Euclidean distances) of the effect of shark species on differences in abundance and biomass between locations. No PERMANOVA was conducted on the shark assemblages on stereo-DOVS because too few sharks were observed using this method.

Stereo-DOVS (n=24)	**Scott Reefs [SE]**	**Rowley Shoals [SE]**	**Statistical test**
Species Richness	0	0.22 [0.22]	t[6]=2.92, *p*=0.21
Abundance	0	0.56 [0.56]	t[6]=2.92, *p*=0.21
Encounter Rate	0	22.2	X^2 adj = 1.31, *p*>0.1
Length (cm)	NA	72.2	NA
Biomass (kg)	0	2.34 [2.34]	t[6]=2.91, *p*=0.21
Stereo-BRUVS (n=120)			
Species Richness	0.72 [0.010]	1.19 [0.06]	t[5]=5.25, *p*=0.0172*
Abundance	0.73 [0.17]	1.5 [0.29]	t[5]=2.92, *p*=0.014*; PERMANOVA, F[74]=12.6, *p*<0.0001**
Encounter Rate	55	74	X^2 adj = 6.998, *p*<0.01*
Length (cm)	102.1 [3.05]	129.4 [8.52]	t[5]=1.67, *p*=1.78E-03
Biomass (kg)	10.1 [1.4]	130.7 [22.7]	t[5]=5.30, *p*=0.0169; PERMANOVA, F[74]=11.33, *p*<0.0001**

Table S6. Abundance and biomass per sample-site of fishes in 10 cm classes on stereo-DOVS and stereo-BRUVS at the Scott Reefs and the Rowley Shoals. Relative difference (%) was calculated as: $\%\Delta A = 100\times\left(\frac{A_S - A_R}{A_R}\right)$. NA indicates that a size class is absent.

Stereo-DOVS	**Abundance**			**Biomass**		
Size class (cm)	**Scott Reefs**	**Rowley Shoals**	**%Δ *Abundance***	**Scott Reefs**	**Rowley Shoals**	***%Δ Biomass***
0-9.99	4.9	21.6	-77.2	0.1	0.3	-70.1
10-19.99	28.0	74.4	-62.3	3.2	6.5	-50.5
20-29.99	32.2	84.1	-61.7	10.7	11.8	-9.1
30-39.99	3.1	2.8	9.5	3.4	2.9	16.4
40-49.99	2.5	1.8	37.0	5.3	3.3	58.9
50-59.99	0.3	0.4	-25.0	1.2	1.5	-19.7
60-69.99	0.1	0.1	-41.7	0.4	0.5	-32.0
70-79.99	0.0	0.1	-75.0	0.0	0.6	-99.3
80-89.99	0.0	0.0	na	0.6	0.0	na
90-99.99	0.0	0.1	-83.3	0.2	0.7	-72.0
100-109.99	0.0	0.0	na	0.3	0.0	na
130-139.99	0.0	0.0	na	1.1	0.0	na
Stereo-BRUVS	**Abundance**			**Biomass**		
Size class (cm)	**Scott Reefs**	**Rowley Shoals**	**%Δ *Abundance***	**Scott Reefs**	**Rowley Shoals**	***%Δ Biomass***
0-9.99	20.4	23.6	-13.5	0.1	0.2	61.6
10-19.99	29.6	10.2	190.5	0.7	2.8	280.4
20-29.99	14.5	6.2	133.5	2.0	7.4	268.2
30-39.99	3.8	6.6	-43.3	5.8	3.0	-47.7
40-49.99	2.4	5.5	-55.9	9.3	4.5	-52.1
50-59.99	1.1	3.0	-63.7	8.2	2.9	-64.4
60-69.99	0.4	1.0	-63.5	4.8	1.6	-66.0
70-79.99	0.1	0.3	-55.0	1.4	0.7	-46.4
80-89.99	0.2	0.1	217.1	0.6	1.7	185.9
90-99.99	0.4	0.0	1580.0	0.2	0.9	273.7
100-109.99	0.0	0.0	-20.0	0.0	0.3	497.6
110-119.99	0.0	0.1	-16.0	0.9	0.2	-71.4
120-129.99	0.0	0.0	na	0.0	0.2	na
180-189.99	0.0	0.0	-100.0	1.1	0.0	-100.0

Table S7. The % relative difference in abundance or biomass per sample by trophic level at the Scott Reefs and the Rowley Shoals. Values were calculated as follows: $\%\Delta A = 100\times\left(\frac{A_S - A_R}{A_R}\right)$.

Stereo-DOVS	**Abundance**			**Biomass**		
Trophic class	**Scott Reefs**	**Rowley Shoals**	**%Δ *Abundance***	**Scott Reefs**	**Rowley Shoals**	***%Δ Biomass***
2-2.49	19.0	33.0	-42.3	7.5	7.0	7.4
2.5-2.99	7.1	9.3	-23.8	1.5	1.8	-15.6
3-3.49	22.9	126.0	-81.8	3.4	12.1	-71.6
3.5-3.99	8.2	10.8	-24.3	1.9	1.4	32.5
4-4.49	13.5	4.6	191.1	12.1	5.0	144.0
4.5-4.99	0.4	1.8	-75.9	0.1	0.9	-84.0
Stereo-BRUVS						
Trophic class	**Scott Reefs**	**Rowley Shoals**	**%Δ *Abundance***	**Scott Reefs**	**Rowley Shoals**	***%Δ Biomass***
2-2.49	4.5	0.9	375.4	2.0	1.2	62.7
2.5-2.99	6.4	2.7	139.3	1.0	0.6	59.5
3-3.49	34.3	28.3	21.1	5.7	1.8	212.0
3.5-3.99	12.8	9.7	32.1	2.3	3.3	-30.6
4-4.49	14.3	12.5	14.3	14.6	24.0	-39.1
4.5-4.99	1.1	4.0	-71.1	0.7	4.1	-81.9

Table S8. Number of species by trophic level per sample-site at the Scott Reefs and the Rowley Shoals, and the percent difference between locations where %Δ SpD $= 100\times\left(\frac{SD_R - SD_S}{SD_S}\right)$. *P*-values are provided for one-tailed t-tests assuming unequal variance.

Trophic Level	**2-2.49**	**2.5-2.99**	**3-3.49**	**3.5-3.99**	**4-4.49**	**4.5-4.99**
Rowley Shoals	7.0	3.3	8.6	3.9	2.6	1.2
Scott Reefs	5.9	3.1	5.1	3.2	2.6	0.4
%Δ SpD	19.6	8.0	67.9	22.8	0.0	208.6
p-value	8.15E-03**	4.42E-02**	8.39E-05**	2.80E-02**	4.24E-01	1.24E-05**

Table S9 Coefficients a and b and their source for length-weight relationships.

Species	**a**	**b**	**Source of a & b**	**Substitute**
Sphyrna lewini	0.00777	3.067	Species	*na*
Carcharhinus albimarginatus	0.0001	4.268	Species	*na*
Galeocerdo cuvier	0.00253	3.26	Species	*na*
Nebrius ferrugineus	0.0106	2.892	Species	*na*
Carcharhinus amblyrhynchos	0.00227	3.37266	Species	*na*
Chaetodon vagabundus	0.02776	2.97346	Species	*na*
Amphiprion akindynos	0.03162	2.9298	Species	*na*
Plectorhinchus lineatus	0.01255	3.07859	Species	*na*
Hemigymnus melapterus	0.02423	2.92262	Species	*na*
Hemigymnus fasciatus	0.0171	3	Species	*na*
Arothron mappa	0.0352	2.901	Species	*na*
Hologymnosus annulatus	0.0318	3	Species	*na*
Thalassoma lunare	0.0238	2.749	Species	*na*
Anampses meleagrides	0.0065	3.254	Species	*na*
Anampses twistii	0.0226	2.793	Species	*na*
Sufflamen chrysopterum	0.0153	3.152	Species	*na*
Chilomycterus reticulatus	0.0755	2.93	Species	*na*
Halichoeres hortulanus	0.0119	3.064	Species	*na*
Sargocentron caudimaculatum	0.0219	3.047	Species	*na*
Thalassoma hardwicke	0.01783	2.97765	Species	*na*
Chaetodon guttatissimus	0.045	2.814	Species	*na*
Arothron hispidus	0.06338	2.755	Species	*na*
Arothron stellatus	0.0915	2.67239	Species	*na*
Chaetodon ephippium	0.02249	3.06092	Species	*na*
Chaetodon ulietensis	0.03114	2.87412	Species	*na*
Chaetodon unimaculatus	0.0533	2.83328	Species	*na*
Coris aygula	0.00266	3.48857	Species	*na*
Gomphosus varius	0.02437	2.70269	Species	*na*
Parupeneus indicus	0.01415	3.11421	Species	*na*
Parupeneus multifasciatus	0.01136	3.21082	Species	*na*
Pomacanthus sexstriatus	0.06686	2.72378	Species	*na*
Forcipiger longirostris	0.0271	3.061	Species	*na*
Parupeneus heptacanthus	0.0169	3.07802	Species	*na*
Aluterus scriptus	0.823	1.8136	Species	*na*
Cheilinus fasciatus	0.0318	3	Species	*na*

Species	a	b	Source of a & b	Substitute
Malacanthus latovittatus	0.00494	3	Species	*na*
Balistoides viridescens	0.02442	3.01828	Species	*na*
Pomacanthus imperator	0.0371	2.968	Species	*na*
Bodianus diana	0.0222	3	Species	*na*
Cantherhines dumerilii	0.0406	2.792	Species	*na*
Parupeneus barberinus	0.01307	3.12249	Species	*na*
Bodianus axillaris	0.0065	3.254	Species	*na*
Pygoplites diacanthus	0.0276	3	Species	*na*
Balistoides conspicillum	0.019	3.078	Species	*na*
Novaculichthys taeniourus	0.016	3	Species	*na*
Malacanthus brevirostris	0.00494	3	Species	*na*
Sufflamen fraenatum	0.02865	2.96583	Species	*na*
Apolemichthys trimaculatus	0.0584	2.718	Species	*na*
Arothron nigropunctatus	0.0352	2.901	Species	*na*
Balistapus undulatus	0.0058	3.554	Species	*na*
Parupeneus barberinoides	0.0123	3.081	Species	*na*
Sufflamen bursa	0.0324	2.929	Species	*na*
Chaetodon lineolatus	0.06926	2.62151	Species	*na*
Forcipiger flavissimus	0.0421	2.847	Species	*na*
Chaetodon lunula	0.0296	2.9895	Species	*na*
Chaetodon auriga	0.0404	2.82943	Species	*na*
Abalistes stellatus	0.04717	2.7595	Species	*na*
Monotaxis grandoculis	0.02296	3.02223	Species	*na*
Zanclus cornutus	0.0147	3.36991	Species	*na*
Chaetodon baronessa	0.0448	2.828	Species	*na*
Chaetodon trifascialis	0.02578	2.96908	Species	*na*
Chaetodon trifasciatus	0.0311	2.97566	Species	*na*
Chaetodon speculum	0.06637	2.69302	Species	*na*
Diproctacanthus xanthurus	0.0076	3.105	Species	*na*
Heniochus chrysostomus	0.01613	3.262	Species	*na*
Chaetodon meyeri	0.045	2.814	Species	*na*
Cephalopholis urodeta	0.02822	2.81775	Species	*na*
Epinephelus maculatus	0.01104	3.06197	Species	*na*
Aulostomus chinensis	0.00021	3.51443	Species	*na*
Plectorhinchus chaetodonoides	0.01733	3.04033	Species	*na*
Lutjanus kasmira	0.00842	3.24696	Species	*na*
Neoniphon sammara	0.02762	2.88835	Species	*na*

Species	**a**	**b**	**Source of a & b**	**Substitute**
Lutjanus monostigma	0.02218	2.91252	Species	*na*
Sargocentron spiniferum	0.0154	3.119	Species	*na*
Gracila albomarginata	0.0134	3.031	Species	*na*
Gnathodentex aureolineatus	0.01804	3.06254	Species	*na*
Lutjanus fulvus	0.0243	2.928	Species	*na*
Platax orbicularis	0.0425	2.975	Species	*na*
Oxycheilinus unifasciatus	0.01687	3	Species	*na*
Epinephelus areolatus	0.01142	3.04812	Species	*na*
Nemipterus furcosus	0.00595	3.35726	Species	*na*
Taeniura meyeni	0.00869	3	Species	*na*
Gymnothorax javanicus	0.0035	3	Species	*na*
Scomberoides lysan	0.01085	2.92302	Species	*na*
Parupeneus pleurostigma	0.0145	3.13	Species	*na*
Scolopsis bilineata	0.0149	3.141	Species	*na*
Epinephelus merra	0.01584	2.96636	Species	*na*
Dasyatis kuhlii	0.0092	3.34	Species	*na*
Lethrinus ravus	0.01409	3.06476	Species	*na*
Lethrinus semicinctus	0.01181	3.11678	Species	*na*
Lutjanus rivulatus	0.00843	3.26016	Species	*na*
Triaenodon obesus	0.0018	3.344	Species	*na*
Cheilinus undulatus	0.01131	3.1362	Species	*na*
Epibulus insidiator	0.0161	3.081	Species	*na*
Lethrinus erythracanthus	0.0204	3	Species	*na*
Lethrinus microdon	0.021	2.9	Species	*na*
Gymnocranius grandoculis	0.03199	2.88489	Species	*na*
Lethrinus rubrioperculatus	0.01279	3.10807	Species	*na*
Lutjanus gibbus	0.0131	3.138	Species	*na*
Cephalopholis boenak	0.01462	3.01915	Species	*na*
Labroides bicolor	0.0059	3.231	Species	*na*
Labroides dimidiatus	0.0059	3.231	Species	*na*
Epinephelus fuscoguttatus	0.01335	3.05723	Species	*na*
Lutjanus erythropterus	0.0244	2.87	Species	*na*
Seriola dumerili	0.0363	2.771	Species	*na*
Symphorus nematophorus	0.01466	3.04617	Species	*na*
Anyperodon leucogrammicus	0.00142	3.54806	Species	*na*
Seriola rivoliana	0.0359	2.801	Species	*na*
Sphyraena barracuda	0.0062	3.011	Species	*na*

Species	a	b	Source of a & b	Substitute
Plectropomus laevis	0.00591	3.23774	Species	*na*
Caranx ignobilis	0.01638	3.05869	Species	*na*
Gymnosarda unicolor	0.0105	3.065	Species	*na*
Caranx lugubris	0.0151	3.059	Species	*na*
Aprion virescens	0.0077	3.1337	Species	*na*
Lethrinus xanthochilus	0.02007	2.9639	Species	*na*
Plectropomus areolatus	0.00000291	3.27	Species	*na*
Cephalopholis argus	0.00929	3.18074	Species	*na*
Lethrinus olivaceus	0.0351	2.808	Species	*na*
Epinephelus fasciatus	0.01383	3.04066	Species	*na*
Variola louti	0.01219	3.079	Species	*na*
Caranx melampygus	0.0235	2.92	Species	*na*
Aphareus furca	0.0167	3.022	Species	*na*
Elagatis bipinnulata	0.0135	2.92	Species	*na*
Carangoides orthogrammus	0.01559	3.02562	Species	*na*
Lutjanus bohar	0.01563	3.05865	Species	*na*
Carangoides plagiotaenia	0.019	2.92	Species	*na*
Echeneis naucrates	0.00075	3.35779	Species	*na*
Variola albimarginata	0.0257	3	Species	*na*
Caranx sp	0.0198	2.986	Species	*na*
Elapidae sp	1.51705E-05	2.407	Species	*na*
Acanthurus nigricans	0.067	2.669	Species	*na*
Abudefduf sexfasciatus	0.02128	3.15197	Species	*na*
Acanthurus lineatus	0.0251	3.03	Species	*na*
Siganus corallinus	0.00234	3.82079	Species	*na*
Acanthurus leucocheilus	0.028	2.983	Species	*na*
Naso elegans	0.0085	3.25	Species	*na*
Kyphosus cinerascens	0.0129	3.151	Species	*na*
Zebrasoma desjardinii	0.0378	2.857	Species	*na*
Acanthurus nigrofuscus	0.0301	2.967	Species	*na*
Ctenochaetus striatus	0.02313	3.06347	Species	*na*
Acanthurus olivaceus	0.0384	3.055	Species	*na*
Chlorurus microrhinos	0.0273	2.93	Species	*na*
Chromis amboinensis	0.04394	2.82376	Species	*na*
Melichthys vidua	0.0058	3.554	Species	*na*
Naso lituratus	0.0497	2.839	Species	*na*
Scarus schlegeli	0.02306	2.96919	Species	*na*

Species	a	b	Source of a & b	Substitute
Siganus fuscescens	0.01373	3.06816	Species	*na*
Siganus punctatissimus	0.00949	3.27616	Species	*na*
Centropyge bispinosa	0.09195	2.45799	Species	*na*
Siganus puellus	0.01761	3.02839	Species	*na*
Zebrasoma scopas	0.02905	2.99274	Species	*na*
Cetoscarus bicolor	0.024	3	Species	*na*
Scarus rubroviolaceus	0.0136	3.109	Species	*na*
Naso unicornis	0.01788	3.03545	Species	*na*
Acanthurus xanthopterus	0.02673	2.98449	Species	*na*
Scarus ghobban	0.0165	3.04116	Species	*na*
Siganus argenteus	0.0109	3.15419	Species	*na*
Chromis weberi	0.0391	3	Species	*na*
Scarus niger	0.01335	3.15996	Species	*na*
Chlorurus sordidus	0.02431	2.96931	Species	*na*
Atule mate	0.0166	2.949	Species	*na*
Chromis retrofasciata	0.009	2.773	Species	*na*
Ptereleotris evides	0.021142333	3.067613391	Species	*na*
Acanthurus mata	0.02224	3.00795	Species	*na*
Caesio cuning	0.01487	3.12133	Species	*na*
Chromis xanthura	0.009	2.773	Species	*na*
Pseudanthias hypselosoma	0.01369	3.14874	Species	*na*
Macolor niger	0.0308	3	Species	*na*
Caesio teres	0.02	2.991	Species	*na*
Naso hexacanthus	0.02017	2.95583	Species	*na*
Melichthys niger	0.0057	3.393	Species	*na*
Chromis ternatensis	0.01597	3.408	Species	*na*
Odonus niger	0.0366	3	Species	*na*
Naso vlamingii	0.0497	2.839	Species	*na*
Macolor macularis	0.0167	3.022	Species	*na*
Xanthichthys caeruleolineatus	0.0057	3.393	Species	*na*
Naso brevirostris	0.01065	3.24297	Species	*na*
Acanthurus thompsoni	0.028	2.983	Species	*na*
Caesio lunaris	0.02	2.991	Species	*na*
Pterocaesio marri	0.0107	3.178	Species	*na*
Amblyglyphidodon leucogaster	0.02974	2.93605	Species	*na*
Heniochus acuminatus	0.0247	3.1058	Species	*na*
Chaetodon kleinii	0.0448	2.828	Species	*na*

Species	a	b	Source of a & b	Substitute
Myripristis violaceum	0.0364	2.94026	Species	*na*
Chaetodontoplus mesoleucus	0.04923	2.795	Similar sized congener	*Centropyge tibicen*
Chaetodon semeion	0.0404	2.829	Similar sized congener	*Chaetodon auriga*
Chaetodontidae sp	0.0404	2.829	Similar sized congener	*Chaetodon auriga*
Chaetodon burgessi	0.0353	2.834	Similar sized congener	*Chaetodon citrinellus*
Chaetodon punctatofasciatus	0.0296	2.9895	Similar sized congener	*Chaetodon trifascialis*
Oxycheilinus celebicus	0.06785	2.317	Similar sized congener	*Oxycheilinus bimaculatus*
Oxycheilinus sp	0.06785	2.317	Similar sized congener	*Oxycheilinus bimaculatus*
Parupeneus crassilabris	0.01163	3.22	Similar sized congener	*Parupeneus ciliatus*
Parupeneus insularis	0.0169	3.078	Similar sized congener	*Parupeneus heptacanthus*
Scolopsis xenochrous	0.01383	3.174	Similar sized congener	*Scolopsis bilineata*
Sufflamen sp	0.02865	2.966	Similar sized congener	*Sufflamen fraenatum*
Thalassoma hebraicum	0.01783	2.97765	Similar sized congener	*Thalassoma hardwicke*
Labridae sp	0.01783	2.978	Similar sized congener	*Thalassoma hardwicke*
Chaetodon octofasciatus	0.0043	3.793	Similar sized congener	*Chaetodon mertensii*
Chaetodon lunulatus	0.0311	2.97566	Similar sized congener	*Chaetodon trifasciatus*
Cephalopholis microprion	0.02822	2.81775	Similar sized congener	*Cephalopholis urodeta*
Cephalopholis sp	0.02822	2.818	Similar sized congener	*Cephalopholis urodeta*
Chaetodon adiergastos	0.02578	2.96908	Similar sized congener	*Chaetodon trifascialis*
Labroides pectoralis	0.0059	3.231	Similar sized congener	*Labroides bicolor*
Lethrinus amboinensis	0.01733	3.026	Similar sized congener	*Lethrinus obsoletus*
Lutjanus decussatus	0.00842	3.24696	Similar sized congener	*Lutjanus kasmira*
Pentapodus emeryii	0.0106	3.073	Similar sized congener	*Pentapodus setosus*
Platax teira	0.0425	2.975	Similar sized congener	*Platax orbicularis*
Platax sp	0.0425	2.975	Similar sized congener	*Platax orbicularis*
Plectropomus maculatus	0.01175	3.06	Similar sized congener	*Plectropomus leopardus*
Scolopsis margaritifer	0.01383	3.17378	Similar sized congener	*Scolopsis bilineata*
Fistularia sp	0.017	1.855	Similar sized congener	*Fistularia corneta*
Lethrinus erythropterus	0.02007	2.9639	Similar sized congener	*Lethrinus xanthochilus*
Parupeneus cyclostomus	0.01415	3.114	Similar sized congener	*Parupeneus indicus*
Plectropomus oligacanthus	0.00591	3.23774	Similar sized congener	*Plectropomus laevis*
Plectropomus sp	0.01175	3.06	Similar sized congener	*Plectropomus leopardus*
Acanthurus fowleri	0.02224	3.00795	Similar sized congener	*Acanthurus mata*
Acanthurus sp	0.027	2.945	Similar sized congener	*Acanthurus mata*
Acanthurus pyroferus	0.08306	2.57	Similar sized congener	*Acanthurus triostegus*
Centropyge vroliki	0.09195	2.458	Similar sized congener	*Centropyge bispinosa*
Centropyge nox	0.09195	2.458	Similar sized congener	*Centropyge bispinosa*

Species	**a**	**b**	**Source of a & b**	**Substitute**
Centropyge eibli	0.04923	2.795	Similar sized congener	*Centropyge tibicen*
Centropyge bicolor	0.04923	2.795	Similar sized congener	*Centropyge tibicen*
Chlorurus bleekeri	0.02039	3	Similar sized congener	*Chlororus perspicillatus*
Scarus oviceps	0.02431	2.96931	Similar sized congener	*Chlororus sordidus*
Chromis analis	0.0278	2.826	Similar sized congener	*Chromis crusma*
Ctenochaetus sp	0.02313	3.063	Similar sized congener	*Ctenochaetus striatus*
Naso thynnoides	0.0497	2.839	Similar sized congener	*Naso lituratus*
Scarus forsteni	0.0184	3.029	Similar sized congener	*Scarus altipinnis*
Scarus xanthopleura	0.0184	3.029	Similar sized congener	*Scarus altipinnis*
Scarus dimidiatus	0.01335	3.15996	Similar sized congener	*Scarus niger*
Scarus frenatus	0.01335	3.16	Similar sized congener	*Scarus niger*
Scarus spinus	0.0222	2.982	Similar sized congener	*Scarus psittacus*
Scarus flavipectoralis	0.02306	2.96919	Similar sized congener	*Scarus schlegeli*
Siganus vulpinus	0.01761	3.02839	Similar sized congener	*Siganus puellus*
Amblyglyphidodon aureus	0.02974	2.93605	Similar sized congener	*Amblyglyphidodon leucogaster*
Hemitaurichthys polylepis	0.0318	2.984	Similar sized congener	*Chaetodon ocellatus*
Chromis margaritifer	0.04394	2.82376	Similar sized congener	*Chromis amboinensis*
Chrysiptera caeruleolineata	0.02199	3.001	Similar sized congener	*Chrysiptera taupou*
Pictichromis paccagnellae	0.00994	3.145	Similar sized congener	*Cypho purpurascens*
Heniochus varius	0.01613	3.26217	Similar sized congener	*Heniochus chrysostomus*
Myripristis adusta	0.02769	3.003	Similar sized congener	*Myripristis berndti*
Naso caesius	0.0497	2.839	Similar sized congener	*Naso vlamingi*
Neopomacentrus bankieri	0.02583	2.943	Similar sized congener	*Neopomacentrus azysron*
Pomacentrus nigromanus	0.02518	2.972	Similar sized congener	*Pomacentrus pavo*
Pseudanthias sheni	0.0099	3	Similar sized congener	*Pseudanthias bicolor*
Pseudanthias pascalus	0.01369	3.14874	Similar sized congener	*Pseudanthias hypselosoma*
Pseudanthias lori	0.01369	3.14874	Similar sized congener	*Pseudanthias hypselosoma*
Pseudanthias pleurotaenia	0.01369	3.14874	Similar sized congener	*Pseudanthias hypselosoma*
Pseudanthias sp	0.01369	3.14874	Similar sized congener	*Pseudanthias hypselosoma*
Pterocaesio lativittata	0.01065	3.178	Similar sized congener	*Pterocaesio trilineata*
Thalassoma amblycephalum	0.01783	2.978	Similar sized congener	*Thalassoma hardwicke*
Taeniura lymma	0.01175	3.03	Similar sized and shaped subfamily	*na*
Hoplolatilus starcki	0.01122	3.04	Similar sized and shaped subfamily	*na*
Pseudodax mollucanus	0.01122	3.04	Similar sized and shaped subfamily	*na*
Hoplolatilus cuniculus	0.01175	2.94	Similar sized and shaped subfamily	*na*
Ostracion solorensis	0.03548	2.81	Similar sized and shaped subfamily	*na*
Paracirrhites arcatus	0.00912	3.07	Similar sized and shaped subfamily	*na*

Species	a	b	Source of a & b	Substitute
Parapercis sp	0.00525	3.09	Similar sized and shaped subfamily	*na*
Amanses scopas	0.02089	2.92	Similar sized and shaped subfamily	*na*
Stegostoma fasciatum	0.00389	3.12	Similar sized and shaped subfamily	*na*
Symphorichthys spilurus	0.01259	3.03	Similar sized and shaped subfamily	*na*
Arothron caeruleopunctatus	0.0257	2.89	Similar sized and shaped subfamily	*na*
Hipposcarus longiceps	0.01413	3.04	Similar sized and shaped subfamily	*na*
Amphiprion clarkii	0.02239	2.99	Similar sized and shaped subfamily	*na*
Neoglyphidodon melas	0.02138	2.99	Similar sized and shaped subfamily	*na*
Genicanthus bellus	0.02951	2.89	Similar sized and shaped subfamily	*na*
Genicanthus melanospilos	0.02951	2.89	Similar sized and shaped subfamily	*na*
Macolor sp	0.01445	2.97	Similar sized and shaped subfamily	*na*
Conniella apterygia	0.01	3.04	Similar sized and shaped subfamily	*na*
Heniochus singularius	0.0195	3.19	Mean value for genus	*na*
Thalassoma sp	0.0145	2.95	Mean value for genus	*na*
Balistidae sp	0.0302	2.9	Mean value for genus	*na*
Bothidae sp	0.01	3.08	Mean value for genus	*na*
Pomacanthus navarchus	0.0309	2.9	Mean value for genus	*na*
Gymnothorax fimbriatus	0.0035	3	Mean value for genus	*na*
Lethrinus sp	0.0214	2.96	Mean value for genus	*na*
Myripristis sp	0.0229	3.09	Mean value for genus	*na*
Sargocentron sp	0.0209	3.01	Mean value for genus	*na*
Carangidae sp	0.0219	2.94	Mean value for genus	*na*
Gymnothorax favagineus	0.00093	3.1	Mean value for genus	*na*
Scaridae sp	0.0204	3.04	Mean value for genus	*na*
Chromis sp	0.0229	2.94	Mean value for genus	*na*
Centropyge sp	0.0708	2.56	Mean value for genus	*na*
Pomacentridae sp	0.0302	2.98	Mean value for genus	*na*
Naso lopezi	0.02399	2.95	Mean value for genus	*na*
Naso minor	0.02399	2.95	Mean value for genus	*na*

Table S10. Habitat complexity at the Scott Reefs and the Rowley Shoals, with habitat divided into (1) High profile (branching, massive or tabular hard coral dominated), (2) Low profile (solitary or detached hard coral dominated), (3) Open sandy seabed, (4) Rubble with encrusting organisms, (5) Soft coral dominated and (6) Sponge or filterer dominated. (1) was classified as High Rugosity (HR) whereas (2-6) were classified as Low Rugosity (LR).

Site	Depth (m)	Benthic Category	Substrate	Benthic Form	Habitat Complexity
Clerke	66.8	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Clerke	67.1	Soft coral dominated	Rubble	Rubble field	LR
Clerke	67.6	Soft coral dominated	Rubble	Rubble field	LR
Clerke	68.9	Soft coral dominated	Rubble	Rubble field	LR
Clerke	70.3	Soft coral dominated	Rubble	Rubble field	LR
Clerke	63.7	Soft coral dominated	Rubble	Rubble field	LR
Clerke	68.5	Open sandy seabed	Sand	Sand ripples	LR
Clerke	71.1	Soft coral dominated	Rubble	Rubble field	LR
Clerke	55.8	Soft coral dominated	Rubble	Rubble field	LR
Clerke	58.1	Soft coral dominated	Rubble	Rubble field	LR
Clerke	60.6	Soft coral dominated	Sand	Flat gravel /sand / silt	LR
Clerke	56.4	Sponge or Filterer dominated	Rubble	Rubble field	LR
Clerke	54.4	Rubble with encrusting organisms	Rubble	Rubble field	LR
Clerke	57	Soft coral dominated	Rubble	Rubble field	LR
Clerke	63.2	Soft coral dominated	Rubble	Rubble field	LR
Clerke	69.6	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	60.2	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	53.5	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	64.2	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	65.5	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	62.8	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	70.9	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	69	Sponge or Filterer dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	50.2	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	58	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
Imperieuse	55.6	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	71.2	Soft coral dominated	Bedrock	Rubble field	LR
Imperieuse	55.5	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
Imperieuse	62.6	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	54.6	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
Imperieuse	60.7	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
Imperieuse	63.8	Soft coral dominated	Rubble	Rubble field	LR

Site	Depth (m)	Benthic Category	Substrate	Benthic Form	Habitat Complexity
Imperieuse	68.1	Soft coral dominated	Gravel (2-64mm)	Flat gravel /sand / silt	LR
Imperieuse	67.2	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	76.8	Soft coral dominated	Gravel (2-64mm)	Flat gravel /sand / silt	LR
Imperieuse	72.6	Open sandy seabed	Gravel (2-64mm)	Flat gravel /sand / silt	LR
Imperieuse	60.6	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	66.6	Soft coral dominated	Gravel (2-64mm)	Flat gravel /sand / silt	LR
Imperieuse	72.1	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	71.2	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	79.3	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	80	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	85	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	85.5	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	80.3	Soft coral dominated	Sand	Flat gravel /sand / silt	LR
Imperieuse	80.8	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Imperieuse	82	Soft coral dominated	Rubble	Rubble field	LR
Imperieuse	91.1	Soft coral dominated	Rubble	Rubble field	LR
Mermaid	63	Soft coral dominated	Sand	Flat gravel /sand / silt	LR
Mermaid	61.8	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	60	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	66.4	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	65.1	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	66.9	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	68.1	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	61.6	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	66.4	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
Mermaid	64.2	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
Mermaid	67.6	Soft coral dominated	Rubble	Rubble field	LR
Mermaid	76.4	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	71.6	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	72.8	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
Mermaid	72.4	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
Mermaid	69.8	Low profile	Calcareous reef	High relief reef or outcrops (>1m)	LR
North Scott	58	Soft coral dominated	Calcareous reef	Rubble field	LR
North Scott	34.8	Soft coral dominated	Rubble	Rubble field	LR
North Scott	39.4	Low profile	Calcareous reef	Low outcrop reef or outcrops (<1m)	LR

Site	Depth (m)	Benthic Category	Substrate	Benthic Form	Habitat Complexity
North Scott	49.8	Low profile	Rubble	Rubble field	LR
North Scott	43.9	Low profile	Rubble	Low outcrop reef or outcrops(<1m)	LR
North Scott	39.1	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
North Scott	45.2	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
North Scott	43.6	Soft coral dominated	Rubble	Rubble field	LR
North Scott	43.4	Soft coral dominated	Bedrock	Flat gravel /sand / silt	LR
North Scott	40.5	Low profile	Calcareous reef	Low outcrop reef or outcrops(<1m)	LR
North Scott	35.8	Soft coral dominated	Rubble	Rubble field	LR
North Scott	42	Low profile	Rubble	Rubble field	LR
North Scott	43.9	Soft coral dominated	Rubble	Rubble field	LR
North Scott	40	Soft coral dominated	Rubble	Rubble field	LR
North Scott	40.8	Soft coral dominated	Rubble	Rubble field	LR
North Scott	39.5	Soft coral dominated	Bedrock	Flat gravel /sand / silt	LR
South Scott Lagoon	57.2	Soft coral dominated	Rubble	Rubble field	LR
South Scott Lagoon	58.7	Soft coral dominated	Rubble	Rubble field	LR
South Scott Lagoon	59.5	Soft coral dominated	Rubble	Rubble field	LR
South Scott Lagoon	60.5	Soft coral dominated	Gravel (2-64mm)	Flat gravel /sand / silt	LR
South Scott Lagoon	54.4	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
South Scott Lagoon	64	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
South Scott Lagoon	66.4	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
South Scott Lagoon	58.6	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
South Scott	38	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	37.2	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
South Scott	34.1	Soft coral dominated	Rubble	Rubble field	LR
South Scott	33.2	Low profile	Bedrock	Low outcrop reef or outcrops(<1m)	LR
South Scott	48.1	Soft coral dominated	Rubble	Rubble field	LR
South Scott	59.4	Soft coral dominated	Rubble	Rubble field	LR
South Scott	59.2	Soft coral dominated	Calcareous reef	Low outcrop reef or outcrops(<1m)	LR
South Scott	65.4	Soft coral dominated	Rubble	Flat gravel /sand / silt	LR
South Scott	50.9	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	65.2	Soft coral dominated	Rubble	Rubble field	LR
South Scott	67.8	Rubble with encrusting organisms	Rubble	Rubble field	LR
South Scott	73.8	Soft coral dominated	Rubble	Rubble field	LR
South Scott	69.6	Soft coral dominated	Rubble	Rubble field	LR
South Scott	70.8	Rubble with encrusting organisms	Rubble	Rubble field	LR

Site	Depth (m)	Benthic Category	Substrate	Benthic Form	Habitat Complexity
South Scott	42.9	Low profile	Calcareous reef	Low outcrop reef or outcrops(<1m)	LR
South Scott	46.4	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	45.8	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	45.6	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	44.6	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	45.7	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	47.6	Low profile	Calcareous reef	Rubble field	LR
South Scott	46.1	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	50	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	50.6	High profile	Calcareous reef	High relief reef or outcrops (>1m)	HR
South Scott	50.9	Low profile	Rubble	Low outcrop reef or outcrops(<1m)	LR
South Scott	51.7	Low profile	Rubble	Low outcrop reef or outcrops(<1m)	LR
South Scott	52	Low profile	Rubble	Low outcrop reef or outcrops(<1m)	LR
South Scott	48.7	Rubble with encrusting organisms	Rubble	Rubble field	LR
South Scott	51.6	Rubble with encrusting organisms	Rubble	Rubble field	LR
South Scott	50.1	Soft coral dominated	Rubble	Rubble field	LR

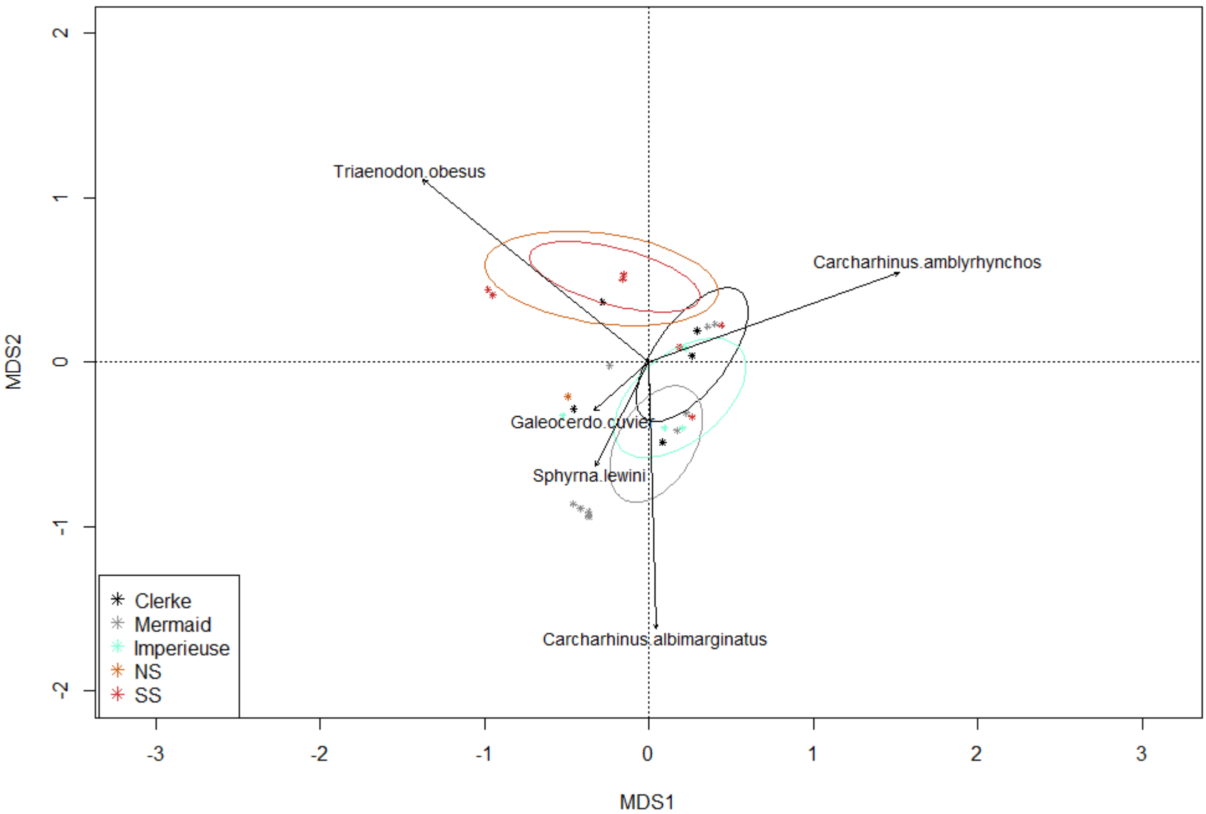

Fig. S1. PERMANOVA results for shark abundance on stereo-BRUVS, with site nested in location at the Scott Reefs and the Rowley Shoals. Differences between sites were insignificant (*p*=0.0584).