

**Supplementary material**

**Low functional redundancy and high variability in *Sargassum* browsing fish populations in a subtropical reef system**

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**Table S1. List of species and their assigned trophic groups**

Trophic groups, as assigned from dietary information available on FishBase: C, corallivore; GC, generalist carnivore; H, herbivore; I/A, inverts and algae; MIC, macroinvertebrate carnivore; P, piscivore; P/A, plankton and algae; PK, planktivore

Species	Trophic group
<i>Chaetodon auriga</i>	C
<i>Chaetodon flavirostris</i>	C
<i>Chaetodon lunulatus</i>	C
<i>Chaetodon plebeius</i>	C
<i>Chaetodon</i> sp.	C
<i>Chelmon rostratus</i>	C
<i>Aptychotrema rostrata</i>	GC
c.f. <i>Lethrinus laticaudis</i>	GC
<i>Caranx sexfasciatus</i>	GC
<i>Caranx</i> spp.	GC
<i>Carcharhinus amboinensis</i>	GC
<i>Charcarias sorrah</i>	GC
<i>Chiloscyllium punctatum</i>	GC
<i>Diagramma pictum pictum</i>	GC
<i>Echeneis naucrates</i>	GC
<i>Epinephelus coioides</i>	GC
<i>Fistularia commersonii</i>	GC
<i>Gymnothorax favagineus</i>	GC
<i>Gymnothorax pseudothyrosoideus</i>	GC
<i>Himantura uarnak</i>	GC
<i>Hypoplectrodes jamesoni</i>	GC
<i>Lagocephalus inermis</i>	GC
<i>Lagocephalus lunaris</i>	GC
<i>Lethrinus laticaudis</i>	GC
<i>Lethrinus nebulosus</i>	GC
<i>Lutjanus russelli</i>	GC
<i>Orectolobus maculatus</i>	GC
<i>Orectolobus ornatus</i>	GC
<i>Pagrus auratus</i>	GC
<i>Paraplesiops poweri</i>	GC
<i>Pentapodus paradiseus</i>	GC
<i>Platax teira</i>	GC
<i>Platycephalus endrachtensis</i>	GC
<i>Platycephalus fuscus</i>	GC
<i>Polydactylus macrochir</i>	GC
<i>Pomatomus saltatrix</i>	GC
<i>Pseudorhombus</i> spp.	GC
<i>Rhinobatos albomaculatus</i>	GC
<i>Selaroides</i> spp.	GC
<i>Seriola lalandi</i>	GC
<i>Sphyraena barracuda</i>	GC
<i>Sphyraena obtusata</i>	GC
<i>Tetradontidae</i> sp.	GC
<i>Trachinocephalus myops</i>	GC
<i>Cheilodactylus vestitus</i>	H
<i>Prionurus microlepidotus</i>	H
<i>Scarinae</i> sp. 1	H
<i>Scarinae</i> sp. 2	H
<i>Scarinae</i> sp. 3	H
<i>Siganus fuscescens</i>	H
<i>Abudefduf sordidus</i>	I/A

Species	Trophic group
<i>Abudefduf vaigiensis</i>	I/A
<i>Acanthopagrus australis</i>	I/A
<i>Chelmonops</i> sp.	I/A
<i>Hyporhamphus regularis ardelio</i>	I/A
<i>Meiacanthus lineatus</i>	I/A
<i>Meuschenia trachylepis</i>	I/A
<i>Microcanthus strigatus</i>	I/A
<i>Monacanthus chinensis</i>	I/A
<i>Neoarius graeffei</i>	I/A
<i>Parapercis australis</i>	I/A
<i>Parma oligolepis</i>	I/A
<i>Petroscirtes variabilis</i>	I/A
<i>Rhabdosargus sarba</i>	I/A
<i>Selenotoca multifasciata</i>	I/A
<i>Arothron hispidus</i>	MIC
<i>Atle mate</i>	MIC
<i>Bodianus perditio</i>	MIC
<i>Choerodon cephalotes</i>	MIC
<i>Choerodon graphicus</i>	MIC
<i>Choerodon venustus</i>	MIC
<i>Dasyatis fluviorum</i>	MIC
<i>Dicotylichthys punctulatus</i>	MIC
<i>Gerres subfasciatus</i>	MIC
<i>Gobiidae</i> spp.	MIC
<i>Halichoeres chrysus</i>	MIC
<i>Heniochus acuminatus</i>	MIC
<i>Hippichthys penicillatus</i>	MIC
<i>Labroides dimidiatus</i>	MIC
<i>Mugil cephalus</i>	MIC
<i>Neotrygon kuhlii</i>	MIC
<i>Pelates sexlineatus</i>	MIC
<i>Pseudolabrus guentheri</i>	MIC
<i>Sillago ciliata</i>	MIC
<i>Sillago maculata</i>	MIC
<i>Siphamia roseigaster</i>	MIC
<i>Stethojulis</i> spp.	MIC
<i>Thalassonna lunare</i>	MIC
<i>Trachinotus</i> sp.	MIC
<i>Tripodichthys angustifrons</i>	MIC
<i>Upeneus</i> sp. 1	MIC
<i>Upeneus tragula</i>	MIC
<i>Heniochus acuminatus</i>	P
<i>Thylosurus gavialoides</i>	P
<i>Atherinomorus ogilbyi</i>	P/A
c.f <i>Chromis analis</i>	P/A
c.f. <i>Cirrhilabrus katherinae</i>	P/A
<i>Chromis nitida</i>	P/A
<i>Monodactylus argenteus</i>	P/A
<i>Apogon cavittiensis</i>	PK
<i>Apogon limenus</i>	PK
<i>Neopomacentrus blankieri</i>	PK
<i>Siphamia roseigaster</i>	PK

**Table S2. Similarity percentage breakdown procedure (SIMPER) results demonstrating species driving differences between reef types**

Only species that contributed a minimum of 5% to cumulative percent contributions are included here. Trophic groups, as assigned from dietary information available on FishBase: GC, generalist carnivore; I/A, inverts/algae; MIC, macroinvertebrate carnivore; PK, planktivore

Species	Average similarity (%)	North-west (17.05)		West (24.58)		Central (39.31)		East (19.07)	
	Trophic group	Average abundance	Contribution (%)	Average abundance	Contribution (%)	Average abundance	Contribution (%)	Average abundance	Contribution (%)
<i>Sillago</i> spp.	MIC	0.94	40.27						
<i>Acanthopagrus australis</i>	I/A	1.03	37.25	1.37	19.28	2.31	27.33	1.25	18.15
<i>Pelates sexlineatus</i>	MIC	1.14	9.51	1.76	9.26			1.89	15.3
<i>Pseudolabrus guntheri</i>	MIC			1.12	24.84	1.41	16.72	0.95	12.02
<i>Pentapodus paradiseus</i>	GC			0.95	13.39	1.03	5.59		
<i>Hypoplectrodes jamesoni</i>	GC			0.44	542				
<i>Choerodon cephalotes</i>	MIC			0.44	5.28				
<i>Pagrus auratus</i>	GC			0.72	5.23				
<i>Microcanthus strigatus</i>	I/A					1.39	8.36		
<i>Apogon limenus</i>	PK					0.83	6.01		

**Table S3. List of species the top 50 most abundant species (from most abundant to 50th), their rate of occurrence on each BRUVS type and the trophic group to which they were assigned**

Species in bold were observed more often on recorded algal deployments than on pilchard BRUVS.

Seven out of the ten species observed more often on recorded algal deployments include benthic algae as a portion of their diets. Trophic groups, as assigned from dietary information available on

FishBase- C, corallivore; GC, generalist carnivore; H, herbivore; I/A, inverts/algae; MIC, macroinvertebrate carnivore; P, piscivore; P/A, plankton/algae; PK, planktivore

Species	Pilchard BRUVS occurrence	Sargassum BRUVS occurrence	Trophic group
<i>Pelates sexlineatus</i>	0.23	0.11	MIC
<i>Acanthopagrus australis</i>	0.70	0.55	I/A
<i>Siganus fuscescens</i>	<b>0.18</b>	<b>0.32</b>	<b>H</b>
<i>Pseudolabrus guntheri</i>	0.62	0.55	MIC
<i>Pentapodus paradiseus</i>	0.35	0.28	GC
<i>Mugil cephalus</i>	<b>0.01</b>	<b>0.06</b>	MIC
<i>Sphyraena obtusata</i>	0.24	0.10	GC
<i>Microcanthus strigatus</i>	0.23	0.13	I/A
<i>Gerres subfasciatus</i>	<b>0.30</b>	<b>0.32</b>	<b>MIC</b>
<i>Prionurus micolepidotus</i>	<b>0.17</b>	<b>0.19</b>	<b>H</b>
<i>Sillago ciliata</i>	0.19	0.06	MIC
<i>Thalassonna lunare</i>	0.20	0.16	MIC
<i>Neopomacentrus blankieri</i>	0.11	0.05	PK
<i>Rhabdosargus sarba</i>	0.21	0.05	I/A
<i>Apogon limenus</i>	0.29	0.07	PK
<i>Meiacanthus lineatus</i>	<b>0.23</b>	<b>0.27</b>	<b>I/A</b>
<i>Pagrus auratus</i>	0.15	0.03	GC
<i>Lutjanus russelli</i>	0.20	0.09	GC
<i>Atule mate</i>	0.04	0.00	MIC
<i>Chelmon rostratus</i>	0.21	0.18	C
<i>Atherinomorus spp.</i>	<b>0.00</b>	<b>0.01</b>	<b>P/A</b>
<i>Chaetodon auriga</i>	0.13	0.08	C
<i>Abudefduf spp.</i>	<b>0.11</b>	<b>0.14</b>	<b>I/A</b>
<i>Chaetodon plebeius</i>	0.13	0.07	C
<i>Monacanthus chinensis</i>	0.14	0.10	I/A
<i>Choerodon cephalotes</i>	0.16	0.11	MIC
<i>Chaetodon flavirostris</i>	0.10	0.06	C
<i>Upeneus tragula</i>	0.10	0.08	MIC
<i>Monodactylus argenteus</i>	0.05	0.04	P/A
<i>Diagramma pictum pictum</i>	0.09	0.05	GC
<i>Cheilodactylus vestitus</i>	<b>0.09</b>	<b>0.10</b>	<b>H</b>
<i>Siphamia rosiegaster</i>	0.01	0.00	MIC
<i>Lethrinus laticaudis</i>	0.07	0.00	DC
<i>Lethrinus nebulosus</i>	0.08	0.06	GC
<i>Hopplectodes jamesoni</i>	0.10	0.03	GC
<i>Upeneus sp.</i>	0.02	0.00	MIC
<i>Hyporhamphus regularis ardelio</i>	0.04	0.02	I/A
<i>Parma oligolepis</i>	0.05	0.05	I/A
<i>Orectolobus maculatus</i>	0.11	0.01	GC
<i>Parapercis australis</i>	0.08	0.03	I/A
<i>Petroskirtes variabilis</i>	0.04	0.06	I/A
<i>Chiloscyllium punctatum</i>	0.07	0.01	GC
<i>Pomatomus saltatrix</i>	0.03	0.01	GC
<i>Dasyatis fluviorum</i>	0.05	0.02	MIC
<i>Chelmonops sp.</i>	<b>0.02</b>	<b>0.03</b>	<b>I/A</b>
<i>Dasyatis khulii</i>	0.05	0.02	MIC

Species	Pilchard BRUVS occurrence	<i>Sargassum</i> BRUVS occurrence	Trophic group
<i>Pseudorhombus</i> sp.	0.06	0.01	GC
<i>Neoarius graeffei</i>	0.03	0.02	I/A
<b><i>Fistularia commersonii</i></b>	<b>0.01</b>	<b>0.02</b>	<b>GC</b>
<i>Labroides dimidiatus</i>	0.03	0.02	MIC