

[10.1071/MF23050](https://doi.org/10.1071/MF23050)

Marine and Freshwater Research

Supplementary Material

Benthic communities of the lower mesophotic zone on One Tree shelf edge, southern Great Barrier Reef, Australia

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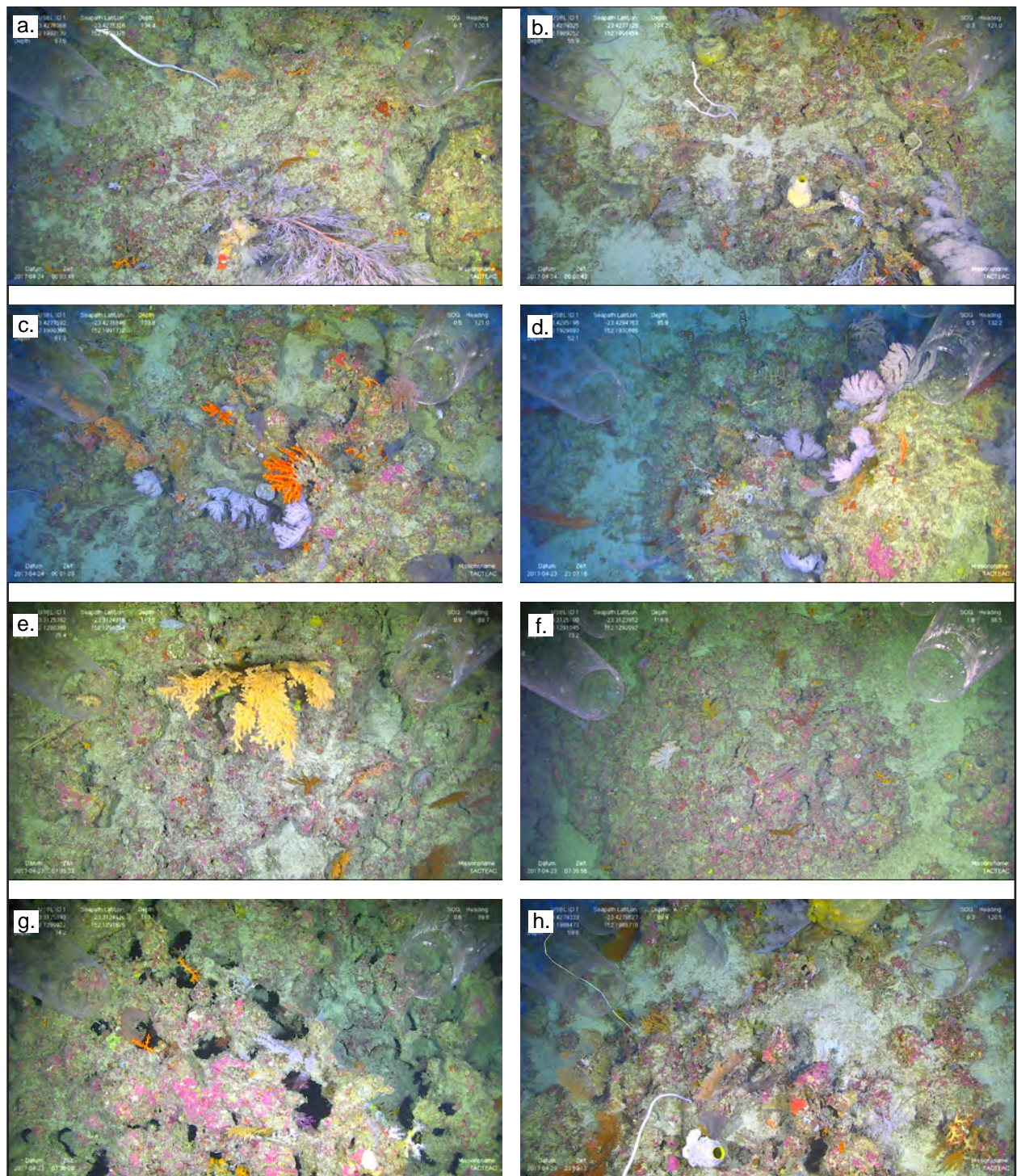


Fig. S1. Transect samples from low-moderate relief and rocky outcrop areas demonstrate clarity of imagery for CATAMI identification purposes. Examples of some biota include (a) Black Coral: Arborescent, Sponge: Erect Simple, Stony Coral: Branching; (b) Sponge: Barrel, Sponge: Massive Ball, Black Coral: Bushy; (c) Stony Coral: Branching, Macroalgae: Encrusting Red, Black Coral: Bushy; (d) Black Coral: Bushy, Black Coral: Whip, Macroalgae: Encrusting Red; (e) Octocoral: Fan; (f) Macroalgae: Encrusting Red, Octocoral: Non-Fleshy Arborescent; (g) Macroalgae: Encrusting Red; Stony Coral: Branching; (h) Octocoral: Whip, Sponge: Barrel, Octocoral: Fleshy Arborescent, Octocoral: Non-Fleshy Arborescent, Sponge: Massive Ball. Note: only select biota were named in caption due to space constraints.

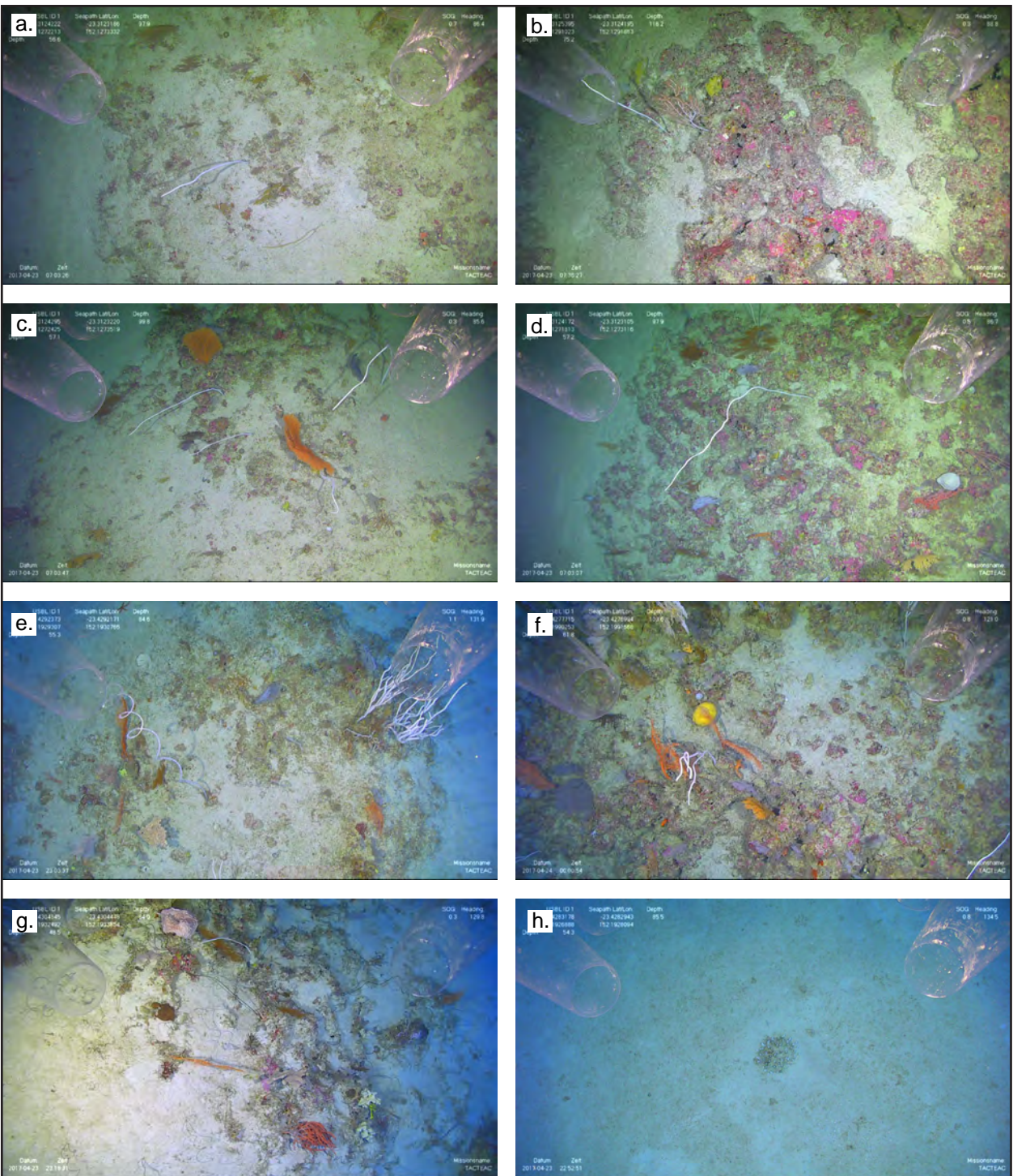


Fig. S2. Transect samples from flat relief and sand-covered rock areas demonstrate clarity of imagery for CATAMI identification purposes. Examples of some biota include (a) Foraminifera, Sponge: Simple Erect; (b) Macroalgae: Encrusting Red, Octocoral: Fan 2D Rigid, Sponge: Erect Simple, (c) Octocoral: Fan 2D Rigid, Sponge: Simple Branching, (d) Sponge: Cup-Likes, Macroalgae: Encrusting Red; (e) Sponge: Erect Branching, Black Coral: Whip; (f) Sponge: Massive Ball, Sponge: Erect Branching, Octocoral: Fan 2D Rigid; (g) Black Coral: Whip, Foraminifera, Stony Coral: Massive; (h) Sponge: Massive Cryptic. Note: only select biota were named in caption due to space constraints.

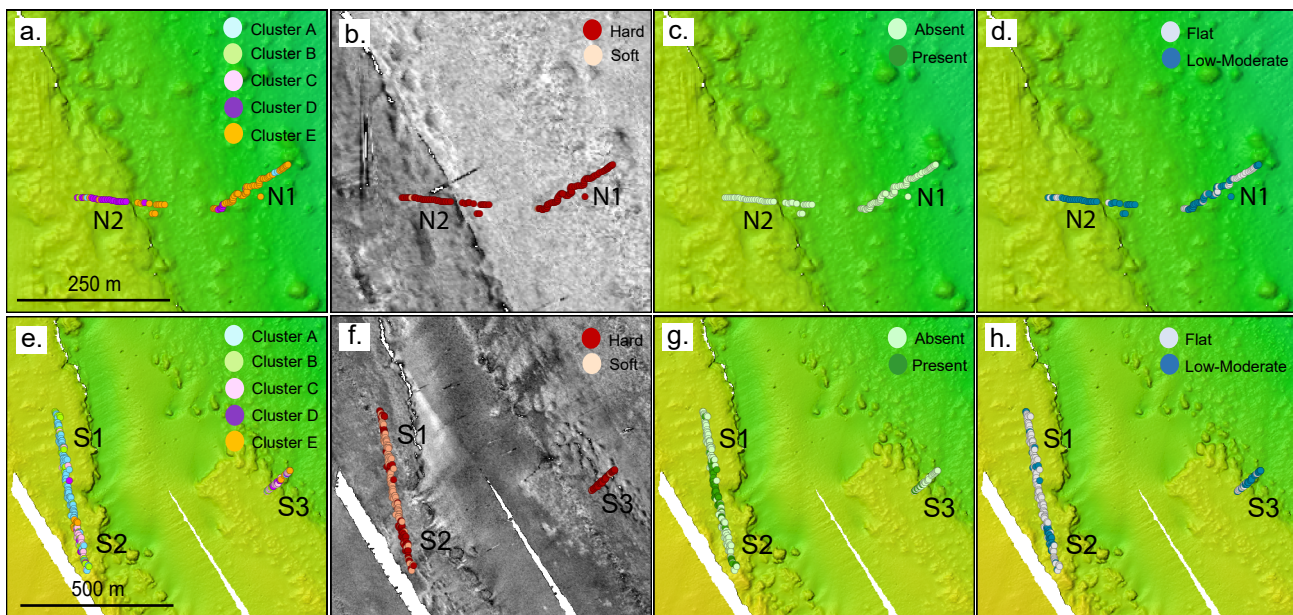


Fig. S3. Maps of CATAMI cluster OTUs, substrate, bioturbation, and relief: **(a)** stations N1 and N2 cluster groups; **(b)** stations N1 and N2 substrate with backscatter background; **(c)** stations N1 and N2 bioturbation; **(d)** stations N1 and N2 relief; **(e)** stations S1, S2 and S3 cluster groups; **(f)** stations S1, S2, and S3 substrate with backscatter background; **(g)** stations S1, S2, and S3 bioturbation; **(h)** stations S1, S2, and S3 relief.

Table S1. List of identified taxa described in this study.

Order	Family	Genus	Morphology	Depth range (m)	A, Z or P	Notes
Rotaliida	Nummulitidae	<i>Cycloclypeus</i>	-	82–119	P	<i>Cycloclypeus carpenteri</i>
Alcyonacea	Plexauridae	<i>Paracis</i>	fan	83–116	H	
Alcyonacea	Ellisellidae	<i>Junceella</i> – <i>Viminella</i>	whip	82–117	H	Unable to differentiate
Scleractinia	Dendrophylliidae	<i>Dendrophyllia</i>	branching	83–125	H	
Alcyonacea	Plexauridae	-	fan	87–117	H	Not including the <i>Muricea</i> or <i>Paracis</i>
Alcyonacea	Nephtheidae	-	branching	82–121	H	No zooxanthellate taxa observed
Anthoathecata	Stylasteridae	<i>Stylaster</i>	branching	86–125	H	
Antipatharia	Aphanipathidae*	<i>Aphanipathes</i> *	branching	85–117	H	*Could also be Antipathidae (<i>Antipathes</i>)
Alcyonacea	Acanthogorgiidae	<i>Muricella</i>	fan	83–105	H	
Scleractinia	Agariciidae	<i>Leptoseris</i>	Plate	83–119	H	
Alcyonacea	Plexauridae	<i>Muricea</i>	fan	95–122	H	
Alcyonacea	Subergorgiidae	<i>Annella</i>	fan	82–120	H	
Dictyoceratida	Thorectidae	<i>Carteriospongia</i> *	cup	82–121	P	*Could also be <i>Cymbastela</i>
Antipatharia	Antipathidae	-	whip	82–105	H	Coiled genera only
Alcyonacea	Ellisellidae	<i>Ellisella</i>	branching	85–104	H	
Antipatharia	Myriopathidae	<i>Myriopathes</i> (?)	branching	83–106	H	
Alcyonacea	Anthotheididae	-	fan	83–107	H	Non-encrusting genera only
Alcyonacea	Ifalukellidae	<i>Plumigorgia</i>	fan	90–111	H	
Alcyonacea	Ellisellidae	<i>Ctenocella</i>	branching	85–100	H	
Alcyonacea	Isididae	<i>Jasminis</i>	branching	86–99	H	
Alcyonacea	Nidaliidae	<i>Chironophthya</i>	branching	85–103	H	
Dictyotales	Dictyotaceae	<i>Lobophora</i> (?)	-	83–122	P	

H, heterotrophic; P, photosynthetic. The octocoral guide of Fabricius and Alderslade (2001) was used for soft coral identification. Additional ID skills acquired from Gal Eyal and Tom Bridge for hard coral, Dennis Opresko and Jeremy Horowitz for black coral, and John Hooper for sponges. Depth range refers to range observed in this study only. *Carteriospongia* and *Cycloclypeus* are categorized as “phototrophic” due to cyanobacterial symbionts. Images of identified taxa are shown in Fig. S4.

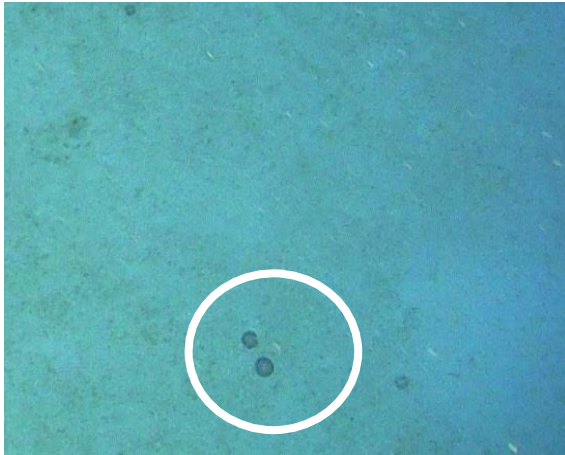
Table S2. Jaccard Index of Dissimilarity values for CATAMI OTUs compared between depth ranges.

	80–89 m	90–99 m	100–109 m	110–119 m	120–129 m
All substrate					
80–89 m	x				
90–99 m	0.06	x			
100–109 m	0.00	0.06	x		
110–119 m	0.37	0.43	0.37	x	
120–129 m	0.40	0.46	0.40	0.44	x
Hard substrate (rock and cobble)					
80–89 m	x				
90–99 m	0.09	x			
100–109 m	0.03	0.06	x		
110–119 m	0.40	0.43	0.37	x	
120–129 m	0.43	0.46	0.40	0.44	x
Soft substrate (sand)					
80–89 m	x				
90–99 m	0.73	x			
100–109 m	1.00	1.00	x		
110–119 m	0.84	0.66	1.00	x	
120–129 m	1.00	1.00	0.0 ^A	1.00	x

The closer the value is to 1.0, the more dissimilar the two categories are.

^ANo comparable numbers.

Cycloclypeus



Paracis



Junceella-Viminella



Dendrophyllia



Plexauridae



Fig. S4. ID guide. Images correspond to families and genera listed in Table S2.

Nephtheidae



Stylaster



*Aphanipathes**



Muricella



Fig. S4. (Cont.)

Leptoseris



Muricea



Annella



*Carteriospongia**



Antipathidae



Fig. S4. (Cont.)

Ellisella



Myriopathes (?)



Anthothelidae (non-encrusting)



Plumigorgia



Ctenocella

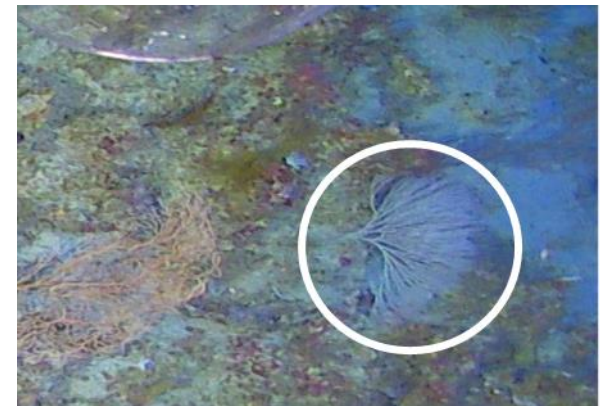


Fig. S4. (Cont.)

Jasminis



Chironephthya



Lobophora (?)

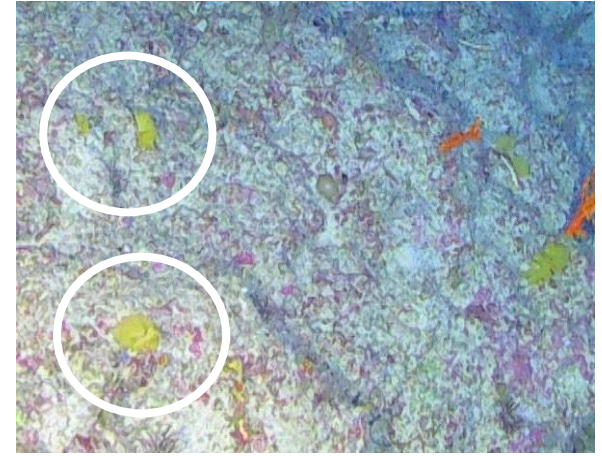


Fig. S4. (Cont.)

References

Fabricius K, Alderslade P (2001) Soft corals and sea fans: a comprehensive guide to the tropical shallow water genera of the central-west Pacific, the Indian Ocean and the Red Sea. Australian Institute of Marine Science. Townsville, Qld, Australia.