

Supplementary material

Conservation value of a subtropical reef in south-eastern Queensland, Australia, highlighted by citizen-science efforts

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Supplementary Materials

Table S1. Reef Check Australia (RCA) indicator categories per survey type (i.e. benthos, impact, invertebrate and fish) consolidated to Flinders Reef Ecological Assessment (FREA) groups for data collection and statistical analysis.

Benthos and fish survey RCA categories were modified for the FREA citizen science project.

FREA group	Substrate RCA category* (*modified for Flinders Reef)	Abbreviation
Hard Coral	Hard Coral	HC
	Hard Coral Bleached	HCB
	Hard Coral Branching	HCBR
	Hard Coral Massive	HCM
	Hard Coral Foliose	HCF
	Hard Coral Plate	HCP
	Hard Coral Encrusting	HCE
Soft Coral	Soft Coral	SC
	Soft Coral Leathery	SCL
	Soft Coral Bleached	SCB
	Soft Coral Zooanthid	SCZ
Recently Killed Coral	Recently Killed Coral	RKC
	Recently Killed Coral with Nutrient Indicator Algae	RKCNIA
	Recently Killed Coral with Turf Algae	RKCTA
Rock	Rock	RC
	Rock with Coralline Algae	RCCA
	Rock with Turf Algae	RCTA
Nutrient Indicator Algae	Nutrient Indicator Algae	NIA
Sponge	Sponge	SP
	Sponge Encrusting	SPE
Other	Other	OT
	Other Corallimorph*	OTC
Rubble	Rubble	RB
Sand	Sand	SD
Silt/Clay	Silt/Clay	SI

FREA group	Impact RCA category
Coral Disease	Coral Disease
Damage Coral Physical	Damage Other
Damage Boat / Anchor	Damage Boat / Anchor
Damage Dynamite	Damage Dynamite
Scars <i>Drupella</i> spp.	Scars <i>Drupella</i> spp.
Scars Unknown	Scars Unknown / Other
Scars COTS	Scars Crown of Thorns
Trash Fishing	Trash Fishing Line Trash Fish Nets
Trash Other	Trash General

FREA group	Invertebrate RCA category
Anemone	Anemone With Fish Anemone Without Fish
Banded Coral Shrimp	Banded Coral Shrimp
Crown of Thorns	Crown of Thorns Starfish <6 cm Crown of Thorns Starfish 6-15 cm Crown of Thorns Starfish 15-25 cm Crown of Thorns Starfish >25 cm
Giant Clam	Giant Clam <10 cm Giant Clam 10-20 cm Giant Clam 20-30 cm Giant Clam 30-40 cm Giant Clam 40-50 cm Giant Clam >50 cm
Lobster	Lobster Spiny & Slippery
Gastropod <i>Drupella</i> spp.	Shells <i>Drupella</i>
Shells	Shells Triton Shells Trochus
Sea Cucumber	Sea Cucumber Pinkfish Sea Cucumber Prickly Greenfish Sea Cucumber Prickly Redfish
Sea Urchin	Sea Urchin Collector Sea Urchin Diadema Sea Urchin Pencil

Fish	
FREA group	RCA category* (*modified for Flinders Reef)
Butterflyfish	Butterflyfish
Emperor	Emperor Spangled Emperor* Emperor Other*
Snapper	Snapper Pink Snapper Snapper Other
Sweetlip	Sweetlip
Morwong	Morwong*
Parrotfish	Parrotfish Bumphead Parrotfish Other >20 cm
Grouper	Grouper Coral Trout 30-40cm Grouper Coral Trout 40-50 cm Grouper Coral Trout 50-60 cm Grouper Coral Trout >60 cm Grouper 30-40 cm Grouper 40-50 cm Grouper 50-60 cm Grouper >60 cm Grouper Queensland Grouper Grouper Barramundi Cod
Wrasse	Wrasse Blue Groper* Wrasse Humphead Wrasse
Moray Eel	Moray Eel
Wobbegong	Wobbegong

Table S2. Summary seasonal survey comparison per survey type.

Student's t-test output based on the overall mean of measurements for the four survey types, i.e. benthos, impact, invertebrate and fish.

Survey	t-value	<i>P</i> value	Df
Substrate	-0.001	1.000	48
Impact	-1.035	0.328	9
Invertebrate	0.417	0.683	15
Fish	0.387	0.706	12

Figure S1. Averages per site per season (autumn and spring) for each of the four survey types conducted for FREA. A. Benthic cover (%), B. Reef impacts (100 m⁻²), C. Invertebrate abundance (100 m⁻²), and D. Fish abundance (100 m⁻²).







