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Supplementary material

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

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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

	Substrate	
FREA group	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
	Sof 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

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

	Invertebrate
FREA group	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 *Drupella* spp.	Shells Drupella
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	*P* 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

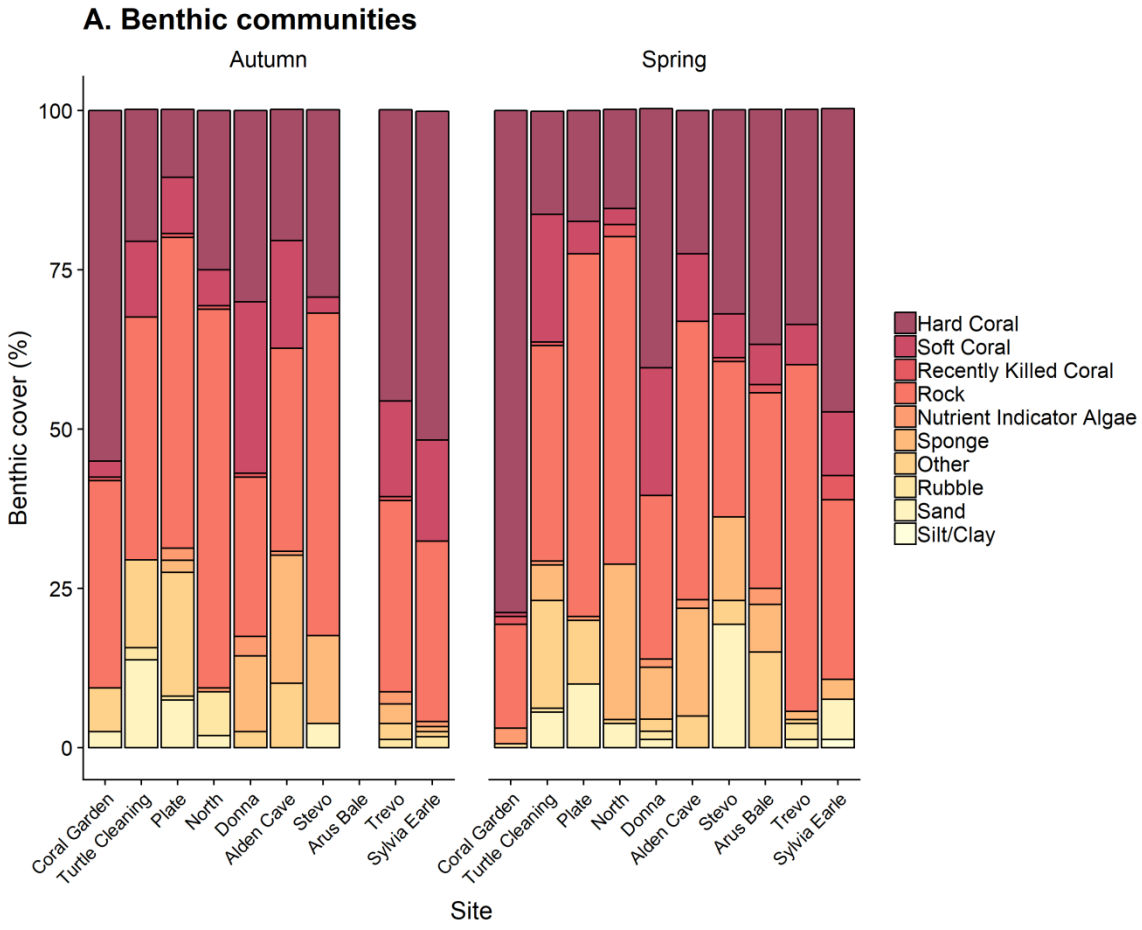
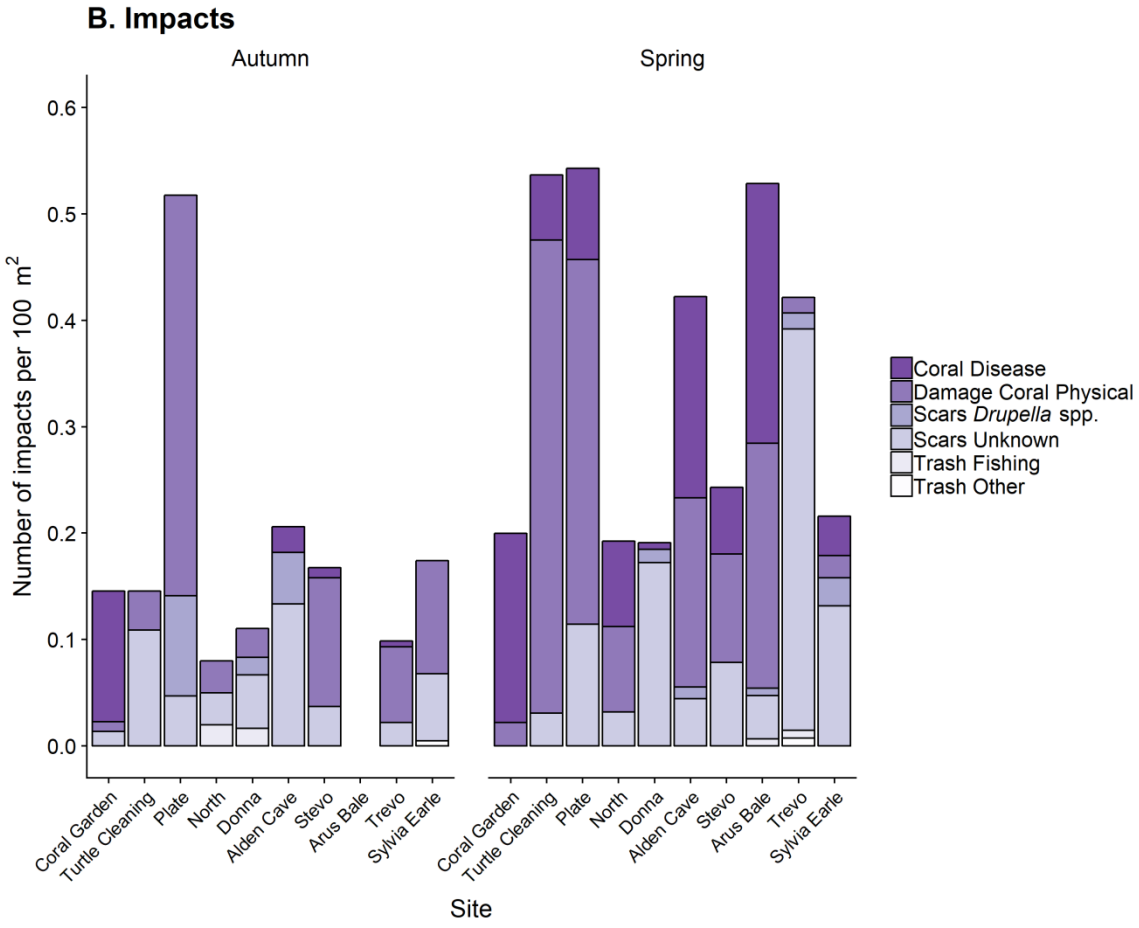
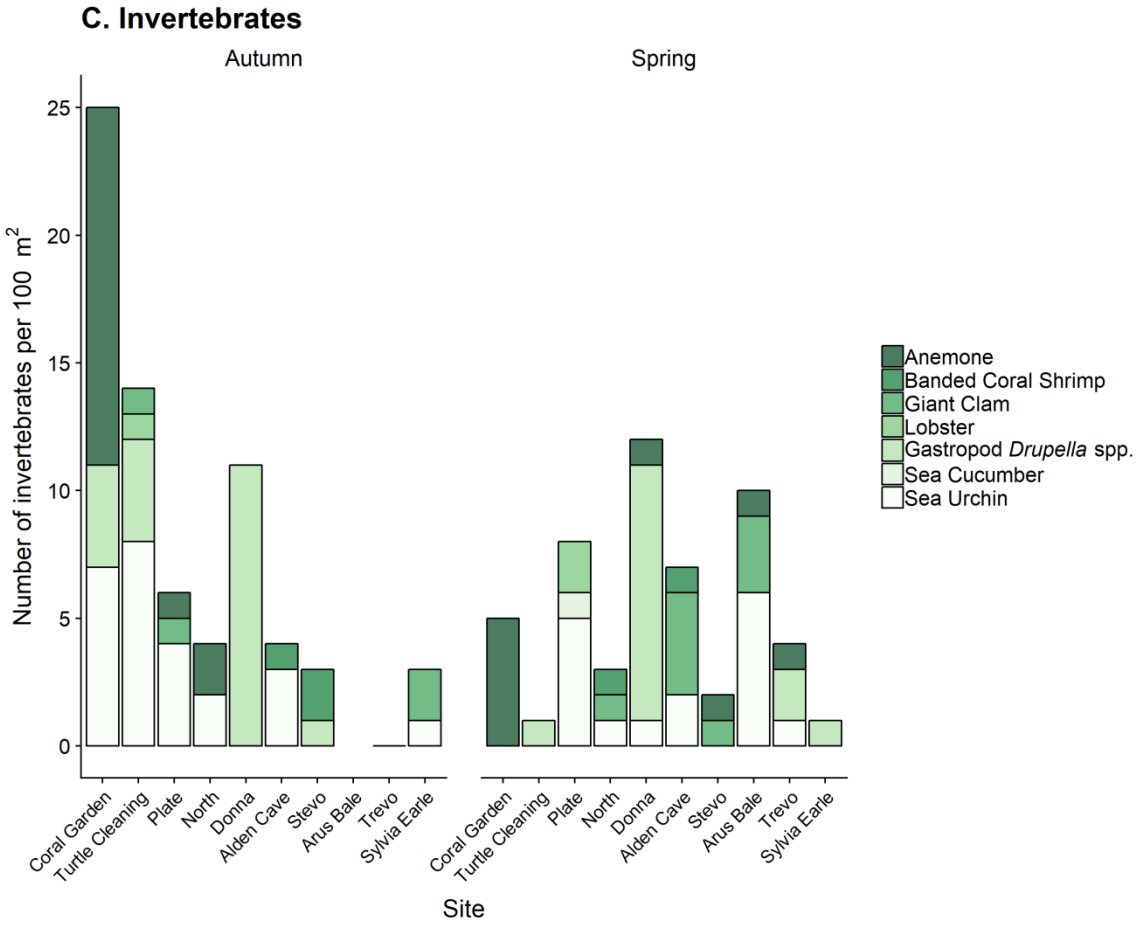
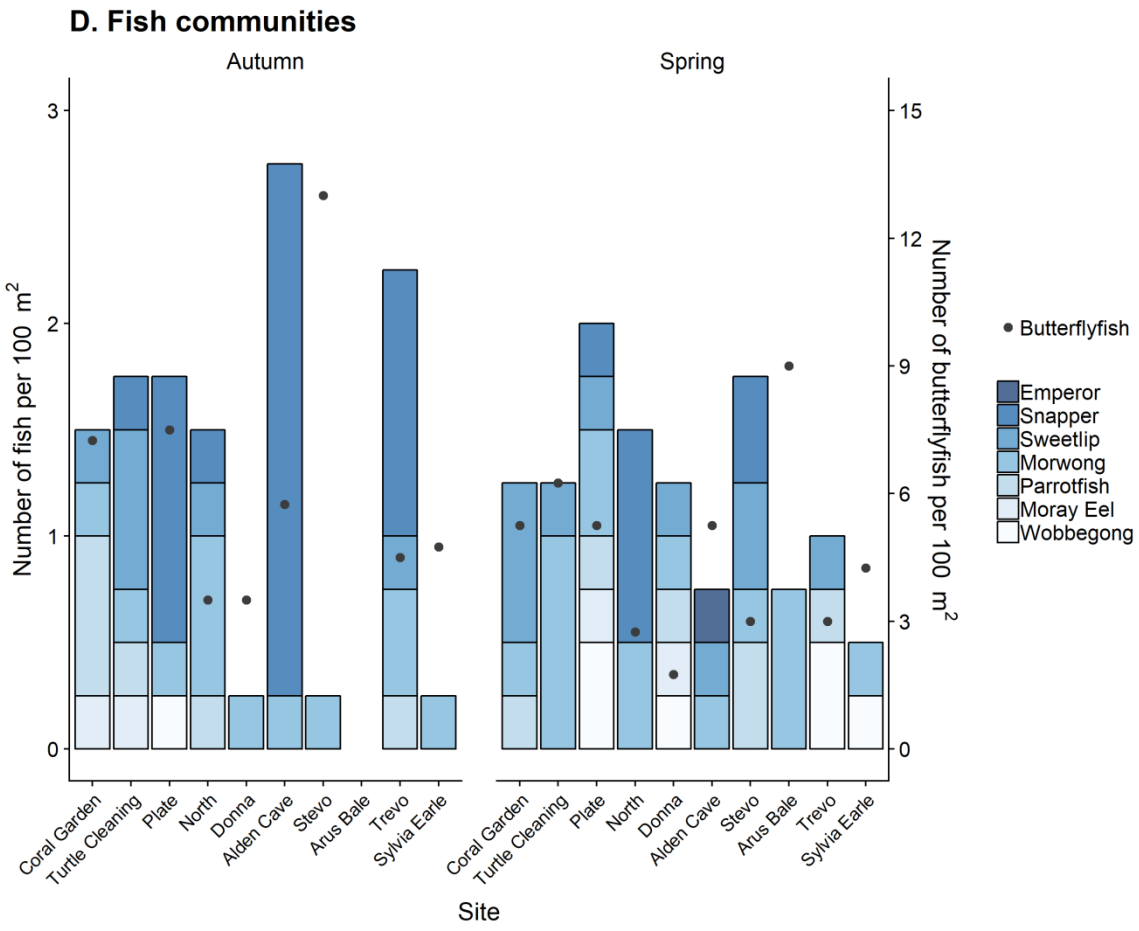


Fig. S1. Averages per site per season (autumn and spring) for each of the four survey types conducted for FREA. A. Benthic cover (%), B. Reef impacts (100 m^{-2}), C. Invertebrate abundance (100 m^{-2}), and D. Fish abundance (100 m^{-2}).


B. Impacts
Autumn
Spring
Number of impacts per 100 m2
0.0
0.1
0.2
0.3
0.4
0.5
0.6
Coral Garden
Turtle Cleaning
Plate
North
Donna
Alden Cave
Stevo
Arus Bale
Trevo
Sylvia Earle
Site
Coral Disease
Damage Coral Physical
Scars Drupella spp.
Scars Unknown
Trash Fishing
Trash Other


C. Invertebrates
Autumn
Spring
Number of invertebrates per 100 m2
25
20
15
10
5
0
Coral Garden
Turtle Cleaning
Plate
North
Donna
Alden Cave
Stevo
Arus Bale
Trevo
Sylvia Earle
Site
Anemone
Banded Coral Shrimp
Giant Clam
Lobster
Gastropod Drupella spp.
Sea Cucumber
Sea Urchin


D. Fish communities
Autumn
Spring
Number of fish per 100 m2
Number of butterflyfish per 100 m2
0
1
2
3
0
3
6
9
12
15
Coral Garden
Turtle Cleaning
Plate
North
Donna
Alden Cave
Stevo
Arus Bale
Trevo
Sylvia Earle
Site
Butterflyfish
Emperor
Snapper
Sweetlip
Morwong
Parrotfish
Moray Eel
Wobbegong