

APPENDIX B

Statistical Analysis

All Surveyed Sites

Mean % Mortality

Independent sample t-test comparing mean % coral mortality between channel-side and control locations

Location	Mean % Coral Mortality	SD	<i>t</i>	<i>p</i>
Channel-side	43.39	22.55	2.1	0.37
Controls	35.53	14.47		

All Surveyed Sites

Mean Visually Estimated % Mortality

Independent sample t-test comparing mean visually estimated % colony mortality between channel-side and control locations

Location	Mean Visually Estimated % Colony Mortality	SD	<i>t</i>	<i>p</i>
Channel- side	54.1	15.9	2.11	0.53
Control	49.2	17.6		

Hardbottom

Proportion of Coral Mortality due to Sedimentation

Results of Fisher's Exact Test comparing proportions of corals killed as a result of sedimentation between channel-side and control locations.

Location	N	Prop.	Z	p
HBS4	24	0.04	1.02	0.444
HBSC1	30	0		

Location	N	Prop.	Z	p
HBN3	23	0.04	1.02	1
HBNC1	12	0		

Middle Reef

Proportion of Coral Mortality due to Sedimentation

Results of Fisher's Exact Test comparing proportions of corals killed as a result of sedimentation between channel-side and control locations.

Location	N	Prop.	Z	p
R2N2	24	0.08	1.48	0.208
R2NC1	28	0		

Outer Reef

Proportion of Coral Mortality due to Sedimentation

Results of Fisher's Exact Test comparing proportions of corals killed as a result of sedimentation between channel-side and control locations.

Location	N	Prop.	Z	p
R3N1	21	0.09	0.09	0.212
R3NC1	24	0		

Hardbottom

Mean Predicted Mortality

Two-sample t-test comparing mean predicted coral mortality between paired channel-side and control sites

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
HBN3	45.60	38.50	-1.67	0.05
HBNC1	66.80	33.80		

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
HBS3	77.30	38.90	3.18	0.00
HBSC1	44.20	38.90		

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
HBS4	77.90	32.40	3.47	0.00
HBSC1	44.20	38.90		

Middle Reef

Mean Predicted Mortality

Two-sample t-test comparing mean predicted coral mortality between paired channel-side and control sites

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
R2N1	57.00	36.84	2.36	0.01
R2NC2	37.10	27.82		

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
R2N2	33.83	31.88	1.87	0.03
R2NC1	16.96	33.03		

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
R2S1	45.85	42.60	-0.20	0.42
R2SC1	48.00	36.59		

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
R2S2	52.29	38.81	0.68	0.25
R2SC2	43.80	47.97		

Outer Reef

Mean Predicted Mortality

Two-sample t-test comparing mean predicted coral mortality between paired channel-side and control sites

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
R3N1	20.70	26.40	-1.37	0.09
R3NC1	35.21	43.45		

Site	Mean Predicted Mortality	SD	<i>t</i>	<i>p</i>
R3S2	27.72	38.43	-1.01	0.16
R3SC2	39.58	43.24		

Hardbottom

Scleractinian Density

Repeated-Measures Two-way ANOVA

Source	DF	Mean Square	F Value	<i>p</i>
PERIOD	1	0.75208	65.40	0.000
SITE	4	0.05446	1.62	0.245
PERIOD*SITE	4	0.04729	4.11	0.032

Hardbottom

Scleractinian Density

Tukey post-hoc comparisons of Site differences

Sites with the same letter grouping are not significantly different

Site	Tukey Pairwise Comparisons		
	N	Mean	Grouping
HBSC1-CP	6	0.73	A
HBN3-CP	6	0.73	A
HBNC1-CP	6	0.69	A
HBS3-CP	6	0.67	A
HBS4-CR	6	0.50	A

Hardbottom

Scleractinian Density

One-way ANOVA results and Tukey post-hoc comparisons of scleractinian density based on time period

Site	Test statistic (p-value)	Tukey post-hoc comparison
HBNC1-CP	F=10.8, p=0.030	Baseline ^A , Impact Assessment ^B
HBN3-CP	NS	(trend) Baseline > Impact Assessment
HBS3-CP	F=21.00, p=0.044	Baseline ^A , Impact Assessment ^B
HBS4-CR	F=36.57, p=0.026	Baseline ^A , Impact Assessment ^B
HBSC1-CP	F=19.69, p=0.047	Baseline ^A , Impact Assessment ^B

Middle Reef

Scleractinian Density

Repeated-Measures Two-way ANOVA

Source	DF	Mean Square	F Value	<i>p</i>
PERIOD	1	2.14005	36.14	0.000
SITE	8	1.07531	10.81	0.000
PERIOD*SITE	8	0.14848	2.51	0.050

Middle Reef

Scleractinian Density

Tukey post-hoc comparisons of Site differences

Sites with the same letter grouping are not significantly different

Site	Tukey Pairwise Comparisons				
	N	Mean	Grouping		
R2SC1-RR	6	2.04	A		
R2NC1-LR	6	1.79	A		
R2NC3-LR	6	1.52	A	B	
R2N2-LR	6	1.06		B	C
R2NC2-RR	6	1.03		B	C
R2S1-RR	6	1.02		B	C
R2N1-RR	6	0.97			C
R2S2-LR	6	0.94			C
R2SC2-LR	6	0.89			C

Middle Reef

Scleractinian Density

ANOVA results and Tukey post-hoc comparisons of site means between baseline and impact assessment

Site	Test statistic (p-value)	Tukey post-hoc comparison
R2N1-RR	NS	(trend) Baseline > Impact Assessment
R2N2-LR	NS	(trend) Baseline > Impact Assessment
R2NC1-LR	NS	(trend) Baseline > Impact Assessment
R2NC2-RR	F=30.12, p=0.005	Baseline ^A , Impact Assessment ^B
R2NC3-LR	F=17.15, p=0.014	Baseline ^A , Impact Assessment ^B
R2S1-RR	NS	(trend) Baseline > Impact Assessment
R2S2-LR	NS	(trend) Baseline > Impact Assessment
R2SC1-RR	NS	(trend) Baseline > Impact Assessment
R2SC2-LR	F=12.71, p=0.023	Baseline ^A , Impact Assessment ^B

Outer Reef

Scleractinian Density

Repeated-Measures Two-way ANOVA

Source	DF	Mean Square	F Value	<i>p</i>
PERIOD	1	3.71008	70.67	0.000
SITE	4	5.37387	28.56	0.000
PERIOD*SITE	4	0.23154	4.41	0.026

Outer Reef

Scleractinian Density

Tukey post-hoc comparisons of Site differences

Sites with the same letter grouping are not significantly different

Site	Tukey Pairwise Comparisons				
	N	Mean	Grouping		
R3SC3-SG	6	3.07	A		
R3SC2-LR	6	2.15		B	
R3S2-LR	6	1.52		B	
R3NC1-LR	6	0.86			C
R3N1-LR	6	0.83			C

Outer Reef

Scleractinian Density

ANOVA results and Tukey post-hoc comparisons of site means between baseline and impact assessment

Site	Test statistic (p-value)	Tukey post-hoc comparison
R3N1-LR	F=10.00, p=0.034	Baseline ^A , Impact Assessment ^B
R3NC1-LR	F= 135.13, p = 0.000	Baseline ^A , Impact Assessment ^B
R3S2-LR	NS	(trend) Baseline>Impact assessment
R3SC2-LR	NS	(trend) Baseline>Impact assessment
R3SC3-SG	F= 53.34, p=0.002	Baseline ^A , Impact Assessment ^B

Hardbottom

Octocoral Density

Repeated-Measures Two-way ANOVA

Source	DF	Mean Square	F Value	<i>P</i>
Period	1	0.645	0.19	0.674
Site	4	299.006	136.89	0.000
Period*Site	4	7.857	2.29	0.131

Hardbottom

Octocoral Density

Tukey post-hoc comparisons of Site differences

Sites with the same letter grouping are not significantly different

Site	Tukey Pairwise Comparisons				
	N	Mean	Grouping		
HBNC1-CP	6	20.78	A		
HBS3-CP	6	9.57		B	
HBSC1-CP	6	8.63		B	C
HBS4-CR	6	5.82			C
HBN3-CP	6	1.88			D

Middle Reef

Octocoral Density

Repeated-Measures Two-way ANOVA

Source	DF	Mean Square	F Value	Pr > F
Period	1	67.00	7.04	0.016
Site	8	174.754	12.82	0.000
Period*Site	8	14.784	1.55	0.208

Middle Reef

Octocoral Density

Tukey post-hoc comparisons of Site differences

Sites with the same letter grouping are not significantly different

Site	Tukey Pairwise Comparisons					
	N	Mean	Grouping			
R2NC2-RR	6	20.17	A			
R2NC3-LR	6	10.89		B		
R2SC2-LR	6	10.06		B		
R2N1-RR	6	9.81		B		
R2S2-LR	6	8.63		B	C	
R2SC1-RR	6	7.71		B	C	D
R2NC1-LR	6	6.78		B	C	D
R2S1-RR	6	2.74			C	D
R2N2-LR	6	1.40				D

Outer Reef

Octocoral Density

Repeated-Measures Two-way ANOVA

Source	DF	Mean Square	F Value	Pr > F
Period	1	10.0920	11.21	0.007
Site	4	29.5108	17.51	0.000
Period*Site	4	2.9478	3.27	0.108

Outer Reef

Octocoral Density

Tukey post-hoc comparisons of Site differences

Sites with the same letter grouping are not significantly different

Site	Tukey Pairwise Comparisons				
	N	Mean	Grouping		
R3SC3-SG	6	7.50	A		
R3NC1-LR	6	7.10	A		
R3SC2-LR	6	5.17		B	
R3S2-LR	6	4.00		B	
R3N1-LR	6	2.18			C

Middle Reef

Sponge Density

Repeated-Measures Two-way ANOVA

Source	DF	Mean Square	F Value	<i>p</i>
PERIOD	1	138.240	27.09	0.000
SITE	8	83.258	11.65	0.000
PERIOD*SITE	8	59.512	11.66	0.000

Middle Reef

Sponge Density

Tukey post-hoc comparisons of Site differences

Sites with the same letter grouping are not significantly different

Site	Tukey Pairwise Comparisons				
	N	Mean	Grouping		
R2N2-LR	6	13.37	A		
R2SC2-LR	6	13.30	A		
R2NC3-LR	6	11.15	A	B	
R2S2-LR	6	7.35		B	C
R2NC2-RR	6	6.00			C
R2SC1-RR	6	5.47			C
R2N1-RR	6	5.18			C
R2S1-RR	6	4.70			C
R2NC1-LR	6	4.15			C

Middle Reef

Sponge Density

ANOVA results and Tukey post-hoc comparisons of site means between baseline and impact assessment

Site	Test statistic (p-value)	Tukey post-hoc comparison
R3N1-LR	F=10.00, p=0.034	Baseline ^A , Impact Assessment ^B
R3NC1-LR	F= 135.13, p = 0.000	Baseline ^A , Impact Assessment ^B
R3S2-LR	NS	(trend) Baseline>Impact assessment
R3SC2-LR	NS	(trend) Baseline>Impact assessment
R3SC3-SG	F= 53.34, p=0.002	Baseline ^A , Impact Assessment ^B

Outer Reef

Sponge Density

Repeated-Measures Two-way ANOVA

Source	DF	Mean Square	F Value	<i>p</i>
PERIOD	1	17.480	17.16	0.002
SITE	4	11.67	11.67	0.001
PERIOD*SITE	4	11.476	11.27	0.001

Middle Reef

Sponge Density

Tukey post-hoc comparisons of Site differences

Sites with the same letter grouping are not significantly different

Site	Tukey Pairwise Comparisons			
	N	Mean	Grouping	
R3SC3-SG	6	7.73	A	
R3SC2-LR	6	7.64	A	
R3S2-LR	6	5.55		B
R3NC1-LR	6	5.44		B
R3N1-LR	6	4.6		B

Middle Reef

Sponge Density

ANOVA results and Tukey post-hoc comparisons of site means between baseline and impact assessment

Site	Test statistic (p-value)	Tukey post-hoc comparison
R3N1-LR	NS	(trend) Baseline>Impact assessment
R3NC1-LR	F= 1658.22, p = 0.001	Baseline ^A , Impact Assessment ^B
R3S2-LR	NS	(trend) Impact Assessment>Baseline
R3SC2-LR	NS	(trend) Impact Assessment>Baseline
R3SC3-SG	NS	(trend) Baseline>Impact assessment