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6 Appendices

Appendix A: Selected statistical analysis for Subchapter 3.1 (Acute

Impact: Substrate Cover)

Paired sample t-test for Rubble percentage cover in Marina Shallow before and after (BACIP) the marina construction.

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 RB before – RB after	3.85143E1	23.95988	11.97994	.38874	76.63976	3.215	3	.049

Paired sample t-test for Silt and Recently Killed Coral percentage cover in Marina Deep before and after (BACIP) the marina construction.

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 SI before – SI after	2.85707E1	4.82987	2.41493	20.88531	36.25611	11.831	3	.001
Pair 2 RKC before – RKC after	2.37474E1	4.61658	2.30829	16.40144	31.09346	10.288	3	.002

Appendix B: Selected statistical analysis for Subchapter 3.2 (Chronic Impacts: Environmental Parameters)

Tukey HSD analysis for sedimentation rate (log+1) between MD, MS and R.

sed.log10

Tukey HSD

Site	N	Subset for alpha = 0.05	
		1	2
R	9	.0248	
MD	12		.3847
MS	9		.5383
Sig.		1.000	.515

Means for groups in homogeneous subsets are displayed.

Tukey HSD analysis for particle sizing of the sediments between MD, MS and R.

silt

Tukey HSD

site	N	Subset		
		1	2	3
MD	9	52.0844		
R	9		60.1226	
MS	9			76.8310
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 44.590.

Tukey HSD analysis for particle sizing of the sediments in Marina Deep through time.

Organic matter

Tukey HSD

time	N	Subset for alpha = 0.05	
		1	2
Mar09-Jun09	3	.7903	
Oct08-Mar09	3	.9710	
Jun08-Oct08	3		13.0887
Sig.		.938	1.000

Means for groups in homogeneous subsets are displayed.

Appendix C: Selected statistical analysis for Subchapter 3.3 (Chronic Impacts: Substrate Cover)

Factor analysis of variance (ANOVA) for substrate cover (LIT method) MD, MS and R.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
DC	Between Groups	2.965	2	1.483	.278	.758
	Within Groups	463.521	87	5.328		
	Total	466.486	89			
DCA	Between Groups	27.142	2	13.571	.748	.476
	Within Groups	1578.326	87	18.142		
	Total	1605.468	89			
HC	Between Groups	360.329	2	180.165	9.628	.000
	Within Groups	1627.914	87	18.712		
	Total	1988.244	89			
Algae	Between Groups	5.434	2	2.717	.380	.685
	Within Groups	621.692	87	7.146		
	Total	627.125	89			
Abiotic	Between Groups	577.169	2	288.585	20.339	.000
	Within Groups	1234.394	87	14.188		
	Total	1811.563	89			

Factor analysis of variance (ANOVA) for substrate cover (LIT method) in Marina Shallow through 15 months monitoring.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
DCA	Between Groups	190.881	4	47.720	3.641	.018
	Within Groups	327.702	25	13.108		
	Total	518.583	29			
ACE	Between Groups	43.764	4	10.941	9.451	.000
	Within Groups	28.941	25	1.158		
	Total	72.705	29			
ACS	Between Groups	44.830	4	11.208	6.350	.001
	Within Groups	44.123	25	1.765		
	Total	88.954	29			
SP	Between Groups	21.989	4	5.497	4.309	.009
	Within Groups	31.894	25	1.276		
	Total	53.883	29			
MA	Between Groups	14.728	4	3.682	3.829	.015
	Within Groups	24.038	25	.962		
	Total	38.765	29			
TA	Between Groups	95.510	4	23.878	7.248	.001
	Within Groups	82.358	25	3.294		
	Total	177.868	29			
S	Between Groups	201.340	4	50.335	3.578	.019
	Within Groups	351.741	25	14.070		
	Total	553.081	29			
R	Between Groups	186.600	4	46.650	3.866	.014
	Within Groups	301.689	25	12.068		
	Total	488.289	29			

Appendix D: Selected statistical analysis for Subchapter 3.4 (Chronic Impacts: Zooxanthellae of Selected Scleractinian Corals)

Factor analysis of variance (ANOVA) for chlorophyll *a* and *c*₂ content for four different growth forms in Marina Deep.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Chl <i>a</i> Submassive	Between Groups	7.193	3	2.398	19.753	.000
	Within Groups	.971	8	.121		
	Total	8.164	11			
Chl <i>a</i> Foliose	Between Groups	5.589	3	1.863	11.293	.003
	Within Groups	1.320	8	.165		
	Total	6.909	11			
Chl <i>a</i> Branching	Between Groups	29.055	3	9.685	5.006	.030
	Within Groups	15.477	8	1.935		
	Total	44.533	11			
Chl <i>a</i> Free-living	Between Groups	.593	3	.198	1.092	.413
	Within Groups	1.268	7	.181		
	Total	1.861	10			
Chl <i>c</i> ₂ Submassive	Between Groups	9.288	3	3.096	4.020	.051
	Within Groups	6.161	8	.770		
	Total	15.449	11			
Chl <i>c</i> ₂ Foliose	Between Groups	11.668	3	3.889	6.365	.016
	Within Groups	4.888	8	.611		
	Total	16.557	11			
Chl <i>c</i> ₂ Branching	Between Groups	60.702	3	20.234	2.192	.167
	Within Groups	73.863	8	9.233		
	Total	134.566	11			
Chl <i>c</i> ₂ Free-living	Between Groups	2.463	3	.821	1.573	.279
	Within Groups	3.653	7	.522		
	Total	6.116	10			

Factor analysis of variance (ANOVA) for chlorophyll *a* per zooxanthellae in Marina Shallow in Foliose growth form.

Chlorophyll *a* per zoox Foliose

Tukey HSD

Time	N	Subset for alpha = 0.05	
		1	2
Oct08	3	.960623	
Jun08	3	1.095819	
Mar09	3		1.958309
Jun09	3		2.239197
Sig.		.951	.707

Means for groups in homogeneous subsets are displayed.

Factor analysis of variance (ANOVA) for chlorophyll *c*₂ per zooxanthellae in Marina Shallow in Foliose growth form.

Chlorophyll *c*₂ per zoox in Foliose

Tukey HSD

Time	N	Subset for alpha = 0.05	
		1	2
Oct08	3	.167880	
Jun08	3	.831187	.831187
Mar09	3	1.237476	1.237476
Jun09	3		1.396702
Sig.		.083	.477

Means for groups in homogeneous subsets are displayed.