

Appendices

The differing terminology refers to two different things. Actual years (2014, 2016) is used for surveys carried out annually - i.e. towed or baited video. Nominal years (Year 1, 3) is used for pot sampling which was carried out seasonally. Years run From summer to summer so are referred to as a nominal year rather than actual Year 1 for example would actually be Summer 2014 to Summer 2015 for example.

Appendix table 1: PERMANOVA+ tables for response variable Abundance, for sessile species functional group (transect) for Year, Treatment and Area factors, plus interactions. Pairwise tables between treatment for Year 2016 are displayed.

a) Source	df	MS	Pseudo-F	P (perm)	2016		
<i>Abundance</i>					Groups	t	P
Year Yr	2	18.11	15.779	0.0001	Control, Low	0.94	0.4594
Treatment Tr	3	4.33	3.2913	0.0542	Control, Med	3.26	0.2303
Area Ar	12	1.33	1.4907	0.2104	Control, High	3.45	0.0283
YexTr	9	0.71	0.61496	0.0071	Low, Med	0.52	0.6008
Site (Ar)	28	0.80	164.09	0.0706	Low, High	1.54	0.0166
YexAr	30	1.14	1.0304	0.4585	Med, High	1.61	0.0263
YexSi(Ar)	39	1.10	226.63	0.0626			
Residual	1	0.00					
Total	125						

Appendix table 2: a) PERMANOVA+ tables for mean abundance for individual Indicator species *Pentapora folicacea* for Year, Treatment and Area factors, plus interactions b) Pairwise tables between b) Area for the first year of study to ensure consistency between area at the start of the project and c) and Treatment for Year 2016 are displayed.

a) Source	df	MS	Pseudo-F	P (perm)	b) 2014		
<i>Pentapora folicacea</i>					Area groups	t	P
Year Yr	2	0.682	14.931	0.0001	Beer, Axmouth	4.23	0.2840
Treatment Tr	3	0.200	0.72088	0.0012	Beer, Lyme Regis	4.87	0.6730
Area Ar	12	0.280	19.241	0.0003	Beer, West Bay	5.09	0.3540
YexTr	6	0.005	0.11841	0.0032	Axmouth, Lyme Regis	1.17	0.3640
Site (Ar)	22	0.001	0.38227	0.8403	Axmouth, West Bay	1.08	0.1932
YexAr	30	0.005	3.9054	0.0007	Lyme Regis, West Bay	1.89	0.3329
YexSi(Ar)	39	0.001	0.34621	0.8462			
Residual	1	0.003					
Total	125						

c) 2016		
Treatment groups	t	P
Control, Low	7.03	0.0176
Control, Med	6.52	0.0367
Control, High	5.16	0.0221
Low, Med	0.42	0.6527
Low, High	1.85	0.1053
Med, High	1.38	0.2148

Appendix table 3: a) PERMANOVA+ tables for mean abundance for individual Indicator species *Phallusia mammillata* for Year, Treatment and Area factors, plus interactions b) Pairwise tables between b)Area for the first year of study to ensure consistency between area at the start of the project and c) and Treatment for Year 2016 are displayed.

a) Source	df	MS	Pseudo-F	P (perm)
<i>Phallusia mammillata</i>				
Year Yr	2	3.184	25.936	0.0001
Treatment Tr	3	0.007	0.75303	0.5277
Area Ar	12	0.412	4.3844	0.0027
YexTr	6	0.499	4.066	0.0036
Site (Ar)	22	0.008	21.217	0.0982
YexAr	30	0.102	0.83732	0.6877
YexSi(Ar)	39	0.121	30.674	0.0658
Residual	1	0.004		
Total	125			

b) 2014		
Area groups	t	P
Beer, Axmouth	5.49	0.4070
Beer, Lyme Regis	6.15	0.9077
Beer, West Bay	7.47	0.5880
Axmouth, Lyme Regis	3.57	0.4870
Axmouth, West Bay	2.37	0.2392
Lyme Regis, West Bay	2.27	0.7269

c) 2016		
Treatment groups	t	P
Control, Low	1.19	0.2603
Control, Med	3.20	0.0149
Control, High	3.71	0.0090
Low, Med	6.38	0.0006
Low, High	7.75	0.0010
Med, High	1.57	0.1524

Appendix table 4: PERMANOVA+ tables for response variables a) Abundance, b) Species richness c) assemblage composition for all macro-mobiles species and d) breakdown by 6 Data were tested for Year, Treatment and Area factors, plus interactions.

a) Source	df	MS	Pseudo-F	P (perm)
<i>Abundance</i>				
Year Yr	2	1.123	6.740	0.004
Treatment Tr	3	0.009	0.348	0.799
Area Ar	3	3.468	13.968	0.451
YexTr	6	0.668	4.006	0.410
YexAr	6	0.578	3.471	0.009
Tr x Ar	9	0.709	2.840	0.028
Si (Po x Tr)	19	0.250	1.502	0.155
Ye x Tr x Ar	18	0.447	2.685	0.790
Residual	31	0.167		
Total	97			

b) Source	df	MS	Pseudo-F	P (perm)
<i>Species richness</i>				
Year Yr	2	0.524	11.966	0.000
Treatment Tr	3	0.004	0.699	0.558
Area Ar	3	0.366	6.550	0.069
YexTr	6	0.005	1.050	0.417
YexAr	6	0.007	1.541	0.201
Tr x Ar	9	0.111	1.985	0.104
Si (Po x Tr)	19	0.006	1.280	0.265
Ye x Tr x Ar	18	0.002	0.505	0.940
Residual	31	0.004		
Total	97			

c) Source	df	MS	Pseudo-F	P (perm)
<i>Assemblage composition</i>				
Year Yr	2	8524.10	5.2578	0.0001
Treatment Tr	3	3062.50	0.48145	0.9494
Area Ar	12	6383.20	4.6801	0.873
YexTr	6	1552.40	0.95712	0.5411
YexAr	24	1624.10	1.1907	0.0822
Residual	50	1369.90		
Total	97			

Source	df	MS	Pseudo-F	P (perm)	Source	df	MS	Pseudo-F	P (perm)
<i>Labrus bergylta</i>					<i>Necora puber</i>				
Year Yr	2	0.0022	2.0431	0.1066	Year Yr	2	0.01181	1.5637	0.2209
Treatment Tr	3	0.0017	1.3178	0.286	Treatment Tr	3	0.01666	1.1728	0.3477
Area Ar	3	0.0002	0.19442	0.9399	Area Ar	3	0.01021	0.72007	0.5658
YexTr	6	0.0018	1.6603	0.1038	YexTr	6	0.00438	0.5798	0.7509
YexAr	6	0.0009	0.78591	0.6259	YexAr	6	0.00624	0.82666	0.566
Tr x Ar	9	0.0008	0.63307	0.7922	Tr x Ar	9	0.01441	1.008	0.4479
Si (Po x Tr)	19	0.0013	1.1715	0.2359	Si (Po x Tr)	19	0.01433	1.8982	0.0653
Ye x Tr x Ar	18	0.0009	0.7877	0.7649	Ye x Tr x Ar	18	0.00614	0.81389	0.6735
Residual	31	0.0011			Residual	31	0.00755		
Total	97				Total	97			
<i>Asterias rubens</i>					<i>Pollachius pollachius</i>				
Year Yr	2	1.90370	4.1006	0.0234	Year Yr	2	0.00039	1.1796	0.3248
Treatment Tr	3	0.37292	1.4671	0.2548	Treatment Tr	3	0.00019	0.92494	0.4544
Area Ar	3	3.02750	11.869	0.0002	Area Ar	3	0.00007	0.36462	0.8503
YexTr	6	0.40452	0.87134	0.5198	YexTr	6	0.00024	0.73028	0.67
YexAr	6	0.32505	0.70016	0.6563	YexAr	6	0.00014	0.4228	0.9075
Tr x Ar	9	0.25688	1.0218	0.4552	Tr x Ar	9	0.00031	1.5647	0.1386
Si (Po x Tr)	19	0.25013	0.53878	0.9128	Si (Po x Tr)	19	0.00020	0.60219	0.905
Ye x Tr x Ar	18	0.47088	1.0143	0.4559	Ye x Tr x Ar	18	0.00030	0.89669	0.619
Residual	31	0.46425			Residual	31	0.00033		
Total	97				Total	97			
<i>Trisopterus minutus</i>					<i>Scylliorhinus canicula</i>				
Year Yr	2	0.35093	1.4714	0.241	Year Yr	2	0.28827	6.2966	0.0052
Treatment Tr	3	0.37621	0.82716	0.4968	Treatment Tr	3	0.12249	2.1956	0.1228
Area Ar	3	1.85990	0.40974	0.0221	Area Ar	3	0.69093	12.395	0.0001
YexTr	6	0.14955	0.62704	0.708	YexTr	6	0.00351	0.76655	0.603
YexAr	6	0.27409	1.1492	0.3641	YexAr	6	0.10030	2.1907	0.0659
Tr x Ar	9	0.13595	0.29703	0.9638	Tr x Ar	9	0.23820	4.2598	0.334
Si (Po x Tr)	19	0.45901	1.9246	0.0496	Si (Po x Tr)	19	0.00560	1.2227	0.3038
Ye x Tr x Ar	18	0.12616	0.52898	0.9236	Ye x Tr x Ar	18	0.00445	0.97216	0.5156
Residual	31	0.23850			Residual	31	0.00457		
Total	97				Total	97			

Appendix table 5: PERMANOVA to test for significant differences in mean a) abundance of *C.pagurus* between Year (1,2,3), Treatment and Area. b) Pairwise testing differences in *C. pagurus* abundance between all Years and Treatments c) abundance of *H.gammarus* between Year (1,2,3), Treatment and Area. d) Pairwise testing differences in *H.gammarus* abundance between all Years and Treatments. Bold values denote significant values.

a) Source	df	MS	Pseudo-F	P(perm)	b) Year 3		
<i>Abundance</i>					Groups	t	P
Year Yr	2	5433.9	6.9706	0.003	Control, Low	0.2576	0.83
Treatment Tr	3	596.39	0.1949	0.088	Control, Med	0.3826	0.7105
Area Ar	6	359.7	0.9249	0.1125	Control, High	3.4603	0.0271
YexTr	6	291.91	0.3745	0.028	Low, Med	0.601	0.6279
Residual	18	779.56		4	Low, High	3.3726	0.0575
Total	47				Med, High	3.0862	0.0551

c) Source	df	MS	Pseudo-F	P(perm)	d) Year 3		
<i>Abundance</i>					Groups	t	P
Source	df	MS	Pseudo-F	P (perm)	Control, Low	0.2576	0.83
Year Yr	2	1501.6	120.26	0.0001	Control, Med	0.3826	0.7105
Treatment Tr	3	40.694	4.703	0.028	Control, High	3.4603	0.0271
Area Ar	6	8.6528	0.693	0.7422	Low, Med	0.601	0.6279
YexTr	6	29.861	2.3915	0.0578	Low, High	3.3726	0.0575
Residual	18	12.486			Med, High	3.0862	0.0551
Total	47						

Appendix table 6: PERMANOVA testing differences in *C. pagurus* a) Width and b) Weight, between all Years (1,2,3) and Treatments (Control, Low, Medium, High). c) Pairwise testing differences in *C.pagurus* weight between all Treatments in Year 3. Bold values denote significant values.

a) Source	df	MS	Pseudo-F	P (perm)
<i>Width</i>				
Year Yr	2	149.37	8.7335	0.0015
Treatment Tr	3	23.49	1.3734	0.2868
Area Ar	6	41.723	2.4395	0.0929
YexTr	6	9.458	0.553	0.7681
Residual	18	17.103		
Total	47			

b) Source	df	MS	Pseudo-F	P (perm)
<i>Weight</i>				
Year Yr	2	5557.4	3.73	0.0351
Treatment Tr	3	928.3	0.6231	0.0323
Area Ar	6	3501.7	2.3503	0.0971
YexTr	6	1333.3	0.8949	0.0152
Residual	18	1489.9		
Total	47			

c) Year 3		
<i>Groups</i>	t	P
Control, Low	0.2576	0.83
Control, Med	0.3826	0.0388
Control, High	3.4603	0.0271
Low, Med	0.601	0.6279
Low, High	3.3726	0.0575
Med, High	3.0862	0.0551

Appendix table 7: Condition growth equations (y=) and linear relationships (r²) for all treatments in Years 2 and 3 for *C. pagurus*. ANOVA P results testing allometric growth coefficients of Low, Medium and High density treatments against the Control treatment. Asterisk level denotes significance level

Year	Treatment	Demographic	n	Linear regression		Anova α significant	Anova β significant
				Allometric growth equation	r ²	≠ control P =	≠ control P =
1	Control	<MCRS	270	$y = -4.070x + 3.173$	0.855***	No test	No test
		Adult Males	108	$y = -3.446x + 3.022$	0.859***	No test	No test
		Adult Females	103	$y = -3.313x + 2.99$	0.795***	No test	No test
	Low	<MCRS	275	$y = -3.819x + 2.919$	0.857***	0.94	0.20
		Adult Males	98	$y = -3.973x + 2.807$	0.795***	0.91	0.14
		Adult Females	93	$y = -3.970x + 2.732$	0.859***	0.74	0.85
	Medium	<MCRS	268	$y = -3.396x + 3.206$	0.834***	0.23	0.34
		Adult Males	106	$y = -3.332x + 2.922$	0.854***	0.26	0.51
		Adult Females	97	$y = -4.270x + 2.898$	0.834***	0.35	0.40
	High	<MCRS	281	$y = -3.984x + 3.083$	0.846***	1	0.89
		Adult Males	107	$y = -3.947x + 3.007$	0.872***	0.8821	0.9143
		Adult Females	116	$y = -3.373x + 2.8$	0.807***	0.0838	0.1489
2	Control	<MCRS	381	$y = -3.549x + 2.887$	0.860***	No test	No test
		Adult Males	130	$y = -2.103x + 2.233$	0.889***	No test	No test
		Adult Females	131	$y = -2.247x + 2.3$	0.912***	No test	No test
	Low	<MCRS	271	$y = -2.928x + 2.413$	0.822***	0.11 84	0.59
		Adult Males	124	$y = -1.849 + 2.123$	0.864***	0.68	0.65
		Adult Females	138	$y = -2.430x + 2.390$	0.878***	0.59	0.19
	Medium	<MCRS	378	$y = -2.977x + 2.476$	0.831***	0.0595	0.111 2
		Adult Males	138	$y = -2.212x + 2.285$	0.902***	0.08	0.54
		Adult Females	137	$y = -2.414x + 2.376$	0.883***	0.027*	0.08
	High	<MCRS	327	$y = -3.035x + 2.404$	0.776***	0.71	0.52
		Adult Males	131	$y = -1.923x + 2.149$	0.877***	0.0549	0.315
		Adult Females	126	$y = -2.416x + 2.374$	0.873***	0.4883	0.8869

* P = <0.05, ** P = <0.001, *** P = <0.0001