

Herbivory and community organization on a subtidal cobble bed

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Appendix 1. Macroalgal and sessile invertebrate abundances in Expts 1 and 2

Table A1. Abundance of macroalgae and sessile invertebrates in 3 grazing treatments (F: flush, grazer access; B: block, grazer access/procedural control; S: stilts, grazer exclusion), at 4 sampling times (3, 6, 9 and 12 mo) and on 2 coralline algal types (*Lithothamnion* and *Phymatolithon*) in Expt 1. Data are mean algal biomass (mg cm⁻²) or invertebrate density (ind. cobble⁻¹) for 4 replicate units. Blank spaces indicate no data (biomass = zero)

Species	<i>Lithothamnion</i>											
	Aug–Nov 1985			Aug–Feb 1985–86			Aug–May 1985–86			Aug–Aug 1985–86		
	F	B	S	F	B	S	F	B	S	F	B	S
Macroalgae												
Rhodophyta												
<i>Ceramium rubrum</i>			0.043			0.905			13.175		0.033	10.35
<i>Polysiphonia harveyi</i>	0.014					1.90			2.995		0.001	
<i>Polysiphonia urceolata</i>		0.008	2.675							0.048	0.06	4.125
<i>Polysiphonia brodiaei</i>						0.009	0.015		0.25	0.011	0.002	0.285
<i>Antithamnionella floccosa</i>						0.162			0.1			
<i>Scagellia corallina</i>									0.055			
<i>Dumontia contorta</i>									0.008	0.002	0.01	
<i>Rhodomela confervoides</i>				0.006	0.017					0.25	0.129	0.105
<i>Chondrus crispus</i>				0.006				0.04		0.082	0.046	
<i>Corallina officinalis</i>		0.001						0.024		0.006	0.048	
<i>Porphyra</i> sp.									0.222			
<i>Ptilota serrata</i>						0.015			0.002			
<i>Bonnemaisonia hamifera</i>			0.103	0.007		0.258			0.808	0.03	0.011	0.625
<i>Phyllophora</i> sp.										0.022		
<i>Cystoclonium purpureum</i>									0.035			0.182
Phaeophyta												
<i>Desmarestia viridis</i>								0.6	0.29	0.024	5.0	3.773
<i>Desmarestia aculeata</i>												0.012
<i>Fucus evanescens</i>	0.008	0.008	0.002	0.017	0.018	0.003	0.147	0.101	0.022	0.280	0.154	0.015
<i>Laminaria</i> sp.						0.002			0.013			0.003
<i>Saccorhiza dermatodea</i>											0.24	
<i>Dictyosiphon</i> sp.								0.004	0.031			
<i>Scytosiphon</i> sp.					0.002							
Chlorophyta												
<i>Ulva lactuca</i>									0.835			0.11
<i>Spongomorpha aeruginosa</i>									0.238			
<i>Cladophora sericea</i>											0.005	0.059
Diatoms												
<i>Meridion /Licomorpha</i>						0.311						
Invertebrates												
<i>Modiolus/Mytilus</i>				3.15	0.1	0.1	1.8	0.5	0.125	4.2	1.85	1.45
<i>Anomia</i> sp.				0.15	0.225	0.15	0.1	0.4	0.1	0.15	0.15	0.05
<i>Hiatella arctica</i>									0.1		0.05	0.2

Table A1. continued

Species	<i>Phymatolithon</i>											
	Aug–Nov 1985			Aug–Feb 1985–86			Aug–May 1985–86			Aug–Aug 1985–86		
	F	B	S	F	B	S	F	B	S	F	B	S
Macroalgae												
Rhodophyta												
<i>Ceramium rubrum</i>						0.258			0.92			4.825
<i>Polysiphonia harveyi</i>			5.275			3.123			0.845			1.875
<i>Polysiphonia urceolata</i>												3.325
<i>Polysiphonia brodiaei</i>									0.096			0.431
<i>Dumontia contorta</i>									0.002			
<i>Chondrus crispus</i>											0.004	0.145
<i>Corallina officinalis</i>	0.005			0.001		0.005					0.012	0.007
<i>Porphyra</i> sp.									0.037			
<i>Ptilota serrata</i>						0.019						
<i>Bonnemaisonia hamifera</i>												0.009
Phaeophyta												
<i>Desmarestia viridis</i>									0.663			6.225
<i>Desmarestia aculeata</i>												0.07
<i>Laminaria</i> sp.									0.010			0.004
<i>Alaria esculenta</i>								0.035				0.017
<i>Saccorhiza dermatodea</i>									0.023			
<i>Dictyosiphon</i> sp.							0.001	0.008	0.025		0.017	
<i>Scytosiphon</i> sp.						0.024						
Chlorophyta												
<i>Monostroma</i> sp.						0.275						
<i>Spongomorpha aeruginosa</i>									0.007			
<i>Cladophora sericea</i>												0.013
Diatoms												
<i>Meridion/Licomorpha</i>						0.175			0.043			
Invertebrates												
<i>Modiolus/Mytilus</i>				0.05		0.35	0.15	0.05	0.15		0.05	0.125
<i>Anomia</i> sp.											0.05	0.2
<i>Hiatella arctica</i>									0.325			1.9

Table A2. Abundance of macroalgae and sessile invertebrates in 3 grazing treatments (F: flush, grazer access; B: block, grazer access/procedural control; S: stilts, grazer exclusion), at 4 seasons (fall, summer, winter, spring) and on 2 coralline algal types (*Lithothamnion* and *Phymatolithon*) in Expt 2. Data are mean algal biomass (mg cm⁻²) or invertebrate density (ind. cobble⁻¹) for 4 replicate units. Blank spaces indicate no data (biomass = zero)

Species	<i>Lithothamnion</i>											
	Aug–Nov 1985			Nov–Feb 1985–86			Feb–May 1986			May–Aug 1986		
	F	B	S	F	B	S	F	B	S	F	B	S
Macroalgae												
Rhodophyta												
<i>Ceramium rubrum</i>			0.043									0.136
<i>Polysiphonia harveyi</i>	0.014	0.008	2.675							0.017		0.017
<i>Polysiphonia urceolata</i>												0.022
<i>Polysiphonia brodiaei</i>				0.001		0.008		0.002	0.017			0.475
<i>Corallina officinalis</i>		0.001		0.004	0.007							
<i>Porphyra</i> sp.									0.009			
<i>Bonnemaisonia hamifera</i>			0.123									
<i>Cystoclonium purpureum</i>												0.014
<i>Polysiphonia nigrescens</i>												0.003
Phaeophyta												
<i>Desmarestia viridis</i>									0.05			
<i>Fucus evanescens</i>	0.008	0.008	0.002	0.008	0.006		0.043	0.016	0.007	0.018	0.008	0.005
<i>Laminaria</i> sp.												0.020
<i>Ascophyllum nodosum</i>												0.001
<i>Dictyosiphon</i> sp.				0.018					0.006			0.060
<i>Scytosiphon</i> sp.								0.004			0.002	
<i>Sphacelaria</i> sp.												0.026
Chlorophyta												
<i>Spongomorpha aeruginosa</i>										0.006		0.036
<i>Cladophora sericea</i>										0.008	0.005	
Diatoms												
<i>Meridion/Licomorpha</i>				0.001		0.3			0.009			
Invertebrates												
<i>Modiolus/Mytilus</i>				0.065	0.95	1.0	0.45	0.85		3.6	3.8	2.4
<i>Anomia</i> sp.				0.25	0.25	0.1		0.15		0.1	0.1	
<i>Hiatella arctica</i>				0.15		0.6	0.05	0.45	0.125			0.1
Species	<i>Phymatolithon</i>											
	Aug–Nov 1985			Nov–Feb 1985–86			Feb–May 1986			May–Aug 1986		
	F	B	S	F	B	S	F	B	S	F	B	S
Macroalgae												
Rhodophyta												
<i>Ceramium rubrum</i>												0.039
<i>Polysiphonia harveyi</i>												5.275
<i>Polysiphonia urceolata</i>												0.002
<i>Corallina officinalis</i>	0.005											
<i>Polysiphonia nigrescens</i>												0.003
Phaeophyta												
<i>Fucus evanescens</i>												0.007
<i>Laminaria</i> sp.									0.001			0.044
<i>Dictyosiphon</i> sp.									0.064			0.035
<i>Sphacelaria</i> sp.												0.001
Chlorophyta												
<i>Monostroma</i> sp.						0.007			0.004			
<i>Spongomorpha aeruginosa</i>												0.009
Diatoms												
<i>Meridion/Licomorpha</i>						0.002			0.004			
Invertebrates												
<i>Modiolus/Mytilus</i>				0.05						0.05	0.1	0.325