

# Appendix 3

## MACROALGAL BIOMASS EQUATIONS

Length-weight and/or percentage cover-weight relationships for major algal species and groups.  $y$  = dry weight (g),  $x$  = total length (cm), SD = stipe diameter (cm), SL = stipe length (cm), LL = laminae length (cm).

GROUP/SPECIES	EQUATION	$R^2$	$n$	COLLECTED
<i>Ecklonia radiata</i>	$\ln(y) = 2.625\ln(x) - 7.885$	0.97	21	Cape Reinga
Stipe	$\ln(y) = 1.671\ln(SL) - 3.787$	0.97	46	Leigh
Rest	$\ln(y) = 1.177\ln(SL \times LL) - 3.879$	0.94	55	Leigh
<i>Carpophyllum flexuosum</i>	$\ln(y) = 1.890\ln(x) - 4.823$	0.91	22	Long Bay
	$\ln(y) = 2.049\ln(x) - 5.251$	0.90	52	Tawharanui
	$\ln(y) = 1.792\ln(x) - 4.538$	0.89	59	Mokohinau Islands
	$\ln(y) = 1.282\ln(x) - 2.135$	0.91	31	Nelson
Other <i>Carpophyllum</i> spp.				
<i>Carpophyllum angustifolium</i> <sup>a</sup>	$y = 0.068x - 0.27$	0.92	23	Leigh
	$\ln(y) = 1.131\ln(x) - 3.522$	0.89	117	Mokohinau Islands
<i>C. maschalocarpum</i>	$\ln(y) = 2.078\ln(x) - 5.903$	0.88	116	Long Bay
	$\ln(y) = 1.764\ln(x) - 4.311$	0.72	46	Leigh
	$\ln(y) = 1.567\ln(x) - 4.204$	0.96	38	Mokohinau Islands
	$\ln(y) = 1.9624\ln(x) - 4.86$	0.89	41	Nelson
<i>C. plumosum</i>	$\ln(y) = 1.472\ln(x) - 3.850$	0.66	62	Leigh
	$y = 1.638x - 4.413$	0.92	31	Hahei
	$\ln(y) = 1.517\ln(x) - 4.778$	0.69	60	Mokohinau Islands
<i>Cystophora</i> spp.				
<i>C. torulosa</i>	$\ln(y) = 1.551\ln(x) - 2.6282$	0.79	12	Nelson
<i>C. retroflexa</i>	$\ln(y) = 1.560\ln(x) - 3.9486$	0.90	14	Nelson
<i>C. platylobium</i>	$\ln(y) = 2.7464\ln(x) - 7.9721$	0.66	6	Stewart Island
<i>Lessonia variegata</i>	$\ln(y) = 1.677\ln(x) - 5.537$	0.83	9	Mokohinau Islands
<i>Landsburgia quercifolia</i>	$\ln(y) = 1.971\ln(x) - 5.058$	0.83	19	Cape Reinga
	$\ln(y) = 2.5645\ln(x) - 6.741$	0.90	12	Stewart Island
<i>Macrocystis pyrifera</i>	$\ln(y) = 1.7997\ln(x) - 5.672$	0.79	42	Stewart Island
<i>Marginariella</i> spp.				
<i>M. boryana</i>	$\ln(y) = 2.1691\ln(x) - 6.4778$	0.95	21	Kaikoura
<i>M. urvilliana</i>	$\ln(y) = 3.4274\ln(x) - 12.405$	0.77	18	Kaikoura
<i>Sargassum sinclairii</i>	$y = 0.075x + 0.124$	0.58	25	Cape Reinga
	$\ln(y) = 1.3007\ln(x) - 2.6964$	0.79	26	Nelson
<i>Xiphophora</i> spp.				
<i>X. chondrophylla</i>	$y = 1.786x - 4.171$	0.62	18	Hahei
	$\ln(y) = 2.01\ln(x) - 5.377$	0.75	33	Mokohinau Islands
<i>X. gladiata</i>	$\ln(y) = 1.4995\ln(x) - 3.4541$	0.73	27	Bligh
	1% = 58.8 g		5	
<i>Durvillaea willana</i>	$\ln(y) = 2.1216\ln(SD) - 2.7727$	0.95	6	Westport

Continued on next page

GROUP/SPECIES	EQUATION	$R^2$	$n$	COLLECTED
Red foliose				
<i>Osmundaria colensoi</i>	$\ln(y) = 1.720 \ln(x) - 3.379$ 1% = 22.93g	0.70	14 3	Mokohinau Islands
<i>Pterocladia lucida</i>	$\ln(y) = 1.963 \ln(x) - 5.076$ 1% = 10 g	0.73	47 3	Leigh
<i>Melanthalia abscissa</i>	$\ln(y) = 1.775 \ln(x) - 4.247$	0.64	22	Leigh
<i>Plocamium</i> spp.	$\ln(y) = 2.649 \ln(x) - 8.812$	0.80	34	Mokohinau Islands
<i>Euptilota formosissima</i>	$\ln(y) = 1.616 \ln(x) - 4.971$	0.78	13	Mokohinau Islands
<i>Placentophora colensoi</i>	$\ln(y) = 2.582 \ln(x) - 6.392$	0.87	23	Cape Karikari
Red turfing	1% = 1.74 g		3	Mokohinau Islands
Coralline turf <sup>b</sup>	1% = 1.5 g		3	Mokohinau Islands
Crustose corallines <sup>b</sup>	1% = 0.35 g		3	Leigh
Brown turfing	1% = 1.74 g		3	Mokohinau Islands
Small browns				
<i>Carpomitra costata</i>	$\ln(y) = 1.735 \ln(x) - 5.856$	0.43	18	Mokohinau Islands
<i>Zonaria turneriana</i>	$\ln(y) = 2.587 \ln(x) - 6.443$ 1% = 2.48 g	0.83	27 3	Mokohinau Islands
<i>Caulerpa flexilis</i>	1% = 5.81 g		3	Mokohinau Islands
Other greens				
<i>Codium convolutum</i>	1% = 4.68 g		3	Mokohinau Islands
<i>Codium fragile</i>	$\ln(y) = 1.7635 \ln(x) - 4.3427$	0.90	13	Doubtful
<i>Ulva</i> spp.	1% = 1.71 g		3	Mokohinau Islands

<sup>a</sup> From Choat & Schiel (1982).

<sup>b</sup> The proportion of CaCO<sub>3</sub> in *Corallina officinalis* has been estimated as 45% of the dry weight. The value given is the total dry weight of samples less 45%.

# Appendix 4

## STRUCTURAL GROUP AFDW CONVERSION FACTORS

Samples collected from Leigh (Lei), Mokohinau Islands (Mok) and Raglan (Rag).

TAXON	STRUCTURAL GROUP	SPECIES	UNIT	AFDW (g)	SE	<i>n</i>
Ascidians	Compound ascidians	<i>Didemnum</i> sp. (Lei)	1%	1.6	0.2	3
	Solitary ascidians	<i>Asterocarpa</i> sp. (Lei)	1%	6.4	0.6	3
	Stalked ascidians	<i>Pseudodistoma</i> sp. (Lei)	1%	2.2	0.3	3
Barnacles	Barnacles	<i>Balanus</i> sp. (Lei)	1%	1.8	0.2	3
Mollusca	Oysters	<i>Crassostrea</i> sp. (Lei)	1%	5.0	1.4	3
	Large mussels	<i>Perna canaliculus</i> (Lei)	1%	26.0	5.0	3
	Small mussels	<i>Xenostrobus pulex</i> (Lei)	1%	8.9	0.5	3
Brachiopoda	Brachiopods	Unknown brachiopod (Lei)	0.25%	0.4	0.1	3
Bryozoa	Branched bryozoans	<i>Cribricellina cribraria</i> (Mok)	1%	3.5	0.8	3
	Encrusting bryozoans	<i>Membranipora</i> sp. (Mok)	1%	0.5	0.1	3
Coelenterates	Colonial anemones	<i>Actinotboe albocincta</i> (Lei)	1%	2.3	0.4	3
	Large solitary anemones	<i>Pblyctnactis</i> sp. (Lei)	1%	4.0	0.6	3
	Cup corals	<i>Monomyces rubrum</i> (Lei)	0.25%	0.3	0.1	3
	Soft corals	<i>Alcyonium</i> sp. (Mok)	1%	3.1	0.5	3
Hydrozoa	Hydroid turf	Unknown hydroid (Mok)	0.25%	0.4	0.0	3
		<i>Amphisbetia bispinosa</i> (Rag)	1%	8.1	0.4	2
	Hydroid trees	<i>Solanderia ericopsis</i> (Mok)	1%	10.0	1.2	3
Porifera	Encrusting sponges	<i>Cliona celata</i> (Lei)	1%	11.4	2.2	3
	Finger sponges	<i>Raspailia topsenti</i> (Mok)	1%	44.9	7.1	2
	Massive sponges	<i>Polymastia croceus</i> (Lei)	1%	22.2	2.0	3
		<i>Ancorina alata</i> (Lei)	1%	64.7	4.4	3

# Appendix 5

## OCCURRENCE OF MACROALGAL SPECIES

Percentage of quadrats in which each species was recorded (*n* indicates the number of quadrats sampled at each location).

TABLE A5.1. NORTHERN LOCATIONS.

LOCATION	NORTHEASTERN										RAGLAN			ABEL					
	BIOREGION	CAPE REINGA	CAPE KARIKARI	POOR KNIGHTS IS	MOKOHINAU ISLANDS	LEIGH	TAWHARANUI	LONG BAY	HAHEI	TUHUA ISLAND	GISBORNE	MAHIA	RAGLAN	GANNET ROCK	NEW PLYMOUTH	KAPITI ISLAND	LONG ISLAND	NELSON	ABEL TASMAN
<i>n</i>	35	160	180	180	175	275	180	75	165	160	75	40	26	40	120	115	235	175	200
<b>Large brown algae</b>																			
<i>Carpophyllum angustifolium</i>	-	-	20.0	14.9	6.9	2.2	-	10.3	23.8	-	-	-	-	-	-	-	-	-	-
<i>Carpophyllum flexuosum</i>	-	31.9	7.8	23.4	12.7	27.8	48.0	37.0	8.1	52.0	2.5	-	-	-	-	58.3	17.9	25.7	13.5
<i>Carpophyllum maschatocarpum</i>	94.3	41.9	18.3	27.4	50.9	52.8	80.0	49.7	49.4	49.3	72.5	26.9	27.5	43.3	51.3	22.1	29.1	29.1	24.5
<i>Carpophyllum plumosum</i>	20.0	15.6	8.9	9.1	14.2	8.9	20.0	28.5	18.1	-	-	-	-	-	-	-	-	-	-
<i>Cystophora retroflexa</i>	-	-	-	0.6	-	-	24.0	-	17.5	-	-	-	-	-	-	25.2	0.4	5.7	-
<i>Cystophora torulosa</i>	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	3.0
<i>Durvillaea antarctica</i>	-	-	-	-	-	-	-	-	-	-	7.5	-	-	-	-	-	-	-	-
<i>Ecklonia radiata</i>	57.1	55.0	66.7	45.1	76.0	73.9	60.0	80.6	44.4	74.7	65.0	-	-	10.0	6.7	91.3	20.0	-	-
<i>Landsburgia quercifolia</i>	45.7	7.5	5.6	-	1.1	-	-	3.0	-	-	-	-	-	12.5	-	14.8	1.3	-	-
<i>Lessonia variegata</i>	25.7	7.5	20.0	12.6	-	-	-	7.9	-	-	-	-	-	-	-	-	-	-	-
<i>Macrocystis pyrifera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-	-
<i>Margaritella boryana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-
<i>Sargassum sinclairii</i>	28.6	36.3	16.7	10.3	5.5	7.2	33.3	25.5	19.4	17.3	10.0	-	-	7.5	2.5	36.5	6.0	20.0	1.0
<i>Xiphophora chondrophylla</i>	-	27.5	23.9	16.6	5.5	1.7	-	30.3	26.9	-	-	-	-	-	-	-	-	-	-
<b>Small brown algae</b>																			
<i>Carpomitra costata</i>	5.7	13.1	4.4	9.7	-	-	-	5.5	17.5	33.3	15.0	-	-	-	1.7	33.0	14.0	1.7	11.5
<i>Distromium scotisbergii</i>	-	3.8	7.8	1.7	4.4	-	-	0.6	11.9	8.0	-	-	-	-	0.8	-	-	-	-
<i>Halopteris</i> spp.	5.7	0.6	3.9	3.4	0.7	-	-	1.2	8.1	1.3	47.5	-	-	-	17.5	22.6	11.1	3.4	-
<i>Perithalia capillaris</i>	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sporobolus</i> sp.	8.6	3.8	-	-	-	-	-	-	-	-	-	-	-	-	1.7	2.6	0.9	-	1.5
<i>Zonaria</i> spp.	57.1	20.6	21.7	38.3	7.3	11.7	62.7	39.4	69.4	81.3	47.5	7.7	2.5	4.2	81.7	8.9	-	-	-

Continued on next page

Table A5.1—continued

BIOREGION	NORTHEASTERN										ABEL							
	CAPE REINGA	CAPE KARIKARI	POOR KNIGHTS IS	MOKOHINAU IS	LEIGH	TAWHARANUI	LONG BAY	HAHEI	TUHUA ISLAND	GISBORNE	MAHIA	RAGLAN	RAGLAN ROCK	NEW PLYMOUTH	KAPITI ISLAND	LONG ISLAND	NELSON	ABEL TASMAN
LOCATION																		
<b>Ephemeral brown algae</b>																		
Brown turf (< 5 cm)	-	-	0.6	1.1	-	-	-	8.8	-	-	-	-	-	0.8	-	-	-	-
<i>Colpomenia sinuosa</i>	-	2.5	1.7	4.6	7.3	8.9	1.3	8.8	-	5.0	-	-	5.0	9.2	-	14.9	2.3	8.0
<i>Cutleria multifida</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	-	-
<i>Desmarestia ligulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.0	1.7	-
<i>Dicyotia</i> spp.	-	3.8	-	-	6.2	1.7	-	-	-	-	-	-	-	30.0	7.8	-	-	3.0
<i>Endarachne binghamiae</i>	-	-	-	-	-	-	-	-	-	-	-	7.7	2.5	-	-	-	-	-
<i>Glossophora kumbit</i>	5.7	3.1	-	2.9	0.7	0.6	-	1.8	10.0	10.7	10.0	3.8	17.5	9.2	15.7	5.1	18.3	8.0
<i>Spatoglossum chapmanii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-
<b>Brown encrusting</b>																		
<i>Ralfsia</i> spp.	17.1	16.3	8.9	21.1	13.1	35.0	26.7	22.4	21.9	17.3	10.0	11.5	22.5	15.0	15.7	49.4	43.4	22.5
<b>Green algae</b>																		
<i>Bryopsis</i> spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-	-	-	-
<i>Caulerpa articulata</i>	-	1.9	-	-	-	-	-	-	-	22.7	-	-	-	-	-	-	-	-
<i>Caulerpa brownii</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-
<i>Caulerpa fastigata</i>	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Caulerpa flexilis</i>	-	3.1	7.2	1.1	-	-	-	10.6	-	-	-	-	-	-	-	-	-	-
<i>Caulerpa geminata</i>	-	1.9	7.2	5.7	0.4	0.6	-	3.8	6.7	17.5	-	-	-	0.8	5.2	0.9	0.6	-
<i>Codium convolutum</i>	14.3	30.6	42.8	41.1	7.6	2.8	-	6.1	10.0	-	-	-	-	7.5	-	5.5	-	-
<i>Codium cranwelliae</i>	5.7	5.0	8.9	1.7	0.4	-	-	21.8	1.3	-	-	-	-	-	-	-	-	-
<i>Cladophora</i> spp.	-	0.6	-	-	-	-	-	-	-	-	-	15.4	7.5	34.2	13.0	2.1	8	7.0
<i>Cladophoropsis berpestica</i>	-	-	-	-	-	-	4.0	-	-	-	-	-	-	-	-	-	-	-
<i>Codium fragile</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-
<i>Halticystis</i> sp.	-	-	-	-	-	-	-	-	-	1.3	2.5	-	-	-	-	0.4	-	1.5
<i>Pedobesia clavaeformis</i>	-	3.1	1.1	8.0	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-
<i>Ulva</i> spp.	5.7	2.5	58.9	53.1	-	-	-	36.3	-	-	-	-	-	0.8	27.8	5.5	18.3	-

Continued on next page

Table A5.1—continued

	BIOREGION																																							
	CAPE REINGA		CAPE KARIKARI		POOR KNIGHTS IS		MOKOHINAU IS			LEIGH			TAWHARANUI		LONG BAY		HAHEI		TUHUA ISLAND		GIBBORNE		MAHIA		PORTLAND		RAGLAN		NEW PLYMOUTH		KAPITI ISLAND		LONG ISLAND		NELSON		ABEL TASMAN			
<b>Encrusting and coralline algae</b>																																								
Crustose coralline algae	100	100	100	100	100	98.3	100	98.8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
Coralline turf species	68.6	57.5	79.4	77.7	65.8	52.8	10.7	27.3	73.1	8.0	77.5	23.1	2.5	25.0	22.6	20.0	15.4	5.5	5.5	39.1	9.4	10.9	21.0	4.0	0.9	0.4	-	-	-	-	-	-	-	-	-	-	-			
<i>Hildenbrandia</i> spp.	85.7	50.0	46.7	36.6	5.5	11.1	14.7	46.7	53.8	53.3	25.0	61.5	10.0	25.0	39.1	9.4	10.9	21.0	4.0	0.9	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<b>Red turfing algae (&lt; 5 cm)</b>																																								
<i>Champia novae-zelandiae</i>	2.9	12.5	3.3	13.7	5.5	5.6	-	4.8	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Curdiea codiolides</i>	11.4	14.4	7.2	3.4	13.1	-	-	7.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Laurencia distichophylla</i>	5.7	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Liagora harveyana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Red turf (species complex)	62.9	39.4	90.0	56.0	14.2	11.7	-	27.9	56.3	9.3	45.0	53.8	17.5	35.8	40.9	11.1	24.0	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>Red foliose algae</b>																																								
<i>Anotrichium crinitum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Aphanocladia delicatula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Asparagopsis armata</i>	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Ballia callitrichia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Callophyllis</i> sp.	-	7.5	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Chondria</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Cladhymentia oblongifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Curdiea corticea</i>	5.7	1.9	21.1	1.7	-	7.2	-	5.5	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Delisea compressa</i>	-	-	8.3	0.6	-	-	-	-	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Euphilota formosissima</i>	-	-	21.7	6.3	-	-	-	-	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Gigartina macrocarpa</i>	-	-	10.0	-	-	-	-	-	6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Grateloupta</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Gymnogongrus bunniis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Humbrelia hydra</i>	-	-	-	-	0.4	0.6	-	-	-	-	-	15.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Hymenena</i> sp. (Red dots)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Continued on next page

Table A5.1—continued

LOCATION	BIOREGION				NORTHEASTERN								RAGLAN				ABEL			
	CAPE REINGA	CAPE KARIKARI	POOR KNIGHTS IS	MOKOHINAU IS	LEIGH	TAWHARANUI	LONG BAY	HAHEI	TUHUA ISLAND	GISBORNE	MAHIA	RAGLAN	GANNET ROCK	NEW PLYMOUTH	KAPITI ISLAND	LONG ISLAND	NEILSON	ABEL TASMAN		
<i>Hymenena variolosa</i>	2.9	16.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Kallymenia berggenii</i>	2.9	1.9	1.7	-	-	-	-	1.8	-	-	-	-	-	-	-	1.7	-	-		
<i>Laurencia thysifera</i>	31.4	16.9	-	-	-	-	-	-	-	8.0	-	-	-	-	-	-	-	-		
<i>Lophurella bookertiana</i>	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-		
<i>Melambalia absissa</i>	40.0	5.6	15.0	8.6	7.3	10.6	-	13.9	15.6	17.3	2.5	38.5	15.0	-	2.6	-	-	-		
<i>Nesophila boggardii</i>	-	-	40.0	-	-	-	-	-	0.6	-	-	-	-	-	-	-	-	-		
<i>Osmundaria colensoi</i>	42.9	9.4	32.8	17.1	4.7	1.7	-	6.7	53.8	33.3	80.0	57.7	12.5	-	-	-	-	-		
<i>Pachymenia crassa</i>	-	3.1	16.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Phacelocarpus labillardieri</i>	-	-	2.8	-	-	-	-	-	1.9	18.7	12.5	-	-	-	-	-	-	-		
<i>Placentophora colensoi</i>	17.1	0.6	10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Plocamium cirrhosum</i>	8.6	0.6	1.1	2.3	-	-	-	1.2	0.6	-	5.0	-	-	1.7	2.6	3.4	-	8.5		
<i>Plocamium microcladoides</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	1.7	2.5		
<i>Plocamium</i> spp. (all species)	14.3	3.1	25.0	14.9	0.4	-	-	10.9	5.0	16.0	47.5	3.8	-	3.3	24.3	-	3.4	3.5		
<i>Polyisipbonia muelleriana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	5.1	-		
<i>Pterocladia capillacea</i>	2.9	-	-	-	-	0.6	-	-	11.9	-	-	3.8	7.5	-	1.7	-	-	-		
<i>Pterocladia lucida</i>	71.4	23.8	26.1	24.6	19.3	21.7	-	33.9	26.3	30.7	67.5	53.8	12.5	28.3	23.5	0.4	0.6	-		
<i>Ptilonia</i> spp.	-	-	-	-	-	-	-	-	-	-	5.0	-	-	-	1.7	-	-	-		
<i>Rhodophyllis gunnii</i>	-	-	-	-	-	-	-	-	-	2.7	-	-	-	-	17.4	5.5	-	-		
<i>Rhodymenia</i> sp. (Manawatāwhi/Three Kings Islands)	-	-	13.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Rhodymenia</i> spp.	-	-	-	-	-	-	-	-	1.3	-	-	11.5	-	-	1.7	3.8	2.9	-		
<i>Scinaria australis</i>	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	-	-		
<i>Stenogramme interrupta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.5	-	-	-		
<i>Taylorophycus fuliformis</i>	-	-	1.7	-	-	-	-	-	0.6	-	-	-	-	-	-	-	-	-		



TABLE A5.2. SOUTHERN LOCATIONS.

LOCATION	COOK		BANKS		BULLER		WESTLAND			FIORDLAND				STEWART ISLAND				CHALMERS							
	WELLINGTON	KAIKOURA	BANKS PENINSULA NORTH	FLEA BAY	KARAMEA	CAPE FOULWIND	MORAKI	OPEN BAY ISLANDS	JACKSON HEAD	CASCADES	BARN	BIG BAY	BLIGH SOUND	CHARLES SOUND	DOUBTFUL SOUND	PRESERVATION INLET	GREEN ISLETS	BLUFF	CODFISH-RUGGEDY	RUAPUKE ISLAND	TTTI ISLANDS	PATERSON INLET	PORT ADVENTURE	OTAGO PENINSULA	CATLINS
<i>n</i>	120	117	55	100	45	75	58	99	160	120	60	60	140	39	120	40	60	135	119	80	79	272	78	59	60
<b>Large brown algae</b>																									
<i>Carpophyllum flexuosum</i>	11.7	-	21.8	21.0	-	-	-	37.9	-	-	-	-	22.1	33.3	22.5	5.1	-	4.4	21.0	27.5	5.0	58.4	10.4	-	-
<i>C. maschalocarpum</i>	66.7	25.6	23.6	28.0	-	-	-	-	-	-	-	-	-	-	-	-	-	34.1	2.5	47.5	18.8	8.0	0.7	-	1.7
<i>Cystophora platylobium</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	16.8	45.0	15.0	1.5	7.4	-
<i>Cystophora retroflexa</i>	0.8	-	-	-	-	-	1.0	3.4	-	3.3	-	3.3	-	-	-	3.8	-	-	5.9	7.5	7.5	16.8	1.5	-	-
<i>Cystophora scalaris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	2.2	-	-	-
<i>Cystophora torulosa</i>	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	10.0	3.8	5.1	-	-	-
<i>Durvillaea antarctica</i>	1.7	5.1	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Durvillaea willana</i>	-	2.6	1.8	9.0	-	2.7	-	-	-	1.7	-	-	2.1	7.7	0.8	1.3	-	7.4	-	-	-	5.8	-	23.7	23.3
<i>Ecklonia radiata</i>	75.8	58.1	14.5	22.0	-	-	-	60.3	1.7	-	-	57.9	66.7	49.2	-	-	-	-	8.4	55.0	36.3	48.2	25.9	-	-
<i>Landsburgia quercifolia</i>	75.0	44.4	-	-	-	2.7	12.0	43.1	5.0	8.3	24.1	10.0	27.9	-	14.2	15.4	33.3	31.1	74.8	130.0	12.5	24.8	35.6	-	1.7
<i>Lessonia variegata</i>	54.2	46.2	-	13.0	-	-	-	1.7	-	-	-	-	5.0	-	5.0	-	50.0	29.6	27.7	57.5	8.8	3.6	9.6	61.0	33.3
<i>Macrocystis pyrifera</i>	0.8	7.7	34.5	14.0	-	-	-	-	-	-	-	-	2.1	2.6	-	-	-	-	-	-	21.3	62.8	-	-	-
<i>Margaritella boryana</i>	24.2	59.8	-	1.0	-	-	-	-	-	-	-	-	0.7	-	4.2	-	-	6.7	-	62.5	32.5	53.3	5.2	-	-
<i>Margaritella urvilliana</i>	-	20.5	-	14.0	-	-	-	-	-	-	-	-	-	12.8	-	-	-	23.0	13.4	67.5	15.0	23.4	13.3	-	-
<i>Sargassum sinclairii</i>	7.5	6.0	-	-	-	10.7	10.0	43.1	-	6.7	1.3	11.7	14.3	2.6	13.3	5.1	-	2.2	17.6	25.0	7.5	21.2	1.5	-	-
<i>Sargassum verruculosum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-
<i>Xiphophora gladiata</i>	3.3	-	3.6	11.0	-	-	-	-	-	-	1.3	-	17.9	5.1	12.5	11.5	-	11.9	31.1	70.0	67.5	41.6	34.1	-	1.7
<b>Small brown algae</b>																									
<i>Carpomitra costata</i>	21.7	29.9	-	-	-	-	9.0	25.9	18.3	10.0	13.9	-	22.1	38.5	21.7	6.4	18.3	3.7	26.9	5.0	8.8	16.1	3.0	-	-
<i>Hatlopterus</i> spp.	51.7	33.3	45.5	18.0	17.8	14.7	28.0	25.9	128.3	51.7	58.2	25.0	48.6	53.8	29.2	24.4	50.0	41.5	68.9	157.5	75.0	50.4	34.1	-	8.3

Continued on next page

Table A5.2—continued

BIOREGION	COOK			BANKS			BULLER			WESTLAND			FIORDLAND			STEWART ISLAND			CHALMERS							
	WELLINGTON	KAIKOURA	BANKS PENINSULA NORTH	FLA BAY	KARAMEA	CAPE FOULWIND	MOERAKI	OPEN BAY ISLANDS	JACKSON HEAD	CASCADES	BARN	BIG BAY	BLIGH SOUND	CHARLES SOUND	DOUBTFUL SOUND	PRESERVATION INLET	GREEN ISLETS	BLUFF	CODFISH-RUGGEDY	RUAPUKE ISLAND	TTTI ISLANDS	PATERSON INLET	PORT ADVENTURE	OTAGO PENINSULA	CATLINS	
	-	-	-	-	-	-	-	-	-	-	-	6.4	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Hormosira banksii</i>	25.0	49.6	14.5	35.0	11.1	20.0	28.0	22.4	68.3	63.3	54.4	10.0	17.9	5.1	9.2	2.6	8.3	16.3	-	-	10.0	10.2	-	13.6	1.0	
<i>Microzonia velutina</i>	-	-	-	-	-	-	-	-	-	-	-	1.7	2.6	6.7	-	-	-	-	-	-	-	8.8	-	-	-	
<i>Sporobolus</i> sp.	55.0	-	-	-	-	-	8.0	13.8	13.3	-	10.1	8.3	23.6	43.6	17.5	1.3	1.7	-	19.3	22.5	36.3	20.4	7.4	-	-	
<i>Zonaria</i> spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Ephemeral brown algae</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Asperococcus bullosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-	-	-	
Brown turf	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-	0.8	-	-	-	-	-	1.3	0.7	-	-	-	
<i>Colpomenia sinuosa</i>	-	-	-	-	-	-	2.0	13.8	6.7	5.0	1.3	-	4.3	-	3.3	1.3	-	-	-	2.5	6.3	26.3	-	-	-	
<i>Cutleria multifida</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.4	-	-	-	
<i>Desmarestia ligulata</i>	20.8	23.1	7.3	3.0	-	-	1.0	1.7	-	-	-	-	-	-	-	-	-	21.7	20.7	28.6	60.0	45.0	17.5	7.4	50.8	11.7
<i>Dictyota</i> spp.	13.3	5.1	1.8	-	-	-	21.0	15.5	26.7	1.7	19.0	31.7	28.6	7.7	11.7	-	1.7	-	5.9	-	-	-	0.7	-	-	
<i>Endarachne binghamiae</i>	-	-	-	-	8.9	9.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Glossophora kumbii</i>	40.0	11.1	12.7	1.0	11.1	14.7	21.0	22.4	25.0	18.3	16.5	13.3	33.6	-	14.2	6.4	8.3	5.9	33.6	95.0	48.8	29.2	11.1	-	1.7	
<i>Spatoglossum chapmanii</i>	1.7	2.6	-	-	-	-	2.0	19.0	1.7	-	5.1	1.7	-	2.6	5.8	2.6	10.0	-	9.2	2.5	42.5	16.8	2.2	-	-	
<i>Undaria pinnatifida</i>	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Brown encrusting</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Ralfsia</i> spp.	5.0	3.4	27.3	9.0	2.2	4.0	-	1.7	-	1.7	2.5	-	22.1	7.7	15.8	3.8	-	5.9	0.8	12.5	18.8	87.6	1.5	5.1	8.3	
<b>Green algae</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Bryopsis</i> spp.	-	-	-	-	-	-	1.0	-	-	-	-	1.7	-	-	-	-	-	-	-	-	-	5.1	-	-	-	
<i>Caulerpa articulata</i>	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Caulerpa brownii</i>	26.7	29.1	-	-	-	-	-	-	-	2.5	25.0	10.7	23.1	15.8	16.7	11.7	26.7	19.3	37.5	21.3	4.4	16.3	-	1.7		
<i>Caulerpa flexilis</i>	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Caulerpa geminata</i>	14.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Chaetomorpha aerea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	-	-	

Continued on next page

Table A5.2—continued

LOCATION	BIOREGION																									
	WELLINGTON	KAIKOURA	COOK	BANKS	BULLER	MOERAKI	OPEN BAY ISLANDS	JACKSON HEAD	CASCADES	BARN	BIG BAY	BIGH SOUND	CHARLES SOUND	DOUBTFUL SOUND	PRESERVATION INLET	GREEN ISLETS	BLUFF	CODFISH-RUGGEDY	RUAPUKE ISLAND	TITI ISLANDS	PATERSON INLET	PORT ADVENTURE	OTAGO PENINSULA	CHALMERS		
<i>Gbaetomorpha coliformis</i>	0.8	0.9	-	-	-	-	-	-	-	-	-	2.1	-	0.8	-	-	-	-	-	-	-	-	-	1.7	10.0	
<i>Gladophora sericea</i>	-	-	-	-	-	-	-	-	-	-	-	-	12.8	1.7	-	-	-	-	-	-	-	-	-	-	-	
<i>Gladophora</i> spp.	20.0	6.0	-	-	-	-	-	-	-	-	-	0.7	-	5.8	-	-	-	-	-	-	7.3	-	3.4	6.7		
<i>Gladophoropsis herpesticata</i>	-	-	-	3.6	-	1.3	1.0	3.4	-	2.5	-	-	2.6	1.7	-	-	5.2	3.4	5.0	3.8	5.8	-	15.3	1.7		
<i>Codium convolutum</i>	4.2	-	-	-	6.7	6.7	1.0	3.4	1.7	8.3	2.5	22.9	7.7	14.2	6.4	15.0	19.3	34.5	82.5	22.5	61.3	7.4	45.8	5.0		
<i>Codium fragile</i>	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	0.7	-	-	-		
<i>Codium gracile</i>	-	-	-	-	-	-	-	-	-	-	-	30.7	20.5	18.3	-	-	-	-	-	-	-	-	-	-		
<i>Halictysis</i> sp.	-	-	-	-	-	-	-	-	-	-	-	0.7	-	1.7	-	-	-	-	-	-	-	-	-	-		
<i>Ulva</i> spp.	7.5	3.4	-	-	-	-	-	1.7	1.7	-	-	1.4	23.1	29.2	2.6	1.7	-	13.4	10.0	12.5	15.3	1.5	3.4	3.3		
<b>Encrusting and coralline algae</b>																										
Crustose coralline algae	100.0	94.0	83.6	100.0	77.8	85.3	53.0	98.3	135.0	95.0	75.9	78.3	95.0	97.4	82.5	51.3	100.0	100.0	100.0	200.0	98.8	198.5	57.8	96.6	95.0	
Coralline turf species	86.7	55.6	30.9	59.0	20.0	17.3	33.0	70.7	98.3	86.7	74.7	40.0	95.7	76.9	80.0	29.5	98.3	78.5	91.6	197.5	87.5	66.4	45.9	59.3	75.0	
<i>Hildenbrandia</i> spp.	63.3	35.9	36.4	63.0	8.9	44.0	4.0	13.8	10.0	11.7	27.8	31.7	25.0	59.0	25.0	11.5	11.7	39.3	21.8	105.0	57.5	90.5	12.6	47.5	41.7	
<b>Red turfing algae</b>																										
(Multi-species complex)	65.8	35.9	27.3	1.0	31.1	50.7	50.0	94.8	123.3	86.7	60.8	76.7	32.9	28.2	40.0	15.4	16.7	20.0	16.0	15.0	3.8	33.6	17.8	22.0	55.0	
<b>Red foliose algae</b>																										
<i>Adamsiella chauvini</i>	1.7	16.2	-	-	-	-	-	-	-	-	-	-	0.7	-	11.7	-	-	0.7	4.2	-	-	8.8	-	-	-	
<i>Adamsiella angustifolia</i>	-	-	-	-	-	-	-	-	-	-	-	-	3.6	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Anorichium crinitum</i>	0.8	12.8	9.1	-	-	-	30.0	63.8	61.7	20.0	16.5	6.7	2.9	12.8	20.8	-	6.7	19.3	14.3	5.0	6.3	13.9	2.2	13.6	5.0	
<i>Aphanocladia delicatula</i>	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Asparagopsis armata</i>	-	0.9	-	-	-	-	20.0	46.6	65.0	31.7	12.7	25.0	37.9	51.3	61.7	2.6	-	-	12.6	7.5	11.3	15.3	2.2	-	-	
<i>Ballia callitrichia</i>	5.8	12.8	-	5.0	2.2	4.0	-	-	6.7	10.0	3.8	5.0	5.7	12.8	11.7	1.3	18.3	32.6	3.4	10.0	1.3	2.9	2.2	27.1	26.7	
<i>Brongniartella australis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	5.0	7.5	-	8.0	-	-	-	

Continued on next page

Table A5.2—continued

BIOREGION	LOCATION										STEWART ISLAND			CHALMERS			
	WELLINGTON	KAIKOURA	BANKS PENINSULA	BANKS	BULLER	WESTLAND	FIORDLAND			BLUFF	CODFISH-RUGGEDY	RUAPUKE ISLAND	TTI ISLANDS	PATERSON INLET	PORT ADVENTURE	OTAGO PENINSULA	CATLINS
<i>Calliophyllis atrosanguinea</i>	-	-	-	-	-	-	-	-	-	-	-	-	5.0	1.5	-	-	-
<i>Calliophyllis callibrepharoides</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-	8.5	5.0
<i>Calliophyllis bombroniana</i>	12.5	3.4	-	6.0	-	-	-	-	-	-	5.9	2.5	2.5	2.9	-	52.5	21.7
<i>Calliophyllis ornata</i>	-	-	-	1.0	-	-	-	-	-	-	11.7	10.4	7.6	11.3	14.6	0.7	22.0
<i>Calliophyllis variegata</i>	-	-	-	-	-	-	-	-	-	-	20.0	9.6	6.7	10.0	2.5	13.9	0.7
<i>Carmontagnea hirsuta</i>	-	-	-	2.2	1.3	-	-	-	-	-	5.1	-	1.5	0.8	-	1.3	2.2
<i>Carmontagnea scoparia</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	1.5	-
<i>Ceramium</i> spp.	-	-	-	-	-	8.3	1.7	-	0.7	2.6	-	-	2.2	3.4	-	0.7	-
<i>Champia chalbamensis</i>	-	0.9	-	-	-	-	-	-	0.7	2.6	-	-	3.0	9.2	-	1.3	5.1
<i>Chondria</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	6.7	17.0	2.5	-	-
<i>Cladbymenia oblongifolia</i>	4.2	16.2	-	-	-	-	-	-	-	-	25.0	26.7	28.6	5.0	3.8	4.4	8.5
<i>Craspedocarpus erosus</i>	10.8	41.0	1.8	-	-	-	-	-	-	-	15.0	32.6	10.9	67.5	40.0	22.6	4.4
<i>Curdtea flabellata</i>	0.8	1.7	-	-	-	-	-	-	-	-	-	3.0	-	-	-	-	3.4
<i>Dasya collabens</i>	-	-	-	-	-	-	-	-	-	-	-	1.5	0.8	-	1.3	10.9	-
<i>Delesseria</i> sp.	-	-	-	-	-	-	-	-	-	-	6.7	3.7	1.7	-	-	-	8.5
<i>Deisea elegans</i>	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	-	10.2	3.0
<i>Deisea plumosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.8	-
<i>Echinobanion</i> spp.	-	9.4	-	24.4	2.7	13.0	3.4	70.0	35.0	17.7	5.0	0.7	2.5	14.1	8.3	25.2	19.3
<i>Eupitilota formosissima</i>	46.7	72.6	-	1.0	-	34.0	20.7	50.0	11.7	11.4	1.7	0.7	33.3	29.2	2.6	26.7	31.1
"Geldium" <i>ceramoides</i> *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.9	5.0
<i>Gigartina</i> sp. (large round circle)	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Gigartina circumcincta</i>	-	-	-	22.2	-	-	-	-	-	2.6	0.8	-	0.7	1.7	-	3.8	-
<i>Gigartina decipiens</i>	-	-	-	15.6	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Gigartina lanceata</i>	-	-	-	6.7	-	-	-	-	-	-	-	-	-	-	-	-	-

Continued on next page

Table A5.2—continued

BIOREGION	WESTLAND										FIORDLAND					STEWART ISLAND					CHALMERS			
	WELLINGTON	KAIKOURA	BANKS PENINSULA	BANKS	BULLER	MOERAKI	OPEN BAY ISLANDS	JACKSON HEAD	CASCADES	BARN	BIG BAY	BLIGH SOUND	CHARLES SOUND	DOUBTFUL SOUND	PRESERVATION INLET	GREEN ISLETS	BLUFF	CODFISH-RUGGEDY	RUAPUKE ISLAND	TITI ISLANDS	PATERSON INLET	PORT ADVENTURE	OTAGO PENINSULA	CATLINS
LOCATION																								
<i>Gigartina litoralis</i>	-	-	-	-	-	-	-	-	-	-	-	12.8	9.2	-	-	-	-	-	-	1.3	3.6	-	-	-
<i>Gracilaria chilensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	-
<i>Gracilaria truncata</i>	-	-	-	-	-	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-
<i>Griffithsia antarctica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	1.5	-	-	-
<i>Griffithsia crassiuscula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.0	0.8	7.5	-	-	8.8	0.7	-	-
<i>Griffithsia traversii</i>	0.8	0.9	-	-	-	58.0	101.7	166.7	100.0	75.9	100.0	-	-	-	-	-	-	-	-	-	0.7	-	3.4	-
<i>Gymnogongrus humilis</i>	-	-	-	-	-	6.7	13.3	7.0	-	11.7	-	2.6	-	-	-	1.5	0.8	-	-	-	-	-	13.6	10.0
<i>Halymentia</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	2.2	2.5	2.5	1.3	0.7	-	-	-	-
<i>Heterosiphonia concinna</i>	-	0.9	-	-	-	-	-	-	-	-	-	2.6	1.7	1.7	11.7	17.0	26.9	-	1.3	0.7	-	-	28.8	36.7
<i>Hymenena durvillaei</i>	-	1.7	-	-	-	-	-	-	6.7	1.7	1.3	-	2.5	2.6	35.0	34.8	25.2	10.0	20.0	2.2	12.6	52.5	60.0	
<i>Hymenena palmata</i>	4.2	54.7	-	-	-	-	-	-	1.7	6.7	1.3	-	18.3	17.9	60.0	43.7	47.9	35.0	28.8	6.6	8.1	18.6	33.3	
<i>Hymenena</i> sp. (Red dots)	4.2	12.8	7.3	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-	-	-	
<i>Hymenocladia sanguinea</i>	-	35.9	-	-	-	-	-	-	-	-	-	-	-	-	-	10.4	5.0	2.5	1.3	0.7	-	5.1	30.0	
<i>Iridaea</i> sp.	-	4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.0	-	-	10.2	3.3	
<i>Kallymenia</i> spp.	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Latingia bookeri</i>	-	-	-	-	-	-	-	-	-	-	-	2.6	0.8	-	1.7	5.2	4.2	-	-	-	-	2.2	-	
<i>Lophurella boeberiana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	9.6	7.6	-	3.8	5.8	3.0	3.4	21.7	
<i>Melanthalia abscissa</i>	-	6.0	1.8	-	22.2	5.3	20.0	10.3	75.0	41.7	11.4	33.3	6.7	15.4	16.7	13.3	36.1	-	2.5	2.9	0.7	-	10.0	
<i>Microcladia pinnata</i>	3.3	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Medetobrampton lyalli</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	2.5	-	-	-	0.7	-	
<i>Schizymenia</i> sp.**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7	0.7	9.2	22.5	12.5	-	3.0	-	-	
<i>Phaeocoloparus labillardieri</i>	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	
<i>Phytomyphora linearis</i>	-	-	-	-	-	-	-	-	-	1.7	-	-	-	-	26.7	4.4	2.5	15.0	-	1.5	-	-	-	
<i>Phycodrys quercifolia</i>	-	12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Platybammion lindaueri</i>	-	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	1.3	-	-	5.1	8.3	

Continued on next page

Table A5.2—continued

LOCATION	BIOREGION										STEWART ISLAND										CHALMERS									
	WELLINGTON	KAIKOURA	BANKS PENINSULA	BANKS	BULLER	MOERAKI	OPEN BAY ISLANDS	JACKSON HEAD	CASCADES	BARN	BIG BAY	BLIGH SOUND	CHARLES SOUND	DOUBTFUL SOUND	PRESERVATION INLET	GREEN ISLETS	BLUFF	CODFISH-RUGGEDY	RUAPUKE ISLAND	TTI ISLANDS	PATERSON INLET	PORT ADVENTURE	OTAGO PENINSULA	CATLINS						
<i>Phycodrys quercifolia</i>	-	12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Platybammion lindaueri</i>	-	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	1.3	-	-	5.1	8.3						
<i>Plocamium cirrhosum</i>	15.0	1.7	1.8	2.2	1.3	-	8.6	-	-	-	12.9	7.7	6.7	3.8	20.0	17.0	5.0	5.0	2.5	5.1	-	10.2	11.7							
<i>Plocamium microcladoides</i>	0.8	0.9	7.3	-	-	-	-	-	-	-	0.7	-	0.8	-	1.7	1.5	0.8	-	2.5	4.4	-	-	1.7							
<i>Plocamium</i> spp. (all species)	20.8	73.5	23.6	8.9	14.7	48.0	55.2	143.3	68.3	50.6	37.1	33.3	46.7	26.9	80.0	79.3	46.2	30.0	40.0	21.2	6.7	27.1	65.0							
<i>Polysiphonia</i> spp.	-	-	-	-	-	-	-	-	-	-	0.7	7.7	8.3	-	-	5.2	-	-	-	-	16.8	-	-	-						
<i>Pterocladia capillacea</i>	-	-	-	-	-	-	8.6	5.0	1.7	-	13.6	2.6	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Pterocladia lucida</i>	23.3	31.6	-	8.9	-	-	15.5	-	-	-	-	-	2.5	-	-	-	-	-	-	-	-	-	-	-						
<i>Ptilonia</i> spp.	5.8	-	-	-	-	3.0	2.5	-	-	-	-	-	-	-	-	-	-	-	1.3	-	-	-	5.0							
<i>Rhodophyllis acambocarpa</i>	-	10.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-	-	1.7							
<i>Rhodophyllis gunnii</i>	23.3	46.2	5.5	1.0	-	8.0	13.8	11.7	-	8.9	21.4	23.1	54.2	25.6	8.3	25.9	4.2	20.0	13.8	8.8	11.9	-	-							
<i>Rhodymenia obtusa</i>	7.5	36.8	-	-	-	-	-	-	-	-	-	-	-	-	21.7	14.8	0.8	-	-	1.5	-	11.9	45.0							
<i>Rhodymenia</i> spp.	-	42.7	-	-	-	-	-	-	-	-	1.4	5.1	12.5	-	-	0.7	-	-	-	0.7	-	5.1	3.3							
<i>Sarcodia flabellata</i>	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
<i>Schizoseris</i> spp.	-	22.2	-	-	-	-	-	-	-	-	-	-	-	-	51.7	27.4	21.0	12.5	11.3	0.7	1.5	20.3	58.3							
<i>Schizymenia novae-zelandiae</i>	-	-	-	4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
<i>Scinia australis</i>	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	-	3.8	-	-	1.7	1.7							
<i>Stenogramme interrupta</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	2.5	-	-	-	-	-	1.7							
<i>Streblcladia glomerulata</i>	-	19.7	-	-	-	-	-	-	-	-	-	-	-	-	6.7	10.4	34.5	-	17.5	0.7	5.2	13.6	18.3							

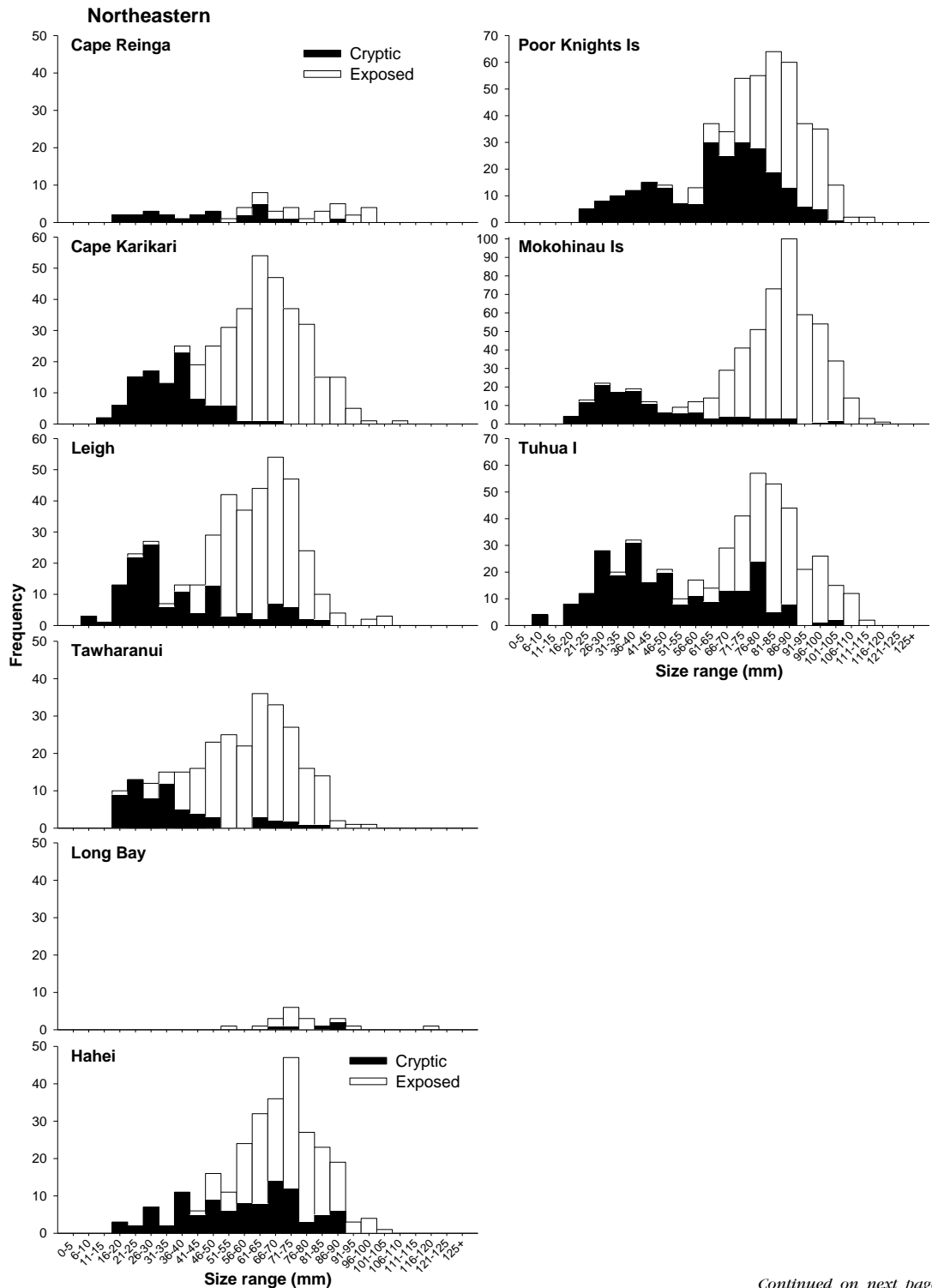
\* Genus (also family and order) unknown for this species; restricted to southern New Zealand. Also Wendy Nelson, NIWA, pers. comm. 2006.

\*\* Sensu *Nemastoma lacinata* (Adams 1994).

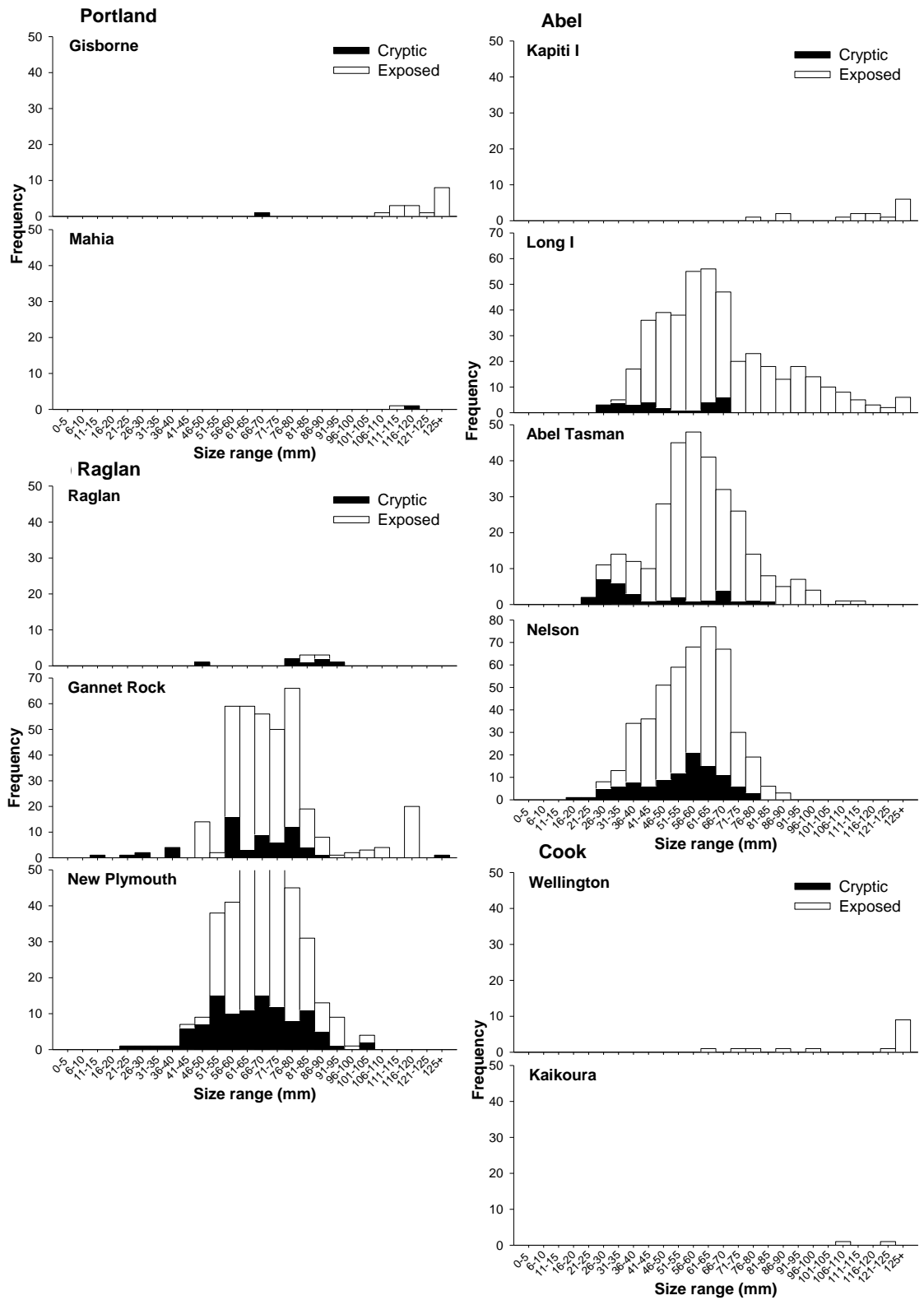
# Appendix 6

## SIZE-FREQUENCY DISTRIBUTIONS OF *Evechinus chloroticus*

All locations within each bioregion. Note that the number of sites and depths sampled vary among locations.

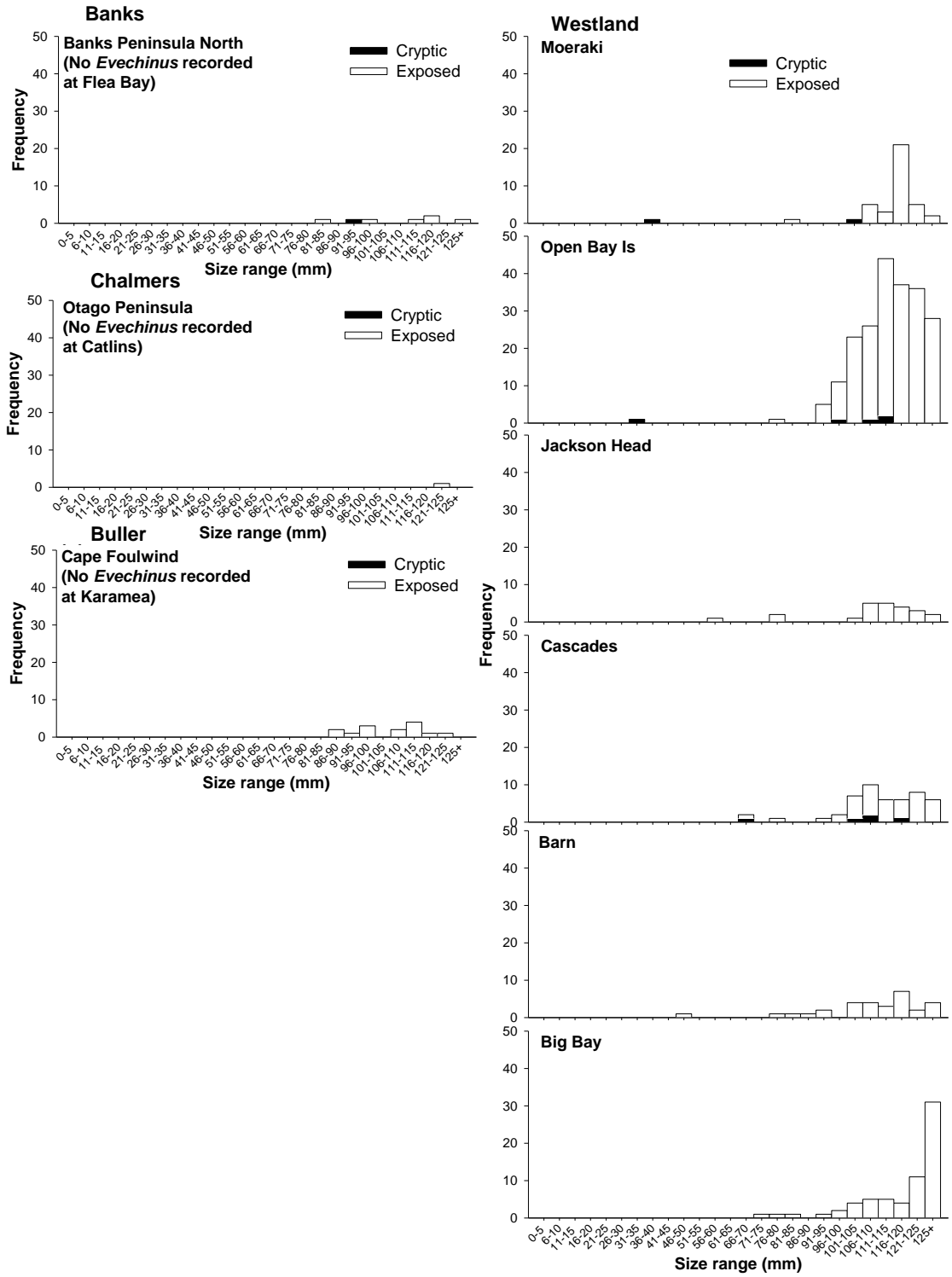


Continued on next page

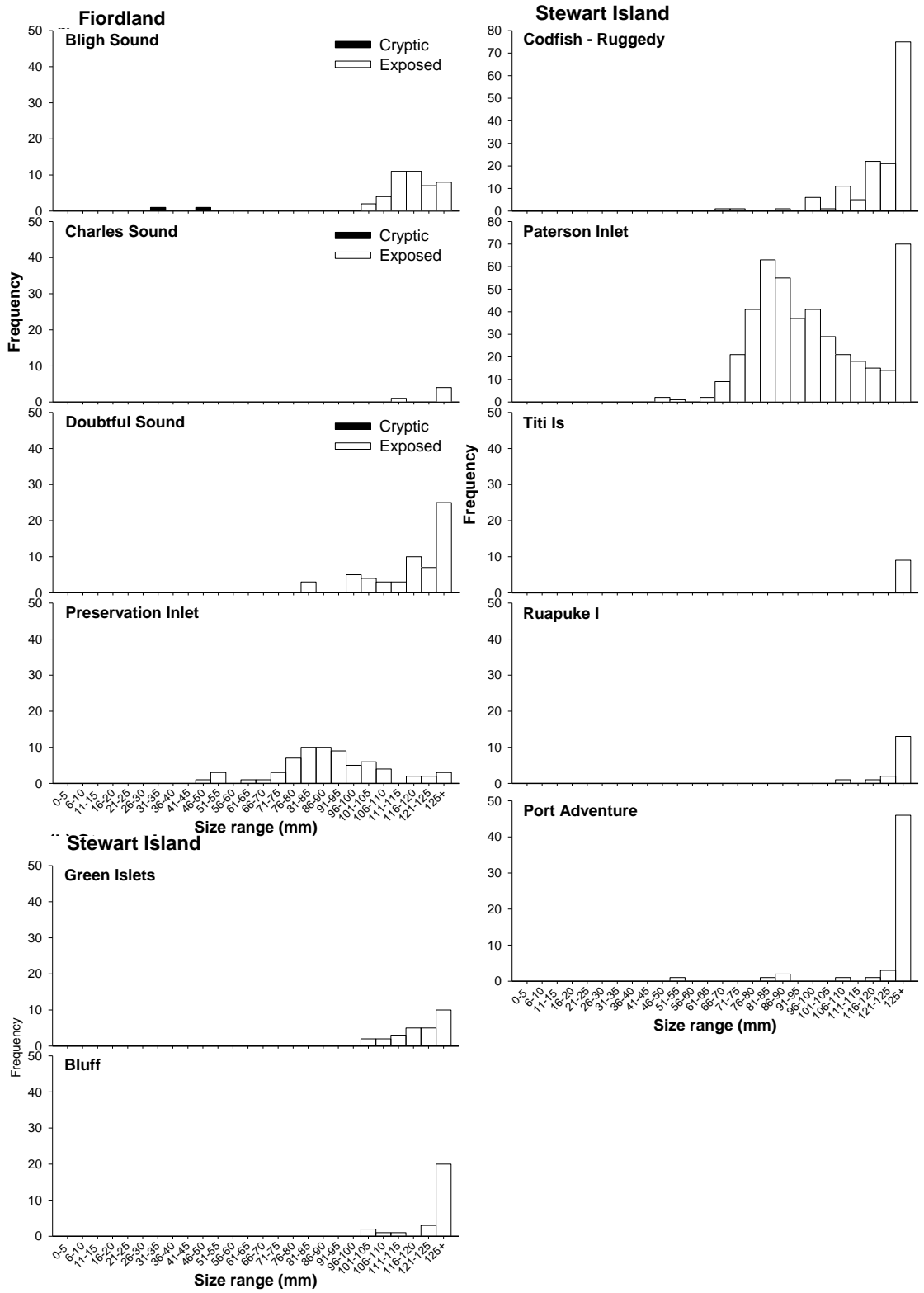


Continued on next page





Continued on next page



***Quantifying New Zealand's shallow subtidal reef communities***

*Shallow subtidal reef communities are some of the most productive habitats in temperate marine ecosystems and are of enormous commercial, recreational and cultural value to society. In general, much of the New Zealand coastline is undescribed and our understanding of the factors controlling coastal reef ecology is poor. This report presents the results of the first nationwide study of mainland New Zealand's subtidal benthic reef communities. The national overview of reef communities, and descriptions of reef assemblages within bioregions and how these vary, will provide a resource for ecologists and conservation workers.*

Shears, N.T.; Babcock, R.C. 2007: Quantitative description of mainland New Zealand's shallow subtidal reef communities. *Science for Conservation 280*. 126 p.