

Appendix 1

SITE DETAILS FOR EACH LOCATION

BR = bed rock, B = boulders, Lat. = Latitude, Long. = Longitude,
max. = maximum, trans. = transect

Status categories: N = Non-reserve (fished), R = Reserve (no-take)

LOCATION AND SITE	STATUS	LAT.	LONG.	MAX. DEPTH (m)	TRANS. LENGTH (m)	REEF STRUCTURE	
Coastal locations							
Cape Reinga (11 Oct 1999)							
CRL	Lighthouse	N	34 25 23.5	172 42 46.1	9	110	Vertical to 4.5 m, > 5 m v. gradual sloping BR, B, cobbles and sand
TAP	Tapotupotu East	N	34 26 06.1	172 43 51.2	10.5	130	Gradual, undulating slope of dissected BR and big B with sand
Cape Karikari (7–10 Oct 1999)							
CK4	CK4	N	34 51 45.5	173 27 00.3	15.5	70	Moderate slope, BR (< 6 m) and B (> 6 m)
KOW	Koware Sth	N	34 51 39.2	173 27 26.9	13.6	60	Moderate sloping BR and B
OMA	Omahuri	N	34 49 16.0	173 24 52.8	12.5	100	Moderate sloping BR
PIH	Pihoaka Pt	N	34 49 32.8	173 26 45.5	15	70	Vertical BR to 5 m then moderately sloping
SUN	Sunburn Pt	N	34 47 39.9	173 24 29.4	14	45	Steep BR to 12 m then levels out
TST	Takini Sth	N	34 49 35.0	173 25 22.3	12	100	Gradual sloping BR. B > 9 m
WLE	Whale Is	N	34 47 20.2	173 22 53.1	13.6	70	Moderate slope BR with B > 8 m sand at 14 m
WHA	Whangatupere	N	34 50 00.3	173 26 47.1	12.5	75	Gradual sloping BR to 6 m, moderate sloping B > 6 m
Leigh (12 Mar –1 Apr 1999)							
ABC	Alphabet Bay	R	36 15 57.0	174 47 43.4	11	120	Very gradual sloping BR with sand gutters
CRO	Cape Rodney	N	36 16 35.4	174 49 16.5	11.5	100	Gradual sloping BR and B—patches of cobbles
KEM	Kempts Beach	N	36 15 36.4	174 45 54.0	7.5	95	Very gradual sloping B with sand at 7.5 m
MAR	Martins	R	36 16 04.3	174 46 59.0	12	100	Gradual sloping BR
MAT	Mathesons	N	36 18 13.1	174 48 03.7	13.5	100	Gradual sloping BR with sand gutters
NOR	Nordic	N	36 17 37.9	174 48 35.7	12.5	110	Gradual sloping BR sand at 13 m
OKA	Okakari	N	36 15 33.6	174 46 01.4	12	65	Steep sloping BR to 9 m then flat sand and B
ONE	Onespot	R	36 16 27.4	174 48 50.3	11.2	85	Gradual sloping BR sand at 13 m
OUT	Outpost	N	36 17 21.1	174 49 08.5	10.5	100	Gradual sloping BR sand at 11 m
RST	Rodney South	N	36 16 48.0	174 49 17.8	12	90	Gradual sloping BR with B > 6 m, sand at 13 m
SCH	Schiels Pool	R	36 15 49.7	174 47 46.8	13.5	100	Gradual sloping BR sand at 13 m
TER	Te Rere	R	36 15 52.4	174 46 33.6	10.5	110	Gradual sloping BR sand at 13 m
TIP	Ti Point	N	36 19 05.3	174 47 59.6	7.3	70	Very gradual sloping B with sand at 7 m
TOW	Tower	R	36 16 09.7	174 48 10.7	11	100	Gradual sloping and undulating BR and big B
WFR	Waterfall Reef	R	36 16 04.6	174 47 56.8	8.5	75	Gradual sloping BR sand at 8.5 m
Tawharanui (19 Apr –3 May 1999)							
COM	Comet	R	36 21 56.7	174 49 55.7	4.5	50	Gradual sloping BR, inundated with sand at 5 m
IGU	Iguana	R	36 21 53.2	174 51 27.5	13	70	Moderate sloping BR (< 7 m) and B (> 7 m)
KAR	Karamuroa	N	36 20 51.7	174 48 18.6	11.5	110	Gradual sloping BR
MID	Mid-Point	R	36 21 55.1	174 51 07.5	12.5	100	Gradual sloping BR, undulating
NCO	North Cove	R	36 21 55.7	174 50 40.8	11	110	Gradual sloping BR, boulder > 6 m
PPT	P-Point	N	36 21 24.0	174 48 59.9	5.2	100	V. gradual sloping BR, sand at 5 m
TAK	Takatu	N	36 21 43.2	174 51 46.2	11.5	90	Gradual sloping BR
TCA	Takatu Cave	N	36 21 57.7	174 52 07.0	12.5	65	Moderate sloping BR (< 7 m) and B (> 7 m)
PNN	Pinnacle	R	36 21 45.5	174 51 36.3	12	100	Gradual sloping BR
TWP	Twin Peaks	N	36 21 51.0	174 51 59.85	11	125	Gradual sloping BR
Long Bay (12–15 Apr 1999)							
DOC	DoC sign	R	36 41 19.9	174 45 15.3	2.5	20	Very gradual sandstone reef with sand at 2 m
HOT	Hot tub	N	36 38 12.9	174 46 03.5	5	100	Very gradual sandstone reef with sand at 5 m
MTK	Matakata	N	36 37 50.4	174 46 16.8	3.5	90	Very gradual sandstone reef with sand at 3.5 m
MSH	Mushrooms	N	36 41 53.0	174 45 34.8	5	50	Gradual sloping sandstone reef with sand at 5 m
NSI	N-sign	R	36 40 40.9	174 44 57.5	1.5	15	Very gradual sandstone reef with sand at 1.5 m
TOR	Outer Tor	N	36 42 07.2	174 45 28.5	5.5	45	Gradual sloping BR and B with sand at 6 m
PNS	Pines	R	36 39 54.4	174 44 57.5	5	80	Very gradual sandstone reef sand at 5 m
RIT	Ritch Reef	N	36 38 00.0	174 46 21.3	3	15	Gradual sloping sandstone reef with sand at 3 m
SKR	Skull Rock	R	36 41 22.2	174 45 22.0	4	55	Gradual sloping to 4 m then flat sandstone with sand at 4.5 m

Appendix 1 cont'd

LOCATION AND SITE	STATUS	LAT.	LONG.	MAX. DEPTH (m)	TRANS. LENGTH (m)	REEF STRUCTURE
WET Wet Rock	R	36 40 15.3	174 44 52.0	2	60	Very gradual sandstone reef with sand at 3 m
Hahei (10–14 May 1999)						
CKS Cooks Bluff	R	36 49 09.3	175 46 14.9	10.5	100	Gradual sloping BR (<5 m) and B (> 5 m) with sand at 11m
MAH Mahungarape	N	36 47 27.5	175 45 04.3	9	60	Moderate sloping BR and B gives way to cobbles at > 6m
MUS Mussell Rock	N	36 49 15.4	175 45 46.5	4.5	70	Very gradual sloping boulder bank south of reserve boundary
MPN Mahurangi Pinn	N	36 50 05.0	175 49 06.0	14.5	95	Moderate sloping BR
RAZ Razor Rocks	R	36 49 04.4	175 48 11.8	10.5	100	BR—Steep sloping to 8 m then levels out
SAN Sandy Cove	R	36 49 24.0	175 47 09.1	8	75	Gradual sloping and undulating BR with sand at 7 m
SEM SE Motueka	R	36 49 12.8	175 48 09.9	12.4	100	Gradual sloping BR (< 6) and B (> 6)
TWI Twin gauge	N	36 49 47.8	175 49 17.9	14	55	Moderate sloping BR and large B
WCA Whitecaves	N	36 50 49.6	175 49 06.8	9	80	Gradual sloping, but undulating, BR and B. Sand at 8 m
WCL Whitecliffs	R	36 49 18.8	175 46 51.4	10.2	115	Gradual sloping BR (< 5 m) and B (> 5 m). Sand at 10 m
Offshore island locations						
Poor Knights (8–11 Jun 1999)						
BAR Bartels' Bay	R	35 28 25.6	174 44 19.9	14	100	Gradual sloping and undulating BR with large B
CLN Cleanerfish Bay	R	35 27 17.2	174 43 58.6	12.5	100	Gradual sloping BR and big B
FRA Frasers Bay	R	35 29 00.3	174 44 39.4	13.9	65	Moderate sloping BR
LAB Labrid Channel	R	35 29 19.6	174 44 20.8	13.6	50	Moderate sloping BR
LHB Lighthouse Bay	R	35 26 56.3	174 44 21.0	14.1	50	Steep sloping BR to 12 m then levels out
MTC Matt's Crack	R	35 28 34.5	174 44 31.7	18.3	25	Steep sloping BR to 20 m
NUR Nursery Cove	R	35 28 31.8	174 44 16.0	14.8	110	Gradual sloping and undulating BR, patches of sand
RLI Rock Lily Inlet	R	35 27 19.3	174 44 25.7	14	45	Steep sloping BR
SKB Skull Bay	R	35 27 41.3	174 44 08.3	13.2	75	Moderately sloping BR and big B
Mokohinau Is (1–6 Jun 1999)						
ACH Arches	N	35 54 41.2	175 06 02.2	14.9	35	Steep sloping BR
DRA Dragon South	N	35 54 46.5	175 06 15.4	14	90	Moderate sloping BR to 8 m then gradual sloping B and cobbles
HSE House Bay	N	35 54 16.1	175 06 44.0	14.5	25	Moderate sloping BR to 5 m then vertical to 22 m
LHP Lighthouse Point	N	35 54 17.6	175 07 06.1	13.5	35	Steep sloping BR
LIZ Lizard Is	N	35 54 34.3	175 06 47.9	12	60	Moderate sloping BR
PST Pinnacle South	N	35 55 01.8	175 05 43.1	11.1	100	Gradual sloping and undulating BR
PUD Puddingstone Is	N	35 54 23.4	175 06 15.1	15.6	35	Steep sloping BR
STS Sentinel South	N	35 54 58.8	175 06 09.3	12.6	95	Gradual sloping and undulating BR
SEB Southeast Bay	N	35 54 38.8	175 06 19.9	12	90	Gradual sloping BR
Tuhua (Mayor Island) (15–18 Mar 2000)						
AWA AwatukoroPt	N	37 16 42.7	176 13 52.7	12.2	75	Moderate sloping BR with B > 8 m
BPO Bait pond	N	37 16 20.3	176 14 17.3	12.6	80	Moderate sloping and undulating BR
HTS Hot Springs	R	37 16 05.7	176 16 27.9	12	95	Moderate sloping BR to 6 m then very gradual sloping B
HUR Hurihurihunga	R	37 16 02.3	176 15 35.3	11.9	95	Gradual sloping and undulating BR and large B
MAO Maorichief	R	37 16 05.0	176 14 50.8	13.5	70	Steep BR to 8 m then undulating BR and large B
OKW Okawa	N	37 16 53.6	176 16 37.4	13.2	65	Steep sloping and undulating BR with deep gutters
TRT Te Roto	N	37 17 20.4	176 16 31.3	14.6	45	Moderate sloping with very large B, sand at 16 m
TUR Turanganui	R	37 16 17.9	176 16 39.0	14.3	70	Gradual sloping and undulating BR with deep gutters

Appendix 2

SPECIES OCCURRENCE IN SHALLOW SUBTIDAL REEFS IN NORTHEASTERN NEW ZEALAND

Percentage occurrence of macroalgal species (Table A) and mobile macro-invertebrate species (Table B) from regional sampling at the following locations: Cape Reinga (CR, n = 35), Cape Karikari (CK, n = 160), Leigh (n = 275), Tawharanui (Tawh, n = 180), Long Bay (LB, n = 75), Hahei (n = 165), Poor Knights Islands (PKI, n = 180), Mokohinau Islands (MKI, n = 175) and Tuhua (Mayor Island) (n = 160). * Indicates species observed but not sampled.

Table A. Macroalgal species recorded

SPECIES	COASTAL LOCATIONS					OFFSHORE ISLANDS			TOTAL %	COMMENTS	
	CR	CK	LEIGH	TAWH	LB	HAHEI	PKI	MKI			TUHUA
Large brown algae											
<i>Carpophyllum angustifolium</i>	-	-	6.9	2.2	-	10.3	20.0	14.9	23.8	10.0	
<i>C. maschalocarpum</i>	94.3	41.9	50.9	52.8	80.0	49.7	18.3	27.4	49.4	45.3	
<i>C. plumosum</i>	20.0	15.6	14.2	8.9	20.0	28.5	8.9	9.1	18.1	14.9	
<i>C. flexuosum</i>	-	31.9	12.7	27.8	48.0	37.0	7.8	23.4	8.1	21.4	
<i>Ecklonia radiata</i>	57.1	55.0	76.0	73.9	60.0	80.6	66.7	45.1	44.4	63.9	
<i>Sargassum sinclairii</i>	28.6	36.3	5.5	7.2	33.3	25.5	16.7	10.3	19.4	17.2	
<i>Lessonia variegata</i>	25.7	7.5	*	-	-	7.9	20.0	12.6	-	6.5	
<i>Landsburgia quercifolia</i>	45.7	7.5	1.1	-	-	3.0	5.6	-	-	3.3	
<i>Xiphobora chondrophylla</i>	*	27.5	5.5	1.7	*	30.3	23.9	16.6	26.9	16.2	
<i>Cystophora retroflexa</i>	-	-	-	-	24.0	-	-	0.6	17.5	3.3	
<i>C. torulosa</i>	-	0.6	-	-	-	-	-	-	-	0.1	
Small brown algae											
<i>Zonaria turneriana</i>	57.1	20.6	7.3	11.7	62.7	39.4	21.7	38.3	69.4	30.1	
Brown encrusting algae	17.1	16.3	13.1	35.0	26.7	22.4	8.9	21.1	21.9	19.6	e.g. <i>Ralfsia</i>
<i>Carpomitra costata</i>	5.7	13.1	-	-	-	5.5	4.4	9.7	17.5	6.0	
<i>Colpomenia sinuosa</i>	-	2.5	7.3	8.9	1.3	-	1.7	4.6	8.8	4.7	
<i>Distromium scottsbergii</i>	-	3.8	4.4	-	-	0.6	7.8	1.7	11.9	3.9	
<i>Glossophora kuntzii</i>	5.7	3.1	0.7	0.6	-	1.8	-	2.9	10.0	2.4	
<i>Halopteris</i> spp.	5.7	0.6	0.7	-	-	1.2	3.9	3.4	8.1	2.3	
<i>Dictyota</i> spp.	-	3.8	6.2	1.7	-	-	-	-	-	1.9	
Brown turfing algae	-	-	-	-	-	-	0.6	1.1	8.8	1.2	Not identified
<i>Sporocchnus</i> sp.	8.6	3.8	-	-	-	-	-	-	-	0.6	
<i>Perithalia capillaris</i>	-	1.9	-	-	-	-	-	-	-	0.2	
Foliose red algae											
<i>Pterocladia lucida</i>	71.4	23.8	19.3	21.7	-	33.9	26.1	24.6	26.3	24.4	
<i>Osmundaria colensoi</i>	42.9	9.4	4.7	1.7	-	6.7	32.8	17.1	53.8	16.5	
<i>Melanthalia abscissa</i>	40.0	5.6	7.3	10.6	-	13.9	6.7	8.6	15.6	9.8	
<i>Plocamium</i> spp.	14.3	3.1	0.4	*	-	10.9	25.0	14.9	5.0	7.7	
<i>Nesophila hoggardii</i>	-	-	-	-	-	-	40.0	-	0.6	5.2	
<i>Curdiea coriacea</i>	5.7	1.9	-	7.2	-	5.5	21.1	1.7	1.3	5.0	
<i>Euptilota formosissima</i>	-	-	-	-	-	*	21.7	6.3	3.1	3.9	
<i>Laurencia thyrsoifera</i>	31.4	16.9	*	-	-	-	-	-	-	2.7	
<i>Pachymenia crassa</i>	-	3.1	-	-	-	-	16.1	-	-	2.4	
<i>Delisea compressa</i>	-	-	*	-	-	-	8.3	0.6	10.0	2.3	
<i>Placentophora colensoi</i>	17.1	0.6	-	-	-	-	10.6	-	-	1.9	
<i>Rbodymenia</i> undescribed sp.	-	-	-	-	-	-	13.3	-	-	1.7	Prev. only recorded at Three Kings Is
<i>Pterocladia capillacea</i>	2.9	-	*	0.6	-	-	-	-	11.9	1.5	
<i>Rbodymenia</i> sp.	-	-	-	-	-	-	8.3	-	1.3	1.2	
<i>Callophyllis</i> spp.	-	7.5	*	*	-	*	2.2	-	-	1.1	
<i>Plocamium costatum</i>	8.6	0.6	*	-	-	1.2	1.1	2.3	0.6	0.9	
<i>Kallymenia berggenii</i>	2.9	1.9	*	*	-	1.8	1.7	-	-	0.7	
<i>Phacelocarpus labillardieri</i>	-	-	-	-	-	*	2.8	-	1.9	0.6	
<i>Tayloroephyucus filiformis</i>	-	-	-	-	-	-	1.7	-	0.6	0.3	
<i>Asparagopsis armata</i>	-	1.3	*	-	-	-	-	-	-	0.1	Seasonal
<i>Humbrella hydra</i>	-	-	0.4	0.6	-	-	-	*	-	0.1	Seasonal
<i>Grateloupia urvilleana</i>	-	-	-	-	-	-	-	-	0.6	0.1	Seasonal

Appendix 2, Table A cont'd

SPECIES	COASTAL LOCATIONS						OFFSHORE ISLANDS			TOTAL	COMMENTS
	CR	CK	LEIGH	TAWH	LB	HAHEI	PKI	MKI	TUHUA	%	
Red turfing algae (< 5 cm)											
Coralline turfing algae	68.6	57.5	65.8	52.8	10.7	27.3	79.4	77.7	73.1	59.9	
Red turfing algae	62.9	39.4	14.2	11.7	-	27.9	90.0	56.0	56.3	38.5	
<i>Champia novae-zelandiae</i>	2.9	12.5	5.5	5.6	-	4.8	3.3	13.7	1.9	6.2	
<i>Gigartina macrocarpa</i>	-	-	-	-	-	-	10.0	*	6.9	2.1	
<i>Hymenena variolosa</i>	2.9	16.9	*	*	-	-	-	-	-	2.0	Seasonal
<i>Laurencia distichophylla</i>	5.7	1.9	*	*	*	-	-	-	-	0.4	Seasonal
<i>Glaphrymenia pustulosa</i>	-	-	-	-	-	-	-	-	0.6	0.1	
Encrusting red algae											
Crustose coralline algae	100.0	100.0	100.0	98.3	100.0	98.8	99.4	98.9	100.0	99.4	
Red encrusting algae	85.7	50.0	5.5	11.1	14.7	46.7	46.7	36.6	53.8	33.2	e.g. <i>Hildenbrandia kerguelensis</i>
<i>Curdiea codioides</i>	11.4	14.4	13.1	-	-	7.3	7.2	3.4	-	6.7	
Green algae											
<i>Ulva</i> spp.	5.7	2.5	-	-	-	-	58.9	53.1	36.3	18.7	Predominantly <i>Ulva lactuca</i>
<i>Codium convolutum</i>	14.3	30.6	7.6	2.8	-	6.1	42.8	41.1	10.0	18.1	
<i>Codium cramwelliae</i>	5.7	5.0	0.4	-	-	21.8	8.9	1.7	1.3	4.8	
<i>Caulerpa flexilis</i>	-	3.1	*	-	-	-	7.2	1.1	10.6	2.6	
<i>Caulerpa geminata</i>	-	1.9	0.4	0.6	-	-	7.2	5.7	3.8	2.4	
<i>Caulerpa articulata</i>	-	1.9	-	-	-	-	-	-	-	0.2	
<i>Caulerpa fastigiata</i>	-	0.6	-	-	-	-	-	-	-	0.1	
<i>Pedobesia clavaeformis</i>	-	3.1	-	-	-	-	1.1	8.0	1.9	1.7	
Green turfing algae	-	3.1	-	-	5.3	-	0.6	-	-	0.7	Not identified
<i>Cladophoropsis herpestica</i>	-	-	-	-	4.0	-	-	-	-	0.2	

Table B. Macroinvertebrate species recorded

SPECIES	COASTAL LOCATIONS						OFFSHORE ISLANDS			TOTAL %	COMMENTS
	CR	CK	LEIGH	TAWH	LB	HAHEI	PKI	MKI	TUHUA		
	Herbivorous gastropods										
<i>Cookia sulcata</i>	48.6	69.4	79.3	81.1	14.7	77.0	2.8	43.9	10.6	51.7	
<i>Trochus viridis</i>	20.0	35.0	64.4	65.7	90.7	55.2	0.6	10.0	1.3	38.1	
<i>Cantbaridus purpureus</i>	17.1	10.6	66.5	72.6	13.3	31.5	0.6	1.1	-	28.3	
<i>Cellana stellifera</i>	-	20.0	46.2	34.3	-	15.8	*	14.4	4.4	19.8	
<i>Modelia granosus</i>	2.9	28.1	5.1	1.1	-	4.2	0.6	16.7	1.3	7.3	
<i>Turbo smaragdus</i>	-	-	3.3	6.9	92.0	1.8	-	-	-	6.6	
<i>Calliostoma punctulatum</i>	8.6	11.9	7.3	5.7	-	10.9	1.1	-	-	5.1	
<i>Micrelencbus sanguineus</i>	5.7	-	9.5	18.9	1.3	1.8	-	-	-	4.6	
<i>Eudoxociton nobilis</i>	8.6	1.3	1.8	0.6	4.0	0.6	2.2	3.9	0.6	1.9	
<i>Haliotis australis</i>	11.4	5.6	0.7	3.4	-	0.6	-	1.1	0.6	1.8	
<i>Cryptoconchus porosus</i>	2.9	1.9	0.7	1.7	5.3	2.4	-	-	-	1.2	
<i>Cantbaridus opalas</i>	-	-	1.1	5.1	-	0.6	-	-	-	0.9	
<i>Haliotis iris</i>	11.4	-	-	-	-	1.2	-	-	-	0.4	
<i>Melagraphbia aethiops</i>	-	-	1.1	-	-	-	-	-	-	0.2	
<i>Calliostoma tigris</i>	-	-	-	-	-	0.6	-	0.6	-	0.1	
Predatory gastropods											
<i>Dicathais orbita</i>	5.7	26.3	57.1	67.4	6.7	15.2	1.7	8.9	-	26.2	
<i>Buccinulum lineum</i>	5.7	5.6	5.5	15.4	22.7	8.5	1.1	2.8	0.6	6.5	
<i>Cominella virgata</i>	2.9	0.6	2.5	10.3	57.3	3.6	-	-	-	5.4	
<i>Haustrum haustorium</i>	5.7	1.3	9.8	11.4	-	2.4	-	0.6	-	4.0	
Small whelks	-	3.1	0.4	3.4	1.3	6.1	1.1	1.1	-	1.9	e.g. <i>Buccinulum vitatum</i>
<i>Murexsul</i> spp.	2.9	4.4	3.3	1.1	-	2.4	0.6	1.7	-	1.9	
<i>Cabestana spengleri</i>	2.9	1.3	0.7	-	-	-	-	0.6	1.3	0.6	
<i>Charonia lampas</i>	-	-	1.1	0.6	-	0.6	0.6	-	-	0.4	
<i>Cominella maculosa</i>	-	1.3	0.7	0.6	-	0.6	-	-	-	0.4	
Urchins											
<i>Evechinus chloroticus</i>	40.0	54.4	40.7	41.7	14.7	38.2	40.0	68.3	54.4	45.7	
<i>Centrostephanus rodgersii</i>	-	5.6	-	-	-	-	4.4	9.4	5.0	3.0	
<i>Holopneustes inflatus</i>	-	-	2.2	5.1	-	0.6	-	-	0.6	1.2	
<i>Goniocidaris corona</i>	-	-	-	-	-	3.0	-	-	-	0.4	
<i>Heliocidaris tuberculata</i>	-	0.6	-	-	-	-	-	-	-	0.1	
Starfish											
<i>Patriella regularis</i>	-	1.3	0.7	2.9	38.7	9.7	-	-	-	3.8	
<i>Coscinasterias muricata</i>	-	-	0.7	0.6	9.3	0.6	-	-	-	0.8	
<i>Ophiopsammus maculata</i>	-	2.5	0.4	1.7	-	0.6	-	-	-	0.6	
<i>Stegnaster inflatus</i>	-	-	-	0.6	2.7	0.6	-	-	-	0.3	
Other											
<i>Comanthus novae-zelandiae</i>	-	-	-	-	-	-	-	0.6	-	0.1	
<i>Maoricolpus roseus</i>	-	-	-	2.9	9.3	0.6	-	-	-	0.9	
<i>Jasus edwardsii</i>	-	*	*	0.6	-	1.8	*	*	0.6	0.4	
<i>Plagusia chabrus</i>	-	-	-	1.1	-	-	-	0.6	-	0.2	
<i>Stichopus mollis</i>	-	-	-	-	-	0.6	-	-	-	0.1	

Appendix 3

DEPTH-RELATED PATTERNS IN ALGAL
BIOMASS AND DENSITY OF *EVECHINUS* AND
GASTROPODS AT STUDY LOCATIONS:
FIGURES A3.1-A3.9

Figure A3.1. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, at Cape Reinga sites. Note differing scale on y-axis for each plot.

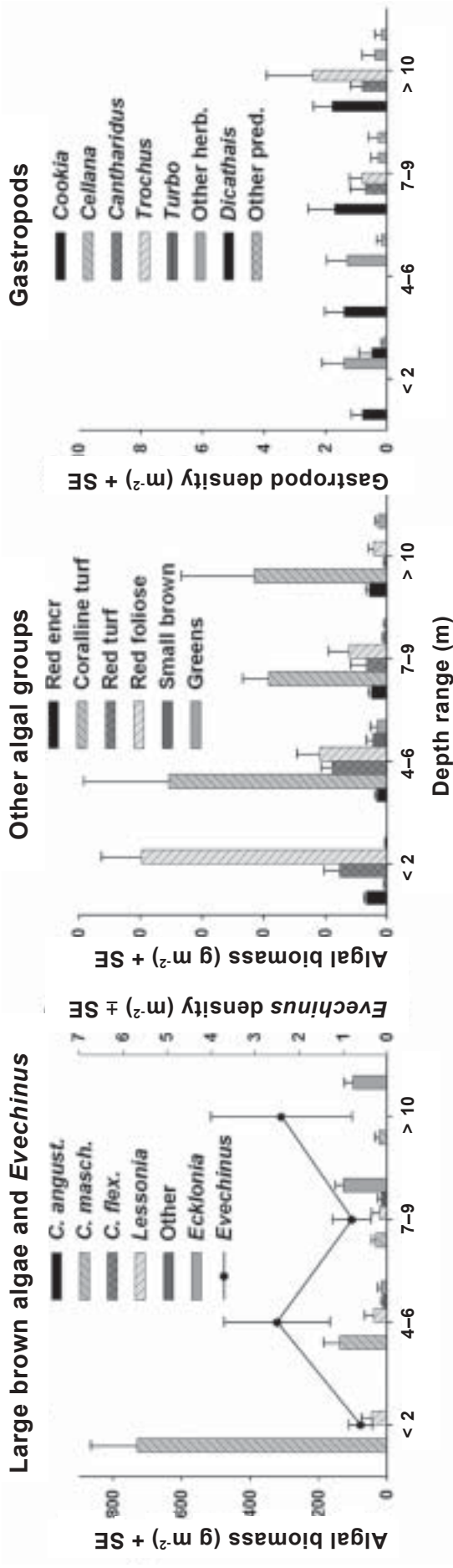


Figure A3.2. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, for site groups at Cape Karikari. Note differing scale on y-axis for each plot.

(a) Very exposed (Sunburn Pt)

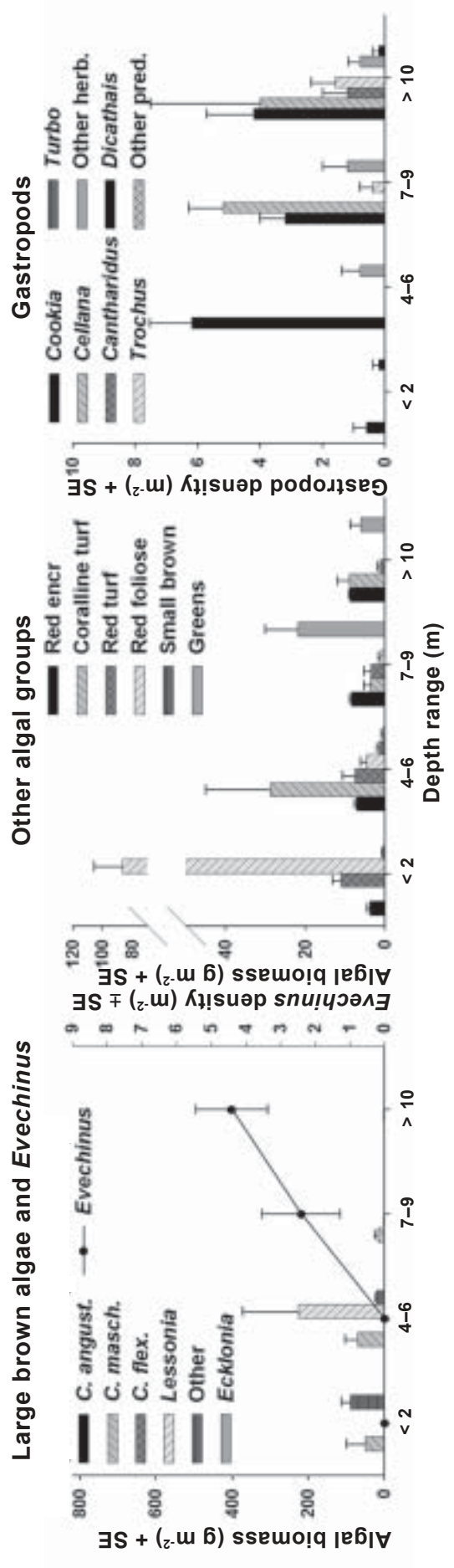
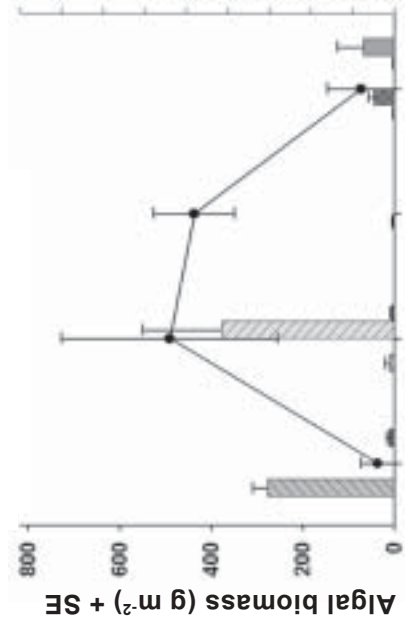


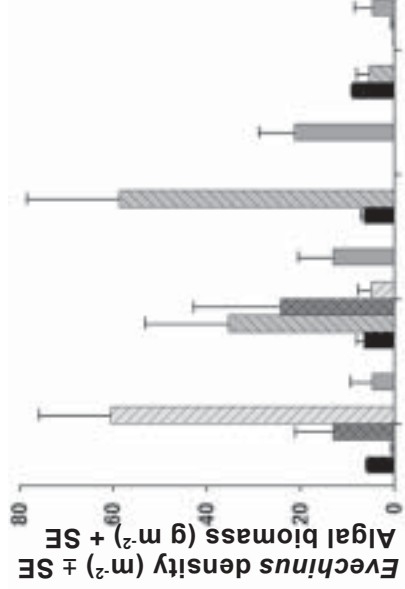
Figure A3.2 cont'd

(b) E1 (Pihoaka Pt)

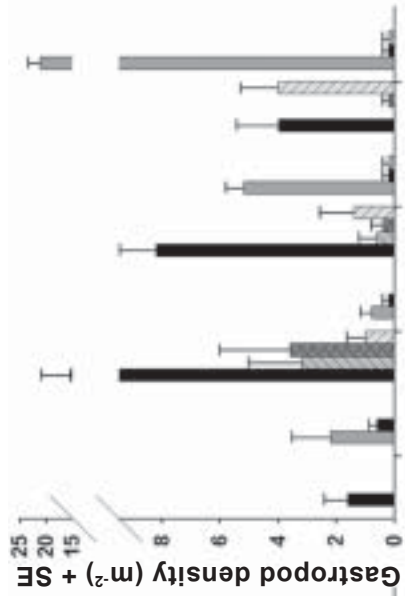
Large brown algae and *Evechinus*



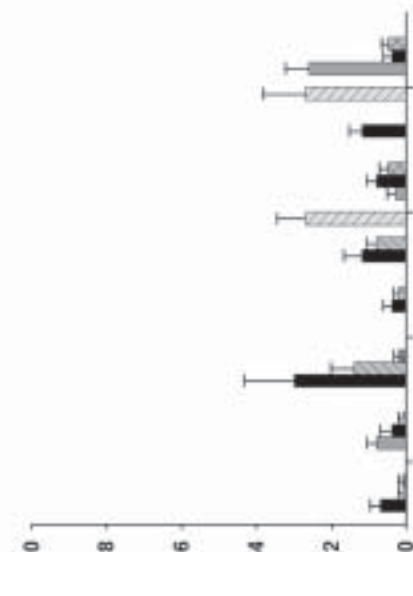
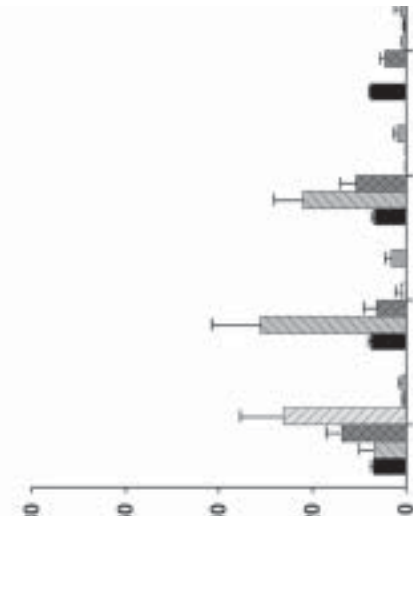
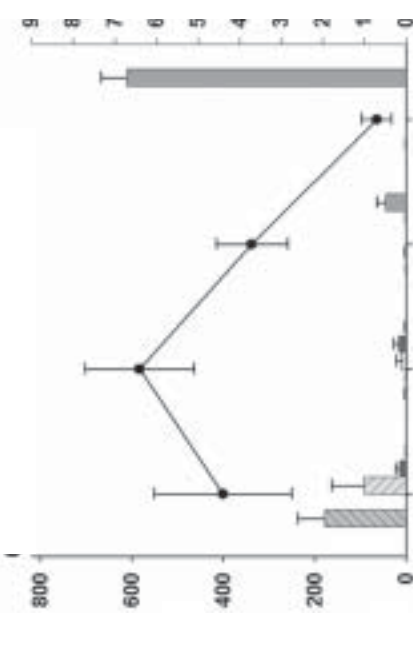
Other algal groups



Gastropods

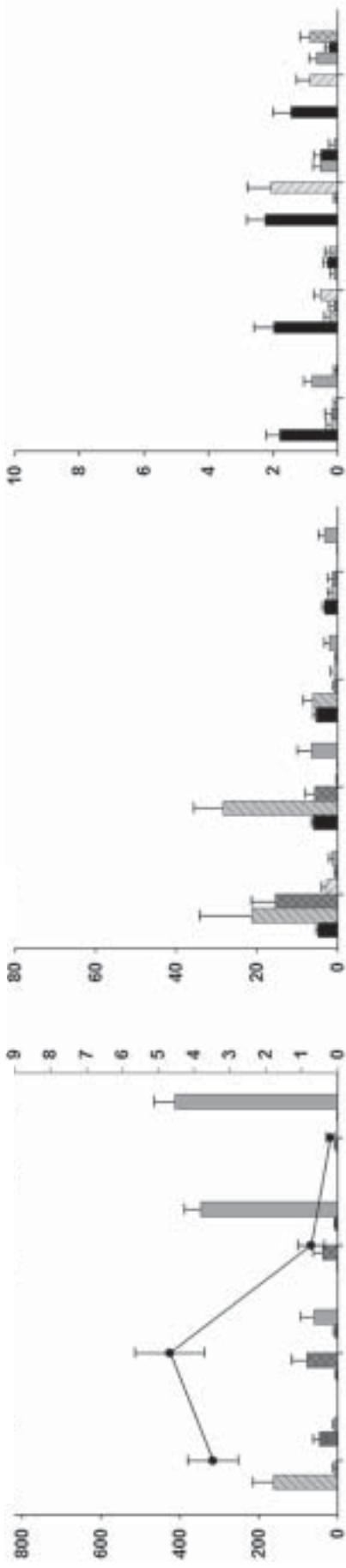


(c) M1 (Takini and Omahuri)



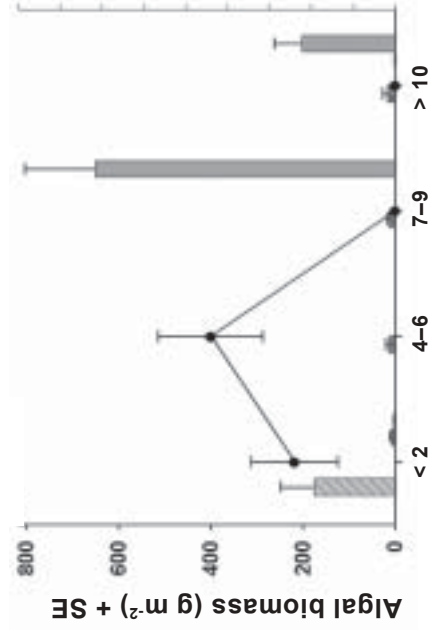
Depth range (m)

(d) M2 (Koware Sth, Whangatapere and Whale I.)

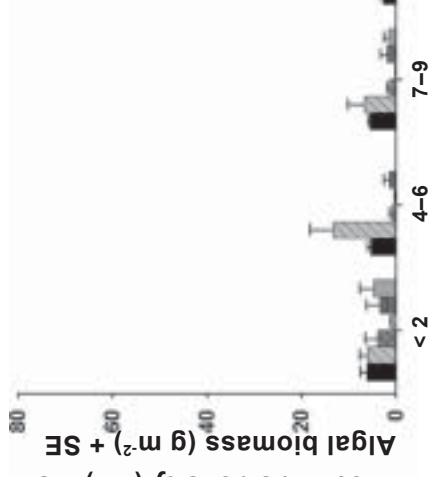


(e) CK 4

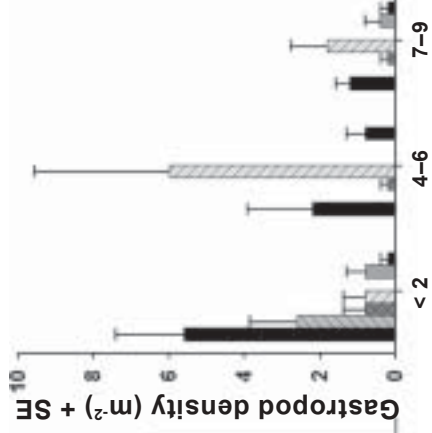
Large brown algae and Evechinus



Other algal groups



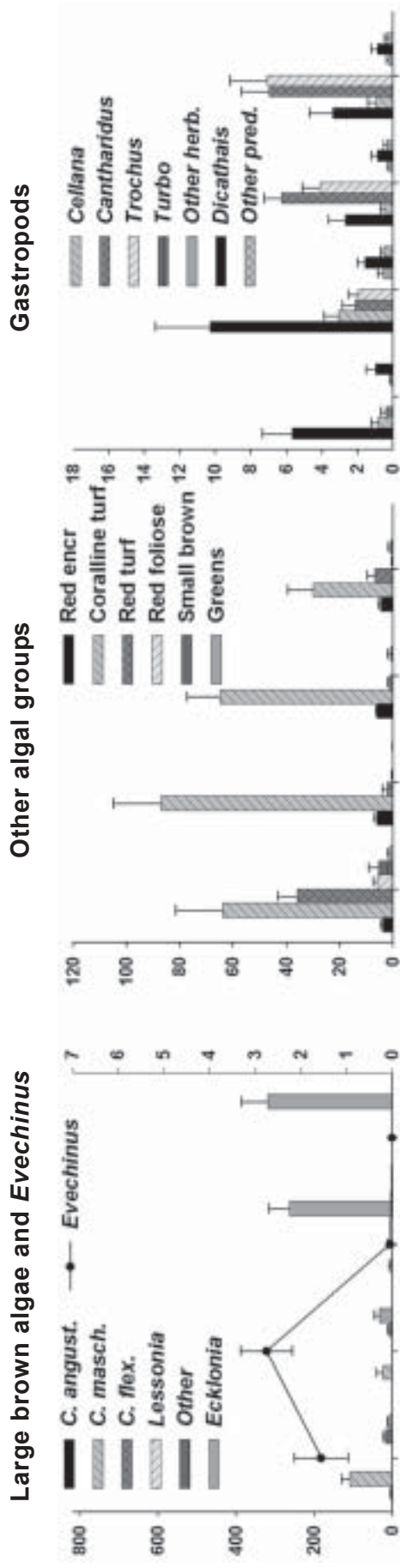
Gastropods



Depth range (m)

Figure A3.3. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, for site groups at Leigh. Note differing scale on y-axis for each plot. X indicates depth strata that were not sampled.

(a) M1 (One spot, Rodney South, Okakari and Te Rere)



(b) M3 (Tower, Martins, Waterfall, Outpost, Mathesons, ABC, Cape Rodney and Schiels Pool)

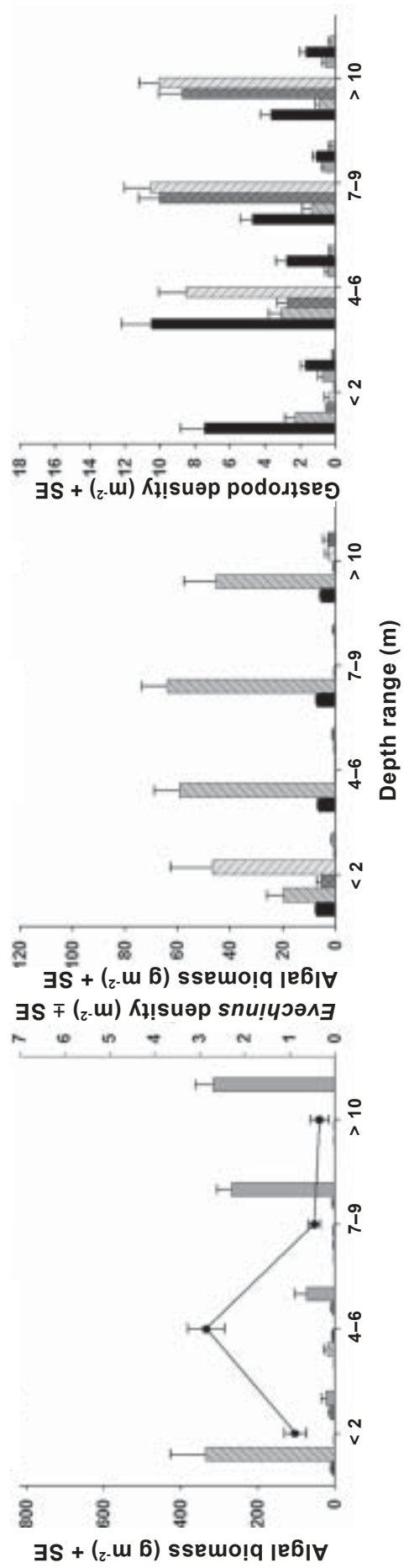
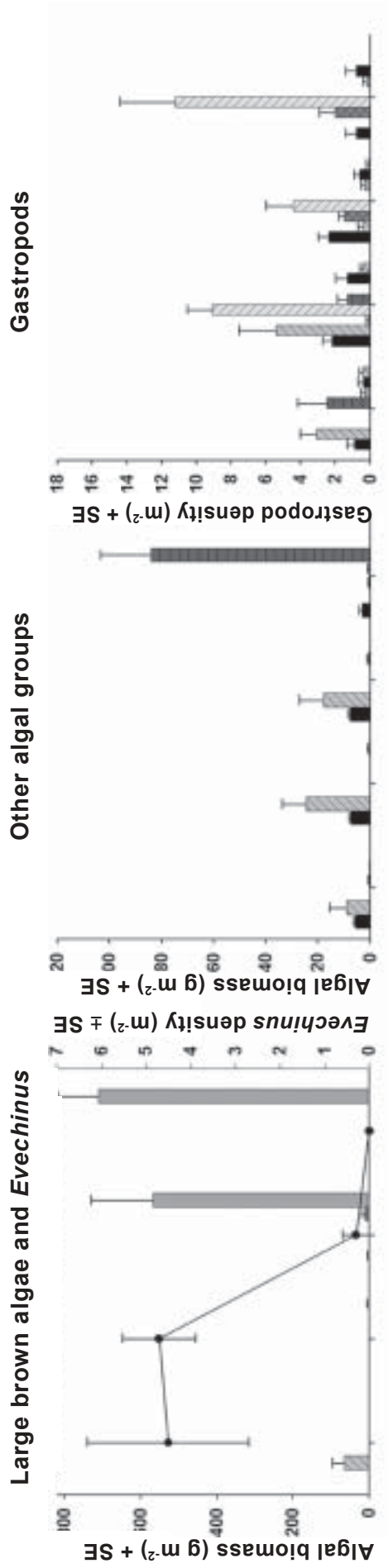


Figure A3.3 cont'd

(c) M4 (Kemps Beach and Nordic)



(d) Ti Point

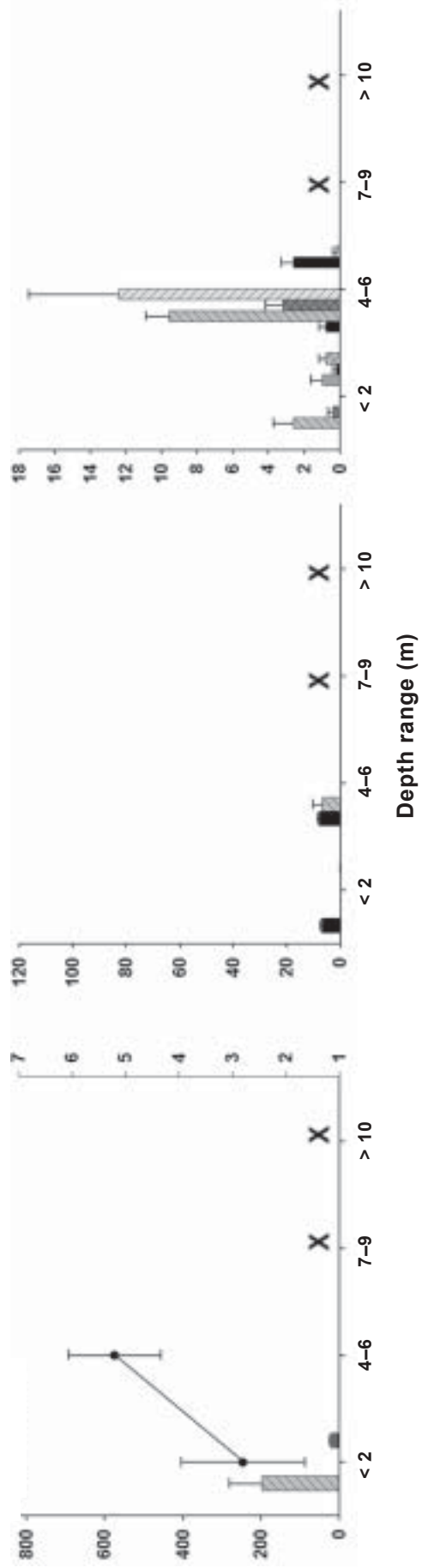
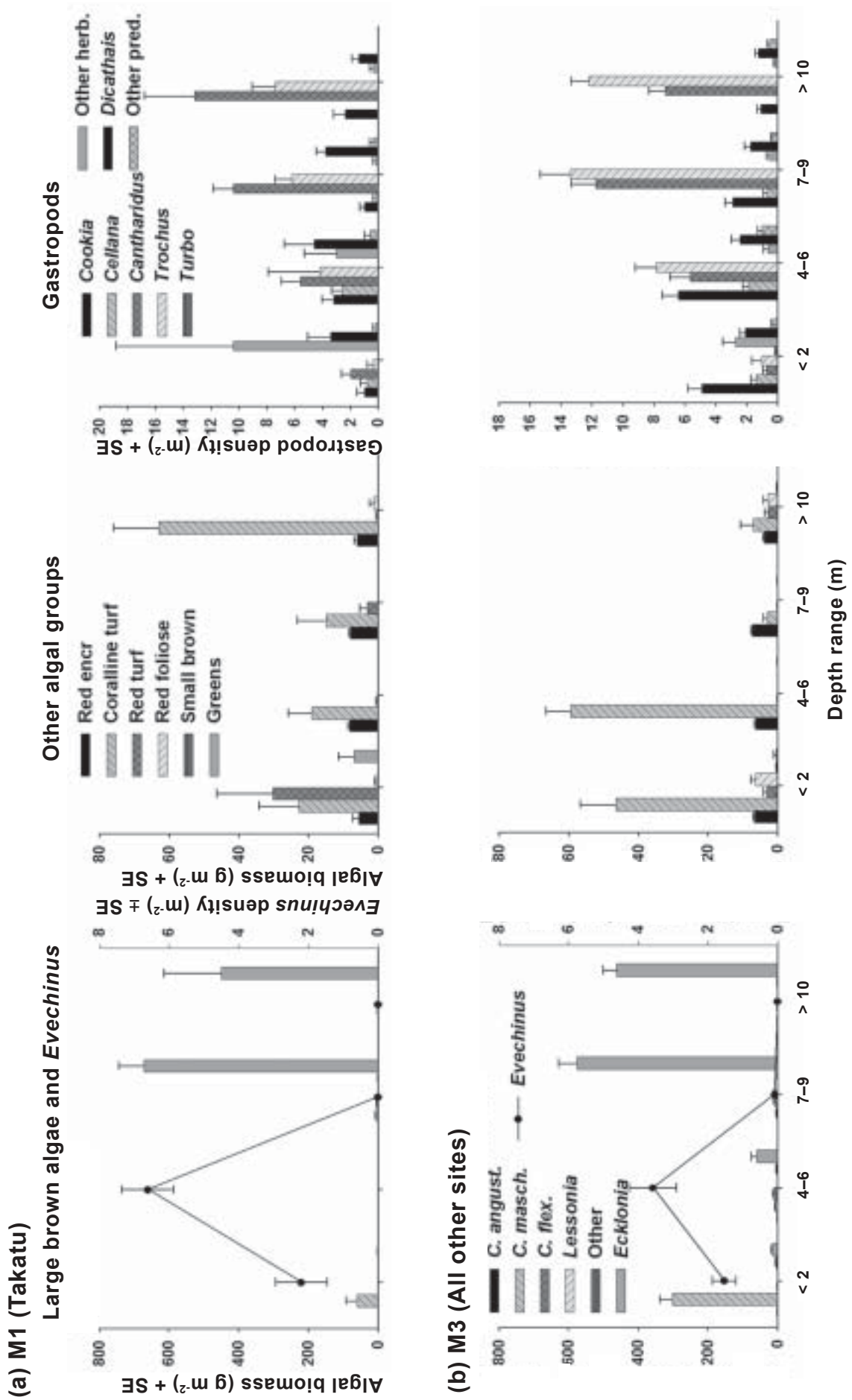


Figure A3.4. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, for site groups at Tawharanui. Note differing scale on y-axis for each plot. X indicates depth strata that were not sampled.



(c) P-Point

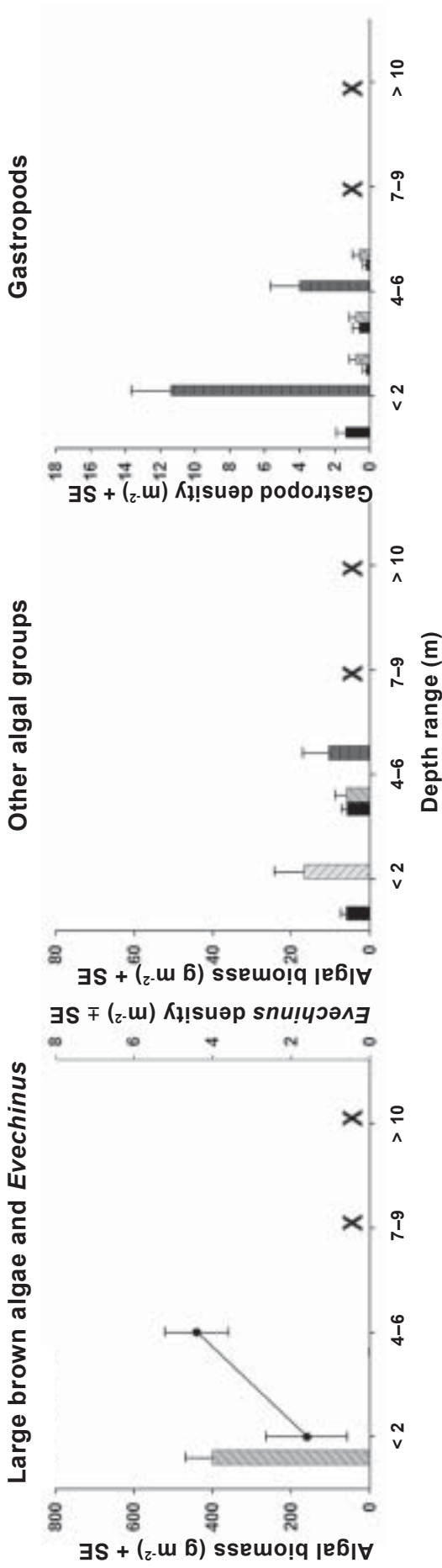


Figure A3.5. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, for site groups at Long Bay. Note differing scale on y-axis for each plot. X indicates depth strata that were not sampled.

(a) Sheltered 1

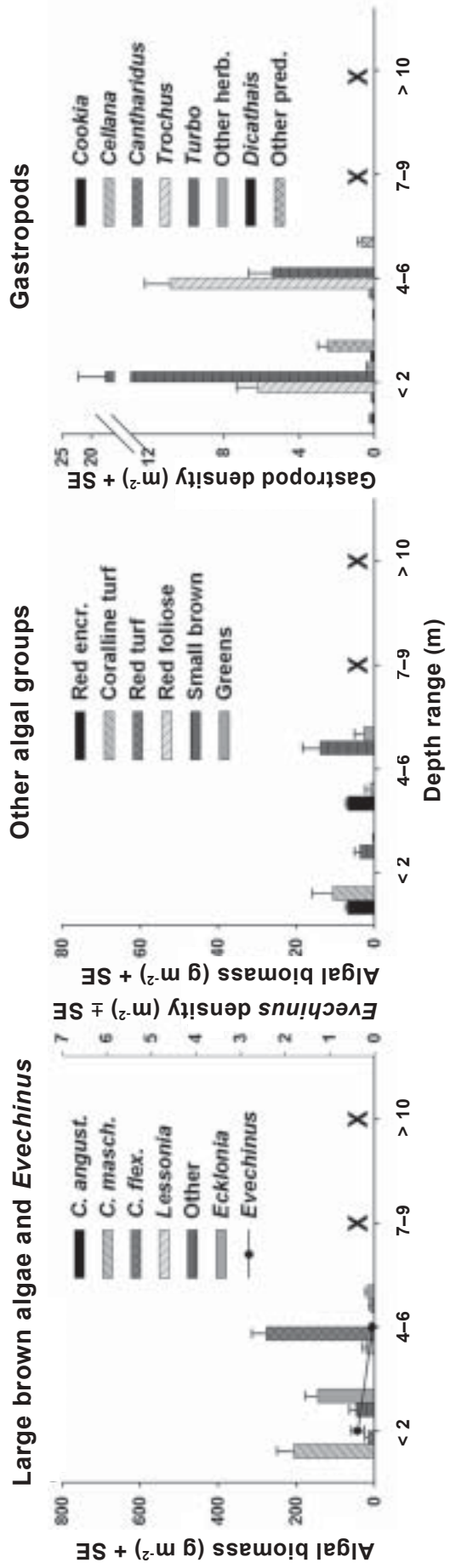


Figure A3.5 cont'd

(b) Sheltered 2

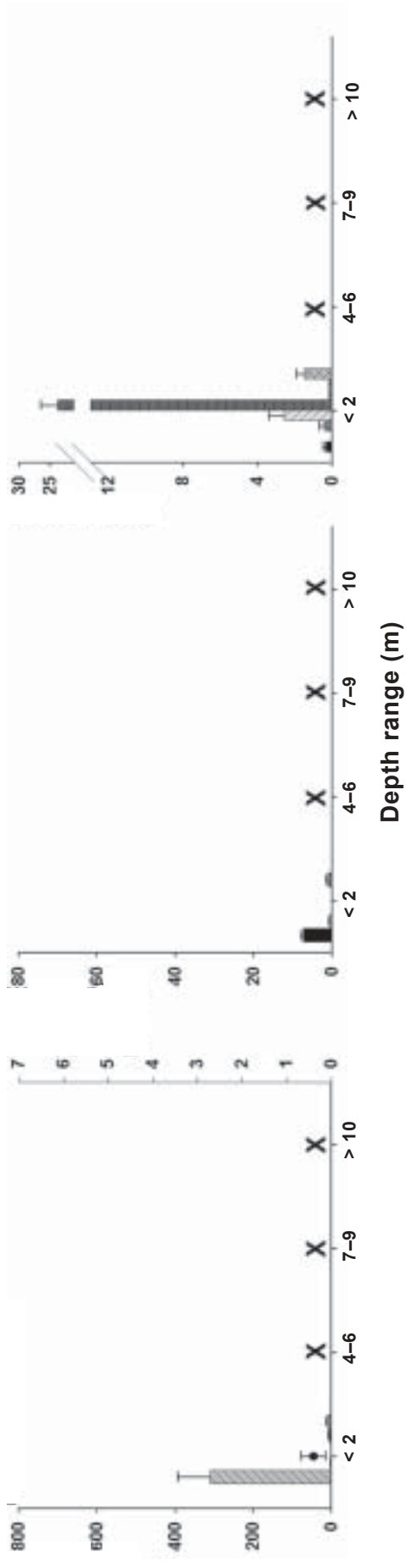


Figure A3.6. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, for site groups at Hahei. Note differing scale on y-axis for each plot. X indicates depth strata that were not sampled.

(a) M1 (Twin gauge, Pinnacle)

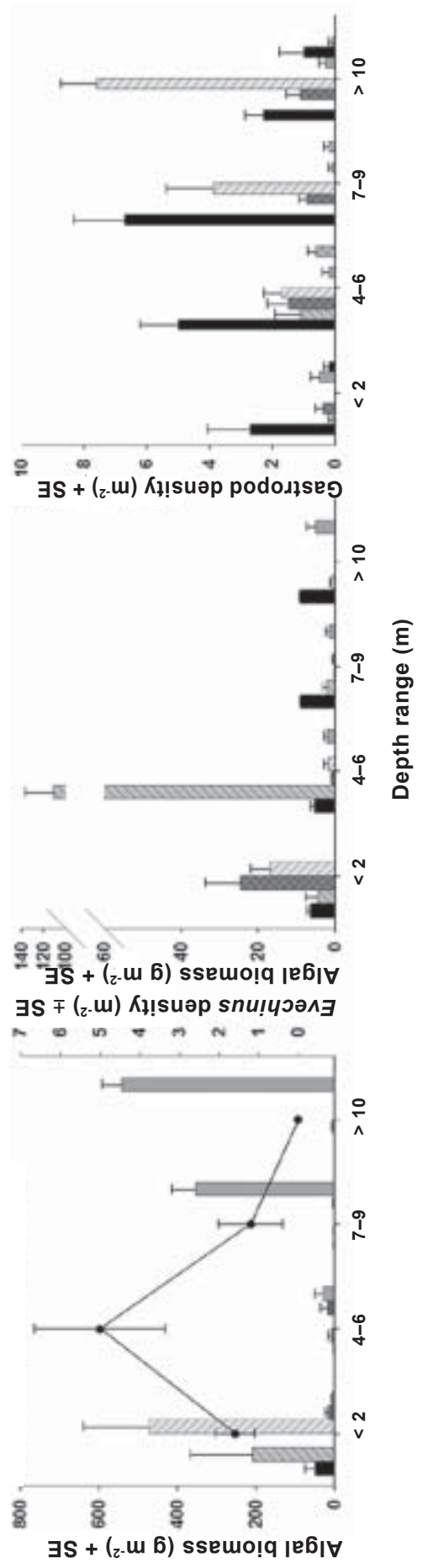
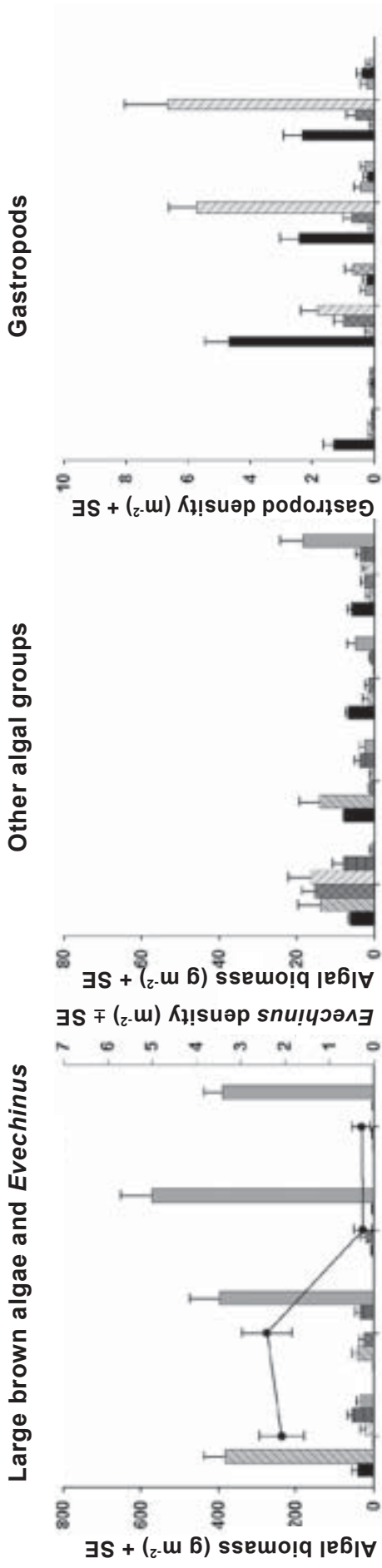


Figure A3.6 cont'd

(b) M2 (Cooks, Whitecliffs, Sandy Cove, SE Motueka and Whitecaves)



(c) Mahungarape Is

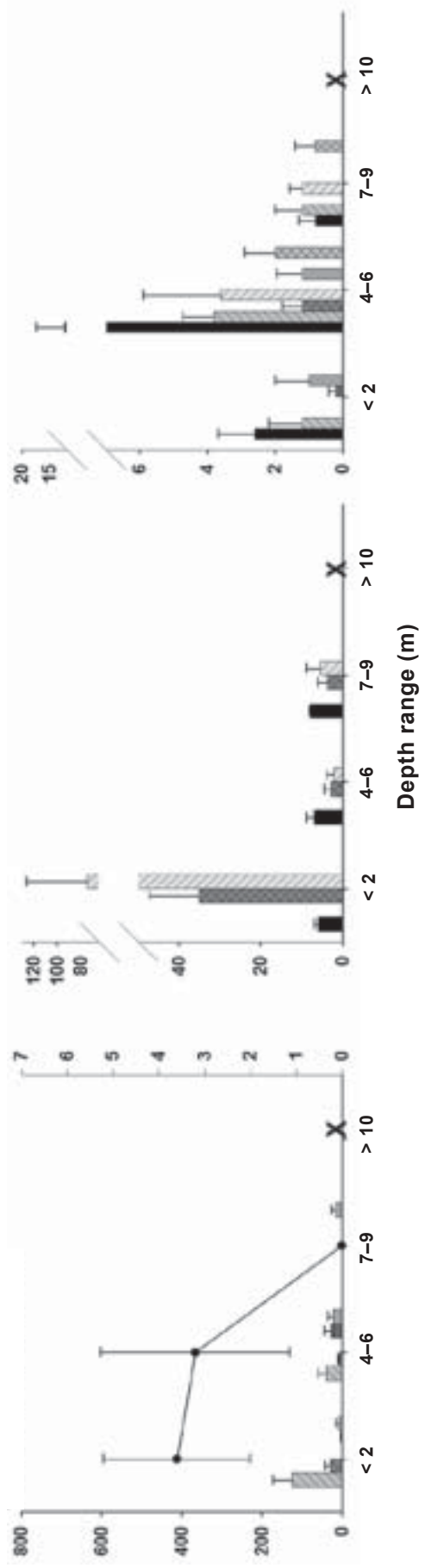
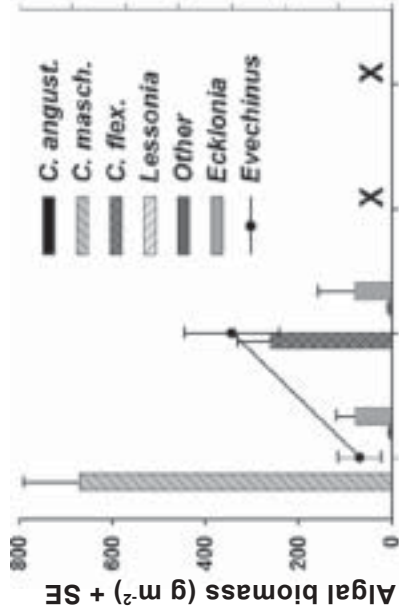


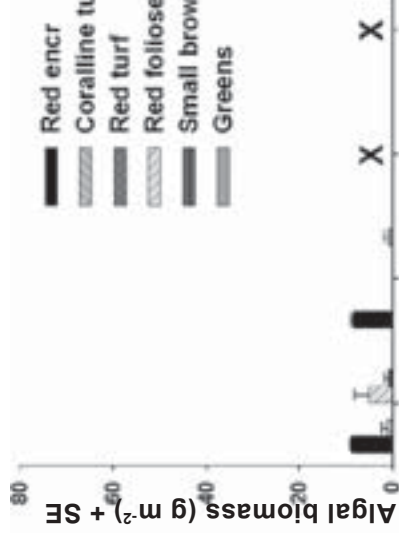
Figure A3.6 cont'd

(d) Sheltered 1 (Mussell Rock)

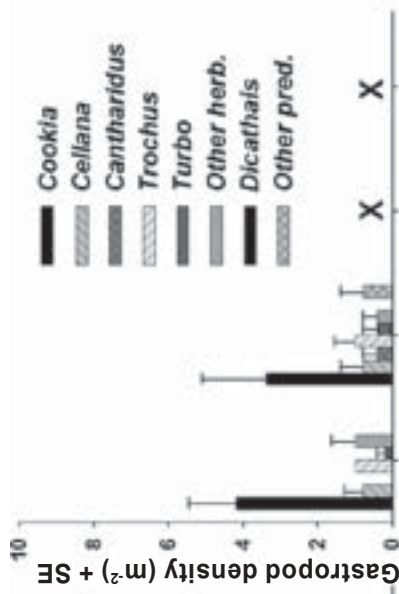
Large brown algae and *Evechinus*



Other algal groups



Gastropods

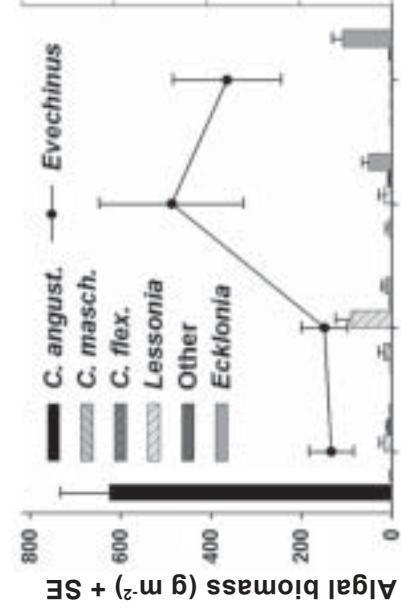


Depth range (m)

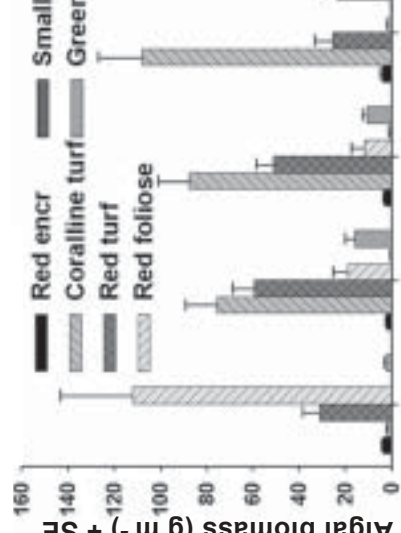
Figure A3.7. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, for site groups at the Poor Knights Islands. Note differing scale on y-axis for each plot.

(a) E1 (Matt's Crack, Bartle's, Rocklily and Lighthouse Bay)

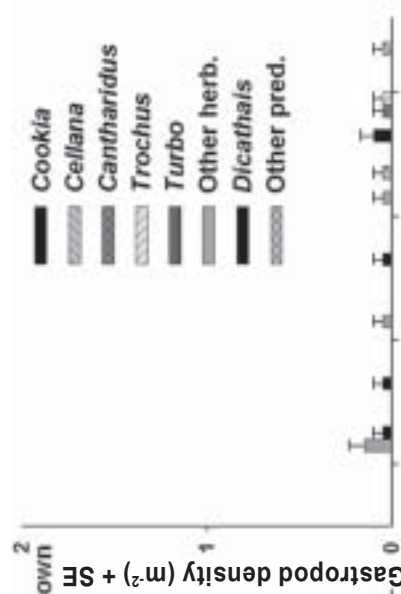
Large brown algae and *Evechinus*



Other algal groups



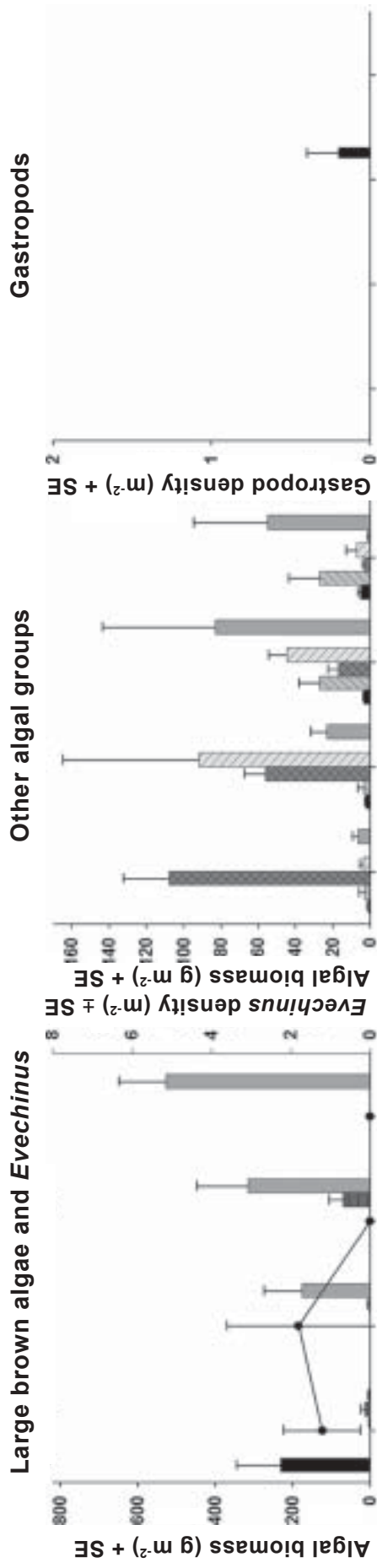
Gastropods



Depth range (m)

Figure A3.7 cont'd

(b) E2 (Cleanerfish Bay)



(c) M1 (Fraser's, Labrid, Nursery and Skull Bay)

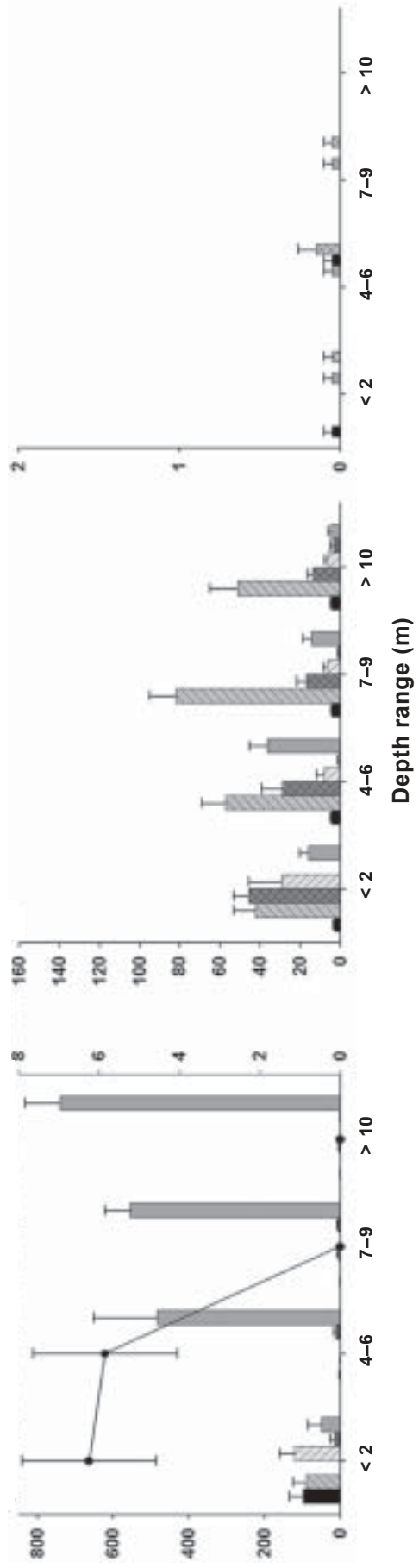
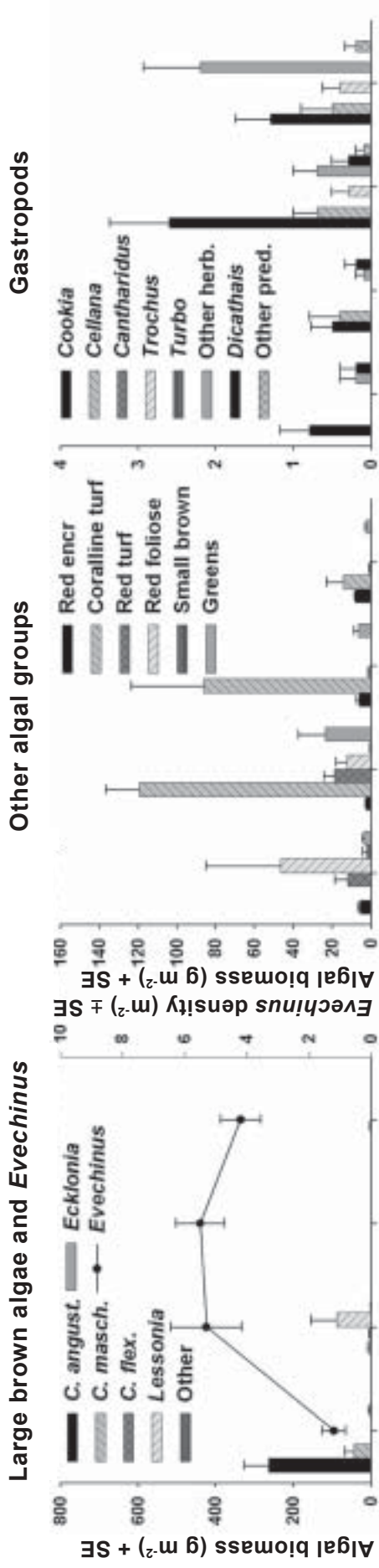
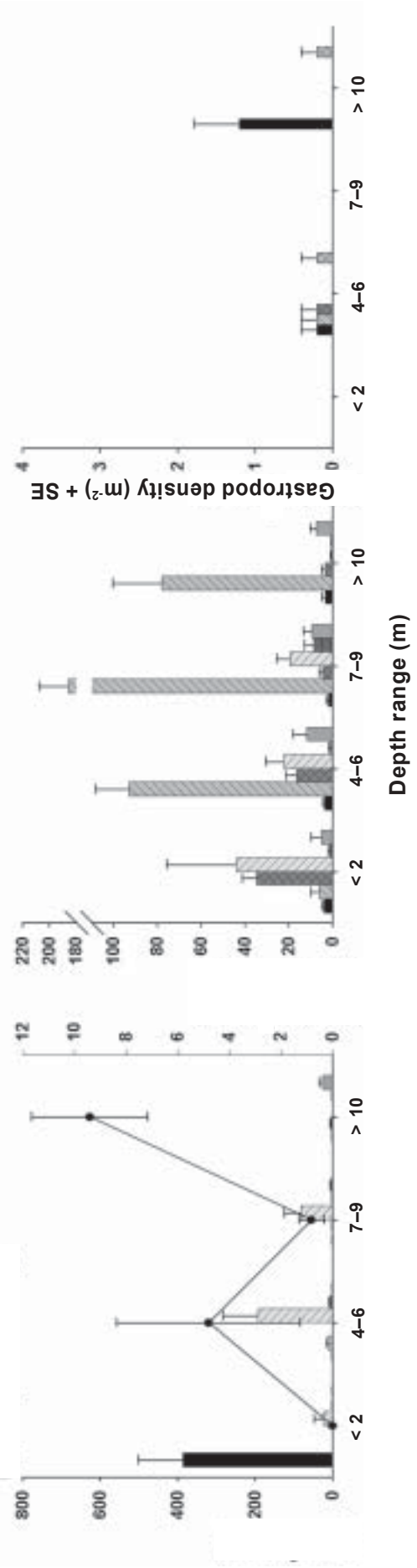


Figure A3.8. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, for site groups at the Mokohinau Islands. Note differing scale on y-axis for each plot.

(a) Very exposed (Puddingstone I. and Lighthouse Pt)

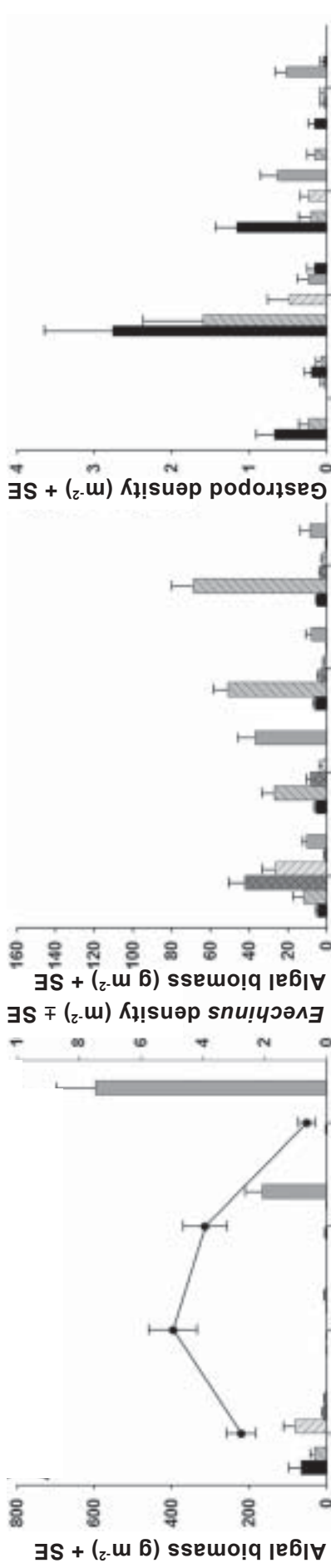


(b) E1 (House Bay)

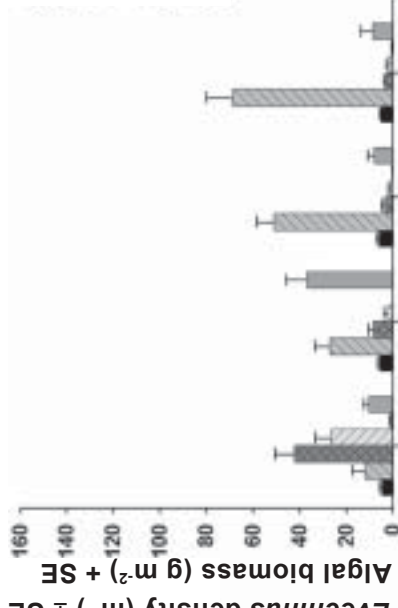


(c) M1 (Dragon Sth, Pinnacle Sth, Arches, Sentinel and Lizard I.)

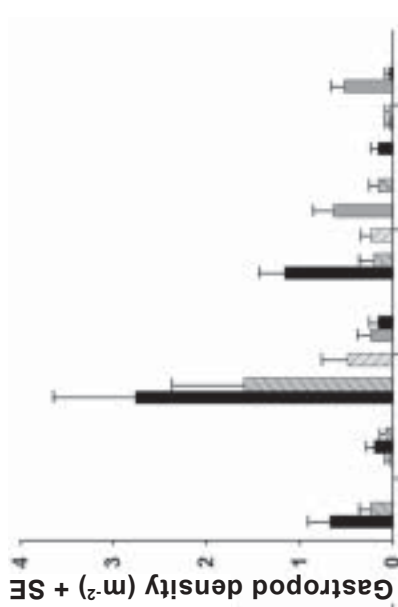
Large brown algae and Evechinus



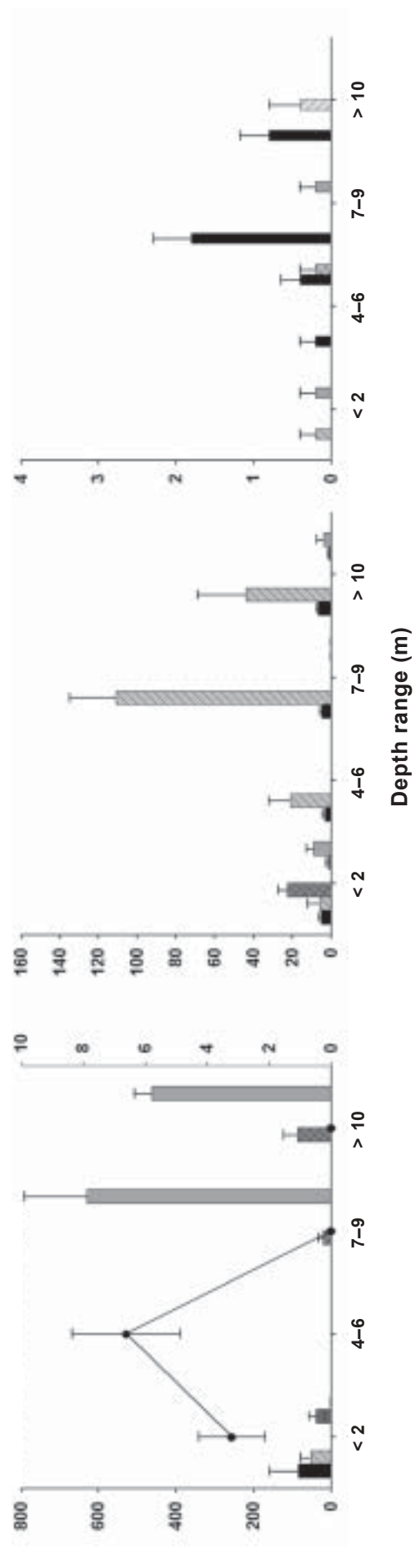
Other algal groups



Gastropods



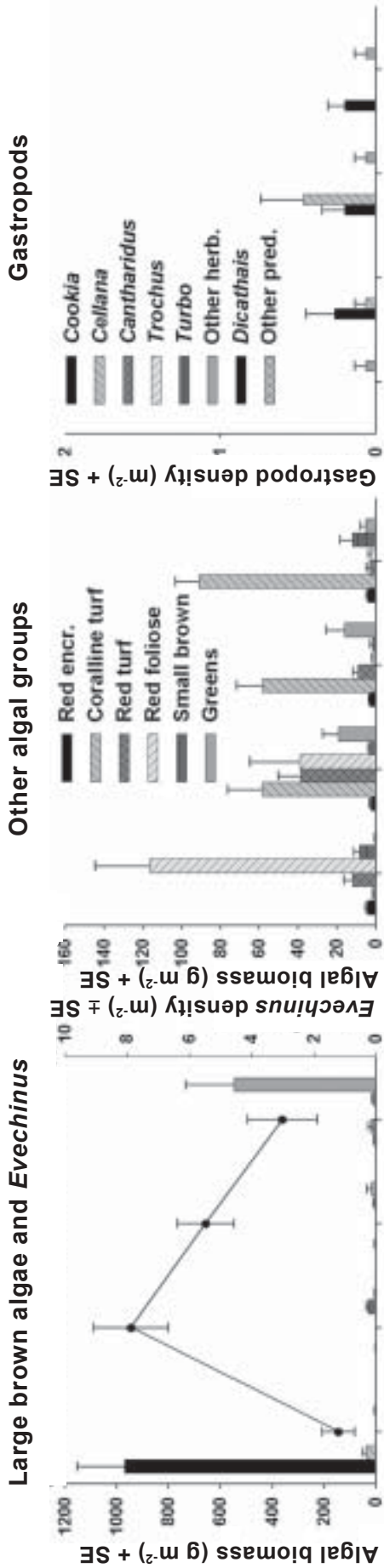
(d) M2 (Southeast Bay)



Depth range (m)

Figure A3.9. Depth-related patterns in algal biomass, and density of *Evechinus* and gastropods, for site groups at Tuhua (Mayor Island). Note differing scale on y-axis for each plot.

(a) E1 (Turanganui, Baitpond and Hot Springs)



(b) E2 (Awatukoro, Huruhurihunga, Maorichief, Okawa and Te Roto)

