Supplementary Materials

Table S1. Proposed drop-down camera stations in decimal degrees (°) from three environmental baseline surveys conducted by Nobel Energy in 2014. (Falkland Islands Government Department of Mineral Resources, unpublished data). All images were reviewed with those of low visibility or where both lasers could not be seen removed. Multivariate analysis was performed on the remaining sample images taken at 60-second intervals where more than three taxa were observed.

Camera station	Longitude (°)	Latitude (°)	Depth (m)	Images reviewed	Number of images used in multivariate analysis
A_03_ENV	-56.516	-52.399	1134	10	1
A_09_ENV	-55.983	-52.270	1260	5	1
A_10_ENV	-55.980	-52.236	1261	4	3
A_1008_ENV	-55.833	-52.259	1280	13	11
A_1011_ENV	-55.836	-52.159	1325	7	0
A_1013_ENV	-55.748	-52.234	1350	12	7
A_1015_ENV	-55.799	-52.290	1358	9	0
A_14_ENV	-55.853	-52.325	1316	4	3
A_18_ENV	-56.049	-52.521	1415	7	4
A_201_ENV	-56.567	-52.240	1120	15	13
A_202_ENV	-56.285	-52.147	1153	12	0
A_203_ENV	-55.784	-52.282	1321	3	3
A_206_ENV	-55.911	-52.609	1530	4	3
A_207_ENV	-55.806	-52.188	1247	7	6
A_208_ENV	-56.010	-52.028	1200	4	4
A_21_ENV	-55.624	-52.311	1420	6	4
A_22_ENV	-56.040	-52.613	1522	6	4
A_26_ENV	-55.846	-52.211	1260	8	8
A_27_ENV	-55.725	-52.148	1260	13	6
A_301_ENV	-55.749	-52.139	1250	10	8
A_3010_ENV	-55.959	-52.612	1540	6	2
A_302_ENV	-55.544	-52.171	1330	6	5
A_303_ENV	-55.670	-52.164	1285	5	2
A_304_ENV	-55.864	-52.087	1250	9	3
A_305_ENV	-55.933	-52.182	1267	10	1
A_306_ENV	-55.654	-52.213	1350	8	6
A_307_ENV	-55.690	-52.379	1400	8	7
A_308_ENV	-55.826	-52.345	1380	6	5
A_309_ENV	-55.728	-52.331	1395	3	0
N_07_ENV	-54.872	-50.499	1327	9	0
N_1_ENV_GEO	-54.429	-50.570	1428	8	0
N_10_ENV	-54.390	-51.006	1543	32	5
N_10_GEO_ENV	-53.548	-50.326	1840	30	7
N_107_GEO_ENV	-54.681	-50.891	1400	33	2
N_11_ENV_GEO	-54.332	-51.158	1595	47	6
N_2_ENV_GEO	-54.253	-50.630	1540	34	6
N_2_GEO_ENV	-54.601	-50.609	1430	15	3
N_3_ENV	-54.284	-51.102	1575	11	0
N_3_GEO_ENV	-54.580	-50.517	1357	12	10
N_4_ENV_GEO	-54.239	-50.826	1540	19	13
N_4_GEO_ENV	-54.779	-50.404	1380	7	5
N_5_ENV_GEO	-54.501	-50.436	1430	14	9

N_5_GEO_ENV	-54.547	-50.454	1390	23	12
N_6_ENV	-54.846	-50.864	1320	23	6
N_6_GEO_ENV	-54.389	-50.459	1470	16	11
N_7_ENV	-54.872	-50.499	1327	9	5
N_8_ENV	-54.020	-50.566	1702	17	1
N_9_ENV	-54.531	-50.859	1406	8	4
T_003_ENV	-59.130	-53.581	1875	9	1
T_06_ENV	-59.331	-53.636	1635	9	0
T_08_ENV	-59.240	-53.701	1574	11	9
T_08_GEO	-59.192	-53.697	1645	12	4
T_09_ENV	-59.423	-53.748	1146	10	7
T_10_ENV	-59.035	-53.714	1330	8	5
T_10_GEO	-59.324	-53.714	1450	19	9
T_11_ENV	-59.061	-53.589	1880	14	1
T_13_GEO	-60.131	-53.493	1070	34	6
T_13_GEO_B	-60.131	-53.493	1070	18	5
T_13_GEO_C	-60.129	-53.493	1070	20	4
T_14_GEO	-59.914	-53.462	1225	11	4
T_14_GEO B	-59.909	-53.462	1220	8	3
T_14_GEO_C	-59.913	-53.462	1225	22	4
T_201_ENV	-59.176	-53.575	1845	10	0
T_202_ENV	-59.154	-53.588	1811	11	0
T_204_ENV	-59.122	-53.516	1830	14	0
T_301_ENV	-59.367	-53.549	1701	13	1
T_302_ENV	-59.409	-53.550	1675	10	0
T_304_ENV	-59.277	-53.524	1753	7	0
T_306_ENV	-59.110	-53.593	1684	5	0
Total				862	288

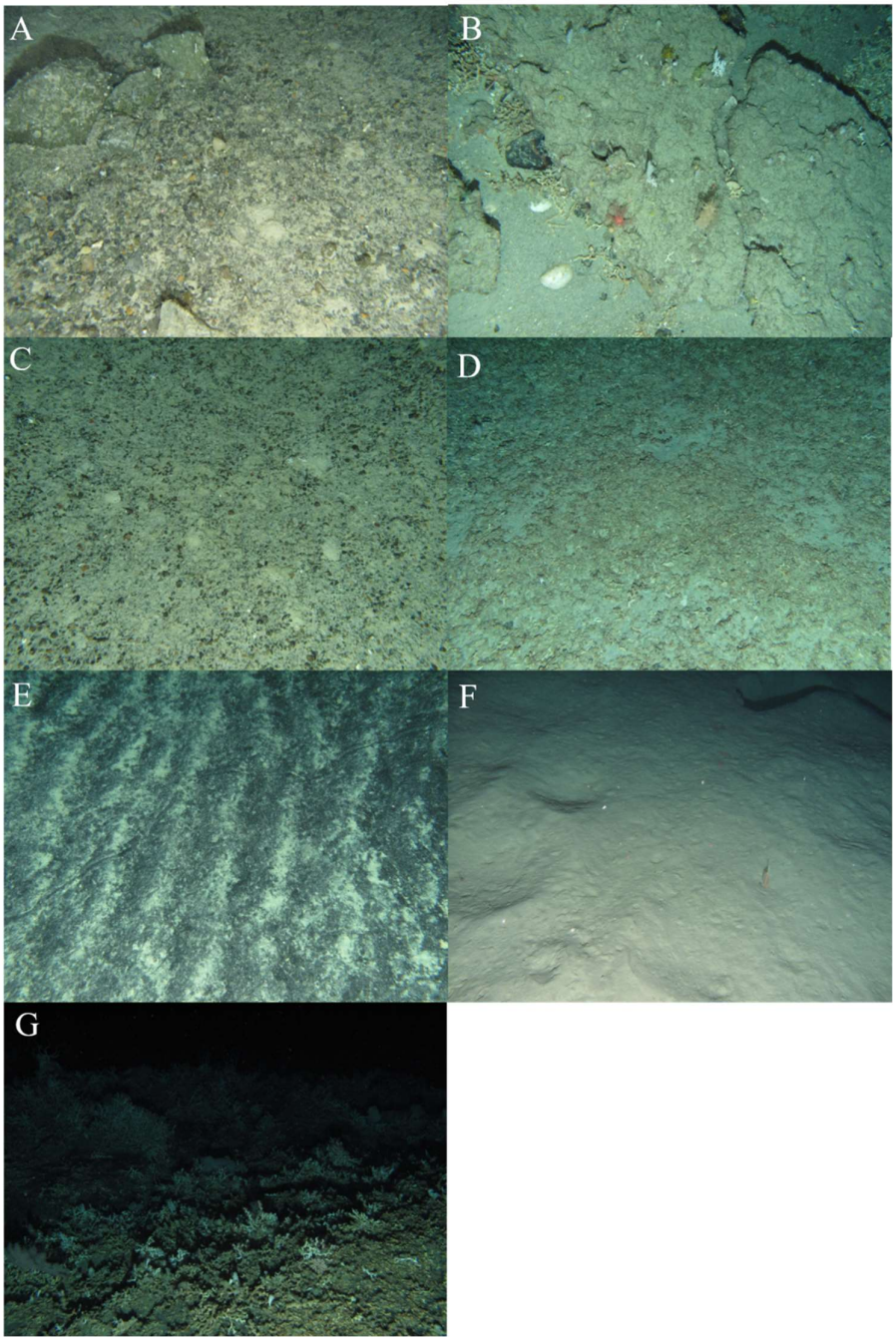

Figure S1. Example images of substratum type based on the EUNIS Marine Habitat Classification (https://www.eea.europa.eu/data-and-maps/data/eunis-habitat-classification-1). (A) Mixed substratum EUNIS code A6.2 observed from location N-2-GEO-ENV. (B) Hard substratum EUNIS code A6.1 observed from location N-6-GEO-ENV. (C) Coarse substratum EUNIS code A5.15 observed from location N-4-ENV-GEO. (D) Biogenic gravel (annotated as a subtype of mixed substratum) EUNIS code A6.2 observed from location N-4-ENV-GEO. (E) Muddy sand EUNIS code A6.4 observed from location N-3-ENV. (F) Mud EUNIS code A6.5 observed from location T-003-ENV. (G) Biogenic reef (adapted from EUNIS Communities of deep-sea corals that refers to reefs of *Desmophyllum pertusum*) code A6.61 observed at location A-1008-ENV.

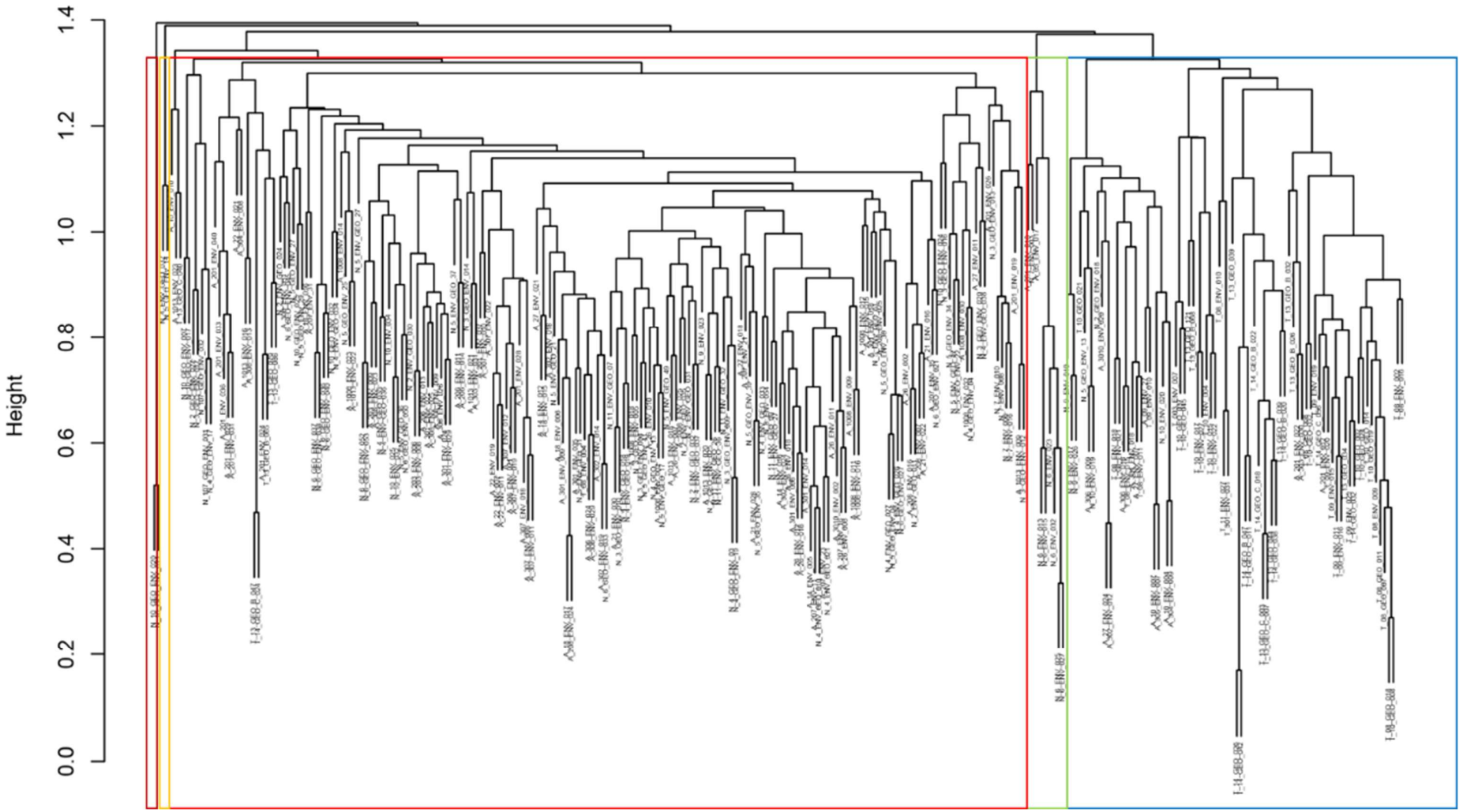

Figure S2. Hierarchal cluster analysis of Hellinger distance matrix of transformed morphospecies density data. Cluster membership is shown by the coloured rectangles. Cluster 1 = red, 2 = blue, 3 = green, 4 = orange, 5 = brown.

Table S2. Annotated morphopecies belonging to each cluster after hierarchal cluster analysis of 288 sample images. Mean density (m^2) of each morphospecies within each cluster, total annotated and percent occurrence across images is provided for each morphospecies.

Morphospecies	Mean density (m^2) of morphospecies within each cluster					Total annotated	Percentage occurrence across images
	1	2	3	4	5		
Actiniaria sp	0.03	0.03	0.00	0.52	0.00	17	3.1
Actiniaria sp.2	0.12	0.11	0.00	0.00	0.00	16	3.4
Actiniaria sp.6	0.01	0.00	0.00	0.00	0.00	11	1.4
Actiniaria sp.7	0.01	0.10	0.00	0.00	0.00	8	2.1
Alcyonacea sp.10	0.03	0.00	0.00	0.00	0.00	13	2.1
Alcyonacea sp.19	0.00	0.00	0.00	7.51	0.00	27	0.7
Alcyonacea sp.2	0.08	0.00	0.00	0.00	0.00	39	4.5
Alcyonacea sp.20	0.01	0.00	0.00	0.00	0.00	3	1
Alcyonacea sp.22	0.03	0.00	0.00	0.00	0.00	5	1
Alcyonacea sp.23	0.04	0.01	0.00	0.00	0.00	3	1
Alcyonacea sp.24	0.00	0.06	0.00	0.00	0.00	5	1.4
Alcyonacea sp.3	0.03	0.00	0.00	0.00	0.00	6	1.4
Alcyonacea sp.4	0.02	0.02	0.00	0.00	0.00	19	2.1
Alcyonacea sp.5	0.28	1.67	0.11	0.00	0.00	206	15.4
Alcyonacea spp	0.31	0.03	0.17	0.00	0.00	98	14.7
Alcyoniidae sp.1	0.04	0.00	0.00	0.00	0.00	4	1
Alcyoniidae sp.2	0.01	0.00	0.00	0.00	0.00	2	0.7
Alcyoniidae sp.3	0.01	0.00	0.00	0.00	0.00	5	0.7
Alcyoniidae sp.4	0.02	0.00	0.00	0.00	0.00	5	1.4
Alcyoniidae sp.5	0.01	0.00	0.00	0.00	0.00	6	1
Alcyoniidae sp.6	0.01	0.02	0.00	0.00	0.00	5	1.4
Alcyoniidae sp.7	0.01	0.01	0.00	0.00	0.00	5	1.4
Anthomastas sp.1	0.01	0.00	0.00	0.00	0.00	25	1
Anthoptilum grandiflorum	0.02	1.21	0.00	0.00	0.00	79	12.7
Anthozoa sp.1	0.04	0.00	0.00	0.00	0.18	23	2.4
Anthozoa sp.3	0.01	0.00	0.00	0.00	0.00	6	0.7
Anthozoa sp.4	0.06	0.00	0.00	0.00	0.00	27	1
Anthozoa sp.5	0.00	0.13	0.30	0.00	0.00	9	2.1
Anthozoa sp.6	0.07	0.01	0.00	0.00	0.00	7	1.4
Astrotoma agassizii	0.05	0.00	0.00	0.00	0.00	22	2.4
Attached Solitary CupCoral	0.26	0.03	0.00	0.00	0.00	154	8.6
Bathelia candida	0.28	0.00	0.00	0.00	0.00	131	11.3
Brachiopoda sp.1	0.08	0.00	0.00	0.00	0.00	82	3.8
Brucerolis sp.1	0.18	0.17	0.11	0.00	0.00	50	9.9
Bryozoa sp.1	0.08	0.00	0.00	0.00	0.00	11	2.4
Bryozoa sp.10	0.01	0.00	0.00	0.00	0.00	6	1
Bryozoa sp.11	0.12	0.00	0.00	0.00	0.00	35	4.8
Bryozoa sp.13	0.21	0.00	0.00	0.00	0.00	17	2.4
Bryozoa sp.14	0.02	0.00	0.00	0.00	0.00	4	0.7
Bryozoa sp.15	0.01	0.00	0.00	0.00	0.00	3	0.7
Bryozoa sp.16	0.01	0.00	0.00	0.00	0.00	6	0.7
Bryozoa sp.18	0.09	0.00	0.00	0.00	0.00	6	1.7
Bryozoa sp.2	0.78	0.02	0.00	0.00	0.21	104	13.4
Bryozoa sp.3	0.16	0.00	0.00	0.00	0.00	24	4.8
Bryozoa sp.4	0.10	0.00	0.00	0.00	0.00	83	2.4
Bryozoa sp.5	0.20	0.00	0.00	0.00	0.00	70	5.1
Bryozoa sp.6	0.41	0.01	0.00	0.00	0.00	141	15.8
Bryozoa sp.9	0.26	0.00	0.00	0.00	0.00	18	3.1
Bryozoa spp	0.24	0.05	0.00	0.00	0.00	53	8.9
Caridea sp.1	0.14	0.01	1.78	0.00	0.00	33	6.2
Caridea sp.2	0.01	0.01	0.00	0.00	0.00	5	1.4
Caridea sp.3	0.03	0.01	0.12	0.00	0.00	16	2.7

Ceriantharia spp	0.01	0.02	0.00	0.00	0.00	12	1
Cerianthidae sp.1	0.02	0.20	0.11	0.00	0.00	35	6.5
Cerianthidae sp.2	0.15	0.08	0.00	0.00	0.00	24	5.8
Cerianthidae sp.3	0.12	0.00	0.00	0.00	0.18	11	3.1
Cerianthidae sp.6	0.03	0.06	0.00	0.00	0.00	8	2.1
Cidaroida sp.1	0.03	0.00	0.00	0.00	0.00	20	2.7
Cirripedia sp.2	0.00	0.01	0.00	0.00	0.00	2	0.7
Cnidaria sp.2	0.02	0.00	0.00	0.00	0.00	3	1
Cnidaria sp.4	0.04	0.00	0.00	0.00	0.00	17	3.4
Cnidaria spp	0.07	0.02	0.53	0.00	0.00	36	4.5
Crinoidea sp.1	0.02	0.00	0.00	0.00	0.00	7	1.4
CWC_Whip	0.06	0.12	0.18	0.00	1.03	54	6.8
Demospongiae sp.10	0.78	0.01	0.00	0.50	0.00	121	17.8
Demospongiae sp.18	0.03	0.00	0.00	0.00	0.00	11	0.7
Demospongiae sp.2	0.09	0.00	0.00	0.00	0.00	14	3.4
Demospongiae sp.7	0.06	0.04	0.00	0.00	0.00	8	2.4
Flabellum apertum	0.00	0.13	0.00	0.00	0.00	14	3.1
Flabellum sp	0.00	0.20	4.70	0.00	0.00	62	4.5
Funiculina sp.1	0.00	0.18	0.00	0.00	0.00	6	1.7
Gastropoda sp.1	0.01	0.00	0.00	0.00	0.21	3	1
Gastropoda sp.2	0.08	0.90	0.21	0.00	0.00	67	13.4
Gastropoda sp.3	0.01	0.00	0.00	0.00	0.00	3	0.7
Gastropoda sp.5	0.02	0.01	0.00	0.00	0.00	4	1.4
Hexactinellida sp.13	0.43	0.03	0.11	0.00	0.00	45	8.9
Hexactinellida sp.2	0.72	0.00	0.00	0.00	0.00	65	9.2
Hexactinellida sp.5	0.01	0.00	0.00	0.00	0.00	2	0.7
Hexactinellida sp.6	0.03	0.00	0.00	0.00	0.00	4	1.4
Hexactinellida sp.7	0.02	0.00	0.00	0.00	0.00	2	0.7
Hexactinellida sp.8	0.13	0.00	0.00	0.00	0.00	8	1.7
Hormathiidae sp.1.	0.00	0.03	0.00	0.00	0.00	5	1.7
Hormathiidae sp.2	0.00	0.00	0.00	12.72	0.00	47	0.7
Hydrozoa spp	0.29	0.02	0.00	0.00	0.00	18	2.7
Hydrozoa sp.1.	0.05	0.05	0.00	0.00	0.00	26	3.8
Hydrozoa sp.2	0.05	0.00	0.00	0.00	0.00	4	0.7
Hydrozoa sp.3	0.01	0.06	0.00	0.00	0.00	3	0.7
Hydrozoa sp.6	0.12	0.00	0.00	0.00	0.00	4	1
Isididae sp	0.04	0.00	0.00	0.00	0.00	7	1.7
Munida spinosa	0.50	0.19	0.00	1.02	0.00	105	15.4
Neolithodes diomedeae	0.00	0.11	0.00	0.00	0.00	4	1.4
Onuphidae sp.1	0.01	0.03	0.74	0.00	0.00	3	1
Ophiolepididae sp.1	0.00	0.13	2.22	0.00	0.00	9	2.1
Ophiuroidea sp.1	0.11	0.00	0.00	0.00	0.00	8	1.4
Ophiuroidea sp.2	0.03	0.00	0.00	0.00	0.00	3	0.7
Ophiuroidea spp	0.27	0.20	0.00	0.00	0.00	39	7.9
Paralomis Formosa	0.01	0.00	0.00	0.00	0.00	2	0.7
Pennatulacea sp	0.06	0.86	0.00	0.00	0.00	31	6.5
Pennatulacea sp.2	0.00	0.41	0.00	0.00	0.00	37	2.4
Pennatulacea sp.3	0.00	0.41	0.00	0.00	0.00	13	1
Pennatulacea sp.4	0.03	0.04	0.00	0.00	0.00	2	0.7
Pennatulacea sp.5	0.02	0.01	0.00	0.00	0.00	5	1.4
Pennatulacea sp.7	0.00	0.11	0.00	0.00	0.00	2	0.7
Phakellia sp.1	0.02	0.00	0.00	0.00	0.00	35	1
Phelliactis sp.1	0.00	0.20	0.00	0.00	0.00	7	1.7
Polychaete spp	0.01	0.00	0.00	0.00	0.00	4	1
Porifera sp.20	0.20	0.00	0.00	0.00	0.00	9	1.4
Porifera sp.21	0.03	0.00	0.00	0.00	0.00	9	1
Porifera sp.3	0.44	0.04	0.00	0.00	0.00	122	17.5
Porifera sp.30	0.06	0.00	0.00	0.00	0.00	24	1.4
Porifera sp.35	0.28	0.00	0.00	0.00	0.00	21	3.4
Porifera sp.5	0.02	0.01	0.00	0.00	0.00	15	2.1

Porifera sp.7	0.02	0.00	0.00	0.00	0.00	3	1
Porifera sp.8	0.01	0.00	0.00	0.00	0.00	2	0.7
Porifera spp	0.24	0.05	0.18	0.00	0.00	50	6.5
Porifera_Encrusting_Sponge	1.44	0.00	0.00	0.00	0.00	176	20.9
Porifera_Erect	0.13	0.02	0.00	0.00	0.00	27	5.5
Porifera_Erect_Laminar	0.00	0.10	0.00	0.00	0.00	9	1.7
Porifera_Erect_Simple	0.06	0.01	0.00	0.00	0.00	19	2.4
Porifera_Massive	1.27	0.07	0.00	0.00	0.00	203	22.6
Porifera_Massive_Ball	1.61	0.05	0.06	0.00	0.00	267	28.1
Primnoidea sp.1	0.01	0.00	0.00	0.00	0.00	18	1.4
Primnoidea sp.2	0.01	0.00	0.00	0.00	0.00	13	1
Primnoidea sp.3	0.01	0.06	0.00	0.00	0.00	5	1
Primnoidea sp.4	0.03	0.00	0.00	0.00	0.00	16	1
Primnoidea sp.9	0.01	0.03	0.00	0.00	0.00	9	1
Primnoidea spp	0.05	0.12	0.00	0.00	0.00	19	3.1
Pycnogonida spp	0.03	0.00	0.00	0.00	0.00	3	0.7
Scleractinia sp.1	0.44	0.00	0.00	0.00	0.00	127	8.9
Scleractinia sp.10	0.19	0.07	0.00	0.00	0.18	76	6.8
Scleractinia sp.11	0.04	0.03	0.00	0.00	0.00	22	1.7
Scleractinia sp.2	0.03	0.30	0.00	0.00	0.00	18	2.1
Scleractinia sp.3	0.00	0.02	0.00	0.00	0.00	10	0.7
Scleractinia sp.4	0.18	0.00	0.00	0.00	0.00	36	4.1
Scleractinia sp.5	0.33	1.02	0.00	0.00	0.00	204	25.7
Scleractinia sp.7	0.05	0.00	0.00	0.00	0.00	22	1.4
Scleractinia sp.8	0.15	0.00	0.00	0.00	0.00	75	3.4
Scleractinia sp.9	0.04	0.00	0.00	0.00	0.00	34	2.1
Serpulidae sp.1	0.03	0.06	0.11	0.00	0.00	8	1.7
Serpulidae sp.2	0.01	0.00	0.00	0.00	0.00	2	0.7
Serpulidae sp.3	0.03	0.01	0.00	0.00	0.00	5	1
Stylaster densicaulis	0.21	0.06	0.00	0.00	0.00	97	7.9
Stylasteridae sp	5.51	0.04	0.00	0.00	0.00	1166	56.2
Stylasteridae sp.1	0.03	0.00	0.00	0.00	0.00	14	1.4
Stylasteridae sp.10	0.01	0.00	0.00	0.00	0.00	2	0.7
Stylasteridae sp.11	0.01	0.00	0.00	0.00	0.00	6	0.7
Stylasteridae sp.2	1.52	0.00	0.00	0.00	0.00	151	19.2
Stylasteridae sp.3	0.06	0.01	0.00	0.00	0.00	18	3.4
Stylasteridae sp.4	0.35	0.00	0.00	0.00	0.00	32	6.8
Stylasteridae sp.5	0.28	0.00	0.00	0.00	0.00	18	3.1
Stylasteridae sp.6	0.04	0.00	0.00	0.00	0.00	8	1
Stylasteridae sp.7	0.01	0.03	0.00	0.00	0.00	6	1.4
Stylasteridae sp.9	0.02	0.00	0.00	0.00	0.00	8	0.7
Thouarella viridis	0.82	0.00	0.00	0.00	0.00	102	5.8
Thymops birsteini	0.02	0.00	0.00	0.00	0.00	19	1
Unknown Species.3	0.29	0.00	0.00	0.00	0.00	30	1.7
Vesicomyidae sp.1	0.09	0.00	0.00	0.00	0.00	17	0.7

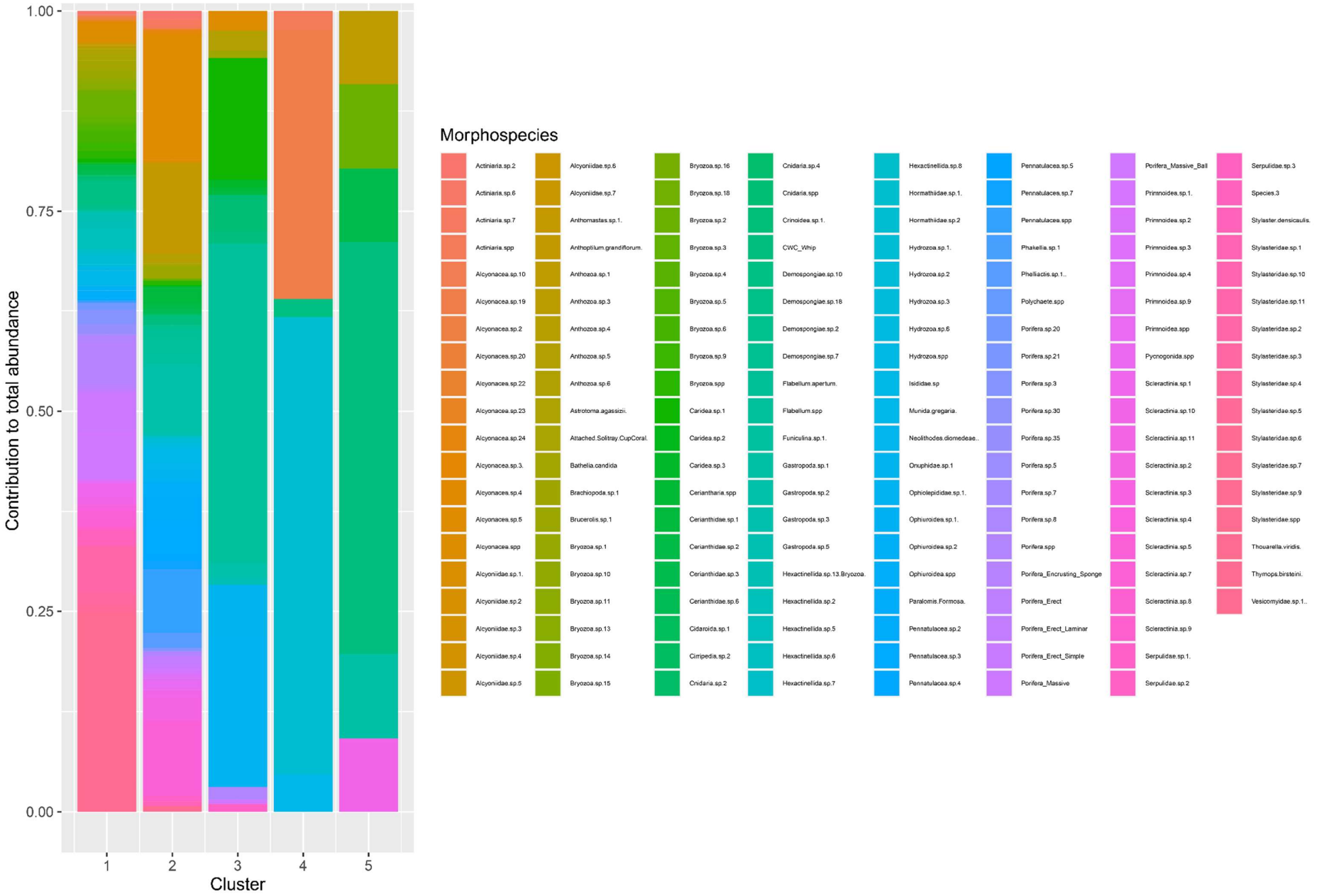

Figure S3. Contribution (percent of total) toward total abundance of morphospecies belonging to each of the five clusters after hierarchal cluster analysis.

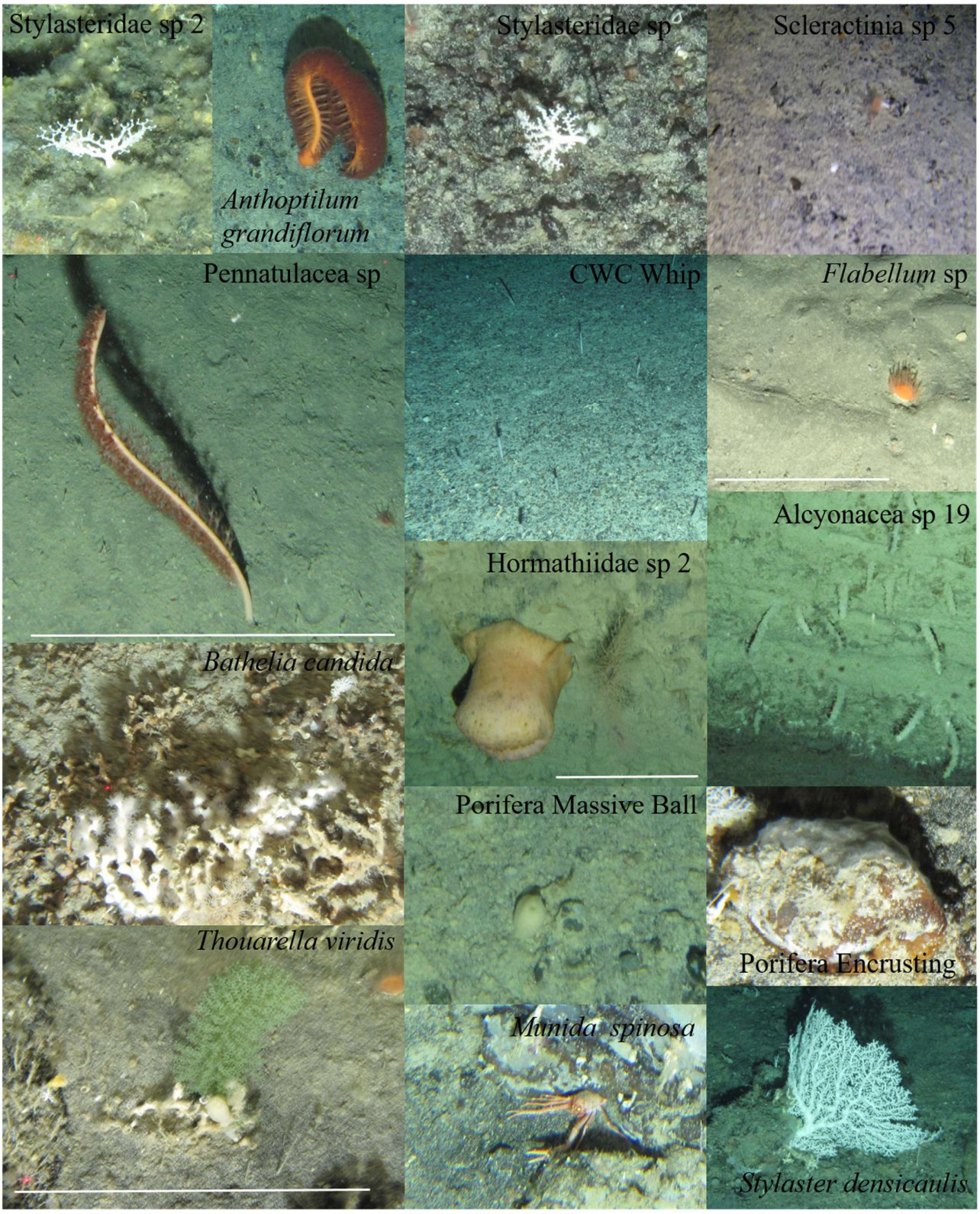

Figure S4. Examples of morphospecies that characterise epibenthic megafaunal assemblages in the Falkland Islands Conservation Zones. Scale bar = 30 cm.