

# **Supporting Information – Ecological networks in the Scotia Sea: structural changes across latitude and depth**

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**Figure S1.** Overview of the step-wise procedure used to allocate interactions to every node in the network, indicating the percentage of links allocated in each step.

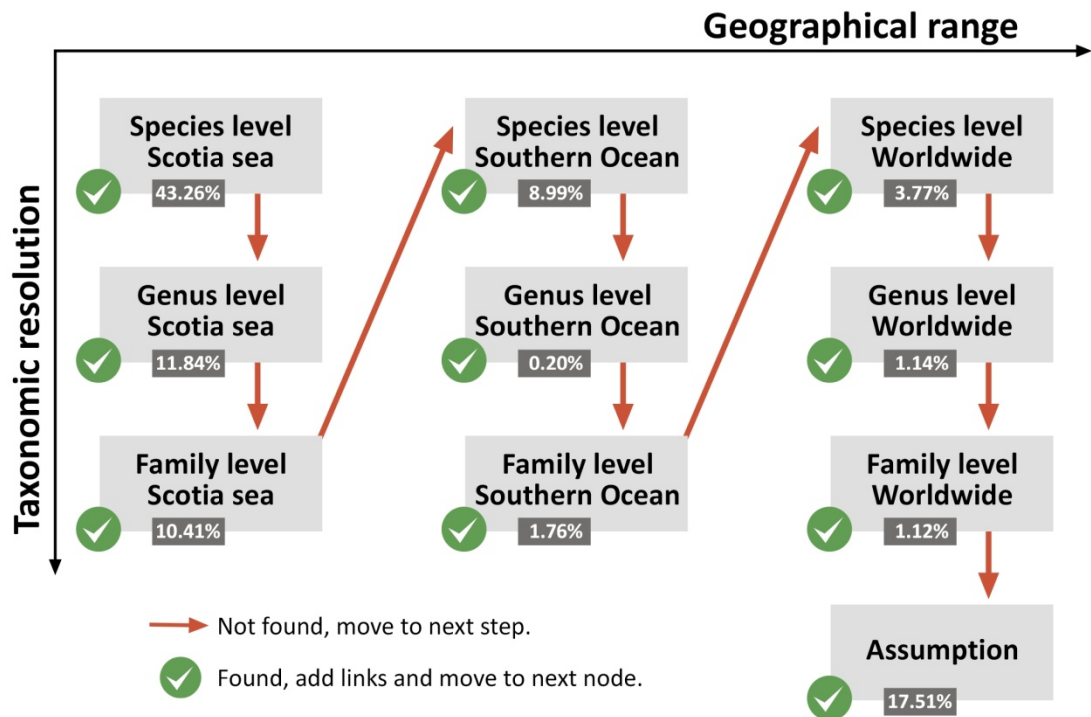
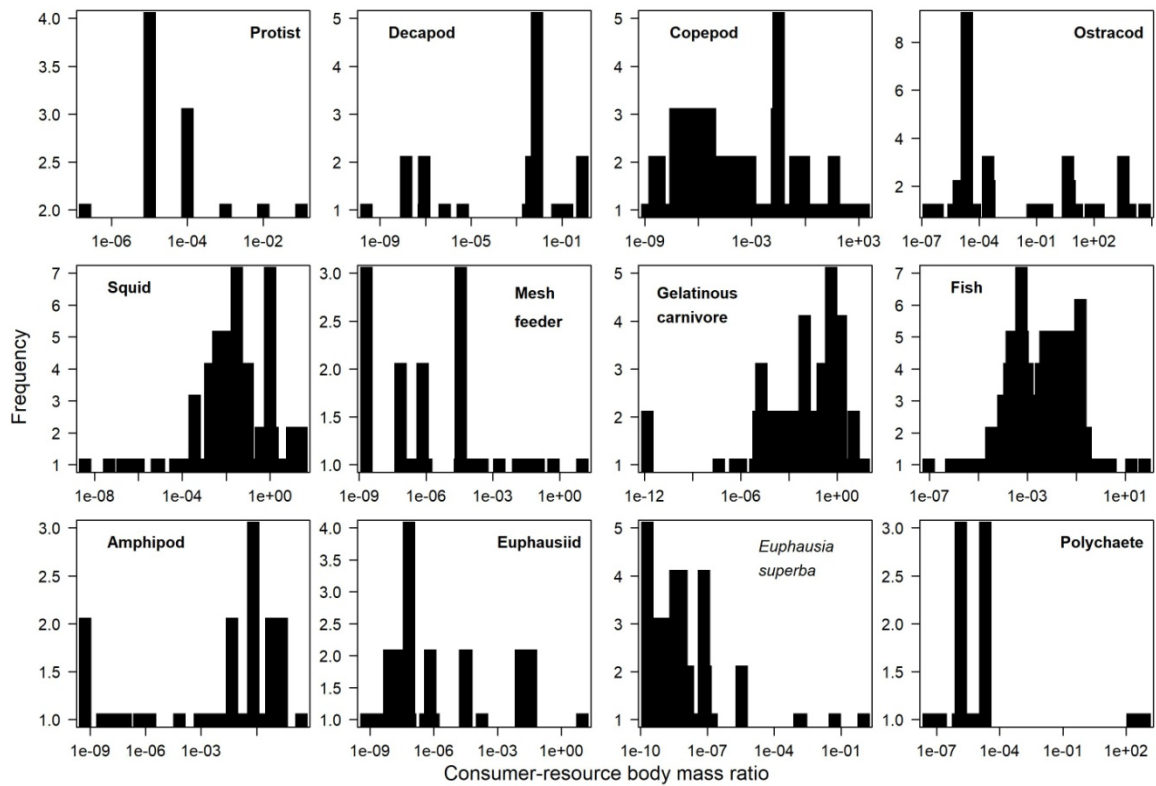
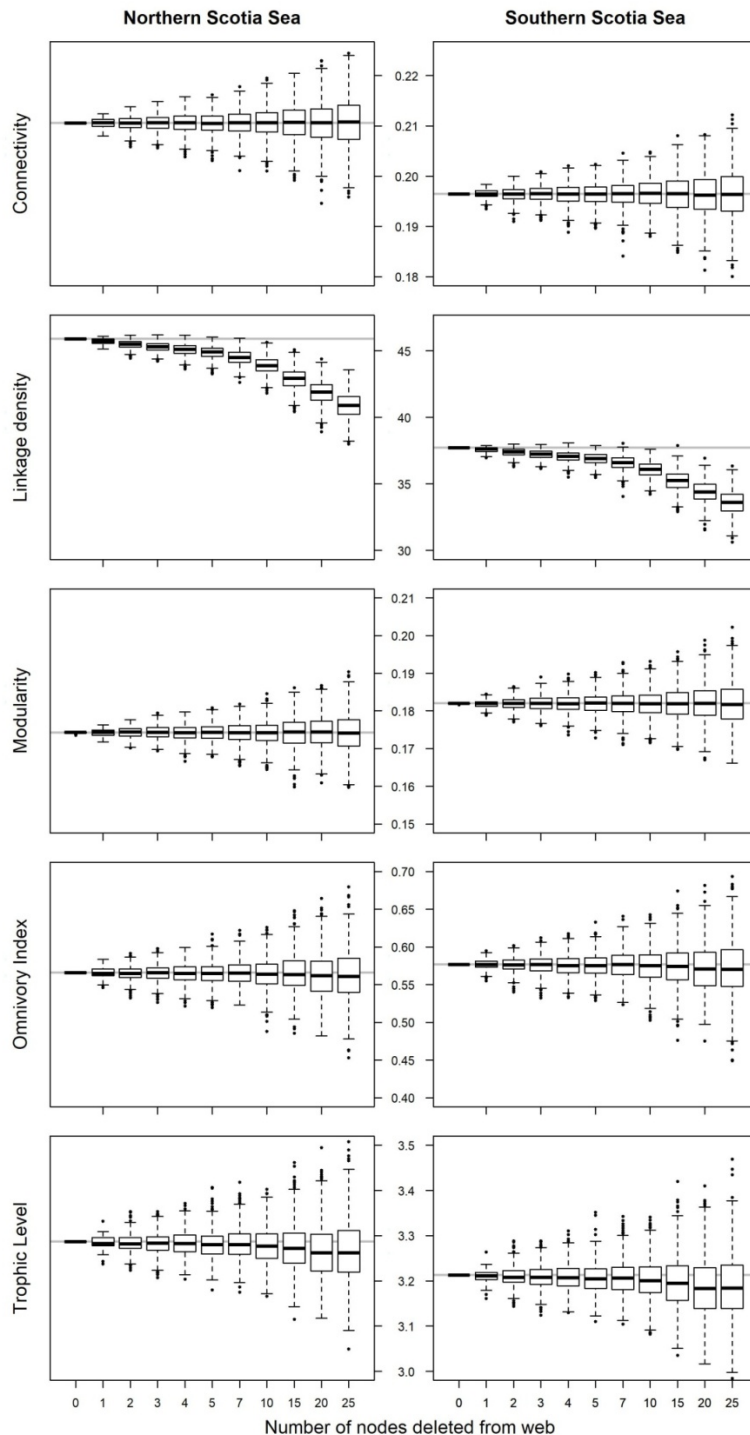


Figure S2. Histograms of consumer-resource body mass ratios for each of the taxonomic groups considered. Only consumer-resource pairs identified at the species level were used to identify the range of consumer-resource body mass ratios for each taxonomic group.



**Figure S3.** Variation in network-level metrics after randomly excluding between 1 and 25 nodes from the Northern and Southern Scotie Sea food webs (after 999 permutations). The horizontal grey line corresponds to the value of the empirical networks (without removing any nodes). Note that the mean value of the metric does not change for most simulations and the linkage density for the NSS is always greater than that for the SSS.



**Table S1.** Summary table of references on trophic interactions obtained for each node at each step of the bibliographic research. The table includes both qualitative and quantitative diet estimates, with references corresponding to quantitative studies highlighted in bold.

<b>Taxonomic level</b>	Species	Genus	Family	Species	Genus	Family	Species	Genus	Family		
<b>Geographic area</b>	Scotia Sea	Scotia Sea	Scotia Sea	Southern Ocean	Southern Ocean	Southern Ocean	Worldwide	Worldwide	Worldwide		
<b>Node\Step</b>	Step1	Step2	Step3	Step4	Step5	Step6	Step7	Step8	Step9	Assumed	Assumed at
Acantharea				2						1	Class; Scotia Sea
<i>Acanthephyra pelagica</i>		3					4;5				
Aetideus						6;7;8		9			
<i>Alacia belgicae</i>				6;10							
<i>Alacia hettacra</i>				6;10							
<i>Alluroteuthis antarcticus</i>	11;12			13;6;10							
Aloricate ciliates										1,15,16	Subphylum; Worldwide
<i>Antarctomysis maxima</i>				6;10							
Appendicularia										17;18	Class, Worldwide
<i>Arctozenus risso</i>							19;20;21				
<i>Atolla wyvillei</i>							22	23			
<i>Austrinoecia isocheira</i>	24					25					
<i>Bathylagus antarcticus</i>	8			26							

<i>Bathyteuthis abyssicola</i>										11;12;13;27; 28;29;30;31; 32;33;34;35; 37;38;39;40	Order, Southern Ocean
<i>Batoteuthis skolops</i>										11;12;13;27; 28;29;30;31; 32;33;34;35; 37;38;39;40	Order, Southern Ocean
<i>Benthalbella elongata</i>									41		
<i>Benthalbella macropinna</i>									41		
Beroe									42		
<i>Boroecia antipoda</i>				6;10			25				
<i>Borostomias antarcticus</i>	8;28		26								
<i>Brachioteuthis linkovskyi</i>			27	12;28;29				30			
<i>Brachioteuthis picta</i>	12;28;29										
<i>Calanoides acutus</i>	8;43;44; 45										
<i>Calanus australis</i>		8;43;44; 45				47					
<i>Calanus propinquus</i>	8;43;44; 45;47										
<i>Calanus simillimus</i>	44;45	8;43;47									
Callianira						10					
<i>Calycopsis borchgrevinki</i>								48		49;50;51	Subclass; Worldwide

Candacia								52;53;54			
<i>Chiroteuthis veranyi</i>										11;12;13;27;28;29;30;31;32;33;34;35;37;38;39;40	Order, Southern Ocean
<i>Clausocalanus ingens</i>		45									
<i>Clausocalanus laticeps</i>	45										
<i>Clio piatkowskii</i>		8									
<i>Clio pyramidata</i>	8										
<i>Clione limacina</i>		10;55									
Coccolitophorida											Assumed Order;
Codonellopsis							56			1; 58	Worldwide
<i>Conchoecilla chuni</i>			24								
<i>Conchoecissa symmetrica</i>			24								
Corycaeus								54;59;60			Subclass; Southern Ocean
<i>Crossota brunnea</i>										10;51	
<i>Ctenocalanus citer</i>	24										
Cyclothone			8;26;28								
<i>Cyllopus lucasii</i>	8;28										
<i>Cyllopus magellanicus</i>		8;28									
Cymatocyliis										1; 58	Order; Worldwide
<i>Cynomacrurus piriei</i>	26										
<i>Cyphocaris faurei</i>				6							

<i>Cyphocaris richardi</i>				<b>6</b>							
<i>Desmonema glaciale</i>				<b>10</b>							
<i>Dimophyes arctica</i>						51			49;50		
<i>Diphyes antarctica</i>									49;50		
<i>Dissostichus eleginoides</i>	<b>61</b>										
<i>Drepanopus forcipatus</i>	44	62;63		46							
<i>Drepanopus pectinatus</i>	62;63	44			46						
<i>Electrona antarctica</i>	<b>8;28;64; 66;67;6 8</b>										
<i>Electrona carlsbergi</i>	<b>67;68</b>			<b>65</b>							
<i>Electrona subaspera</i>				26; <b>65</b>							
<i>Euchirella rostrata</i>				<b>8</b>							
<i>Euchirella rostromagna</i>	<b>8</b>										
<i>Eudoxoides spiralis</i>						49;50					
<i>Eukrohnia hamata</i>	<b>8;69;70</b>										
<i>Euphausia crystallorophias</i>				7;10; <b>75</b>							
<i>Euphausia frigida</i>	<b>8</b>			<b>10</b>							
<i>Euphausia superba</i>	<b>8;24;28 ;76</b>										
<i>Euphausia triacantha</i>		<b>8;24;28 ;76</b>									
<i>Euphausia vallentini</i>		<b>8;24;28 ;76</b>									
<i>Eurythenes obesus</i>				<b>6</b>							
<i>Eusiroides stenopleura</i>										<b>10</b>	Infraorder;Southern Ocean





<i>opisthopterus</i>											
<i>Gymnoscopelus piabilis</i>				26							
<i>Halicreas minimum</i>									10;82		Subclass; SouthernOce an
<i>Haloptilus ocellatus</i>	<b>8</b>										
<i>Heterorhabdus austrinus</i>	<b>8</b>										
Vogtia									49;50		
<i>Histioteuthis eltaninae</i>	29										
<i>Hyperia macrocephala</i>				<b>7;10;83</b>							
<i>Hyperiella antarctica</i>		<b>24</b>									
<i>Hyperiella dilatata</i>	<b>24</b>										
<i>Ihlea racovitzai</i>				<b>10</b>							
<i>Kondakovia longimana</i>	<b>12</b>										
<i>Krefflichthys anderssoni</i>	64; <b>65;6</b> <b>6;67;83</b>										
Lampanyctus	<b>65</b>										
Lanceola								82;84;8 5			
<i>Limacina helicina</i>				<b>7</b>						86	
<i>Limacina retroversa</i>					<b>7</b>						
Lucicutia									87		
<i>Marrus antarcticus</i>							49;50				
<i>Martialia hyadesi</i>	11; <b>29;3</b> 2; <b>34;35;</b> <b>39</b>										
Mastigoteuthis										11; <b>12;37;27</b> ; <b>28;29;30;3</b> 1; <b>32;33;34;</b>	Order; SouthernOce an

											35;37;38;39;40	
<i>Megalocranchia</i>			11			6;11;27					12;13;28;29;30;31;32;33;34;35;37;38;39;40	Order; Southern Ocean
<i>Melanostigma gelatinosum</i>					26							
<i>Mesonychoteuthis hamiltoni</i>					10;13;27							
<i>Metaconchoecia skogsbergi</i>					6						25	Class; Southern Ocean
<i>Metridia curticauda</i>	8;44											
<i>Metridia gerlachei</i>	8;44;47				88							
<i>Metridia lucens</i>	44;45	8;47				88						
<i>Microcalanus pygmaeus</i>	24											
<i>Microsetella norvegica</i>								89;90;91				
<i>Muggiaea bargmannae</i>						49;50;51						
<i>Nannobrachium achirus</i>	66				26							
<i>Nansenia antarctica</i>	8;92				26							
<i>Nematocarcinus lanceopes</i>	24											
<i>Neocalanus tonsus</i>	45											
<i>Notolepis coatsi</i>	8				64							
<i>Notoscopelus resplendens</i>	65											
<i>Obtusoecia antarctica</i>								24			25	Class; Southern Ocean

<i>Oithona frígida</i>	24;44;45											
<i>Oithona similis</i>	24;44;45											
<i>Oncaea curvata</i>	24;94											
<i>Oncaea parila</i>		24;94										
<i>Oncaea prolata</i>	24											
<i>Onykia ingens</i>				33;37;38								
<i>Pandea rubra</i>										48;49;50;51		Subclass; Worldwide
<i>Pantachogon haeckeli</i>										10;51		Subclass; SouthernOcean
<i>Paradiplospinus gracilis</i>	66											
<i>Paraeuchaeta antarctica</i>	8;94;95											
<i>Paraeuchaeta barbata</i>	95											
<i>Paraeuchaeta biloba</i>	95											
<i>Paraeuchaeta rasa</i>	95											
<i>Parandania boeckii</i>	36;96											
<i>Paraphyllina ransoni</i>										10;22;23;98;99		Order;Worldwide
<i>Pasiphaea scotiae</i>				6						3;4;5;24		Infraorder; Worldwide
<i>Pelagobia longicirrata</i>	24											
<i>Periphylla periphylla</i>							96;98			10;22;23		Order; Worldwide
<i>Petalidium foliaceum</i>				3								
<i>Phronima sedentaria</i>							83;99;100					



Rhabdonella											<b>1;56;86</b>	Order; Worldwide
<i>Rhincalanus gigas</i>	<b>8;44</b>											
<i>Rhynchonereella bongraini</i>	<b>24</b>											
<i>Rosacea plicata</i>								49				
<i>Rotundoecia teretivalvata</i>			<b>24</b>								25	Class;Southern Ocean
<i>Sagitta gazellae</i>	<b>8</b>			69;70								
<i>Sagitta marri</i>	<b>8</b>											
<i>Salpa thompsoni</i>	<b>8</b>			<b>28</b>								
<i>Scaphocalanus australis</i>		<b>8;24</b>										
<i>Scaphocalanus farrani</i>	<b>8</b>											
<i>Scaphocalanus verwoorti</i>	<b>24</b>											
Scina			83									
<i>Scolecithricella minor</i>	<b>24</b>											
Sergestes		<b>3</b>										
<i>Slosarczykovia circumantarctica</i>											<b>11;12;37;27;28;29;30;31;32;33;34;35;37;38;39;40</b>	Order; Southern Ocean
<i>Solmundella bitentaculata</i>				<b>10;51</b>								
<i>Spinocalanus abyssalis</i>	<b>8</b>											
<i>Spongiobranchaea australis</i>				55;104;105								
Stenosemella						<b>1</b>					86	Order; Worldwide
<i>Stoloteuthis leucoptera</i>												Assumed
<i>Stomias gracilis</i>				26								

<i>Stygiomedusa gigantea</i>							106			
<i>Subeucalanus longiceps</i>			8;44							
<i>Symbolophorus boops</i>	65									
<i>Themisto gaudichaudii</i>	8;36									
<i>Thysanoessa macrura</i>	8									
<i>Thysanoessa vicina</i>		8								
Tintinnopsis									1;56;86	Order; worldwide
<i>Tomopteris planktonis</i>		24								
<i>Tomopteris septentrionalis</i>	24									
<i>Triconia antarctica</i>	8									
Vanadis									14	Family;Worldwide
<i>Vibilia antarctica</i>		8					57			
<i>Zanclonia weldoni</i>									48;49;510;51	Subclass;Worldwide

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**Table S2.** Summary table of node taxonomy, taxonomic groups, mean masses, and known distributions in latitude and depth. Superscripts are references for the conversion factors used to calculate mean mass, with the exception of [<sup>A</sup>] which indicates an assumption.

<b>Node</b>	<b>Taxonomy</b>	<b>Group</b>	<b>Mass</b>	<b>Latitudinal distribution</b>	<b>Depth distribution</b>	<b>References</b>
Acantharea	Class	Protist	1.00E-07 <sup>A</sup>	Both <sup>a</sup>	All <sup>a</sup> Meso +	
<i>Acanthephyra pelagica</i>	Species	Decapod	7.20E+00	Both	bathypelagic	1,2
Aetideus	Genus	Copepod	1.03E-03 <sup>b,c</sup>	Both	All	3,4
<i>Alacia belgicae</i>	Species	Ostracod	4.40E-04 <sup>A</sup>	South	Epipelagic	5,6
<i>Alacia hettacra</i>	Species	Ostracod	4.40E-04	Both	Mesopelagic	5,7
<i>Alluroteuthis antarcticus</i>	Species	Squid	2.90E+01	Both	Mesopelagic	5,8
Aloricate ciliates	Subphylum	Protist	1.00E-09	Both <sup>a</sup>	All <sup>a</sup>	
Amphidinium	Genus	Primary producer	1.63E-09 <sup>a</sup>	Both	Epipelagic	
Amphisolenia	Genus	Primary producer	1.95E-08 <sup>a</sup>	Both	Epipelagic	
<i>Antarctomysis maxima</i>	Species	Decapod	7.21E-01	Both	All	9,10
Appendicularia	Class	Mesh feeder	2.57E-03	Both	All	1,11
<i>Arctozenus risso</i>	Species	Fish	3.01E-01	Both	All	12,13
		Gelatinous				
<i>Atolla wyvillei</i>	Species	carnivore	3.18E+01	Both	All	1
<i>Austrinoecia isocheira</i>	Species	Ostracod	3.39E-05 <sup>d</sup>	Both	Mesopelagic	7
Bacteria		Primary producer	1.00E-12	Both <sup>a</sup>	All <sup>a</sup>	
<i>Bathylagus antarcticus</i>	Species	Squid	2.70E+01	South	All	5,14
<i>Bathyteuthis abyssicola</i>	Species	Squid	3.56E+00	Both	All	1,6
					Meso +	
<i>Batoteuthis skolops</i>	Species	Squid	9.95E+00 <sup>e</sup>	Both	bathypelagic	6,15
					Meso +	
<i>Benthalbella elongata</i>	Species	Fish	1.65E+01	Both	bathypelagic	1,14

<i>Benthalbella macropinna</i>	Species	Fish	1.65E+01 <sup>A</sup>	Both	Meso + bathypelagic	14
Beroe	Genus	Gelatinous carnivore	5.88E+01	Both	All	9,11
<i>Boroecia antipoda</i>	Species	Ostracod	4.40E-04	Both	Mesopelagic	5,7
<i>Borostomias antarcticus</i>	Species	Fish	2.30E+01	Both	Meso + bathypelagic	1,14
<i>Brachioteuthis linkovskyi</i>	Species	Squid	2.10E+00 <sup>e</sup>	North	All	15,16
<i>Brachioteuthis picta</i>	Species	Squid	1.15E+00 <sup>e</sup>	Both	All	16
<i>Calanoides acutus</i>	Species	Copepod	5.50E-03	Both	Epi + mesopelagic	5,17
<i>Calanus australis</i>	Species	Copepod	4.92E-03 <sup>b,c</sup>	North	Meso + bathypelagic	3, 4
<i>Calanus propinquus</i>	Species	Copepod	5.70E-03	Both	Epi + mesopelagic	5,17
<i>Calanus simillimus</i>	Species	Copepod	6.30E-03 <sup>b,c</sup>	North	Epi + mesopelagic	3,4
Callianira	Genus	Gelatinous carnivore	5.60E+00	Both	All	5
<i>Calycopeptis borchgrevinki</i>	Species	Gelatinous carnivore	1.75E+00	Both	All	1
Candacia	Genus	Copepod	9.04E-03 <sup>b,c</sup>	Both	All	3,4
Ceratium	Genus	Primary producer	6.96E-09 <sup>A</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>	1
Chaetoceros	Genus	Primary producer	5.28E-09 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>	18
<i>Chiroteuthis veranyi</i>	Species	Squid	3.64E+01 <sup>f</sup>	North	Meso + bathypelagic	15,19
<i>Clausocalanus ingens</i>	Species	Copepod	5.69E-04 <sup>b,c</sup>	North	Epi + mesopelagic	3,17
<i>Clausocalanus laticeps</i>	Species	Copepod	3.92E-04 <sup>b,c</sup>	North	All	3,17
<i>Clio piatekowskii</i>	Species	Mesh feeder	1.70E-02	Both	Epipelagic	5,20
<i>Clio pyramidata</i>	Species	Mesh feeder	1.70E-02	Both	Epipelagic	5,20
<i>Clione limacina</i>	Species	Mesh feeder	1.40E-02	Both	Epipelagic	5,11
Coccolitophorida		Primary producer	5.23E-10 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>	
Codonellopsis	Genus	Protist	1.00E-08 <sup>A</sup>	Both	All	21

<i>Conchoecilla chuni</i>	Species	Ostracod	7.54E-03 <sup>g</sup>	North	Mesopelagic Meso +	7
<i>Conchoecissa symmetrica</i>	Species	Ostracod	4.37E-02 <sup>g</sup>	North	bathypelagic	7
Corethron	Genus	Primary producer	4.45E-07 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>	1
Corycaeus	Genus	Copepod Gelatinous	1.01E-03 <sup>b,c</sup>	Both <sup>a</sup>	All <sup>a</sup> Meso +	3
<i>Crossota brunnea</i>	Species	carnivore	9.00E-02	Both	bathypelagic	22,
<i>Ctenocalanus citer</i>	Species	Copepod	3.40E-04 <sup>b,c</sup>	North	All Meso +	3,4
Cyclothone	Genus	Fish	5.60E+00	Both	bathypelagic	1,24
<i>Cyllopus lucasii</i>	Species	Amphipod	3.20E-01	Both	Epipelagic	5,25
<i>Cyllopus magellanicus</i>	Species	Amphipod	3.20E-01	Both	Epipelagic	5,25
Cymatocyllis	Genus	Protist	1.00E-08 <sup>A</sup>	Both	All	21
<i>Cynomacrurus piriei</i>	Species	Fish	4.60E+01 <sup>h</sup>	Both	All	14,27
<i>Cyphocaris faurei</i>	Species	Amphipod	1.28E+00	Both	All	1,28
<i>Cyphocaris richardi</i>	Species	Amphipod	2.21E+00	Both	All	1,28
Dactyliosolen	Genus	Primary producer Gelatinous	1.41E-07 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>	1
<i>Desmonema glaciale</i>	Species	carnivore	3.50E+04	Both	Epi + mesopelagic	23,29
Detritus		Primary producer Gelatinous		Both <sup>a</sup>	All <sup>a</sup>	Assumed
<i>Dimophyes arctica</i>	Species	carnivore	2.00E+00 <sup>A</sup>	Both	All	11
Dinophysis	Genus	Primary producer Gelatinous	1.95E-08 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>	1
<i>Diphyes antarctica</i>	Species	carnivore	2.09E+00	Both	All	9,23
<i>Dissostichus eleginoides</i>	Species	Fish	6.14E+03	Both	All	13
<i>Drepanopus forcipatus</i>	Species	Copepod	2.13E-03 <sup>b,c</sup>	North	Epi + mesopelagic	3,4
<i>Drepanopus pectinatus</i>	Species	Copepod	2.84E-03 <sup>b,c</sup>	North	Epi + mesopelagic	3,4
Dictyochophyceae	Class	Primary producer	2.91E-10 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>	1
<i>Electrona antarctica</i>	Species	Fish	9.98E+00 <sup>i</sup>	Both	All	14,27

<i>Electrona carlsbergi</i>	Species	Fish	6.09E+00 <sup>i</sup>	North	All	14,27	
<i>Electrona subaspera</i>	Species	Fish	6.00E+00 <sup>A</sup>	North	All	14,27	
<i>Eucampia</i>	Genus	Primary producer	6.91E-09 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Euchirella rostrata</i>	Species	Copepod	5.10E-03	South	All	3,4	
<i>Euchirella rostromagna</i>	Species	Copepod	3.78E-02	Both	Meso + bathypelagic		3
<i>Eudoxoides spiralis</i>	Species	Gelatinous carnivore	2.50E-01 <sup>A</sup>	Both	All		23
<i>Eukrohnia hamata</i>	Species	Gelatinous carnivore	5.20E-03	Both	All	5,30	
<i>Euphausia crystallorophias</i>	Species	Euphausiid	2.49E-01	South	Epi + mesopelagic	9,31	
<i>Euphausia frigida</i>	Species	Euphausiid	1.70E-01	Both	Epi + mesopelagic	5,31	
<i>Euphausia superba</i>	Species	Euphausia superba	1.45E+00	Both	All	9,31	
<i>Euphausiatriacantha</i>	Species	Euphausiid	6.00E-01 <sup>c</sup>	Both	Mesopelagic	31,32	
<i>Euphausia vallentini</i>	Species	Euphausiid	1.70E-01	North	Epipelagic		31
<i>Eurythenes obesus</i>	Species	Amphipod	3.70E-01	Both	All	1,33	
<i>Eusiroides stenopleura</i>	Species	Amphipod	1.63E-01	Both <sup>a</sup>	All <sup>a</sup>		1
<i>Eusirus antarcticus</i>	Species	Amphipod	4.70E-02	South	All	11,28	
<i>Eusirus microps</i>	Species	Amphipod	6.99E-01	South	All	11,28	
<i>Eusirus perdentatus</i>	Species	Amphipod	1.90E+01	Both <sup>a</sup>	All <sup>a</sup>		5
<i>Filippovia knipovitchi</i>	Species	Squid	3.90E+02 <sup>e</sup>	Both	Meso + bathypelagic		8
Foraminifera	Phylum	Protist	5.00E-06	Both	All		34
Fragilariopsis	Genus	Primary producer	2.39E-09 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Gaetanus tenuispinus</i>	Species	Copepod	6.36E-03 <sup>b,c</sup>	Both	All	3, 35	
<i>Galiteuthis glacialis</i>	Species	Squid	5.95E+01	Both	All	1,8	
<i>Gennadas kempfi</i>	Species	Decapod	7.35E-01	Both	Meso + bathypelagic	1,2	
<i>Gigantocypris muelleri</i>	Species	Ostracod	1.22E+00	Both	All	7,28	
<i>Gilia reticulata</i>	Species	Gelatinous	2.50E-01	Both	Mesopelagic		23



		carnivore					
<i>Neognathophausia gigas</i>	Species	Decapod	6.94E-01	Both	Meso + bathypelagic	1,2	
<i>Gonatus antarcticus</i>	Species	Squid	4.28E+02 <sup>e</sup>	Both <sup>a</sup>	Meso + bathypelagic <sup>a</sup>		36
Grammatophora	Genus	Primary producer	1.98E-08 <sup>a</sup>	Both	Epipelagic		18
<i>Gymnoscopelus bolini</i>	Species	Fish	2.19E+01	Both	All	14,37	
<i>Gymnoscopelus braueri</i>	Species	Fish	2.50E+01	Both	All	5,14	
<i>Gymnoscopelus fraseri</i>	Species	Fish	8.73E+00 <sup>j</sup>	North	All	5,14	
<i>Gymnoscopelus hintonoides</i>	Species	Fish	2.50E+01	North	All		14
<i>Gymnoscopelus nicholsi</i>	Species	Fish	3.12E+01	Both	All	14,37	
<i>Gymnoscopelus opisthopterus</i>	Species	Fish	3.60E+01	Both	All	5,14	
<i>Gymnoscopelus piabilis</i>	Species	Fish	2.50E+01 <sup>A</sup>	North	All		14
<i>Halicreas minimum</i>	Species	Polychaete	3.70E+00	Both	Meso + bathypelagic	2,38	
<i>Haloptilus ocellatus</i>	Species	Copepod	6.12E-02 <sup>b,c</sup>	South	Epi + mesopelagic	3,4	
Hemiaulus	Genus	Primary producer	2.83E-08 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		18
<i>Heterorhabdus austrinus</i>	Species	Copepod	7.29E-03 <sup>b,c</sup>	Both	Meso + bathypelagic	3,4	
Vogtia	Genus	Gelatinous carnivore	2.50E-01 <sup>A</sup>	Both	Meso + bathypelagic		39
<i>Histioteuthis eltaninae</i>	Species	Squid	2.02E+01 <sup>e</sup>	Both <sup>a</sup>	Meso + bathypelagic <sup>a</sup>		15
<i>Hyperia macrocephala</i>	Species	Amphipod	4.20E-01	Both	Epi + mesopelagic	5,26	
<i>Hyperiella antarctica</i>	Species	Amphipod	5.70E-03 <sup>A</sup>	Both	Epipelagic		26
<i>Hyperiella dilatata</i>	Species	Amphipod	5.70E-03	Both	Epipelagic	5,26	
<i>Ihlea racovitzai</i>	Species	Mesh feeder	7.40E-03	South	All	5,40	
<i>Kondakovia longimana</i>	Species	Squid	3.30E+02	Both	All	5,8	
<i>Krefflichthys anderssoni</i>	Species	Fish	2.77E+00 <sup>j</sup>	Both	All		8
Laackmanniella	Genus	Protist	1.00E-08	Both	All		21

<i>Lampanyctus</i>	Genus	Fish	2.35E+01 <sup>j</sup>	North	All	14,27	
<i>Lanceola</i>	Genus	Amphipod	2.49E-01 <sup>d</sup>	Both	All	1,41	
<i>Limacina helicina</i>	Species	Meshfeeder	2.72E-05	Both	Epipelagic	1,20	
<i>Limacina retroversa</i>	Species	Meshfeeder	2.72E-05	Both	Epipelagic	1,20	
<i>Lucicutia</i>	Genus	Copepod Gelatinous	8.25E-02 <sup>b,c</sup>	Both	All	3,35	
<i>Marrus antarcticus</i>	Species	carnivore	1.75E-01	Both <sup>a</sup>	All <sup>a</sup>		1
<i>Martialia hyadesi</i>	Species	Squid	3.30E+02	North	All Meso + bathypelagic	5,8	
<i>Mastigoteuthis</i>	Genus	Squid	3.50E+02	Both	bathypelagic		8
<i>Megalocranchia</i>	Genus	Squid	3.50E+02	Both	All	Assumed	
<i>Melanostigma gelatinosum</i>	Species	Fish	2.50E+01	Both	All		13
<i>Melosira</i>	Genus	Primary producer	3.97E-10 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Mesonychoteuthis hamiltoni</i>	Species	Squid	1.10E+05	Both	Bathypelagic	5,8	
<i>Metaconchoecia skogsbergi</i>	Species	Ostracod	3.57E-04 <sup>d</sup>	Both	Mesopelagic Meso + bathypelagic	6,7	
<i>Metridia curticauda</i>	Species	Copepod	5.61E-04 <sup>d</sup>	Both	bathypelagic	3,17	
<i>Metridia gerlachei</i>	Species	Copepod	2.30E-03 <sup>d</sup>	Both	All	3,17	
<i>Metridia lucens</i>	Species	Copepod	3.12E-04 <sup>d</sup>	Both	Epi + mesopelagic	3,17	
<i>Microcalanus pygmaeus</i>	Species	Copepod	1.53E-04 <sup>b,c</sup>	Both	All	3,35	
<i>Microsetella norvegica</i>	Species	Copepod Gelatinous	6.28E-05 <sup>c</sup>	Both	All	17,35	
<i>Muggiaea bargmannae</i>	Species	carnivore	2.50E-01	Both <sup>a</sup>	All <sup>a</sup>		39
<i>Nannobrachium achirus</i>	Species	Fish	2.39E+01 <sup>j</sup>	Both	All Meso + bathypelagic	14,27	
<i>Nansenia antarctica</i>	Species	Fish	1.82E+01 <sup>j</sup>	North	bathypelagic	14,27	
<i>Nematocarcinus lanceopes</i>	Species	Decapod	1.20E+00	Both	All	5,42	
<i>Neocalanus tonsus</i>	Species	Copepod	1.15E-02 <sup>b,c</sup>	North	All	3,4	
<i>Nitzschia</i>	Genus	Primaryproducer	1.99E-09 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Notolepis coatsi</i>	Species	Fish	2.43E+01	Both	Mesopelagic	14,37	

<i>Notoscopelus resplendens</i>	Species	Fish	1.09E+00 <sup>j</sup>	North	All	13,27	
<i>Obtusoecia antarctica</i>	Species	Ostracod	4.51E-04 <sup>d</sup>	North	Mesopelagic	6,7	
<i>Oithona frigida</i>	Species	Copepod	2.64E-05 <sup>c</sup>	Both	Epipelagic	17,43	
<i>Oithona similis</i>	Species	Copepod	2.26E-05 <sup>c</sup>	Both	Epipelagic	17,43	
<i>Oncaea curvata</i>	Species	Copepod	5.67E-05 <sup>b,c</sup>	Both	Epi + mesopelagic	3,17	
<i>Oncaea parila</i>	Species	Copepod	5.40E-05 <sup>b,c</sup>	Both	Meso + bathypelagic	3,17	
<i>Oncaea prolata</i>	Species	Copepod	5.31E-05 <sup>b,c</sup>	Both	Meso + bathypelagic	3,17	
<i>Onykia ingens</i>	Species	Squid	8.33E+02 <sup>d</sup>	North	All		8
<i>Pandea rubra</i>	Species	Gelatinous carnivore	3.00E+00	Both	Meso + bathypelagic	23,38	
<i>Pantachogon haeckeli</i>	Species	Gelatinous carnivore	1.70E+00	Both	All	23,38	
<i>Paradiplospinus gracilis</i>	Species	Fish	1.24E+01	Both	All	1,14	
<i>Paraeuchaeta antarctica</i>	Species	Copepod	7.32E-02 <sup>b,c</sup>	Both	All	3,4	
<i>Paraeuchaeta barbata</i>	Species	Copepod	1.70E-01 <sup>b,c</sup>	Both	Meso + bathypelagic	3,35	
<i>Paraeuchaeta biloba</i>	Species	Copepod	3.64E-02 <sup>b,c</sup>	Both	All	3,4	
<i>Paraeuchaeta rasa</i>	Species	Copepod	3.85E-02 <sup>b,c</sup>	Both	Meso + bathypelagic	3,4	
<i>Parandania boeckii</i>	Species	Amphipod	5.00E-01	Both	Meso + bathypelagic	1,2	
<i>Paraphyllina ransoni</i>	Species	Gelatinous carnivore	3.20E+02	Both <sup>a</sup>	All <sup>a</sup>		1
<i>Pasiphaea scotiae</i>	Species	Decapod	3.68E+00	Both	All	28,42	
<i>Pelagobia longicirrata</i>	Species	Polychaete	1.90E-03	Both	All	5,11	
Peridinium	Genus	Primaryproducer	8.36E-09 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		
<i>Periphylla periphylla</i>	Species	Gelatinous carnivore	1.36E+02	Both <sup>a</sup>	All <sup>a</sup>		1
<i>Petalidium foliaceum</i>	Species	Decapod	1.16E+00	Both	Meso +	2,28	

Phaeocystis	Genus	Primary producer	1.67E-10 <sup>a</sup>	Both <sup>a</sup>	bathypelagic Epipelagic <sup>a</sup>		44
<i>Phronima sedentaria</i>	Species	Amphipod	8.22E-01 <sup>d</sup>	Both <sup>a</sup>	All <sup>a</sup>		45
Plagiotropus	Genus	Primary producer	1.15E-08 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Pleurogramma antarcticum</i>	Species	Fish Gelatinous	3.00E+02	Both	All	4,5	
Pleurobrachia	Genus	carnivore	1.00E+00 <sup>A</sup>	Both	All		11
<i>Pleuromamma abdominalis</i>	Species	Copepod	5.93E-03 <sup>b,c</sup>	Both	All	3,35	
<i>Pleuromamma antarctica</i>	Species	Copepod	8.26E-03 <sup>b,c</sup>	Both	Epi + mesopelagic Meso +	3,35	
<i>Pleuromamma robusta</i>	Species	Copepod	7.10E-03 <sup>b,c</sup>	Both	bathypelagic	3,35	
Pleurosigma	Genus	Primary producer	2.17E-07 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
Podocopida	Order	Ostracod	3.29E-04 <sup>A</sup>	Both <sup>a</sup>	All <sup>a</sup> Meso +		
<i>Poromitra crassiceps</i>	Species	Fish	2.80E+00 <sup>j</sup>	North	bathypelagic	13,14	
Porosira	Genus	Primary producer	1.48E-07 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Primno macropa</i>	Species	Amphipod	2.40E-01	Both	All	5,26	
Prorocentrum	Genus	Primary producer	8.92E-10 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Protomyctophum andriashevi</i>	Species	Fish	6.25E-01 <sup>j</sup>	North	All	14,46	
<i>Protomyctophum bolini</i>	Species	Fish	5.60E+00	Both	All	5,46	
<i>Protomyctophum choriodon</i>	Species	Fish	3.44E+00 <sup>j</sup>	Both	All	14,27	
<i>Protomyctophum luciferum</i>	Species	Fish	2.02E-01 <sup>j</sup>	North	All	14,46	
<i>Protomyctophum parallelum</i>	Species	Fish	6.42E-01 <sup>j</sup>	North	All	14,27	
<i>Protomyctophum tenisoni</i>	Species	Fish	4.96E-01 <sup>j</sup>	North	All	14,27	
<i>Pseudoamallothrix cenotelis</i>	Species	Copepod	1.89E-03 <sup>b,c</sup>	Both <sup>a</sup>	All <sup>a</sup>		3
<i>Pseudoconchoecia serrulata</i>	Species	Ostracod	3.96E-04 <sup>d</sup>	North	Mesopelagic	6,7	
Pseudo-nitzschia	Genus	Primary producer	3.51E-09 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup> Meso +		1
<i>Psychroteuthis glacialis</i>	Species	Squid	7.70E+02	Both	bathypelagic	5,8	
Ptychodiscus	Genus	Primary producer	1.63E-09 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		

<i>Pyrostephos vanhoeffeni</i>	Species	Gelatinous carnivore	1.35E-01	Both <sup>a</sup>	All <sup>a</sup>		47
<i>Racovitzanus antarcticus</i>	Species	Copepod	1.87E-03 <sup>b,c</sup>	Both <sup>a</sup>	All <sup>a</sup>		3
Rhabdonella	Genus	Protist	1.00E-08 <sup>A</sup>	North	All		21
<i>Rhincalanus gigas</i>	Species	Copepod	2.00E-02	Both	All	5,17	
Rhizosolenia	Genus	Primary producer	1.18E-07 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Rhynchonereella bongraini</i>	Species	Polychaete	1.90E-03	Both <sup>a</sup>	All <sup>a</sup>		5
<i>Rosacea plicata</i>	Species	Gelatinous carnivore	2.58E-01 <sup>d</sup>	Both	All	23,48	
<i>Rotundoecia teretivalvata</i>	Species	Ostracod	7.60E-05 <sup>d</sup>	North	Mesopelagic	6,7	
<i>Sagitta gazellae</i>	Species	Gelatinous carnivore	2.34E-01	Both	All	22,49	
<i>Sagitta marri</i>	Species	Gelatinous carnivore	1.30E-03	Both	All	5,49	
<i>Salpa thompsoni</i>	Species	Meshfeeder	1.40E-01	Both	All	5,50	
<i>Scaphocalanus australis</i>	Species	Copepod	6.11E-04 <sup>b,c</sup>	Both <sup>a</sup>	All <sup>a</sup>		3
<i>Scaphocalanus farrani</i>	Species	Copepod	4.35E-03 <sup>b,c</sup>	Both	Meso + bathypelagic	3,4	
<i>Scaphocalanus verwoorti</i>	Species	Copepod	1.37E-03 <sup>b,c</sup>	South	All	3,4	
Scina	Genus	Amphipod	2.84E-02 <sup>d</sup>	Both	All	26,41	
<i>Scolecithricella minor</i>	Species	Copepod	5.77E-04 <sup>b,c</sup>	Both	All	3,35	
Sergestes	Genus	Decapod	1.16E+00 <sup>A</sup>	Both	Meso + bathypelagic		2
<i>Slosarczykovia circumantarctica</i>	Species	Squid	1.06E+02 <sup>e</sup>	Both	All	8,15	
<i>Solmundella bitentaculata</i>	Species	Gelatinous carnivore	3.30E+00	Both	All	5,11	
<i>Spinocalanus abyssalis</i>	Species	Copepod	7.78E-04 <sup>b,c</sup>	Both <sup>a</sup>	Meso + bathypelagic <sup>a</sup>		3
<i>Spongiobranchea aaustralis</i>	Species	Gelatinouscarnivore	1.30E-01	Both	Epipelagic	11,51	
Stenosemella	Genus	Protist	1.43E-08	Both <sup>a</sup>	All <sup>a</sup>		52

<i>Stephanopyxis</i>	Genus	Primary producer	1.86E-07 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		18
<i>Stoloteuthis leucoptera</i>	Species	Squid	1.00E-01 <sup>A</sup>	Both <sup>a</sup>	All <sup>a</sup>		
<i>Stomias gracilis</i>	Species	Fish	1.00E+01	Both	All	1,14	
		Gelatinous					
<i>Stygiomedusa gigantea</i>	Species	carnivore	6.50E+03	Both <sup>a</sup>	All <sup>a</sup>		1
<i>Subeucalanus longiceps</i>	Species	Copepod	1.71E-02 <sup>b,c</sup>	North	Epi + mesopelagic	3,4	
<i>Symbolophorus boops</i>	Species	Fish	4.78E+00 <sup>j</sup>	North	All	13,27	
<i>Thalassionema</i>	Genus	Primary producer	2.00E-10 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Thalassiosira</i>	Genus	Primary producer	9.03E-09 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Thalassiothrix</i>	Genus	Primary producer	3.71E-08 <sup>a</sup>	Both <sup>a</sup>	Epipelagic <sup>a</sup>		1
<i>Themisto gaudichaudii</i>	Species	Amphipod	1.20E-01	Both	Epi + mesopelagic	5,26	
<i>Thysanoessa macrura</i>	Species	Euphausiid	1.50E-01	Both	Mesopelagic	28,31	
<i>Thysanoessa vicina</i>	Species	Euphausiid	2.13E-02 <sup>d</sup>	Both	Epi + mesopelagic	5,31	
<i>Tintinnopsis</i>	Genus	Protist	1.46E-08	North	All	21,52	
<i>Tomopteris planktonis</i>	Species	Polychaete	1.03E-03 <sup>d</sup>	Both	All	54,54	
<i>Tomopteris septentrionalis</i>	Species	Polychaete	7.09E-03 <sup>d</sup>	Both	All		53
<i>Triconia antarctica</i>	Species	Copepod	2.79E-04 <sup>b,c</sup>	Both	Epi + mesopelagic	3,17	
<i>Vanadis</i>	Genus	Polychaete	1.03E-01 <sup>d</sup>	Both	All	11,53	
<i>Vibilia antarctica</i>	Species	Amphipod	1.10E-04	Both	All	5,26	
		Gelatinous					
<i>Zanclonia weldoni</i>	Species	carnivore	3.00E+00 <sup>A</sup>	Both	Epipelagic		23

## References for Table S2

[<sup>A</sup>] Assumed

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