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Regional benthic food web structure on the Alaska Beaufort Sea shelf

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Table S1. Station location and hydrographic characteristics during BeauFish 2011. E: east region, CS: central shallow, CD: central deep, WS: west shallow, and WD: west deep.

Station	Date (2011)	Latitude	Longitude	Sampling depth (m)	Bottom temp (°C)	Bottom salinity
E02	20-Aug	70.8725	-146.6500	64	-0.72	32.17
E04	19-Aug	70.4360	-146.4200	35	-0.72	32.07
E06	19-Aug	70.6667	-146.4938	45	-1.08	32.10
E08	19-Aug	70.3367	-146.1104	30	-0.27	31.83
E10	19-Aug	70.5619	-146.1066	41	-1.12	32.03
E12	18-Aug	70.7782	-146.1099	68	-1.19	32.08
E14	18-Aug	70.4561	-145.7967	39	-1.15	32.09
E16	18-Aug	70.6503	-145.7977	56	-1.27	32.16
E21	17-Aug	70.3315	-145.4430	52	-0.94	31.95
E23	17-Aug	70.7739	-145.4070	127	-1.23	32.36
CS01	20-Aug	70.5145	-147.3533	23	-0.72	31.89
CS02	21-Aug	70.5570	-147.7415	28	2.00	31.25
CS03	22-Aug	70.5928	-148.2158	23	1.86	31.03
CS05	23-Aug	70.6548	-149.1974	19	-0.63	31.81
CS06	23-Aug	70.6970	-149.6623	19	-0.70	31.87
CS07	23-Aug	70.7384	-150.1203	19	1.05	31.63
CS08	25-Aug	70.7432	-150.5349	19	1.30	31.48
CS09	25-Aug	70.8136	-151.1057	18	1.89	31.62
CS10	25-Aug	70.8556	-151.5946	17	1.89	31.6
CS11	20-Aug	70.7583	-147.1254	48	1.27	31.43
CS12	21-Aug	70.7989	-147.5143	41	1.98	31.36
CS13	22-Aug	70.8133	-148.0767	43	1.38	31.41
CS14	22-Aug	70.8528	-148.5788	36	-0.82	32.08
CS15	23-Aug	70.9201	-148.0300	33	-0.42	31.60
CS16	23-Aug	70.9602	-149.5722	33	2.95	31.25
CS17	23-Aug	70.9791	-150.0197	30	-0.75	31.84
CS19	25-Aug	71.0585	-150.9187	13	-0.60	31.73

CS20	25-Aug	71.1149	-151.4424	20	0.30	31.64
CS32	25-Aug	70.8096	-151.6320	16	1.71	31.22
CS33	25-Aug	70.6700	-150.6458	16	1.95	31.18
CD22	22-Aug	70.9950	-147.4627	184	2.30	31.14
CD23	21-Aug	71.0686	-147.8788	183	3.58	30.83
CD24	22-Aug	71.1592	-148.3365	180	3.09	31.24
CD25	22-Aug	71.2073	-148.8749	179	2.87	31.31
CD26	24-Aug	71.2111	-149.3684	183	0.50	34.79
CD27	24-Aug	71.2184	-149.9031	163	0.06	34.59
CD28	24-Aug	71.2520	-150.4104	103	0.42	34.74
CD30	27-Aug	71.3610	-151.3092	183	0.48	34.77
WS17	26-Aug	71.1594	-152.2214	24	0.45	34.76
WS25	1-Sep	71.2221	-154.0137	23	0.44	34.75
WS29	31-Aug	71.4726	-155.0913	15	0.47	34.78
WS30	31-Aug	71.2433	-155.1354	13	0.16	34.63
WS34	1-Sep	71.1379	-153.1948	25	-0.16	34.49
WS35	1-Sep	71.1017	-154.0514	18	0.14	34.63
WS10	29-Aug	71.7238	-153.9227	53	3.60	31.70
WS12	29-Aug	71.4710	-153.9570	52	4.48	31.10
WS13	31-Aug	71.4000	-153.9770	43	4.61	31.14
WS14	1-Sep	71.2457	-153.1169	41	3.17	31.52
WS16	28-Aug	71.0000	-153.0000	65	3.97	31.29
WS18	2-Sep	71.2730	-152.3036	51	4.21	31.23
WS19	26-Aug	71.3442	-152.0087	90	3.07	31.61
WS21	31-Aug	71.5933	-155.0366	48	3.99	31.59
WS22	30-Aug	71.6912	-154.5217	51	4.28	31.48
WS23	28-Aug	71.5343	-152.9027	60	4.33	31.38
WS24	28-Aug	71.5634	-153.5034	53	2.38	31.85
WS26	29-Aug	71.5988	-153.9508	49	3.71	31.35
WS32	28-Aug	71.7340	-153.5261	83	1.42	31.89
WD04	29-Aug	71.8418	-153.9206	184	4.83	31.39
WD07	27-Aug	71.7085	-152.9630	183	3.75	31.56
WD08	27-Aug	71.6546	-152.6614	183	-0.22	32.20
WD20	27-Aug	71.5000	-152.1833	184	3.63	31.44
WD28	30-Aug	71.6624	-155.2461	183	1.87	31.79
WD31	28-Aug	71.8005	-153.4167	183	1.09	31.96
WD36	2-Sep	71.5773	-152.5094	154	0.16	34.56

Table S2. Stable isotope values ($\delta^{13}C$ and $\delta^{15}N$) of benthic taxa with standard deviation (± 1 sd), number of replicates (N), and trophic level (TL) based on mean regional sediment POM for baseline calculations (see 'Materials and methods' for details).

Species/ Taxon	West deep				West shallow				Central deep				Central shallow				East			
	$\delta^{13}C$±sd	$\delta^{15}N$±sd	N	TL	$\delta^{13}C$±sd	$\delta^{15}N$±sd	N	TL	$\delta^{13}C$±sd	$\delta^{15}N$±sd	N	TL	$\delta^{13}C$±sd	$\delta^{15}N$±sd	N	TL	$\delta^{13}C$±sd	$\delta^{15}N$±sd	N	TL
Sediment POM	-25.1±0.5	4.8±1.7	3	1.0	-25.3±0.4	4.2±0.4	3	1.0	-25.0±0.4	4.8±0.6	3	1.0	-23.4±1.1	3.4±1.1	3	1.0	-24.3±0.3	4.4±1.2	3	1.0
Bryozoa (SF)																				
Alcyonidium sp.	-20.6±0.8	10.8±0.3	3	2.8	-20.2±0.5	9.6±0.3	3	2.6					-23.6±1.1	7.6±0.5	3	2.2	-23.8±1.2	9.2±1.5	3	2.4
Flustra sp.									-20.3±0.03	7.4±1.5	3	1.8	-23.8±0.6	7.6±1.3	3	2.2				
Bryozoa sp. 1													-22.4±0.2	8.1±0.4	3	2.4	-23.5	9.1	1	2.4
Hydrozoa (SF)																				
Sertularia robusta																	-24.9	8.9	1	2.3
Porifera(SF)																				
Halichondria sp.					-18.7	9.4	1	2.5									-22.9	12.8	1	3.5
Semisuberites sp.	-19.5±0.5	9.7±0.3	3	2.4																
Sponge sp. 2					-19.4±0.7	16.3±1.3	3	4.6	-19.1±0.2	14.9±1.6	3	4.0					-19.6±1.3	13.1±0.4	3	3.6
Sponge sp. 3																	-20.7±0.6	17.1±0.2	3	4.7
Sponge sp. 4									-21.0	10.0	1	2.5								
Sponge sp. 5									-19.0±0.6	15.6±0.4	3	4.2								
Mollusca																				
Bivalvia																				
Astarte borealis (SF)	-17.8±1.4	13.3±1.8	3	3.5									-20.3±1.2	11.2±4.4	3	3.3	-20.3±0.2	10.7±1.0	3	2.9
Astarte spp. (SF)					-19.2±0.6	11.6±0.4	9	3.2												
Cyclocardia sp. (SF)	-18.7±0.4	11.6±0.5	3	3.0	-18.8±0.7	12.0±0.9	3	3.3												
Clinocardium ciliatum (SF)					-21.6±1.1	8.5±0.3	3	2.3					-21.0±0.7	7.2±0.5	3	2.1	-20.9±0.4	7.2±0.5	3	1.8
Liocyma fluctuosa (SF)					-21.5±1.3	8.1±0.3	3	2.1												
Macoma moesta (SDF)					-19.5±1.8	9.3±0.4	3	2.5					-20.3±0.4	8.9±0.4	3	2.6				
Macoma spp. (SDF)																	-19.8±0.3	8.5±0.2	6	2.2
Ennucula tenuis (SSDF)	-19.0±0.5	9.6±1.7	3	2.4	-20.9±0.1	9.1±0.4	3	2.4					-21.1±0.6	7.5±0.8	3	2.5	-21.1±0.6	7.5±0.8	3	1.9
Pandora glacialis (SDF)													-21.3±0.4	8.6±0.5	3	2.5	-21. 2±0.2	8.7±0.7	3	2.3
Nuculana radiata (SDF)													-20.7±0.1	8.0±0.2	3	2.4				
Yoldia hyperborea (SSDF)	-19.0±0.2	7.6±0.1	3	1.8	-19.6±0.3	8.1±0.4	3	2.1	-20.8	8.2	1	2.0	-21.1	8.1	1	2.4	-20.4±0.1	8.3±0.3	3	2.2
Serripes groenlandicus (SF)													-21.2	7.9	1	2.3	-21.4±0.4	7.2±0.2	3	1.8
Similipecten greenlandicus (SDF)													-20.6±0.6	10.5±0.7	3	3.1	-21.3±0.5	9.3±0.2	3	2.4
Lyonsia arenosa (SDF)													-20.7±0.1	8.3±0.2	3	2.4	-20.2±0.4	7.4±0.8	3	1.9
Hiatella arctica (SF)													-21.0±0.1	6.6±0.7	3	2.0	-19.9±0.2	8.0±0.2	3	2.1
Chlamys sp. (SF)	-17.7±1.4	14.0±2.2	3	3.7	-17.9±0.8	12.1±0.3	3	3.3												
Musculus sp. (SF)	-18.4±0.8	10.0±1.2	3	2.5	-21.1	9.0	1	2.4												
Gastropoda																				
Buccinum spp. (PRED)	-16.8±0.7	16.4±1.2	12	4.4	-18.8±1.3	16.2±1.8	12	4.5					-20.9±0.5	13.0±1.0	6	3.8	-20.9±0.3	8.9±0.8	6	2.3
Cylichna alba (SDF)	-19.0±0.8	12.6±2.3	3	3.3	-19.3±1.2	13.3±2.4	3	3.7									-20.9±0.03	10.2±0.6	3	2.7
Cryptonatica affinis (PRED)	-17.2±0.6	13.04±0.8	3	3.4	-18.3±0.9	13.1±1.2	3	3.6												
Neptunea spp. (PS)	-18.3±0.2	12.4±0.6	3	3.2	-18.3±0.4	16.2±1.2	6	4.5					-19.9±0.5	12.5±1.1	3	3.7	-19.3±0.7	15.2±0.4	3	4.2
Tachyrhychus erosus (PRED)													-21.2±0.1	9.8±0.03	3	2.9	-20.2±0.2	8.9±0.5	3	2.3
Boreotrophon sp. (PRED)	-17.9±0.3	13.1±0.6	3	3.4	-18.1±0.3	13.2±0.7	3	3.6					-20.2±0.2	11.4±0.4	3	3.4	-17.7±0.3	15.5±0.7	3	4.3
Margarites sp. (PRED)	-19.0±0.5	11.4±1.7	3	2.9	-20.8±1.0	11.3±0.6	6	3.1	-20.7±0.3	11.9±0.9	3	3.1	-20.6±0.4	8.7±0.6	3	2.6	-21.0±0.3	11.7±0.4	3	3.2
Beringius sp. (PS)									-18.3±0.6	16.8±0.4	3	4.5					-20.2±0.3	11.9±0.1	3	3.2
Lunatia pallida (PS)					-18.1±1.0	13.9±1.4	3	3.8	-21.5±0.7	11.2±0.6	3	2.9	-21.2	11.0	1	3.2	-20.8±0.2	10.0±0.5	3	2.7
Plicifusus kroeyeri (PS)	-16.5±0.5	17.1±0.9	3	3.2	-16.8±0.6	16.2±0.6	3	4.5												
Cephalopoda																				

Rossia sp. (PRED)									-19.8±0.1	15. 2±0.2	3	4.1				-21.24	12.92	3	3.5
Bathyploypus arcticus (PRED)	-19.79±1.2	12.97±1.7	3	3.4	-19.5±0.6	14.3±2.0	3	4.0	-20.9±0.7	14.6±0.8	3	3.9							
Crustacea																			
Amphipoda																			
Amphipoda spp. (PS)					-20.9±0.3	12.8±0.4	6	3.5								-22.8±0.7	10.7±0.8	6	2.9
Gammaridea																			
Ampelisca sp. (SF)	-19.6±0.2	14.77±3.6	3	3.9	-22.2±0.8	9.4±1.8	6	2.2					-25.5	7.1	1	2.1	-23.0±0.6	9.5±1.5	3	2.5
Anonyx nugax (PS)	-20.6±1.8	17.0±0.8	3	4.6	-20.0±0.1	13.3±2.5	3	3.7					-21.2±0.4	14.0±1.6	3	4.1				
Onisimus sp. (PS)																	-23.1±1.1	13.1±0.9	3	3.6
Stegocephalus sp. (PS)	-17.5±0.7	17.7±3.4	3	4.8					-19.0±0.04	19.4±2.2	3	5.3					-21.7±0.6	14.5±1.4	3	4.0
Decapoda																			
Chionoecetes opilio (PRED)	-18.1±1.0	15.2±1.4	3	4.1	-18.5±0.4	14.5±0.8		4.0	-19.0±0.3	15.0±0.4	3	4.0							
Paralithodes platypus (PRED)									-18.4±0.3	15.2±0.2	3	4.1							
Hyas coarctatus (PRED)					-19.8±0.7	14.8±0.4	3	4.1					-20.2±0.5	14.1±0.8	3	4.1	-20.3±0.3	13.8±0.2	3	3.8
Pagurus sp. (PS)					-19.9±1.0	12.5±1.0	3	3.4												
Hermit crab sp. 1 (PRED)													-21.0±0.2	11.06±0.2	3	3.3	-20.6±0.5	11.4±1.1	3	3.1
Eualus sp. (PS)					-19.4±0.5	14.1±0.9	3	3.9					-19.7±0.3	13.8±0.6	3	4.1	-20.4±0.3	12.7±0.5	3	3.5
Spirontocaris spp. (PS)					-19.0±0.9	13.3±0.9	3	3.7					-19.3±0.4	11.6±0.6	3	3.4	-19.4±0.4	12.7±0.4	3	3.5
Sabinea septemcarinata (PS)					-19.0±0.5	15.0±0.8	3	4.2					-19.3±0.4	14.3±0.1	3	4.2	-1.3±0.2	14.4±0.4	3	3.9
other shrimps (PS)																	-19.6±0.7	13.3±0.7	9	3.6
Isopoda																			
Saduria entomon (PS)													-20.5±0.2	13.6±1.5	3	4.0				
Saduria sabini (PS)													-19.8±0.2	12.0±1.3	3	3.5	-19.6±0.4	12.5±0.9	3	3.4
Saduria sp. (PS)																	-23.5±1.1	8.9±1.1	3	2.3
Cumacea (SF)													-25.0±1.4	7.3±0.8		2.1	-24.1±0.4	6.4±0.8	3	1.6
Cnidaria																			
Actinaria																			
Urticina sp. (PRED)	-19.6±0.4	14.6±0.8	3	3.9									-22.3±0.9	12.3±0.3	3	3.6				
Gersemia rubiformis (PS)	-17.0	15.7	1	4.2	-19.8±2.2	12.1±0.5	3	3.3	-24.1	12.3	1	3.2	-22.1±0.1	11.6±0.01	3	3.4	-22.8±0.1	9.5±1.0	3	2.5
Anemone sp. 1 (PRED)					-17.9±0.9	15.7±1.5	3	4.4												
Anemone sp. 2 (SF)																	-22.0±0.3	15.2±0.5	3	4.2
Echinodermata																			
Asteroidea																			
Urasterias lincki (PS)													-17.2±0.4	16. 2±0.5	3	4.8	-19.9±0.8	14.0±2.8	3	3.8
Leptasterias groenlandica (SF)													-18.7±1.2	12.4±0.1	3	3.6	-19.5±1.3	13.0±0.6	3	3.5
Crossaster papposus (PRED)									-17.1±1.0	19.2±1.4	3	5.2					-18.9±0.7	16.8±1.7	3	4.7
Pteraster obscurus (SF)					-19.6±1.0	15.3±1.5	3	4.2									-20.7±0.4	12.1±1.5	3	3.3
Ctenodiscus crispatus (PS)									-16.2±0.5	15.3±0.6	3	4.1								
Echinoidea																			
Strongylocentrotus pallidus (SDF)	-18.0±3.0	13.2±3.5	3	3.5	-17.6±1.1	11.8±0.7	3	3.2	-18.4	13.3	1	3.5	-19.7±1.3	11.6±1.0	3	3.4				
S. drobachiensis (SDF)																	-20.9±1.7	11.9±1.4	3	3.2
Ophiuroidea																			
Ophiura sarsi (PS)									-15.3±1.4	10.5±2.8	3	2.7								
Ophiocten sericeum (PS)													-22.0±1.5	10.0±1.6	3	2.9				
Gorgonocephalus eucnemis (PRED)					-18.3±1.4	17.0±0.3	3	4.7	-17.8±0.7	18.5±0.6	3	5.0								
Ophiuroid spp (PRED)	-20.3±4.1	11.5±0.8	6	3.0	-21.6±2.0	11.0±0.5	3	2.9	-21.3±1.2	13.1±0.3	3	3.4					-20.0±0.8	9.5±0.4	3	2.5
Holothuroidea																			
Myriotrochus rinkii (SDF)					-20.5±1.8	12.4±0.8	3	3.4												
Ocnus glacialis (SDF)	-17.5	10.2	1	2.6	-15.3	11.2	1	3.1									-20.4±0.4	7.7±1.1	3	2.0
Psolus chitenoides (PRED)													-21.6±0.1	10.9±0.2	3	3.2	-22.4±0.3	9.2±1.2	3	2.4
Crinoidea																				

Heliometra glacialis (SF)									-20.4±0.8	14.2±0.6	3	3.8								
Crinoid (SF)																	-22.5±1.2	11.4±1.7	3	3.1
Annelida																				
Polychaeta																				
Cistenides hyperborea (SSDF)													-20.8±0.3	10.7±1.03	3	2.8	-20.8±0.3	10.7±1.0	3	2.8
Sternaspis scutata (SSDF)					-18.9±1.1	10.9±0.8	3	3.0	-17.9	12.5	1	3.3					-20.1±0.2	10.1±0.4	3	2.7
Nothria conchylega (SDF)									-21.3±0.5	11.5±0.2	3	3.0	-20.3	11.1	3	3.3	-22.9±2.0	11.2±1.4	3	3.0
Brada sp. (SDF)									-17.7	12.7	1	3.3	-18.0±0.4	12.2±0.7	3	3.6	-20.5±0.8	11.5±0.2	3	3.1
Nephtys sp. (SSDF)	-16.4±0.2	15.4±0.8	3	4.1	-17.3±0.7	13.9±0.7	3	3.8					-18.6±0.9	11.1±0.1	3	3.3				
Polynoidea (PRED)	-17.8±0.5	14.1±1.4	3	4.1	-19.1±0.5	13.6±1.1	3	3.8					-21.1±1.4	12.4±1.0	6	3.6	-21.1±1.4	12.5±1.5	9	3.4
Sipuncula																				
Golfingia sp. (SDF)	-19.4	8.8	1	2.2													-19.6±0.5	10.7±0.3	3	2.9
Nemertea (PRED)	-20.3±1.6	12.5±1.7	3	3.3	-19.9	14.9	1	4.1					-20.8±2.1	12.4±1.2	3	3.7	-21.4±1.0	12.0±0.3	3	3.2
Cephalorhyncha																				
Priapulus caudatus (PRED)	-17.8	16.1	1	4.3	-18.6	15.4	1	4.3												
Chordata																				
Tunicata																				
Halocynthia aurantium (SF)													-22.4±0.1	10.0±0.7	3	3.0				