The following supplement accompanies the article

Dietary tracers in *Bathyarca glacialis* from contrasting trophic regions in the Canadian Arctic

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Supplement.

Table S1. Fatty acid composition of neutral and polar lipids of coastal and bathyal populations of *B. glacialis*. Data of each FA are expressed as % of total fatty acids (mean ± SE). Only FAs contributing > 1% in at least one group are reported (excluding odd-branched FAs used as markers for bacteria and 16:4ω1 used as marker for diatoms). Σ22:1 is the sum of 22:1ω11 + 22:1ω9. 22:2ω11 (ω9): position of double bond is uncertain. AA: arachidonic acid, 20:4ω6; EPA: eicosapentanoic acid, 20:5ω3; DHA: docosahexaenoic acid, 22:6ω3. NMI = non-methylene-interrupted; SFAs = saturated fatty acids; MUFAs = monounsaturated fatty acids; PUFAs = polyunsaturated fatty acids.

Fatty acids	Neutral lipids					Polar lipids				
	Coastal			Bathyal		Coastal			Bathyal	
	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5
	n = 5	*n = 5*	*n = 5*	*n = 3*	*n = 5*	*n = 5*	*n = 5*	*n = 5*	*n = 5*	*n = 4*
14:0	2.78 ± 0.11	2.82 ± 0.12	2.86 ± 0.16	2.90 ± 0.58	2.18 ± 0.18	1.33 ± 0.07	1.17 ± 0.10	1.29 ± 0.09	2.73 ± 0.45	3.39 ± 0.21
i-15:0				0.35	0.15	0.06 ± 0.00	0.06 ± 0.00	0.07 ± 0.00	0.39 ± 0.04	0.34 ± 0.01
15:0	0.23 ± 0.02	0.26 ± 0.02	0.23 ± 0.03	0.37 ± 0.06	0.20 ± 0.03	0.27 ± 0.01	0.32 ± 0.02	0.31 ± 0.02	0.67 ± 0.14	0.68 ± 0.09
16:0	13.85 ± 1.12	13.84 ± 1.16	16.54 ± 1.11	15.06 ± 1.35	15.73 ± 1.17	10.64 ± 0.62	10.52 ± 0.77	10.78 ± 0.73	9.13 ± 0.72	11.18 ± 0.53
i-17:0	0.13 ± 0.01	0.18 ± 0.01	0.22 ± 0.01	0.55 ± 0.08	0.70 ± 0.39	0.22 ± 0.01	0.25 ± 0.01	0.29 ± 0.00	0.45 ± 0.04	0.31 ± 0.05
16:1ω7	37.39 ± 0.82	32.34 ± 0.37	24.28 ± 1.06	19.42 ± 1.54	20.79 ± 1.58	5.25 ± 0.52	3.89 ± 0.26	3.04 ± 0.24	2.52 ± 0.13	2.81 ± 0.14
16:3ω3				1.44 ± 0.76	0.38 ± 0.00					
16:4ω1	0.39 ± 0.05	0.28 ± 0.05	0.75 ± 0.16	0.25 ± 0.06	0.21 ± 0.02					
17:0	0.44 ± 0.02	0.53 ± 0.03	0.55 ± 0.05	0.72 ± 0.02	0.58 ± 0.03	1.01 ± 0.03	1.12 ± 0.03	1.05 ± 0.04	0.97 ± 0.07	1.02 ± 0.05
18:0	1.92 ± 0.12	2.20 ± 0.07	3.19 ± 0.23	3.81 ± 0.25	2.87 ± 0.23	7.24 ± 0.16	6.70 ± 0.27	7.79 ± 0.31	7.19 ± 0.06	7.22 ± 0.11
18:1ω9	3.00 ± 0.11	3.26 ± 0.26	3.47 ± 0.49	10.92 ± 0.66	8.50 ± 0.57	0.78 ± 0.07	0.79 ± 0.06	0.77 ± 0.07	3.57 ± 0.35	2.98 ± 0.49
18:1ω7	2.73 ± 0.15	2.49 ± 0.09	2.46 ± 0.33	6.43 ± 0.70	5.81 ± 0.53	1.77 ± 0.13	1.53 ± 0.11	1.32 ± 0.07	2.37 ± 0.25	2.21 ± 0.19
18:1ω5	0.35 ± 0.01	0.59 ± 0.05	0.52 ± 0.05	1.11 ± 0.08	1.29 ± 0.07	0.34 ± 0.01	0.43 ± 0.02	0.35 ± 0.02	0.51 ± 0.03	0.67 ± 0.06
18:2ω6	1.53 ± 0.10	2.01 ± 0.19	2.34 ± 0.16	1.16 ± 0.04	1.09 ± 0.03	0.93 ± 0.06	0.99 ± 0.08	0.93 ± 0.04	0.81 ± 0.10	0.72 ± 0.06

Fatty acids	Neutral lipids					Polar lipids				
	Coastal			Bathyal		Coastal			Bathyal	
	Sta. 1 *n = 5*	Sta. 2 *n = 5*	Sta. 3 *n = 5*	Sta. 4 *n = 3*	Sta. 5 *n = 5*	Sta. 1 *n = 5*	Sta. 2 *n = 5*	Sta. 3 *n = 5*	Sta. 4 *n = 5*	Sta. 5 *n = 4*
18:4ω3	2.05 ± 0.25	1.97 ± 0.36	1.88 ± 0.30	0.66 ± 0.09	0.52 ± 0.13	0.58 ± 0.06	0.50 ± 0.03	0.39 ± 0.04	1.13 ± 0.31	0.57 ± 0.08
20:1ω11	0.83 ± 0.10	0.90 ± 0.10	1.08 ± 0.09	3.17 ± 0.19	2.19 ± 0.55	1.77 ± 0.16	1.66 ± 0.20	1.84 ± 0.17	2.97 ± 0.14	2.50 ± 0.03
20:1ω9	0.31 ± 0.02	0.52 ± 0.08	0.44 ± 0.04	2.44 ± 0.09	1.60 ± 0.20	0.40 ± 0.02	0.45 ± 0.02	0.43 ± 0.02	1.03 ± 0.02	0.58 ± 0.06
20:1ω7	3.62 ± 0.33	4.16 ± 0.15	4.11 ± 0.36	3.77 ± 0.39	3.76 ± 0.89	4.90 ± 0.21	4.36 ± 0.23	4.41 ± 0.38	3.16 ± 0.09	3.78 ± 0.18
Σ22:1	0.31 ± 0.02	0.48 ± 0.08	0.46 ± 0.06	1.66 ± 0.42	1.08 ± 0.13	0.11 ± 0.01	0.07 ± 0.02	0.13 ± 0.02	0.47 ± 0.11	0.44 ± 0.05
AA	0.75 ± 0.04	1.00 ± 0.08	1.56 ± 0.36	1.75 ± 0.11	1.46 ± 0.22	5.83 ± 0.35	6.18 ± 0.47	6.20 ± 0.14	8.43 ± 0.22	7.04 ± 0.14
EPA	12.69 ± 1.44	11.05 ± 1.46	11.21 ± 1.47	5.85 ± 0.41	7.69 ± 0.97	19.09 ± 0.97	16.69 ± 1.21	16.73 ± 0.56	9.58 ± 0.56	11.38 ± 0.54
22:2ω11 (ω9)	1.46 ± 0.27	1.43 ± 0.34	2.03 ± 0.44	1.10 ± 0.36	1.03 ± 0.18	4.36 ± 0.59	4.37 ± 0.40	4.85 ± 0.66	3.31 ± 0.33	2.24 ± 0.69
22:2 NMI				4.09 ± 0.85	7.44 ± 0.92				12.97 ± 0.59	13.25 ± 1.10
22:5ω3	0.61 ± 0.02	0.67 ± 0.03	0.88 ± 0.04	0.87 ± 0.27	0.61 ± 0.05	2.18 ± 0.08	1.83 ± 0.19	1.89 ± 0.13	2.56 ± 0.19	1.73 ± 0.17
DHA	8.03 ± 0.45	12.24 ± 0.60	12.92 ± 0.32	4.58 ± 1.16	7.86 ± 1.15	27.30 ± 0.49	32.87 ± 0.61	31.27 ± 1.02	17.01 ± 0.91	16.85 ± 0.34
SFAs	19.42 ± 1.10	19.91 ± 1.22	23.63 ± 0.95	24.56 ± 1.34	22.51 ± 0.78	21.13 ± 0.53	20.49 ± 0.60	22.05 ± 0.56	23.05 ± 1.39	25.25 ± 0.99
MUFAs	49.57 ± 0.83	45.81 ± 0.53	37.60 ± 1.69	50.87 ± 1.92	46.22 ± 1.85	15.44 ± 0.91	13.25 ± 0.33	12.38 ± 0.91	17.31 ± 0.52	18.20 ± 0.30
PUFAs	31.00 ± 1.42	34.28 ± 1.29	38.78 ± 2.59	24.57 ± 2.98	31.27 ± 1.72	63.44 ± 0.53	66.25 ± 0.32	65.57 ± 0.55	59.64 ±1.89	56.55 ± 1.13

Table S2. Pair-wise test between stations in neutral and polar lipids of *B. glacialis*. Significant values are in **bold**. See Table 1 and Fig. 1 for station codes.

		Neutral lipids		Polar lipids	
Depth	Station pairs	*t*	P (perm)	*t*	P (perm)
Coastal	Sta. 1 x Sta. 2	1.74	**0.01**	1.53	**0.03**
	Sta. 1 x Sta. 3	2.67	**0.01**	2.48	**0.01**
	Sta. 2 x Sta. 3	1.73	0.05	1.42	0.09
Bathyal	Sta. 4 x Sta. 5	1.43	0.12[a]	2.30	**0.01**

[a] Monte-Carlo P

Table S3. Fatty acid contribution to total dissimilarity (%) of neutral and polar lipid composition among significantly different *B. glacialis* populations (See Tables 3 and S2 for test results). In each combination, fatty acids are listed in order of decreasing contribution. AA: arachidonic acid, 20:4ω6; EPA: eicosapentanoic acid, 20:5ω3; DHA: docosahexaenoic acid, 22:6ω3. 20:2ω9 (ω7), and 22:2ω11 (ω9): position of double bond is uncertain. See Table 1 and Fig. 1 for station codes.

Neutral lipids			Polar lipids		
Station pairs	FA	Contribution (%)	Station pairs	FA	Contribution (%)
Sta. 1 x Sta. 2	Total	4.55	Sta. 1 x Sta. 2	Total	3.41
	i-16:0	6.50		20:2ω9 (ω7)	9.06
	i-18:0	6.45		22:1ω9	6.76
	18:1ω11	6.15		20:4ω3	6.46
	16:3ω4	5.65		16:2ω4	4.86
	DHA	5.39		16:1ω7	4.75
	EPA	4.31		DHA	4.44
	16:2ω6	3.71		22:2ω11 (ω9)	4.03
	22:2ω11(ω9)	3.60		EPA	3.72
	18:4ω3	3.39		22:3ω6	3.31
	18:1ω5	3.02		22:5ω3	3.07
	22:1ω11	2.80			
Sta. 1 x Sta. 3	Total	7.58	Sta. 1 x Sta. 3	Total	3.43
	18:1ω11	6.92		20:2ω9 (ω7)	19.71
	i-16:0	5.95		16:1ω7	7.70
	20:4ω3	5.65		22:2ω11 (ω9)	4.78
	i-18:0	5.54		18:4ω3	3.44
	16:1ω9	5.16		18:1ω7	3.34
	16:1ω7	4.38		DHA	3.25
	DHA	3.69		EPA	2.99
	20:2ω6	3.54		22:3ω6	2.99
	20:3ω6	2.93		18:2ω3	2.96
	AA	2.91			
	18:2ω3	2.88	Sta. 4 x Sta. 5	Total	5.56
	22:1ω11	2.83		18:1ω11	18.84
				16:1ω9	10.13
				22:1ω11	4.68
				22:2ω11 (ω9)	4.56
				16:2ω4	4.55
				18:4ω3	3.77
				20:1ω9	3.25
				21:5ω3	2.91

Table S4. Results of 2-way nested analyses of variance (ANOVAs) testing the effect of Depth (Z) and Station (Sta.) nested within Depth on the fatty acids 16:4ω1 and EPA (eicosapentanoic acid, 20:5ω3) markers of diatoms, 18:4ω3 and DHA (docosahexaenoic acid, 22:6ω3) markers of dinoflagellates, Σ20:1 + 22:1 (sum of 20:1ω11 + 20:1ω9 + 22:1ω11 + 22:1ω9) markers of zooplankton, and SFA_{bact} (sum of 15:0 + 17:0 + *i*-15:0 + *i*-17:0) markers of bacteria in neutral lipids of *B. glacialis*. Significant values are in **bold**; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source of variation	df	16:4ω1 MS	F	df	EPA MS	F
Z	1	0.30	1.56	1	118.99	**23.06****
Sta. (Z)	3	0.21	**6.15****	3	4.86	0.59
Residual	18	0.03		18	8.18	

Source of variation	df	18:4ω3 MS	F	df	DHA MS	F
Z	1	9.47	**149.30*****	1	117.47	4.26
Sta. (Z)	3	0.04	0.11	3	30.08	**11.30*****
Residual	18	0.34		18	2.66	

Source of variation	df	Σ20:1 + 22:1 MS	F	df	SFA_{bact} MS	F
Z	1	91.86	**25.95***	1	2.57	**29.39****
Sta. (Z)	3	3.83	**6.40****	3	0.07	0.29
Residual	18	0.60		18	0.25	

Table S5. Results of 2-way nested analyses of variance (ANOVAs) testing the effect of Depth (Z) and Station (Sta.) nested within Depth on unsaturation index (PUI), and the sum of saturated fatty acids (SFAs), monounsaturated fatty acids (MUFAs), polyunsaturated fatty acids (PUFAs) and essential fatty acids (EFAs) in polar lipids of *B. glacialis*. Significant values are in **bold**; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source of variation	df	PUI MS	F	df	SFAs MS	F	df	MUFAs MS	F
Z	1	34785.30	**108.85****	1	47.74	8.56	1	93.33	**10.72***
Sta. (Z)	3	326.76	2.82	3	5.64	1.54	3	8.84	**4.02***
Residual	19	115.71		19	3.67		19	2.20	

Source of variation	df	PUFAs MS	F	df	EFAs MS	F
Z	1	272.55	**19.46***	1	1995.54	**195.08*****
Sta. (Z)	3	14.31	2.70	3	10.41	2.08
Residual	19	5.30		19	5.00	