The following supplement accompanies the article

Use of stable isotopes and trace elements to determine harvest composition and wintering assemblages of belugas at a contemporary ecological scale

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Supplement. Further data on seasonal and regional variation of beluga isotopic signatures and trace element concentrations

Table S1. Isotopic signatures (mean ± SD) for belugas seasonally caught in BI: Belcher Islands, EHB and WHB: eastern and western Hudson Bay, FB: Foxe Basin, HSN and HSS: Hudson Strait North and South, JB: James Bay, UB: Ungava Bay, CS: Cumberland Sound

Region	Season	Female			Male		
		N	$\delta^{13}C$	$\delta^{15}N$	N	$\delta^{13}C$	$\delta^{15}N$
BI	Spring	63	-18.0 ± 0.5	15.5 ± 0.3	70	-17.8 ± 0.6	15.7 ± 0.4
	Summer	2	-17.8 ± 0.2	15.7 ± 0.2	5	-17.8 ± 0.3	15.7 ± 0.3
	Fall	1	-17.2	15.7	18	-17.4 ± 0.5	16.1 ± 0.3
	Global	**75**	**-18.0 ± 0.5**	**15.6 ± 0.3**	**113**	**-17.6 ± 0.6**	**15.8 ± 0.4**
CS	Spring	12	-17.6 ± 0.4	16.3 ± 0.4	15	-17.4 ± 0.3	16.5 ± 0.6
	Summer	11	-17.5 ± 0.4	16.3 ± 0.4	25	-17.4 ± 0.4	16.2 ± 0.4
	Fall	0	-	-	0	-	-
	Global	**25**	**-17.6 ± 0.4**	**16.2 ± 0.4**	**41**	**-17.4 ± 0.4**	**16.3 ± 0.5**
EHB	Spring	4	-17.0 ± 0.1	15.7 ± 0.1	4	-17.1 ± 0.3	15.8 ± 0.2
	Summer	31	-17.1 ± 0.3	15.7 ± 0.4	42	-16.9 ± 0.3	15.8 ± 0.3
	Fall	2	-17.2 ± 0.4	15.9 ± 0.4	8	-17.2 ± 0.2	15.9 ± 0.4
	Global	**42**	**-17.1 ± 0.3**	**15.7 ± 0.4**	**59**	**-17.0 ± 0.3**	**15.8 ± 0.3**
FB	Spring	0	-	-	0	-	-
	Summer	9	-17.2 ± 0.3	16.4 ± 0.4	19	-17.1 ± 0.4	16.5 ± 0.2
	Fall	8	-17.2 ± 0.2	16.3± 0.1	33	-17.2 ± 0.4	16.5 ± 0.3
	Global	**17**	**-17.2 ± 0.3**	**16.3 ± 0.3**	**53**	**-17.2 ± 0.4**	**16.5 ± 0.3**
HSN	Spring	21	-17.3 ± 0.3	15.9 ± 0.2	4	-17.2 ± 0.5	15.7 ± 0.5
	Summer	0	-	-	0	-	-
	Fall	11	-17.4 ± 0.3	16.5 ± 0.3	22	-17.3 ± 0.2	16.6 ± 0.4
	Global	**33**	**-17.4 ± 0.3**	**16.1 ± 0.4**	**26**	**-17.2 ± 0.2**	**16.6 ± 0.5**
HSS	Spring	83	-17.3 ± 0.3	15.6 ± 0.4	71	-17.1 ± 0.3	15.8 ± 0.4
	Summer	10	-17.2 ± 0.3	15.5 ± 0.2	7	-17.2 ± 0.4	15.9 ± 0.4
	Fall	61	-17.2 ± 0.3	15.8 ± 0.3	87	-17.2 ± 0.3	16.1 ± 0.3
	Global	**166**	**-17.3 ± 0.3**	**15.7 ± 0.4**	**184**	**-17.2 ± 0.3**	**16.0 ± 0.4**
JB	Spring	1	-18.1	15.7	1	-17.7	16.0

	Summer	11	-18.4 ± 1.2	15.4 ± 0.8	20	-17.9 ± 0.8	15.4 ± 0.7
	Fall	5	-17.8 ± 0.1	15.5 ± 0.1	6	-17.9 ± 0.1	15.5 ± 0.1
	Global	**12**	**-18.4 ± 1.2**	**15.4 ± 0.7**	**28**	**-17.9 ± 0.7**	**15.5 ± 0.6**
UB	Spring	11	-17.2 ± 0.5	15.6 ± 0.4	9	-17.2 ± 0.2	16.0 ± 0.6
	Summer	7	-17.2 ± 0.4	15.7 ± 0.5	19	-17.1 ± 0.3	16.0 ± 0.3
	Fall	0	-	-	2	-17.0 ± 0.8	15.7 ± 0.5
	Global	**25**	**-17.1 ± 0.4**	**15.7 ± 0.4**	**33**	**-17.2 ± 0.3**	**16.0 ± 0.4**
WHB	Spring	0	-	-	0	-	-
	Summer	41	-17.2 ± 0.3	16.2 ± 0.3	53	-17.2 ± 0.4	16.5 ± 0.4
	Fall	1	-16.8	15.8	2	-18.0 ± 1.0	16.7 ± 0.2
	Global	**42**	**-17.2 ± 0.3**	**16.2 ± 0.4**	**58**	**-17.2 ± 0.4**	**16.6 ± 0.4**

Table S2. Trace element concentrations (µg g^{-1} dry weight) in beluga skin from various regions and seasons (mean ± SD). For abbreviations see Table S1

REGION	SEASON	N	VANADIUM	CHROMIUM	IRON	MANGANESE	NICKEL	COPPER
BI	Spring	60	0.301 ± 0.113	3.540 ± 2.215	84.16 ± 47.87	0.454 ± 0.187	0.845 ± 0.405	118.54 ± 204.37
	Summer	1	0.131	7.614	124.81	0.456	0.941	1 429.21
	Fall	5	0.242 ± 0.086	7.389 ± 5.449	120.44 ± 40.21	0.517 ± 0.209	1.941 ± 2.307	96.96 ± 96.28
	Global	**71**	**0.317 ± 0.141**	**4.240 ± 3.230**	**91.00 ± 48.20**	**0.467 ± 0.197**	**1.060 ± 1.264**	**129.90 ± 243.30**
CS	Spring	7	0.446 ± 0.407	2.887 ± 1.196	86.35 ± 14.47	0.332 ± 0.081	0.984 ± 0.274	77.89 ± 62.75
	Summer	12	0.522 ± 0.369	4.252 ± 4.177	95.03 ± 30.77	0.414 ± 0.190	0.980 ± 0.561	110.24 ± 161.32
	Global	**22**	**0.511 ± 0.371**	**4.150 ± 3.890**	**95.30 ± 29.00**	**0.421 ± 0.215**	**0.970 ± 0.442**	**126.80 ± 212.40**
EHB	Spring	1	0.617	9.283	861.87	3.572	2.979	867.91
	Summer	6	0.490 ± 0.171	4.425 ± 2.710	136.40 ± 25.43	0.617 ± 0.273	1.542 ± 1.111	245.93 ± 390.86
	Global	**7**	**0.508 ± 0.163**	**5.120 ± 3.080**	**240.00 ± 275.20**	**1.039 ± 1.145**	**1.750 ± 1.151**	**334.80 ± 427.30**
FB	Summer	2	0.313 ± 0.088	12.972 ± 4.834	220.71 ± 89.12	0.936 ± 0.276	1.194 ± 0.735	459.50 ± 630.62
	Fall	14	0.279 ± 0.144	4.645 ± 3.316	128.61 ± 32.54	0.505 ± 0.325	0.964 ± 0.547	175.60 ± 309.67
	Global	**17**	**0.278 ± 0.134**	**5.590 ± 4.260**	**140.90 ± 47.90**	**0.546 ± 0.337**	**0.970 ± 0.539**	**204.30 ± 335.20**
HSN	Spring	2	0.252 ± 0.039	3.347 ± 2.685	114.21 ± 29.83	0.306 ± 0.083	0.587 ± 0.577	14.12 ± 3.070
	Fall	14	0.260 ± 0.097	6.179 ± 8.194	165.26 ± 80.09	0.625 ± 0.525	0.729 ± 0.626	111.07 ± 160.29
	Global	**17**	**0.261 ± 0.088**	**5.840 ± 7.480**	**157.00 ± 74.90**	**0.572 ± 0.488**	**0.690 ± 0.589**	**95.40 ± 148.70**
HSS	Spring	42	0.737± 0.449	4.436 ± 3.866	112.76 ± 49.95	0.513 ± 0.319	1.240 ± 0.684	169.12 ± 270.81
	Summer	3	0.624 ± 0.182	4.178 ± 2.425	121.98 ± 17.06	0.520 ± 0.275	1.575 ± 0.732	537.98 ± 899.48
	Fall	9	1.121 ± 0.740	4.021 ± 1.849	95.20 ± 31.36	0.477 ± 0.243	1.023 ± 0.296	121.48 ± 236.17
	Global	**58**	**0.802 ± 0.510**	**4.180 ± 3.450**	**106.70 ± 46.60**	**0.490 ± 0.297**	**1.190 ± 0.631**	**171.60 ± 312.70**
JB	Summer	9	2.491 ± 1.678	21.168 ± 32.878	282.16 ± 218.69	2.486 ± 3.927	8.265 ± 17.241	57.17 ± 85.93
	Global	**9**	**2.491 ± 1.678**	**21.168 ± 32.878**	**282.16 ± 218.69**	**2.486 ± 3.927**	**8.265 ± 17.241**	**57.17 ± 85.92**
UB	Spring	4	1.097 ± 0.193	2.918 ± 1.220	138.15 ± 36.80	0.493 ± 0.179	1.591 ± 1.197	19.49 ± 7.677
	Summer	5	0.436 ± 0.100	2.949 ± 1.207	126.07 ± 36.69	0.734 ± 0.282	1.406 ± 0.638	93.94 ± 145.78
	Global	**9**	**0.730 ± 0.374**	**2.940 ± 1.130**	**131.40 ± 35.00**	**0.627 ± 0.261**	**1.490 ± 0.866**	**60.90 ± 110.40**
WHB	Summer	72	0.272 ± 0.221	3.753 ± 2.876	113.88 ± 39.56	0.479 ± 0.304	0.955 ± 0.532	95.25 ± 175.04
	Fall	3	0.224 ± 0.087	3.482 ± 1.430	108.10 ± 19.86	0.391 ± 0.185	1.884 ± 1.658	44.97 ± 18.24
	Global	**78**	**0.272 ± 0.218**	**3.700 ± 2.790**	**113.10 ± 38.30**	**0.471 ± 0.296**	**0.980 ± 0.609**	**91.90 ± 168.60**

Table S2. (continued)

REGION	SEASON	N	SELENIUM	LITHIUM	BERYLLIUM	BORON	SODIUM	MAGNESIUM
BI	Spring	57	6.620 ± 2.605	0.019 ± 0.006	0.007 ± 0.005	1.133 ± 0.527	2 650.9 ± 355.83	781.30 ± 142.48
	Summer	1	7.837	0.025	0.001	0.400	2 050.0	583.00
	Fall	5	5.571 ± 1.739	0.015 ± 0.005	0.009 ± 0.015	0.224 ± 0.091	1 926.4 ± 442.36	593.60 ± 72.83
	Global	**71**	**6.300 ± 2.530**	**0.018 ± 0.006**	**0.006 ± 0.006**	**1.040 ± 0.575**	**2 587.0 ± 414.00**	**760.60 ± 139.80**
CS	Spring	7	7.259 ± 4.865	0.016 ± 0.003	0.002 ± 0.001	0.934 ± 0.296	2 713.4 ± 474.73	811.6 ± 101.89
	Summer	12	7.017 ± 4.768	0.018 ± 0.004	0.002 ± 0.001	0.841 ± 0.260	2 823.7 ± 546.90	799.17 ± 117.42
	Global	**22**	**7.230 ± 4.440**	**0.017 ± 0.004**	**0.002 ± 0.001**	**0.890 ± 0.343**	**2 780.0 ± 480.00**	**789.60 ± 112.00**
EHB	Spring	1	1.509	0.051	0.002	0.263	799.00	880.00
	Summer	6	8.501 ± 2.656	0.023 ± 0.019	0.001 ± 0.001	0.665 ± 0.341	2 570.0 ± 775.15	581.67 ± 297.28
	Global	**7**	**7.500 ± 3.590**	**0.027 ± 0.020**	**0.001 ± 0.001**	**0.610 ± 0.347**	**2 317.0 ± 974.00**	**624.30 ± 293.90**
FB	Summer	2	6.095 ± 0.489	0.020 ± 0.011	0.003 ± 0.001	0.815 ± 0.196	2 107.5 ± 94.05	717.50 ± 7.778
	Fall	14	4.952 ± 1.893	0.030 ± 0.029	0.001 ± 0.001	1.089 ± 0.291	2 369.8 ± 410.94	747.57 ± 127.70
	Global	**17**	**5.140 ± 1.760**	**0.028 ± 0.027**	**0.001 ± 0.001**	**1.060 ± 0.284**	**2 359.0 ± 391.00**	**746.10 ± 115.90**
HSN	Spring	2	8.614 ± 1.024	0.014 ± 0.004	0.003 ± 0.001	1.031 ± 0.129	2 434.0 ± 36.77	845.50 ± 252.44
	Fall	14	4.707 ± 2.111	0.019 ± 0.009	0.001 ± 0.001	0.927 ± 0.342	2 808.1 ± 1 554.4	923.89 ± 831.82
	Global	**17**	**5.180 ± 2.320**	**0.018 ± 0.008**	**0.002 ± 0.001**	**1.000 ± 0.395**	**2 743.0 ± 1 409.0**	**911.50 ± 753.00**
HSS	Spring	42	13.906 ± 5.123	0.040 ± 0.020	0.053 ± 0.064	1.146 ± 0.506	2 623.8 ± 513.81	765.43 ± 194.53
	Summer	3	17.520 ± 3.840	0.033 ± 0.013	0.001 ± 0.000	1.018 ± 0.288	2 257.3 ± 50.90	682.33 ± 69.18
	Fall	9	8.760 ± 2.421	0.031 ± 0.007	0.020 ± 0.020	0.968 ± 0.217	2 492.0 ± 421.11	691.50 ± 103.52
	Global	**58**	**12.950 ± 5.130**	**0.037 ± 0.018**	**0.042 ± 0.058**	**1.120 ± 0.469**	**2 612.0 ± 498.00**	**745.60 ± 175.90**
JB	Summer	9	2.465 ± 1.926	0.033 ± 0.025	0.003 ± 0.003	1.250 ± 0.975	28 597.5 ± 33 230.7	671.67 ± 384.69
	Global	**9**	**2.465 ± 1.926**	**0.033 ± 0.025**	**0.003 ± 0.003**	**1.250 ± 0.975**	**28 598.5 ± 33 230.7**	**671.67 ± 384.69**
UB	Spring	4	11.089 ± 4.249	0.027 ± 0.015	0.002 ± 0.003	0.918 ± 0.335	2 229.4 ± 197.09	651.37 ± 165.50
	Summer	5	10.900 ± 2.083	0.025 ± 0.020	0.001 ± 0.000	0.498 ± 0.366	2 420.0 ± 571.02	616.60 ± 165.94
	Global	**9**	**10.980 ± 2.990**	**0.026 ± 0.017**	**0.001 ± 0.002**	**0.680 ± 0.398**	**2 335.0 ± 433.00**	**632.10 ± 156.10**
WHB	Summer	72	8.040 ± 2.852	0.016 ± 0.008	0.001 ± 0.001	0.572 ± 0.355	2 620.8 ± 580.66	711.26 ± 219.09
	Fall	3	4.640 ± 4.039	0.013 ± 0.002	0.015 ± 0.020	0.550 ± 0.305	1 872.3 ± 379.55	599.33 ± 68.41
	Global	**78**	**7.900 ± 2.920**	**0.016 ± 0.007**	**0.001 ± 0.004**	**0.580 ± 0.355**	**2 595.0 ± 598.0**	**707.70 ± 214.50**

Table S2. (continued)

REGION	SEASON	N	ALUMINUM	POTASSIUM	CALCIUM	TITANIUM	ZINC	MOLYBDENUM
BI	Spring	57	5.429 ± 4.034	6 565.3 ± 3 333.3	337.45 ± 66.14	5.172 ± 2.565	268.06 ± 32.76	0.053 ± 0.033
	Summer	1	2.057	6.969	228.00	6.268	292.80	0.041
	Fall	5	3.229 ± 0.900	1 567.6 ± 3 489.1	240.60 ± 44.25	9.576 ± 3.783	264.19 ± 10.79	0.040 ± 0.009
	Global	**71**	**59.01 ± 455.13**	**6 030.0 ± 3 616.0**	**328.80 ± 76.20**	**5.530 ± 2.810**	**268.90 ± 37.10**	**0.052 ± 0.030**
CS	Spring	7	4.020 ± 2.591	8.559 ± 1.808	326.43 ± 84.63	10.82 ± 1.031	269.64 ± 20.55	0.037 ± 0.029
	Summer	12	7.491 ± 12.16	1 746.8 ± 3 178.1	306.83 ± 47.55	11.42 ± 2.879	281.42 ± 27.29	0.051 ± 0.045
	Global	**22**	**6.070 ± 9.067**	**957.0 ± 2 465.0**	**312.70 ± 61.60**	**10.98 ± 2.250**	**280.10 ± 29.60**	**0.045 ± 0.040**
EHB	Spring	1	42.47	6236.0	181.00	18.88	71.19	0.115
	Summer	6	5.705 ± 1.569	9 881.7 ± 1 940.7	351.50 ± 236.73	22.70 ± 5.053	254.30 ± 28.50	0.087 ± 0.033
	Global	**7**	**10.96 ± 13.97**	**9 361.0 ± 2 244.0**	**327.10 ± 225.50**	**22.16 ± 4.830**	**228.10 ± 73.90**	**0.091 ± 0.032**
FB	Summer	2	5.886 ± 3.126	11 112.5 ± 1 293.3	251.00 ± 12.73	2.231 ± 0.218	277.96 ± 39.77	0.080 ± 0.049
	Fall	14	12.04 ± 22.93	8 386.5 ± 712.06	437.64 ± 735.86	2.429 ± 1.576	259.63 ± 25.19	0.064 ± 0.031
	Global	**17**	**10.88 ± 20.85**	**8 706.0 ± 1 156.0**	**404.90 ± 667.30**	**2.360 ± 1.440**	**261.90 ± 25.50**	**0.067 ± 0.031**
HSN	Spring	2	8.117 ± 7.129	10 917.8 ± 1 207.4	344.75 ± 136.12	3.192 ± 1.598	264.37 ± 11.65	0.061 ± 0.035
	Fall	14	7.163 ± 8.921	11 861.3 ± 14 646.1	300.46 ± 94.72	3.093 ± 1.978	297.72 ± 57.00	0.094 ± 0.103
	Global	**17**	**7.100 ± 8.278**	**11 549.0 ± 13 233.0**	**307.20 ± 93.20**	**2.040 ± 1.850**	**291.90 ± 53.10**	**0.086 ± 0.095**
HSS	Spring	42	20.26 ± 73.32	10 384.2 ± 2 534.8	353.15 ± 158.93	26.95 ± 6.052	292.46 ± 102.07	0.236 ± 0.204
	Summer	3	6.334 ± 3.318	11 778.7 ± 1 987.4	294.33 ± 30.29	22.71 ± 1.844	291.83 ± 8.535	0.100 ± 0.023
	Fall	9	7.841 ± 7.534	11 222.9 ± 1 302.5	222.67 ± 27.95	26.83 ± 3.205	254.99 ± 14.44	0.155 ± 0.106
	Global	**58**	**16.44 ± 62.57**	**10 359.0 ± 2 454.0**	**329.20 ± 145.1**	**25.87 ± 6.880**	**286.40 ± 88.00**	**0.203 ± 0.187**
JB	Summer	9	19.64 ± 25.86	5 771.1 ± 4 027.9	324.61 ± 149.53	25.05 ± 7.516	169.69 ± 92.57	0.371 ± 0.580
	Global	**9**	**19.64 ± 25.86**	**5 771.0 ± 4 028.0**	**324.60 ± 149.50**	**25.05 ± 7.520**	**169.70 ± 92.60**	**0.371 ± 0.580**
UB	Spring	4	34.83 ± 26.70	9 495.4 ± 1 242.7	263.13 ± 62.24	18.13 ± 8.341	247.85 ± 43.19	0.120 ± 0.113
	Summer	5	12.88 ± 6.696	10 637.2 ± 1 081.0	306.60 ± 66.05	23.26 ± 4.664	338.35 ± 26.72	0.075 ± 0.016
	Global	**9**	**22.64 ± 20.58**	**10 130.0 ± 1 235.0**	**287.30 ± 64.50**	**20.98 ± 6.650**	**298.10 ± 57.70**	**0.095 ± 0.074**
WHB	Summer	72	12.99 ± 21.02	9 123.6 ± 3 723.9	737.09 ± 827.70	12.52 ± 6.300	286.86 ± 36.80	0.096 ± 0.080
	Fall	3	6.576 ± 2.078	7 128.0 ± 201.86	684.33 ± 672.70	12.53 ± 9.076	321.49 ± 11.71	0.190 ± 0.173
	Global	**78**	**12.55 ± 20.27**	**9 041.0 ± 3 601.0**	**745.10 ± 821.40**	**12.50 ± 6.240**	**287.60 ± 37.30**	**0.099 ± 0.084**

Table S2. (continued)

REGION	SEASON	N	SILVER	CADMIUM	TIN	ANTIMONY	BARIUM	THALLIUM	LEAD
BI	Spring	57	0.076 ± 0.137	0.045 ± 0.034	16.626 ± 16.59	0.020 ± 0.025	0.631 ± 2.289	0.005 ± 0.003	0.115 ± 0.055
	Summer	1	0.074	0.020	78.19	0.027	0.146	0.003	0.149
	Fall	5	0.055 ± 0.010	0.047 ± 0.036	15.266 ± 14.12	0.010 ± 0.022	0.414 ± 0.292	0.005 ± 0.004	0.079 ± 0.036
	Global	**71**	**0.073 ± 0.122**	**0.044 ± 0.032**	**17.05 ± 17.10**	**0.020 ± 0.024**	**0.554 ± 2.055**	**0.005 ± 0.003**	**0.111 ± 0.057**
CS	Spring	5	0.047 ± 0.015	0.014 ± 0.009	7.974 ± 7.050	0.002 ± 0.004	0.439 ± 0.518	0.003 ± 0.001	0.083 ± 0.037
	Summer	12	0.132 ± 0.140	0.022 ± 0.010	8.458 ± 8.922	0.006 ± 0.012	0.488 ± 0.447	0.003 ± 0.001	0.112 ± 0.049
	Global	**22**	**0.097 ± 0.110**	**0.020 ± 0.010**	**9.980 ± 14.00**	**0.005 ± 0.010**	**0.456 ± 0.435**	**0.003 ± 0.001**	**0.115 ± 0.068**
EHB	Spring	1	0.045	0.100	48.13	0.059	0.162	0.002	0.97
	Summer	6	0.036 ± 0.017	0.024 ± 0.014	29.00 ± 33.81	0.019 ± 0.015	0.186 ± 0.112	0.004 ± 0.003	0.169 ± 0.069
	Global	**7**	**0.037 ± 0.016**	**0.035 ± 0.031**	**31.73 ± 31.70**	**0.025 ± 0.020**	**0.182 ± 0.103**	**0.004 ± 0.003**	**0.283 ± 0.309**
FB	Summer	2	0.044 ± 0.021	0.016 ± 0.004	39.84 ± 50.75	0.023 ± 0.016	1.178 ± 1.411	0.003 ± 0.001	0.092 ± 0.023
	Fall	14	0.053 ± 0.034	0.017 ± 0.014	15.83 ± 20.52	0.012 ± 0.010	0.324 ± 0.522	0.002 ± 0.001	0.109 ± 0.084
	Global	**17**	**0.050 ± 0.032**	**0.016 ± 0.013**	**18.33 ± 23.90**	**0.013 ± 0.011**	**0.421 ± 0.654**	**0.002 ± 0.001**	**0.107 ± 0.076**
HSN	Spring	2	0.060 ± 0.013	0.050 ± 0.062	4.225 ± 0.980	0.010 ± 0.007	0.553 ± 0.571	0.003 ± 0.001	0.377 ± 0.350
	Fall	14	0.218 ± 0.628	0.018 ± 0.009	11.24 ± 8.60	0.031 ± 0.081	0.242 ± 0.120	0.003 ± 0.001	0.495 ± 1.307
	Global	**17**	**0.189 ± 0.570**	**0.022 ± 0.020**	**10.13 ± 8.200**	**0.027 ± 0.074**	**0.283 ± 0.207**	**0.003 ± 0.001**	**0.467 ± 1.184**
HSS	Spring	42	0.075 ± 0.046	0.212 ± 0.214	19.80 ± 19.60	0.127 ± 0.130	0.400 ± 0.259	0.025 ± 0.025	0.299 ± 0.250
	Summer	3	0.058 ± 0.032	0.056 ± 0.025	34.49 ± 48.26	0.043 ± 0.019	0.183 ± 0.051	0.008 ± 0.002	0.484 ± 0.312
	Fall	9	0.121 ± 0.110	0.120 ± 0.106	13.43 ± 8.93	0.087 ± 0.071	0.339 ± 0.259	0.021 ± 0.018	0.417 ± 0.309
	Global	**58**	**0.079 ± 0.061**	**0.173 ± 0.194**	**19.44 ± 20.00**	**0.108 ± 0.118**	**0.367 ± 0.251**	**0.022 ± 0.023**	**0.311 ± 0.263**
JB	Summer	9	0.066 ± 0.031	0.021 ± 0.019	18.68 ± 17.14	0.023 ± 0.025	0.324 ± 0.253	0.002 ± 0.001	0.210 ± 0.196
	Global	**9**	**0.066 ± 0.031**	**0.021 ± 0.019**	**18.68 ± 17.10**	**0.023 ± 0.025**	**0.324 ± 0.253**	**0.002 ± 0.001**	**0.210 ± 0.196**
UB	Spring	4	0.044 ± 0.015	0.087 ± 0.074	6.181 ± 2.532	0.038 ± 0.052	0.468 ± 0.187	0.016 ± 0.017	0.168 ± 0.087
	Summer	5	0.067 ± 0.063	0.041 ± 0.021	16.57 ± 18.45	0.016 ± 0.010	0.244 ± 0.078	0.006 ± 0.003	0.376 ± 0.360
	Global	**9**	**0.057 ± 0.047**	**0.061 ± 0.054**	**11.95 ± 14.20**	**0.026 ± 0.035**	**0.343 ± 0.173**	**0.010 ± 0.012**	**0.284 ± 0.282**
WHB	Summer	72	0.202 ± 0.583	0.025 ± 0.031	26.08 ± 14.51	0.019 ± 0.014	0.252 ± 0.231	0.001 ± 0.001	0.203 ± 0.441
	Fall	3	0.108 ± 0.037	0.099 ± 0.162	22.34 ± 6.035	0.078 ± 0.093	0.243 ± 0.122	0.009 ± 0.012	0.087 ± 0.021
	Global	**78**	**0.198 ± 0.560**	**0.027 ± 0.042**	**25.79 ± 14.00**	**0.021 ± 0.024**	**0.254 ± 0.231**	**0.002 ± 0.003**	**0.194 ± 0.425**

Table S2. (continued)

REGION	SEASON	N	BISMUTH	URANIUM
BI	Spring	57	0.031 ± 0.040	0.026 ± 0.017
	Summer	1	0.001	0.048
	Fall	5	0.011 ± 0.018	0.045 ± 0.009
	Global	**71**	**0.026 ± 0.037**	**0.028 ± 0.018**
CS	Spring	7	0.006 ± 0.014	0.041 ± 0.010
	Summer	12	0.007 ± 0.007	0.036 ± 0.018
	Global	**22**	**0.012 ± 0.022**	**0.038 ± 0.015**
EHB	Spring	1	0.359	0.001
	Summer	6	0.053 ± 0.021	0.107 ± 0.115
	Global	**7**	**0.097 ± 0.117**	**0.092 ± 0.113**
FB	Summer	2	0.010 ± 0.007	0.001 ± 0.000
	Fall	14	0.108 ± 0.344	0.001 ± 0.001
	Global	**17**	**0.093 ± 0.312**	**0.001 ± 0.001**
HSN	Spring	2	0.006 ± 0.003	0.001 ± 0.001
	Fall	14	0.012 ± 0.024	0.001 ± 0.000
	Global	**17**	**0.012 ± 0.022**	**0.001 ± 0.000**
HSS	Spring	42	0.059 ± 0.043	0.500 ± 0.544
	Summer	3	0.041 ± 0.017	0.231 ± 0.007
	Fall	9	0.063 ± 0.041	0.372 ± 0.358
	Global	**58**	**0.056 ± 0.041**	**0.433 ± 0.500**
JB	Summer	9	0.006 ± 0.005	0.001 ± 0.001
	Global	**9**	**0.006 ± 0.005**	**0.001 ± 0.001**
UB	Spring	4	0.042 ± 0.014	0.339 ± 0.326
	Summer	5	0.052 ± 0.044	0.176 ± 0.104
	Global	**9**	**0.047 ± 0.033**	**0.248 ± 0.229**
WHB	Summer	72	0.021 ± 0.028	0.002 ± 0.005
	Fall	3	0.014 ± 0.001	0.165 ± 0.286
	Global	**78**	**0.020 ± 0.027**	**0.009 ± 0.056**