The following supplement accompanies the article

Importance of ice algae and pelagic phytoplankton as food sources revealed by fatty acids trophic markers in a keystone species (*Mytilus trossulus*) from the High Arctic

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Table S1. Fatty acid (FA) composition of neutral and polar lipids from *Mytilus trossulus* collected between July and September on 5 different days. Each FA is presented as % of total fatty acids (average ± SE).

Natural lipids from hepatopancreas tissue					
Sample	July 6 *n* = 5	July 27 *n* = 5	August 11 *n* = 5	August 27 *n* = 5	September 11 *n* = 5
14:0	5.43 ± 0.10	4.60 ± 0.11	6.69 ± 0.18	5.08 ± 0.11	5.03 ± 0.11
15:0	0.20 ± 0.01	0.31 ± 0.02	0.24 ± 0.02	0.35 ± 0.01	0.36 ± 0.01
16:0	10.08 ± 0.17	12.68 ± 0.35	12.94 ± 0.29	13.57 ± 0.23	12.13 ± 0.20
16:1ω7	21.54 ± 1.02	18.01 ± 1.32	9.15 ± 0.62	13.64 ± 0.55	16.15 ± 1.02
17:0	0.17 ± 0.01	0.29 ± 0.02	0.24 ± 0.03	0.31 ± 0.01	0.31 ± 0.02
17:1	0.28 ± 0.04	0.45 ± 0.03	0.65 ± 0.32	0.39 ± 0.05	0.50 ± 0.04
18:0	1.00 ± 0.07	1.25 ± 0.06	1.08 ± 0.08	1.30 ± 0.05	1.25 ± 0.06
18:1ω9	3.80 ± 0.17	7.59 ± 0.26	11.33 ± 0.42	9.43 ± 0.85	8.01 ± 0.41
18:2ω6	1.58 ± 0.09	3.80 ± 0.09	2.27 ± 0.18	4.24 ± 0.14	4.04 ± 0.12
18:3ω3	0.85 ± 0.06	2.63 ± 0.09	2.24 ± 0.08	2.61 ± 0.10	2.49 ± 0.04
18:4ω3	2.53 ± 0.15	5.51 ± 0.30	11.13 ± 0.29	6.32 ± 0.68	6.45 ± 0.29
20:1ω9	2.37 ± 0.13	4.14 ± 0.13	4.38 ± 0.19	3.78 ± 0.11	3.24 ± 0.13
20:2	0.33 ± 0.02	0.56 ± 0.03	0.46 ± 0.03	0.57 ± 0.04	0.53 ± 0.03
20:4ω6	0.81 ± 0.05	0.88 ± 0.09	0.71 ± 0.10	1.34 ± 0.07	1.10 ± 0.12
20:3ω3	0.14 ± 0.02	0.24 ± 0.03	0.37 ± 0.05	0.10 ± 0.06	0.29 ± 0.04
20:5ω3	40.48 ± 1.19	17.75 ± 0.77	8.43 ± 0.23	17.59 ± 0.75	18.62 ± 0.75
22:1ω9	0.36 ± 0.06	0.40 ± 0.06	0.22 ± 0.06	0.21 ± 0.02	0.33 ± 0.06
22:2	0.43 ± 0.03	0.63 ± 0.09	0.82 ± 0.12	0.58 ± 0.01	0.65 ± 0.04
22:6ω3	5.79 ± 0.36	17.15 ± 0.52	25.61 ± 0.44	17.90 ± 0.12	17.35 ± 0.23

Polar lipids from gill tissue					
Sample	July 6 *n* = 5	July 27 *n* = 5	August 11 *n* = 5	August 27 *n* = 5	September 11 *n* = 4
14:0	0.39 ± 0.05	0.60 ± 0.09	0.67 ± 0.06	0.72 ± 0.12	0.68 ± 0.04
15:0	0.19 ± 0.01	0.22 ± 0.02	0.19 ± 0.01	0.27 ± 0.02	0.29 ± 0.02
16:0	7.54 ± 0.77	8.10 ± 0.85	8.85 ± 0.32	10.96 ± 0.62	10.09 ± 0.35
16:1ω7	2.38 ± 0.16	3.53 ± 0.25	2.59 ± 0.19	2.57 ± 0.32	2.31 ± 0.41
17:0	0.90 ± 0.08	0.82 ± 0.08	0.95 ± 0.08	0.98 ± 0.07	0.97 ± 0.05
17:1	20.50 ± 2.63	24.18 ± 3.01	21.29 ± 1.98	12.95 ± 1.28	11.42 ± 0.65
18:0	4.74 ± 0.48	3.67 ± 0.34	5.21 ± 0.24	3.87 ± 0.20	3.54 ± 0.18
18:1ω9	1.56 ± 0.15	1.50 ± 0.05	1.79 ± 0.07	2.01 ± 0.19	1.65 ± 0.16
18:2ω6	3.66 ± 0.17	2.08 ± 0.34	1.69 ± 0.53	2.07 ± 0.34	2.52 ± 0.22
18:3ω3	0.29 ± 0.04	0.33 ± 0.03	0.32 ± 0.02	0.44 ± 0.05	0.38 ± 0.05
18:4ω3	1.57 ± 0.24	1.58 ± 0.19	0.98 ± 0.21	0.77 ± 0.09	0.70 ± 0.08
20:1ω9	6.52 ± 0.53	6.41 ± 0.40	6.83 ± 0.51	7.14 ± 0.24	7.21 ± 0.29
20:2	0.54 ± 0.07	0.54 ± 0.03	0.48 ± 0.06	0.53 ± 0.05	0.44 ± 0.02
20:4ω6	3.69 ± 0.28	4.12 ± 0.28	2.68 ± 0.19	5.70 ± 0.45	7.33 ± 0.12
20:3ω3	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
20:5ω3	14.88 ± 1.14	13.08 ± 1.59	12.97 ± 0.47	17.54 ± 0.47	16.60 ± 0.49
22:1ω9	0.16 ± 0.04	0.07 ± 0.05	0.03 ± 0.03	0.08 ± 0.03	0.05 ± 0.03
22:2	14.14 ± 1.13	10.63 ± 0.56	13.13 ± 1.14	9.83 ± 0.17	10.04 ± 0.14
22:6ω3	14.20 ± 1.75	17.06 ± 1.28	17.98 ± 0.31	21.60 ± 0.84	21.12 ± 0.70

Table S2. Results of pairwise tests on the dissimilarity of fatty acid composition between hepatopancreas and gill tissue in *Mytilus trossulus*. Significant *t* values are indicated by **bold.** *p*-values are calculated from the Monte Carlo method.

Sampling date	*t* value	p(perm)
July 6	**11.884**	0.0075
July 27	**10.351**	0.0082
August 11	**12.673**	0.0087
August 27	**10.992**	0.0001
September 11	**15.757**	0.0001

Table S3. Fatty acid contribution to dissimilarity (%) between hepatopancreas and gill tissue lipid composition.

Fatty acid	Contribution (%)	Cumulated (%)
C17:1	20.00	20.00
C16:1ω7	14.54	34.54
C22:2	11.98	46.52
C20:5ω3	9.10	55.63
C18:1ω9	7.06	62.69
C22:6ω3	5.96	68.65
C18:4ω3	5.87	74.52
C14:0	5.33	79.85
C20:4ω6	4.06	83.91
C16:0	3.65	87.57
C20:1ω9	3.60	91.16
C18:0	3.42	94.58
C18:3ω3	2.01	96.59
C18:2ω6	1.94	98.53
C17:0	0.74	99.27
C22:1ω9	0.26	99.53
C20:3ω3	0.25	99.78
C20:2	0.15	99.93
C15:0	0.07	100.00