

Dietary plasticity in the bivalve *Astarte moerchi* revealed by a multimarker study in two Arctic fjords

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Table S1. Fatty acid composition (mean % \pm SD) and total FA concentration ($\mu\text{g l}^{-1}$) in p-POM (pelagic Particulate Organic Matter) and i-POM (ice algae Particulate Organic Matter) in Young Sound (sites YS and YS1, Greenland) and Kongsfjorden (sites KF, KF1 and KF2, Svalbard). ES=Early Season, LS=Late Season, SFA=Saturated Fatty Acids, MUFA=Monounsaturated Fatty Acids, PUFA=Polyunsaturated Fatty Acids, BFA=Branched Fatty Acids.

	p-POM YS Early Season			p-POM KF2 Early Season			p-POM KF Late Season			i-POM YS1 June			i-POM KF1 May		
	n=4	\pm	SD	n=5	\pm	SD	n=3	\pm	SD	n=4	\pm	SD	n=3	\pm	SD
12:0	10.8	\pm	1.7	2.5	\pm	3.0	11.5	\pm	3.6	8.0	\pm	2.7	0.0	\pm	0.0
14:0	8.9	\pm	0.8	6.2	\pm	0.4	5.8	\pm	0.6	8.4	\pm	0.3	7.8	\pm	0.4
15:0	0.3	\pm	0.1	0.8	\pm	0.2	0.5	\pm	0.1	0.3	\pm	0.0	0.3	\pm	0.0
16:0	27.7	\pm	2.3	23.6	\pm	5.5	35.9	\pm	2.1	23.3	\pm	2.9	22.1	\pm	0.6
17:0	0.3	\pm	0.1	0.2	\pm	0.1	0.5	\pm	0.2	0.2	\pm	0.0	0.0	\pm	0.0
18:0	34.6	\pm	4.0	35.0	\pm	5.5	44.0	\pm	5.1	24.8	\pm	5.9	0.6	\pm	0.0
20:0	0.4	\pm	0.1	0.4	\pm	0.1	0.4	\pm	0.2	0.4	\pm	0.1	0.0	\pm	0.0
22:0	0.1	\pm	0.0	0.3	\pm	0.1	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd
24:0	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd
Σ SFA	83.2	\pm	7.2	69.0	\pm	11.8	98.6	\pm	0.7	65.4	\pm	6.7	31.0	\pm	0.3
16:1 ω 5	0.2	\pm	0.0	0.4	\pm	0.1	0.0	\pm	0.0	0.2	\pm	0.1	0.2	\pm	0.0
16:1 ω 7	3.8	\pm	1.2	9.4	\pm	3.9	0.2	\pm	0.2	24.1	\pm	3.9	52.0	\pm	0.3
16:1 ω 9	0.4	\pm	0.2	0.8	\pm	0.3	0.0	\pm	0.1	nd	\pm	nd	nd	\pm	nd
17:1 ω 9	0.1	\pm	0.0	0.1	\pm	0.1	0.0	\pm	0.0	0.0	\pm	0.0	0.0	\pm	0.0
18:1 ω 5	0.6	\pm	0.1	1.9	\pm	0.5	0.1	\pm	0.1	nd	\pm	nd	nd	\pm	nd
18:1 ω 7	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	0.3	\pm	0.1	0.3	\pm	0.0
18:1 ω 9	1.3	\pm	0.1	7.6	\pm	2.6	0.3	\pm	0.3	3.1	\pm	2.0	1.2	\pm	0.1
18:1 ω 11	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	0.1	\pm	0.1	0.3	\pm	0.0
20:1 ω 7	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd
20:1 ω 9	0.7	\pm	1.0	0.5	\pm	0.3	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd
22:1 ω 11	0.5	\pm	0.5	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd
24:1 ω 9	0.1	\pm	0.0	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd	0.0	\pm	0.0
Σ MUFA	7.7	\pm	2.7	20.7	\pm	6.6	0.6	\pm	0.6	27.9	\pm	3.9	54.0	\pm	0.2
16:2 ω 4	0.2	\pm	0.0	0.5	\pm	0.3	0.0	\pm	0.0	0.3	\pm	0.2	1.2	\pm	0.0
16:2 ω 6	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd	0.0	\pm	0.0	0.1	\pm	0.0
16:3 ω 4	0.2	\pm	0.1	0.3	\pm	0.3	0.0	\pm	0.0	0.2	\pm	0.1	0.3	\pm	0.0
16:4 ω 1	1.0	\pm	0.5	0.7	\pm	0.8	0.0	\pm	0.0	0.5	\pm	0.3	1.0	\pm	0.0
16:4 ω 3	0.2	\pm	0.0	0.2	\pm	0.1	0.0	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.0
18:2 ω 3	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	0.0	\pm	0.0	0.0	\pm	0.0
18:2 ω 6	0.6	\pm	0.1	1.4	\pm	0.7	0.0	\pm	0.0	0.5	\pm	0.3	0.8	\pm	0.0
18:2 ω 9	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	0.0	\pm	0.0
18:3 ω 3	0.2	\pm	0.1	0.4	\pm	0.2	0.0	\pm	0.0	0.3	\pm	0.2	0.5	\pm	0.0
18:3 ω 6	0.2	\pm	0.1	0.2	\pm	0.1	0.2	\pm	0.0	0.2	\pm	0.1	0.5	\pm	0.0
18:4 ω 3	0.7	\pm	0.2	1.2	\pm	0.6	0.0	\pm	0.0	0.6	\pm	0.4	2.2	\pm	0.0
20:2 ω 6	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	0.1	\pm	0.0	0.0	\pm	0.0
20:3 ω 6	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	0.0	\pm	0.0	0.0	\pm	0.0
20:4 ω 3	0.1	\pm	0.0	nd	\pm	nd	nd	\pm	nd	0.1	\pm	0.1	0.2	\pm	0.0
20:4 ω 6	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd	0.1	\pm	0.0	0.1	\pm	0.0
20:5 ω 3	3.9	\pm	3.1	2.7	\pm	2.7	0.1	\pm	0.0	3.3	\pm	1.4	7.2	\pm	0.0
21:5 ω 3	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	0.0	\pm	0.0	0.0	\pm	0.0
22:2	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd
22:5 ω 3	0.1	\pm	0.0	nd	\pm	nd	nd	\pm	nd	0.0	\pm	0.1	0.1	\pm	0.0
22:6 ω 3	0.9	\pm	0.4	0.8	\pm	0.5	nd	\pm	nd	0.4	\pm	0.4	0.6	\pm	0.0
Σ PUFA	8.4	\pm	4.5	8.2	\pm	5.5	0.3	\pm	0.1	6.6	\pm	3.2	14.9	\pm	0.0
14:0iso	0.1	\pm	0.0	0.3	\pm	0.1	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd
15:0iso	0.2	\pm	0.0	0.8	\pm	0.2	0.1	\pm	0.0	0.1	\pm	0.0	0.0	\pm	0.0
15:0anteiso	0.2	\pm	0.0	0.5	\pm	0.2	0.1	\pm	0.0	nd	\pm	nd	nd	\pm	nd
16:0iso	0.1	\pm	0.0	0.1	\pm	0.1	0.1	\pm	0.2	nd	\pm	nd	nd	\pm	nd
17:0iso	0.2	\pm	0.0	0.4	\pm	0.1	0.1	\pm	0.0	0.1	\pm	0.0	0.0	\pm	0.0
17:0anteiso	0.0	\pm	0.0	0.1	\pm	0.1	nd	\pm	nd	nd	\pm	nd	nd	\pm	nd
Σ BFA	0.7	\pm	0.2	2.0	\pm	0.6	0.4	\pm	0.3	0.2	\pm	0.0	0.1	\pm	0.0
16:1 ω 7/16:0	0.1	\pm	0.1	0.4	\pm	0.2	0.0	\pm	0.0	1.1	\pm	0.3	2.4	\pm	0.1
Total FAs ($\mu\text{g l}^{-1}$)	67.4	\pm	21.6	117.2	\pm	76.2	135.3	\pm	59.8	0.9	\pm	0.3	102.7	\pm	15.4

Table S2. Fatty acid composition (mean % \pm SD) and total FA concentration (mg g⁻¹) in Phaeophyceae in Young Sound (YS, Greenland) and Kongsfjorden (KF3, Svalbard). Only *Alaria esculenta* and *Desmarestia aculeata* in Kongsfjorden were sampled at two seasons, ES=Early Season, LS=Late Season, SFA=Saturated Fatty Acids, MUFA=Monounsaturated Fatty Acids, PUFA=Polyunsaturated Fatty Acids, BFA=Branched Fatty Acids.

	<i>Fucus</i> sp YS			<i>D. aculeata</i> YS			<i>S. latissima</i> YS			<i>A. esculenta</i> KF3			<i>A. esculenta</i> KF3			<i>D. aculeata</i> KF3			<i>D. aculeata</i> KF3		
	Early Season			Early Season			Early Season			Early Season			Late Season			Early Season			Late Season		
	n=5	±	SD	n=5	±	SD	n=5	±	SD	n=3	±	SD	n=3	±	SD	n=3	±	SD	n=3	±	SD
12:0	0.5	±	0.3	0.6	±	0.1	0.4	±	0.2	0.0	±	0.0	0.5	±	0.3	0.1	±	0.2	0.2	±	0.1
14:0	8.4	±	1.1	6.6	±	0.3	11.1	±	1.1	4.0	±	0.3	6.4	±	1.5	8.1	±	1.1	7.5	±	0.7
15:0	0.4	±	0.2	0.3	±	0.0	0.4	±	0.1	0.2	±	0.1	0.5	±	0.1	0.2	±	0.0	0.3	±	0.1
16:0	16.8	±	0.8	20.5	±	2.1	21.8	±	3.4	12.3	±	3.2	20.6	±	2.7	15.4	±	1.5	16.3	±	1.9
17:0	0.1	±	0.0	0.1	±	0.0	0.1	±	0.0	0.1	±	0.0	0.2	±	0.0	0.1	±	0.0	0.1	±	0.0
18:0	1.8	±	0.5	2.4	±	1.2	1.6	±	0.4	0.6	±	0.1	1.6	±	1.1	0.5	±	0.0	0.9	±	0.1
20:0	0.1	±	0.1	0.4	±	0.1	0.6	±	0.1	0.3	±	0.0	0.5	±	0.2	0.2	±	0.0	0.6	±	0.1
Σ SFA	28.2	±	2.1	30.8	±	1.3	36.0	±	4.1	17.5	±	3.3	30.1	±	5.1	24.7	±	2.9	25.8	±	2.7
16:1 ω 5	0.1	±	0.0	1.2	±	0.5	0.3	±	0.1	0.1	±	0.1	0.0	±	0.0	0.6	±	0.6	0.6	±	0.1
16:1 ω 7	2.2	±	1.2	7.9	±	5.5	3.3	±	1.0	0.4	±	0.1	1.5	±	0.4	2.5	±	1.5	1.3	±	0.2
16:1 ω 9	0.2	±	0.1	0.3	±	0.1	0.3	±	0.1	1.0	±	0.5	1.1	±	0.8	2.0	±	1.0	1.0	±	0.4
17:1 ω 9	0.1	±	0.2	nd	±	nd	nd	±	nd	0.9	±	0.4	0.1	±	0.1	0.0	±	0.0	0.1	±	0.0
18:1 ω 5	0.1	±	0.1	0.2	±	0.0	0.1	±	0.0	0.0	±	0.0	0.2	±	0.0	0.2	±	0.1	0.4	±	0.1
18:1 ω 7	0.6	±	0.3	0.6	±	0.2	0.3	±	0.0	0.1	±	0.1	0.6	±	0.2	0.2	±	0.1	0.7	±	0.2
18:1 ω 9	13.6	±	2.0	8.1	±	1.7	11.0	±	1.4	7.4	±	0.9	14.2	±	0.1	7.1	±	1.1	8.1	±	1.3
Σ MUFA	16.9	±	2.3	18.3	±	3.7	15.3	±	1.5	10.1	±	0.8	17.7	±	0.7	12.6	±	2.4	12.1	±	1.8
16:2 ω 4	0.2	±	0.0	0.4	±	0.2	0.3	±	0.1	0.0	±	0.0	0.0	±	0.0	0.8	±	0.0	0.2	±	0.1
16:2 ω 6	nd	±	nd	nd	±	nd	nd	±	nd	nd	±	nd	nd	±	nd	nd	±	nd	0.1	±	0.2
16:3 ω 4	0.1	±	0.1	0.2	±	0.2	0.0	±	0.0	0.0	±	0.0	nd	±	nd	1.2	±	0.1	0.0	±	0.0
16:4 ω 1	0.2	±	0.1	0.3	±	0.2	0.2	±	0.1	0.1	±	0.0	nd	±	nd	1.5	±	0.2	0.1	±	0.0
17:3 ω 3	0.1	±	0.1	0.2	±	0.0	0.1	±	0.0	nd	±	nd	nd	±	nd	nd	±	nd	nd	±	nd
18:2 ω 6	12.1	±	2.5	7.6	±	1.1	8.3	±	1.0	5.2	±	0.9	7.3	±	0.7	6.8	±	0.4	10.8	±	1.3
18:3 ω 3	7.3	±	0.8	6.7	±	0.8	4.8	±	0.9	11.7	±	2.4	4.5	±	1.3	8.2	±	1.1	9.9	±	1.7
18:3 ω 6	1.0	±	0.4	0.7	±	0.2	0.7	±	0.2	0.8	±	0.2	0.9	±	0.1	1.2	±	0.1	1.1	±	0.1
18:4 ω 3	8.9	±	2.1	6.0	±	1.0	7.9	±	3.0	27.5	±	3.7	7.7	±	1.6	13.5	±	2.3	11.6	±	3.1
20:2 ω 6	0.1	±	0.2	0.1	±	0.0	0.1	±	0.1	0.1	±	0.1	0.3	±	0.0	0.1	±	0.0	0.1	±	0.0
20:3 ω 6	1.0	±	0.3	0.4	±	0.2	0.3	±	0.1	0.2	±	0.2	0.8	±	0.4	0.3	±	0.0	0.5	±	0.2
20:4 ω 3	0.6	±	0.2	0.6	±	0.2	0.2	±	0.2	0.5	±	0.2	0.6	±	0.3	0.3	±	0.0	0.5	±	0.0
20:4 ω 6	11.7	±	1.4	11.0	±	2.7	13.8	±	3.1	6.7	±	1.6	18.8	±	2.8	11.3	±	1.0	11.4	±	1.5
20:5 ω 3	11.0	±	1.9	15.8	±	1.0	10.7	±	1.7	18.1	±	1.2	10.7	±	2.7	16.2	±	2.3	15.2	±	1.2
22:6 ω 3	0.0	±	0.1	0.2	±	0.1	0.0	±	0.0	nd	±	nd	nd	±	nd	nd	±	nd	nd	±	nd
Σ PUFA	54.4	±	3.8	50.0	±	3.4	47.4	±	4.7	70.9	±	3.1	51.5	±	4.6	61.4	±	4.7	61.7	±	4.5
15:0iso	0.1	±	0.0	0.2	±	0.0	0.2	±	0.0	0.2	±	0.1	0.5	±	0.1	0.2	±	0.0	0.2	±	0.1
17:0iso	0.5	±	0.1	0.7	±	0.2	1.1	±	0.4	1.3	±	0.5	0.2	±	0.1	1.1	±	0.1	0.2	±	0.0
Σ BFA	0.5	±	0.1	0.8	±	0.2	1.3	±	0.5	1.5	±	0.6	0.6	±	0.3	1.3	±	0.1	0.4	±	0.1
FA (mg g ⁻¹)	9.2	±	10.5	8.0	±	2.1	7.0	±	2.0	46.7	±	22.1	2.5	±	1.7	17.5	±	5.0	7.3	±	1.8

Table S3. Fatty acid composition (mean % \pm SD), 16:1 ω 7/16:0 and total FA concentration ($\mu\text{g g}^{-1}$) in sediment samples in Young Sound (YS, Greenland) and Kongsfjorden (sites KF and KF2, Svalbard). ES=Early Season, LS=Late Season, SFA=Saturated Fatty Acids, MUFA=Monounsaturated Fatty Acids, PUFA=Polyunsaturated Fatty Acids, BFA=Branched Fatty Acids.

	Sediment YS			Sediment KF2			Sediment KF		
	Early Season			Early Season			Late Season		
	n=5	\pm	SD	n=3	\pm	SD	n=3	\pm	SD
12:0	0.4	\pm	0.4	0.3	\pm	0.3	2.9	\pm	0.5
14:0	5.3	\pm	0.7	4.5	\pm	0.8	5.3	\pm	1.1
15:0	1.0	\pm	0.5	0.9	\pm	0.1	4.1	\pm	0.6
16:0	19.7	\pm	3.3	18.2	\pm	2.2	27.0	\pm	5.0
17:0	0.5	\pm	0.4	0.3	\pm	0.1	1.1	\pm	0.3
18:0	3.7	\pm	2.7	5.3	\pm	2.1	9.3	\pm	4.1
20:0	0.4	\pm	0.3	0.3	\pm	0.1	0.5	\pm	0.2
22:0	0.6	\pm	0.6	0.0	\pm	0.0	0.3	\pm	0.3
24:0	0.1	\pm	0.3	nd	\pm	nd	nd	\pm	nd
Σ SFA	31.9	\pm	6.9	29.8	\pm	5.4	50.5	\pm	11.2
14:1 ω 5	0.1	\pm	0.1	0.1	\pm	0.1	0.0	\pm	0.0
16:1 ω 5	1.2	\pm	0.5	0.6	\pm	0.1	1.1	\pm	0.3
16:1 ω 7	30.9	\pm	8.3	21.8	\pm	1.2	11.3	\pm	3.0
16:1 ω 9	1.3	\pm	0.6	0.9	\pm	0.4	1.3	\pm	0.6
17:1 ω 9	0.7	\pm	0.4	0.5	\pm	0.1	0.7	\pm	0.2
18:1 ω 5	0.2	\pm	0.2	0.3	\pm	0.0	0.5	\pm	0.2
18:1 ω 7	5.3	\pm	2.3	4.2	\pm	0.5	4.1	\pm	1.0
18:1 ω 9	4.6	\pm	1.6	4.8	\pm	1.0	4.1	\pm	0.8
18:1 ω 11	0.4	\pm	0.3	0.3	\pm	0.1	0.4	\pm	0.1
20:1 ω 7	0.4	\pm	0.2	0.9	\pm	0.3	0.5	\pm	0.2
20:1 ω 9	0.3	\pm	0.1	0.4	\pm	0.1	0.3	\pm	0.2
20:1 ω 11	0.5	\pm	0.5	0.7	\pm	0.4	0.6	\pm	0.1
22:1 ω 9	0.0	\pm	0.1	0.1	\pm	0.1	0.4	\pm	0.7
22:1 ω 11	0.1	\pm	0.1	0.0	\pm	0.0	nd	\pm	nd
Σ MUFA	46.0	\pm	6.3	35.6	\pm	0.4	25.2	\pm	6.3
16:2 ω 4	0.8	\pm	0.5	1.6	\pm	0.2	0.6	\pm	0.2
16:2 ω 6	0.1	\pm	0.1	0.1	\pm	0.1	0.2	\pm	0.1
16:3 ω 4	0.9	\pm	0.7	1.9	\pm	0.2	0.9	\pm	0.3
16:4 ω 1	0.9	\pm	0.7	1.9	\pm	0.2	0.8	\pm	0.2
18:2 ω 6	1.3	\pm	0.2	1.4	\pm	0.2	1.2	\pm	0.4
18:2 ω 9	0.1	\pm	0.1	0.1	\pm	0.1	0.0	\pm	0.1
18:3 ω 3	0.3	\pm	0.2	0.5	\pm	0.1	0.5	\pm	0.4
18:3 ω 6	0.2	\pm	0.1	0.4	\pm	0.2	2.6	\pm	0.6
18:4 ω 3	1.1	\pm	0.5	2.4	\pm	0.5	1.0	\pm	0.6
20:2 ω 9	0.0	\pm	0.0	0.0	\pm	0.0	0.0	\pm	0.0
20:4 ω 3	0.1	\pm	0.1	0.4	\pm	0.1	0.2	\pm	0.1
20:4 ω 6	1.6	\pm	0.7	1.6	\pm	0.6	1.3	\pm	0.4
20:5 ω 3	8.5	\pm	3.2	16.2	\pm	3.9	6.7	\pm	2.1
22:2 ω 6	0.0	\pm	0.1	nd	\pm	nd	nd	\pm	nd
22:2 ω 9	0.0	\pm	0.0	nd	\pm	nd	nd	\pm	nd
22:5 ω 3	0.2	\pm	0.2	0.6	\pm	0.2	0.4	\pm	0.1
22:5 ω 6	0.3	\pm	0.7	0.2	\pm	0.1	1.1	\pm	0.5
22:6 ω 3	1.8	\pm	1.0	3.3	\pm	1.0	2.0	\pm	0.3
Σ PUFA	18.3	\pm	4.6	32.6	\pm	6.0	19.5	\pm	5.3
15:0iso	0.9	\pm	0.5	0.4	\pm	0.1	1.0	\pm	0.1
15:0anteiso	1.9	\pm	1.4	0.5	\pm	0.2	1.4	\pm	0.2
16:0iso	0.3	\pm	0.2	0.1	\pm	0.0	0.7	\pm	0.1
17:0iso	0.3	\pm	0.2	0.7	\pm	0.1	0.6	\pm	0.1
17:0anteiso	0.2	\pm	0.2	0.2	\pm	0.0	0.6	\pm	0.3
18:0iso	0.1	\pm	0.1	0.1	\pm	0.1	0.6	\pm	0.3
Σ BFA	3.8	\pm	2.0	2.1	\pm	0.3	4.9	\pm	0.8
16:1 ω 7/16:0	1.7	\pm	0.6	1.2	\pm	0.2	0.4	\pm	0.2
FA ($\mu\text{g g}^{-1}$)	149.4	\pm	157.1	139.3	\pm	29.3	77.3	\pm	21.0

Table S4. Fatty acid composition (mean % \pm SD), 16:1w7/16:0 ratio and total FA concentration (mg g⁻¹) in *A. moerchi* digestive glands in Young Sound (YS, Greenland) and Kongsfjorden (KF, Svalbard). ES=Early Season, LS=Late Season, SFA=Saturated Fatty Acids, MUFA=Monounsaturated Fatty Acids, PUFA=Polyunsaturated Fatty Acids, BFA=Branched Fatty Acids.

	<i>A. moerchi</i> Young Sound Early Season			<i>A. moerchi</i> Young Sound Late Season			<i>A. moerchi</i> Kongsfjorden Early Season			<i>A. moerchi</i> Kongsfjorden Late Season		
	n=10	\pm	SD	n=6	\pm	SD	n=10	\pm	SD	n=6	\pm	SD
12:0	0.1	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.1	0.2	\pm	0.0
14:0	2.8	\pm	0.3	2.7	\pm	0.7	3.1	\pm	0.5	2.0	\pm	0.4
15:0	0.2	\pm	0.0	0.3	\pm	0.0	0.3	\pm	0.0	0.4	\pm	0.1
16:0	10.4	\pm	0.5	12.6	\pm	1.5	11.0	\pm	1.2	11.0	\pm	0.3
17:0	0.2	\pm	0.0	0.4	\pm	0.1	0.5	\pm	0.1	0.8	\pm	0.1
18:0	1.1	\pm	0.1	1.7	\pm	0.5	1.8	\pm	0.4	2.3	\pm	0.2
20:0	0.0	\pm	0.0	0.0	\pm	0.0	0.2	\pm	0.1	0.1	\pm	0.0
Σ SFA	14.8	\pm	0.7	17.8	\pm	1.8	17.1	\pm	1.7	16.7	\pm	0.6
16:1w5	1.7	\pm	0.1	1.9	\pm	0.4	1.8	\pm	0.3	1.0	\pm	0.3
16:1w7	24.6	\pm	2.2	24.2	\pm	4.6	11.4	\pm	1.3	5.6	\pm	0.6
16:1w9	0.1	\pm	0.0	0.1	\pm	0.0	0.2	\pm	0.2	0.1	\pm	0.0
17:1w7	0.0	\pm	0.0	0.0	\pm	0.0	0.0	\pm	0.0	0.0	\pm	0.0
17:1w9	0.1	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.0
18:1w5	4.4	\pm	0.4	5.0	\pm	0.5	5.2	\pm	0.6	4.9	\pm	0.5
18:1w7	6.6	\pm	0.5	7.0	\pm	0.8	4.0	\pm	0.4	5.0	\pm	0.6
18:1w9	1.3	\pm	0.1	1.9	\pm	0.1	3.9	\pm	0.8	4.8	\pm	0.5
18:1w11	0.3	\pm	0.1	0.3	\pm	0.1	0.2	\pm	0.1	0.3	\pm	0.1
19:1	0.0	\pm	0.0	0.1	\pm	0.0	0.0	\pm	0.0	0.1	\pm	0.0
20:1	1.1	\pm	0.2	1.4	\pm	0.4	1.5	\pm	0.2	1.9	\pm	0.3
20:1w7	2.6	\pm	0.4	2.7	\pm	0.8	2.1	\pm	0.3	2.8	\pm	0.6
20:1w9	0.3	\pm	0.1	0.5	\pm	0.1	0.5	\pm	0.1	0.7	\pm	0.1
20:1w11	1.2	\pm	0.2	1.8	\pm	0.6	1.4	\pm	0.3	2.4	\pm	0.6
22:1w9	0.1	\pm	0.1	0.0	\pm	0.0	0.1	\pm	0.0	0.0	\pm	0.0
22:1w11	0.1	\pm	0.0	0.0	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.0
Σ MUFA	44.6	\pm	1.2	47.0	\pm	2.6	32.6	\pm	1.4	29.9	\pm	1.4
16:2w4	0.7	\pm	0.1	0.5	\pm	0.1	0.8	\pm	0.1	0.3	\pm	0.1
16:2w6	0.1	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.0	0.0	\pm	0.0
16:3w4	0.4	\pm	0.1	0.3	\pm	0.1	0.6	\pm	0.1	0.2	\pm	0.1
16:4w1	0.9	\pm	0.2	0.7	\pm	0.3	1.7	\pm	0.3	0.4	\pm	0.1
16:4w3	0.1	\pm	0.0	0.2	\pm	0.0	0.3	\pm	0.0	0.2	\pm	0.0
18:2w3	0.4	\pm	0.2	0.2	\pm	0.0	0.5	\pm	0.3	0.2	\pm	0.0
18:2w6	0.8	\pm	0.1	1.1	\pm	0.1	2.4	\pm	0.3	2.8	\pm	0.4
18:3w3	0.3	\pm	0.0	0.3	\pm	0.1	0.8	\pm	0.1	0.8	\pm	0.2
18:3w6	0.3	\pm	0.0	0.3	\pm	0.0	0.4	\pm	0.0	0.5	\pm	0.1
18:4w3	1.4	\pm	0.1	1.3	\pm	0.2	6.4	\pm	1.0	4.3	\pm	1.2
20:2 NMI	0.3	\pm	0.1	0.3	\pm	0.1	0.3	\pm	0.1	0.4	\pm	0.1
20:2 NMI2	0.4	\pm	0.1	0.3	\pm	0.1	0.5	\pm	0.1	0.7	\pm	0.1
20:2w6	0.2	\pm	0.1	0.3	\pm	0.1	0.5	\pm	0.1	0.8	\pm	0.1
20:2w9	0.9	\pm	0.2	0.9	\pm	0.3	0.7	\pm	0.2	1.2	\pm	0.2
20:3w6	0.1	\pm	0.0	0.1	\pm	0.0	0.3	\pm	0.1	0.4	\pm	0.1
20:4w3	0.3	\pm	0.0	0.3	\pm	0.1	0.5	\pm	0.1	0.5	\pm	0.1
20:4w6	1.0	\pm	0.3	1.1	\pm	0.4	1.5	\pm	0.4	2.4	\pm	0.5
20:5w3	25.9	\pm	1.2	20.5	\pm	2.4	21.8	\pm	2.0	21.9	\pm	2.1
21:5w3	0.6	\pm	0.1	0.5	\pm	0.1	1.0	\pm	0.1	1.0	\pm	0.1
22:2	0.1	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.0	0.3	\pm	0.0
22:2w6	1.0	\pm	0.2	1.1	\pm	0.3	1.0	\pm	0.2	1.7	\pm	0.4
22:2w9	0.5	\pm	0.2	0.5	\pm	0.2	0.4	\pm	0.1	0.8	\pm	0.2
22:5w3	0.5	\pm	0.1	0.4	\pm	0.1	0.5	\pm	0.1	1.0	\pm	0.1
22:5w6	0.1	\pm	0.1	0.1	\pm	0.0	0.1	\pm	0.0	0.2	\pm	0.1
22:6w3	2.9	\pm	0.4	2.9	\pm	0.4	5.9	\pm	0.9	9.1	\pm	0.8
Σ PUFA	40.1	\pm	1.6	34.3	\pm	3.2	49.1	\pm	2.8	52.0	\pm	1.6
15:0iso	0.1	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.0	0.1	\pm	0.0
15:0anteiso	0.0	\pm	0.0	0.0	\pm	0.0	0.0	\pm	0.0	0.0	\pm	0.0
16:0iso	0.1	\pm	0.0	0.1	\pm	0.0	0.2	\pm	0.1	0.3	\pm	0.0
17:0iso	0.3	\pm	0.0	0.4	\pm	0.1	0.6	\pm	0.1	0.6	\pm	0.1
17:0anteiso	0.1	\pm	0.0	0.2	\pm	0.0	0.2	\pm	0.1	0.4	\pm	0.0
18:0iso	0.0	\pm	0.0	0.0	\pm	0.0	0.1	\pm	0.0	0.0	\pm	0.0
Σ BFA	0.6	\pm	0.1	0.8	\pm	0.1	1.2	\pm	0.2	1.4	\pm	0.2
16:1w7/16:0	2.4	\pm	0.2	1.9	\pm	0.4	1.0	\pm	0.2	0.5	\pm	0.1
FA (mg g ⁻¹)	123.4	\pm	48.3	207.7	\pm	17.2	36.6	\pm	19.0	36.4	\pm	12.5

Table S5. Results of SIMPER test. The 5 fatty acids (FAs) contributing the most to inter-site dissimilarities between Young Sound (YS) and Kongsfjorden (KF) for each season are given in the top tables. The bottom two tables indicate the 5 FAs contributing the most to dissimilarities between seasons (ES and LS) in each site (YS and KF).

Inter-site Early Season (ES)					Inter-site Late Season (LS)				
Av. dissimilarity=21.8%					Av. dissimilarity=26.4%				
FA	ES YS	ES KF	Contrib%	Cum.%	FA	LS YS	LS KF	Contrib%	Cum.%
16:1 ω 7	24.6	11.4	30.4	30.4	16:1 ω 7	24.2	5.6	35.3	35.3
18:4 ω 3	1.5	6.4	11.4	41.8	22:6 ω 3	2.9	9.1	11.9	47.1
20:5 ω 3	25.9	21.8	9.4	51.2	18:4 ω 3	1.3	4.3	5.7	52.8
22:6 ω 3	2.9	5.9	6.9	58.0	18:1 ω 9	1.9	4.8	5.6	58.4
18:1 ω 9	1.3	3.9	6.0	64.0	20:5 ω 3	20.5	21.9	5.4	63.8

Intra-site Young Sound (YS)					Intra-site Kongsfjorden (KF)				
Av. dissimilarity=11.1%					Av. dissimilarity=15.5%				
FA	ES YS	LS YS	Contrib%	Cum.%	FA	ES KF	LS KF	Contrib%	Cum.%
20:5 ω 3	25.9	20.5	24.4	24.4	16:1 ω 7	11.4	5.6	18.7	18.7
16:1 ω 7	24.6	24.2	18.1	42.5	22:6 ω 3	5.9	9.1	10.4	29.1
16:0	10.4	12.6	10.2	52.7	18:4 ω 3	6.4	4.3	7.2	36.3
18:1 ω 7	6.6	7.0	3.6	56.3	20:5 ω 3	21.8	21.9	7.1	43.4
18:1 ω 5	4.4	5.0	3.4	59.7	16:4 ω 1	1.7	0.4	4.2	47.6