

## Supplementary Figures

Table S.1. Mean fatty acid composition (mean mass % of total fatty acid  $\pm$  SEM) of adipose tissue samples collected in Western Hudson Bay between 2004 – 2021. Only FAs averaging a proportion  $\geq 0.1\%$  across age classes were included. Bolded FAs were used for final diet estimations (Average of Mink Marine and Mink All). The \* denotes FAs that were  $\leq 0.1\%$  but were required for analysis.

Fatty Acid	Adult n = 951	Subadult n = 146	2 Year n = 76	Yearling n = 91	Cub of the Year n = 109
<b>Saturated</b>					
14:0	3.526 $\pm$ 0.016	3.656 $\pm$ 0.041	3.803 $\pm$ 0.062	3.797 $\pm$ 0.042	3.851 $\pm$ 0.037
i-15:0	0.261 $\pm$ 0.004	0.277 $\pm$ 0.011	0.275 $\pm$ 0.018	0.219 $\pm$ 0.007	0.185 $\pm$ 0.003
ai-15:0	0.105 $\pm$ 0.001	0.114 $\pm$ 0.002	0.119 $\pm$ 0.004	0.104 $\pm$ 0.003	0.100 $\pm$ 0.003
15:0	0.290 $\pm$ 0.002	0.272 $\pm$ 0.004	0.266 $\pm$ 0.005	0.277 $\pm$ 0.003	0.267 $\pm$ 0.003
i-16:0	0.135 $\pm$ 0.001	0.133 $\pm$ 0.005	0.135 $\pm$ 0.012	0.116 $\pm$ 0.005	0.105 $\pm$ 0.003
16:0	7.813 $\pm$ 0.038	7.411 $\pm$ 0.092	7.260 $\pm$ 0.113	7.725 $\pm$ 0.091	8.801 $\pm$ 0.135
i-17:0	0.188 $\pm$ 0.004	0.188 $\pm$ 0.007	0.156 $\pm$ 0.010	0.111 $\pm$ 0.009	0.091 $\pm$ 0.007
ai-17:0	0.157 $\pm$ 0.002	0.147 $\pm$ 0.004	0.142 $\pm$ 0.005	0.129 $\pm$ 0.004	0.112 $\pm$ 0.005
17:0	0.201 $\pm$ 0.002	0.181 $\pm$ 0.004	0.172 $\pm$ 0.004	0.170 $\pm$ 0.004	0.181 $\pm$ 0.004
18:0	2.110 $\pm$ 0.013	2.043 $\pm$ 0.034	2.048 $\pm$ 0.047	2.040 $\pm$ 0.034	2.601 $\pm$ 0.080
<b>Monosaturated</b>					
14:1n-5	1.083 $\pm$ 0.007	1.128 $\pm$ 0.014	1.135 $\pm$ 0.022	1.118 $\pm$ 0.018	1.006 $\pm$ 0.016
16:1n-11	0.318 $\pm$ 0.003	0.331 $\pm$ 0.012	0.326 $\pm$ 0.021	0.301 $\pm$ 0.009	0.252 $\pm$ 0.006
16:1n-9	0.521 $\pm$ 0.002	0.524 $\pm$ 0.005	0.525 $\pm$ 0.006	0.494 $\pm$ 0.006	0.498 $\pm$ 0.005
16:1n-7	16.749 $\pm$ 0.067	15.770 $\pm$ 0.173	15.480 $\pm$ 0.238	16.753 $\pm$ 0.221	15.718 $\pm$ 0.279
16:1n-5	0.317 $\pm$ 0.002	0.308 $\pm$ 0.004	0.300 $\pm$ 0.005	0.321 $\pm$ 0.005	0.291 $\pm$ 0.005
17:1a	0.110 $\pm$ 0.002	0.088 $\pm$ 0.003	0.105 $\pm$ 0.007	0.118 $\pm$ 0.005	0.118 $\pm$ 0.005
17:1b	0.222 $\pm$ 0.002	0.203 $\pm$ 0.004	0.192 $\pm$ 0.004	0.184 $\pm$ 0.004	0.177 $\pm$ 0.003
17:1	0.306 $\pm$ 0.002	0.276 $\pm$ 0.004	0.261 $\pm$ 0.004	0.255 $\pm$ 0.004	0.256 $\pm$ 0.003
18:1n-11	1.583 $\pm$ 0.018	1.749 $\pm$ 0.046	1.966 $\pm$ 0.071	2.025 $\pm$ 0.053	2.078 $\pm$ 0.043
18:1n-9	22.704 $\pm$ 0.058	23.327 $\pm$ 0.147	23.423 $\pm$ 0.180	22.556 $\pm$ 0.167	23.476 $\pm$ 0.189
18:1n-7	5.987 $\pm$ 0.022	5.623 $\pm$ 0.038	5.463 $\pm$ 0.043	5.565 $\pm$ 0.044	5.626 $\pm$ 0.042
18:1n-5	0.690 $\pm$ 0.002	0.695 $\pm$ 0.005	0.692 $\pm$ 0.009	0.683 $\pm$ 0.007	0.633 $\pm$ 0.006
20:1n-11	1.293 $\pm$ 0.011	1.439 $\pm$ 0.028	1.440 $\pm$ 0.036	1.254 $\pm$ 0.025	1.128 $\pm$ 0.038
20:1n-9	5.225 $\pm$ 0.038	5.932 $\pm$ 0.097	6.066 $\pm$ 0.117	5.536 $\pm$ 0.098	4.757 $\pm$ 0.124
20:1n-7	0.751 $\pm$ 0.007	0.691 $\pm$ 0.011	0.674 $\pm$ 0.015	0.637 $\pm$ 0.011	0.589 $\pm$ 0.012
22:1n-11	0.658 $\pm$ 0.011	0.737 $\pm$ 0.026	0.735 $\pm$ 0.028	0.673 $\pm$ 0.026	0.500 $\pm$ 0.028
22:1n-9	0.317 $\pm$ 0.003	0.349 $\pm$ 0.007	0.348 $\pm$ 0.009	0.308 $\pm$ 0.007	0.263 $\pm$ 0.009
<b>Polyunsaturated</b>					
16:2n-4	0.322 $\pm$ 0.002	0.327 $\pm$ 0.004	0.320 $\pm$ 0.005	0.322 $\pm$ 0.005	0.285 $\pm$ 0.005
16:3n-4*	0.040 $\pm$ 0.001	0.055 $\pm$ 0.005	0.060 $\pm$ 0.009	0.041 $\pm$ 0.004	0.025 $\pm$ 0.001
18:2n-6	2.817 $\pm$ 0.014	2.833 $\pm$ 0.035	2.972 $\pm$ 0.062	3.019 $\pm$ 0.050	3.515 $\pm$ 0.049
18:3n-6	0.108 $\pm$ 0.001	0.111 $\pm$ 0.002	0.115 $\pm$ 0.003	0.101 $\pm$ 0.003	0.091 $\pm$ 0.002
18:3n-4	0.204 $\pm$ 0.001	0.206 $\pm$ 0.002	0.195 $\pm$ 0.004	0.189 $\pm$ 0.003	0.166 $\pm$ 0.002
18:3n-3	0.556 $\pm$ 0.003	0.547 $\pm$ 0.008	0.564 $\pm$ 0.018	0.552 $\pm$ 0.010	0.589 $\pm$ 0.010

18:4n-3	0.316	±	0.002	0.295	±	0.004	0.311	±	0.006	0.311	±	0.005	0.287	±	0.006
18:4n-1	0.106	±	0.001	0.095	±	0.002	0.088	±	0.003	0.103	±	0.003	0.084	±	0.003
20:2n-6	0.303	±	0.001	0.295	±	0.002	0.293	±	0.003	0.272	±	0.003	0.278	±	0.004
20:3n-6	0.124	±	0.001	0.125	±	0.001	0.123	±	0.002	0.121	±	0.001	0.145	±	0.002
20:4n-6	0.318	±	0.003	0.270	±	0.005	0.258	±	0.007	0.271	±	0.004	0.310	±	0.006
20:4n-3	0.503	±	0.003	0.469	±	0.007	0.434	±	0.008	0.455	±	0.006	0.441	±	0.007
20:5n-3	2.473	±	0.020	2.254	±	0.049	2.134	±	0.062	2.324	±	0.052	2.007	±	0.062
21:5n-3	0.319	±	0.001	0.316	±	0.003	0.316	±	0.005	0.308	±	0.003	0.301	±	0.003
22:4n-6	0.145	±	0.002	0.128	±	0.003	0.115	±	0.003	0.106	±	0.002	0.114	±	0.003
22:5n-6	0.194	±	0.002	0.187	±	0.003	0.183	±	0.004	0.169	±	0.003	0.166	±	0.003
22:5n-3	6.092	±	0.030	6.472	±	0.079	6.570	±	0.110	6.237	±	0.079	6.219	±	0.073
22:6n-3	10.306	±	0.056	10.205	±	0.146	10.286	±	0.204	10.661	±	0.159	10.465	±	0.118

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Table S.2. A summary of terms used to denote fixed and random effects in the male and female driver models.

<b>Model</b>	<b>Term</b>	<b>Definition</b>
Female	Intercept	The intercept of the model
	Age	Age of the bear
	ReproAF 2YR	Reproductive status: Adult females with 2-year-old cubs
	ReproAF COY	Reproductive status: Adult females with cubs of the year
	ReproAF Solitary	Reproductive status: Solitary adult females
	ReproAF YRLG	Reproductive status: Adult females with yearling cubs
	ReproCOY	Reproductive status: Cubs of the year
	ReproSUBAD	Reproductive status: Subadults
	ReproYRLG	Reproductive status: Yearlings
	Snow	Snow depth
	AO	Arctic Oscillation
	AOt	Previous year's Arctic Oscillation
	NAO	North Atlantic Oscillation
	NAOt	Previous year's North Atlantic Oscillation
Break	The date of sea ice break-up	
Male	Intercept	The intercept of the model
	Dependent1	Mother-cub pairing (0 = solitary, 1 = together)
	Age	Age of the bear
	Snow	Snow depth
	AO	Arctic Oscillation
	AOt	Previous year's Arctic Oscillation
	NAO	North Atlantic Oscillation
	NAOt	Previous year's North Atlantic Oscillation
Break	The date of sea ice break-up	