

Table S1: Average values of $\delta^{15}\text{N}_{\text{pro}}$, $\delta^{15}\text{N}_{\text{glx}}$, $\delta^{15}\text{N}_{\text{phen}}$ and $\delta^{13}\text{C}$ by region and time period for all New Zealand sea lion (*Phocarctos hookeri*) and the New Zealand fur seal (*Arctocephalus forsteri*) samples used to inform individual-based mass balance mixing models. Values in parentheses indicate ± 1 SE. Values of SE indicated by * had sample sizes of 2. Values of $\delta^{15}\text{N}_{\text{pro}}$, $\delta^{15}\text{N}_{\text{glx}}$, $\delta^{15}\text{N}_{\text{phen}}$ have been correct to those of fur, and values of $\delta^{13}\text{C}$ have been correct to those of muscle and also Suess corrected.

Region	Time	New Zealand Sea Lion				New Zealand Fur Seal			
		$\delta^{15}\text{N}_{\text{pro}}$	$\delta^{15}\text{N}_{\text{glx}}$	$\delta^{15}\text{N}_{\text{phen}}$	$\delta^{13}\text{C}$	$\delta^{15}\text{N}_{\text{pro}}$	$\delta^{15}\text{N}_{\text{glx}}$	$\delta^{15}\text{N}_{\text{phen}}$	$\delta^{13}\text{C}$
Mainland	1250-1450 CE	27.36 (0.32)	29.69 (0.14)	4.41 (1.07)	-18.91 (0.76)	22.72 (1.09)	24.09 (0.89)	2.21 (1.22)	-19.32 (0.18)
	1650-1850 CE	27.00 (1.35)	26.50 (0.90)	2.81 (1.88)	-18.67 (0.26)	24.35 (0.63)	25.76 (0.57)	3.11 (0.74)	-18.75 (0.13)
	2016 CE	25.47 (0.43)	25.53 (0.36)	10.08 (0.30)	-20.20 (0.15)	23.52 (1.54)	22.99 (4.14)	7.60 (0.87)	-20.48 (0.09)
Central	1250-1450 CE	26.67 (0.78)	27.39 (0.83)	3.76 (0.97)	-19.49 (0.46)	25.04 (0.49)	25.90 (0.36)	3.24 (0.70)	-18.78 (0.07)
	1650-1850 CE	26.77 (0.27)	26.08 (0.73)	4.55 (0.44)	-18.28 (0.21)	25.16 (0.86)	25.84 (0.89)	2.16 (0.95)	-19.33 (0.28)
	2016 CE	25.42 (1.58)	26.76 (2.66)	9.02 (1.21)	-20.02 (0.16)	24.34 (1.39)	24.11 (0.94)	5.31 (1.16)	-21.24 (0.24)
Subantarctic	1250-1450 CE	25.50 (0.60)	26.20 (0.39)	1.28 (1.36)	-18.95 (0.12)	24.53 (1.04)	26.28 (0.71)	1.72 (1.06)	-18.98 (0.15)
	1650-1850 CE	25.94 (0.31)	26.11 (0.94)	-0.71 (1.11)	-19.19 (1.06)	19.34 (*)	21.36 (*)	-2.22 (*)	-19.40 (0.62)
	2016 CE	28.92 (1.50)	26.52 (1.90)	7.53 (0.69)	-20.16 (0.15)	27.28 (*)	24.31 (*)	5.91 (*)	-23.27 (1.37)