

**Table S2.** Discrimination factors, sample sizes, isotopic signatures and elemental concentrations of prey source inputs into SIAR mixing models [21].

Model, Inputs	<i>n</i>	$\delta^{15}\text{N}$ (‰)	$\delta^{13}\text{C}$ (‰)	% N	% C	Source
<b>SIAR Model 1</b>						
Discrimination factor	-	3.5±0.4	1.3±0.5	-	-	[47]
Source 1: Krill ( <i>E. superba</i> )	40	3.3±0.6	-26.4±1.4	10.0±1.0	37.0±4.2	-
Source 2: Fish ( <i>P. antarcticum</i> )	30	9.4±0.5	-24.7±0.4	12.0±1.0	40.0±2.0	[24]
<b>SIAR Model 2</b>						
Discrimination factor	-	3.5±0.4	1.3±0.5	-	-	[47]
Source 1: Krill ( <i>E. superba</i> )	40	3.3±0.6	-26.4±1.4	10.0±1.0	37.0±4.2	-
Source 2: Fish (Weighted by %mass)						
Chinstrap 2008	11	7.9±0.7	-25.1±0.5	12.8±1.0	41.0±1.2	-
Chinstrap 2009	30	9.4±0.5	-24.7±0.4	12.0±1.0	40.0±2.0	-
Gentoo 2008	8	8.8±0.4	-24.4±0.5	12.4±1.0	40.8±1.8	-
Gentoo 2009	28	9.3±0.5	-24.7±0.4	12.0±1.0	40.0±2.0	-
<b>SIAR Models 3 &amp; 4 (2008 only)</b>						
<i>Chinstrap Penguins:</i>						
Discrimination factor	-	3.5±0.4	1.3±0.5	-	-	[47]
Source 1: Krill ( <i>E. superba</i> )	40	3.3±0.6	-26.4±1.4	10.0±1.0	37.0±4.2	-
Source 2: Fish ( <i>P. bolini</i> )	13	9.2±0.5	-23.0±0.5	12.0±1.0 <sup>1</sup>	40.0±2.0 <sup>1</sup>	[45]
Source 3: Fish ( <i>E. antarctica</i> )	41	8.8±0.7	-25.5±0.7	12.0±1.0	39.0±2.0	-
Source 4: Fish ( <i>G. nicholsi</i> )	6	9.4±0.3	-22.6±0.8	13.0±1.0	43.0±1.0	-
Source 5: Fish ( <i>N. coatsi</i> )	3	7.2±0.8	-25.7±0.4	13.0±1.0	41.0±1.0	-
Source 6: Fish ( <i>P. antarcticum</i> )	30	9.4±0.5	-24.7±0.4	12.0±1.0	40.0±2.0	[24]
Source 7: Fish ( <i>T. newnesi</i> )	10	8.2±0.5	-24.8±0.5	13.0±1.0	41.0±2.0	-
<i>Gentoo Penguins:</i>						
Discrimination factor	-	3.5±0.4	1.3±0.5	-	-	[47]
Source 1: Krill ( <i>E. superba</i> )	40	3.3±0.6	-26.4±1.4	10.0±1.0	37.0±4.2	-
Source 2: Fish ( <i>G. nicholsi</i> )	6	9.4±0.3	-22.6±0.8	13.0±1.0	43.0±1.0	-
Source 3: Fish ( <i>L. squamifrons</i> )	10	9.6±0.8	-24.2±0.7	11.0±1.0	37.0±2.0	[24]
Source 4: Fish ( <i>P. antarcticum</i> )	30	9.4±0.5	-24.7±0.4	12.0±1.0	40.0±2.0	[24]
Source 5: Fish ( <i>T. newnesi</i> )	10	8.2±0.5	-24.8±0.5	13.0±1.0	41.0±2.0	-
Source 6: Fish ( <i>C. gunnari</i> )	5	8.5±0.3	-25.1±0.3	12.0±1.0	40.0±2.0	[44]

<sup>1</sup>%N and %C values for *P. bolini* and *C. gunnari* were not available so averaged values from the six other fish species examined in this study were used. See respective numbers in reference section of the text for source information.