

**Supplementary Table S3.** Comparison of trophic level for various groups estimated by mass-balance models for the Barents Sea. Trophic levels from this study are from the year 2000 model. P-values for paired t-test of trophic level estimates are given. Values from Dommasnes et al. (2002) and from Bentley et al. (2017) are from models from both the Norwegian and the Barents Sea.

Group	This study	Dommasnes et al. (2002)	Blanchard et al. (2002) Low capelin conditions in 1995	Berdnikov et al. (2019)	Bentley et al. (2017)
Minke whale	4.2	3.9 <sup>a</sup>	4.3	3.6 <sup>b</sup>	4.3
Harp seals	4.1	4.0 <sup>c</sup>	4.7 <sup>c</sup>	3.9 <sup>c</sup>	4.5 <sup>c</sup>
Sea birds	4.1 <sup>f</sup>	4.2	4.7	3.9	4.3
Large cod	4.2	4.2	4.3	3.5	4.5
Small cod	3.5	4.1	4.0		4.4
Large haddock	3.6	3.2	3.9		3.7
Small haddock	3.4				3.9
Large saithe	3.8	3.5	4.5		4.5
Large redfish	4.0	3.4	3.8		4.0
Polar cod (2+)	3.6	3.4	3.8	3.2	3.9
Large herring	3.2	3.2	3.4		3.4
Small herring	3.3	3.1	3.2	3.2	3.2
Capelin (3+)	3.2	3.3	3.7	3.3	3.7
Cephalopods	3.6	3.3	3.7		3.8
Deepwater shrimp	3.0	2.9	2.6		2.8
Pelagic amphipods	3.2	2.8			
Krill	2.2	2.3		2.2	
Jellyfish	3.4 <sup>g</sup>	3.2 <sup>g</sup>			
Medium sized copepods	2.3	2.0 <sup>h</sup>	2.2	2.3 <sup>h</sup>	2.2 <sup>i</sup>
Average trophic level differences between this and other studies		0.14	-0.21	0.25	-0.25
No. groups compared		14	16	10	17
Paired t-test, P-value		0.03	0.019	0.016	0.002

<sup>a</sup>Baleen whales, <sup>b</sup>whales, <sup>c</sup>seals, <sup>d</sup>Brannich guillemot, <sup>e</sup>average value for Ctenophora and Scyphomedusae, <sup>h</sup>copepods, <sup>i</sup>herbivorous zooplankton,

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