S4 File. Assimilation and Production Efficiency Values

Assimilation efficiency (AE) and production efficiency (PE).

Model Group	AE source	AE	PE	P/Q	Confidence in Estimate
Killer Whale	Lockyer [1]	0.93	0.02	0.0186	Low
Leopard Seal	Ballerini et al. [2], Townsend et al. [3]	0.89	0.02	0.0178	Low
Weddell Seal	Ballerini et al. [2], Townsend et al. [3]	0.87	0.02	0.0174	Low
Crabeater Seal	Priddle et al. [4]	0.84	0.02	0.0168	Low
Antarctic Fur Seal	Fadely et al. [5]	0.88	0.02	0.0176	Low
S Elephant Seal	Ballerini et al. [2], Townsend et al. [3]	0.87	0.02	0.0174	Low
Sperm Whale	Ballerini et al. [2], Townsend et al. [3]	0.87	0.02	0.0174	Low
Blue Whale	Lockyer [6]	0.79	0.02	0.0158	Low
Fin Whale	Lockyer [1]	0.8	0.02	0.0160	Low
Minke Whales	Lockyer [6], Armstrong and Siegfried [7]	0.84	0.02	0.0168	Low
Humpback Whale	Lockyer [6], Armstrong and Siegfried [7]	0.84	0.02	0.0168	Low
Emperor Penguin	Kirkwood and Robertson [8]	0.7	0.02	0.0140	Low
Gentoo Penguin	Adams et al. [9]	0.72	0.02	0.0144	Low
Chinstrap Penguin	Adams et al. [9]	0.72	0.02	0.0144	Low
Adélie Penguin	Adams et al. [9]	0.72	0.02	0.0142	Low
Macaroni Penguin	Adams et al. [9]	0.72	0.02	0.0144	Low
Flying birds	Ballerini et al. [2], Townsend et al. [3]	0.9	0.02	0.0180	Low
Cephalopods	Ballerini et al. [2], Townsend et al. [3]	0.8	0.13	0.1040	Low
Myctophids (off shelf)	Ballerini et al. [2], Townsend et al. [3]	0.8	0.13	0.1040	Low
On-shelf fish	Ballerini et al. [2], Townsend et al. [3]	0.8	0.13	0.1040	Low
N. rossii	Ballerini et al. [2], Townsend et al. [3]	0.8	0.13	0.1040	Low
C. gunnari	Ballerini et al. [2], Townsend et al. [3]	0.8	0.13	0.1040	Low

G. gibberifrons	Ballerini et al. [2], Townsend et al. [3]	0.8	0.13	0.1040	Low
Salps	Pakhomov et al. [10]	0.7	0.35	0.2450	Low
Benthic invertebrates	Ballerini et al. [2], Townsend et al. [3]	0.58	0.35	0.2030	Low
Large Krill (≥24 months)	Pakhomov et al. [11]	0.64	0.35	0.2240	Low
Small Krill (< 24 months)	Meyer et al. [12]	0.84	0.35	0.2940	Low
Other euphausiids	Pakhomov et al. [11]	0.64	0.35	0.2240	Low
Microzooplankton	Ballerini et al. [2], Townsend et al. [3]	0.8	0.25	0.2000	Low
Mesozooplankton	Ballerini et al. [2], Townsend et al. [3]	0.7	0.35	0.2450	Low
Macrozooplankton	Ballerini et al. [2], Townsend et al. [3]	0.8	0.35	0.2800	Low
Small phytoplankton	Ballerini et al. [2], Townsend et al. [3]	1	1	1	Low
Large phytoplankton	Ballerini et al. [2], Townsend et al. [3]	1	1	1	Low
Ice algae	Ballerini et al. [2], Townsend et al. [3]	1	1	1	Low

All PE values were derived from [3] an use of this highly uncertain data lead to an assessment of low confidence for all P/Q values.

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