

Table S12. Summary of published $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ data, trophic position (TP) calculations and dietary information of northern and southern hemisphere cetaceans. Stable isotope data were obtained from skin biopsy analyses, unless specified in the 'Reference Source' column, with + for blubber analysis, # for baleen analysis and ^ for muscle analysis. Unless otherwise indicated, all $\delta^{13}\text{C}$ data were either lipid-corrected or obtained from lipid-extracted samples. IWC: International Whaling Commission; ND: no data; NA: not applicable; NG: not given. The International Whaling Commission (2011) divides southern hemisphere humpback whales *Megaptera novaeangliae* into breeding populations and subpopulations: D population breeds off the west coast of Australia, E1 breeds off the east coast of Australia, and E2 breeds off New Caledonia. Where specified in the reference, information on prey species is provided; otherwise, generic groups are given. Humpback whale dietary items are listed in order of relative importance with % contribution provided where known. At the first mention of a species, the common and latin name are provided and thereafter the common name is used. In the location columns, N = north, S = south, W = west, E = east. The equations used to calculate TPs are provided at the base of the table

Species	Reference source IWC whale breeding stock*, movement and feeding details and sex, where known	n	$\delta^{13}\text{C}$ (‰)		$\delta^{15}\text{N}$ (‰)		TP (mean) or method/ (mean, ± 1 equation number)	TP calculation	Dietary information supplied in publication	Sampling details			
			Mean	SD	Mean	SD				General oceanic location	Regional location	Location type	Sampling year(s)
Humpback whale <i>Megaptera novaeangliae</i>	This study, E1	65	-25.2	1.0	7.6	0.7	3.3	CSIA, Simple arithmetic	Zooplankton and Antarctic krill <i>Euphausia superba</i> (approx. 70% combined), fish (approx. 30%)	Antarctic	Southern Ocean, Ross Sea shelf, slope and Balleny Islands	Oceanic, oceanic islands	2010, 2015
	Eisenmann et al. (2016) # D, classical feeders	184	-25.1	0.6	5.4	0.7	ND	ND	Antarctic krill	SW Pacific	W Australia	Coastal, oceanic	1940–2015
	Eisenmann et al. (2016) # E1, classical feeders	154	-24.9	0.7	6.0	0.7	ND	ND	Antarctic krill	SW Pacific	E Australia	Coastal, oceanic	1940–2015
	Eisenmann et al. (2016) # Mostly E1, supplementary feeders	191	-24.9	0.9	7.1	1.0	ND	ND	Antarctic krill, plus Antarctic and temperate-water fish	SW Pacific	E Australia	Coastal, oceanic	1940–2015
	Eisenmann et al. (2016) # Temperate zone feeders, may/may not feed in Antarctica	93	-20.1	2.3	10.2	1.9	ND	ND	Mainly temperate-water prey e.g. temperate krill <i>Nyctiphanes australis</i> and fish	SW Pacific	E Australia	Coastal, oceanic	1940–2015
	Bengtson Nash et al. (2018) + Northward migration, post feeding	50	-25.3	0.9	7.7	1.8	ND	ND	Antarctic krill	SW Pacific	E Australia, SE Queensland, Moreton Bay	Coastal, oceanic	2008, 2009, 2011, 2013, 2014, 2015
	Bengtson Nash et al. (2018) + Southward migration, 'fasting'	110	-25.0	1.1	7.5	1.3	ND	ND	Antarctic krill	SW Pacific	E Australia, SE Queensland, Moreton Bay	Coastal, oceanic	2008, 2009, 2011, 2013, 2014, 2015
	Bengtson Nash et al. (2018) + Southward migration 2015 only	65	-24.9	1.0	7.5	0.5	ND	ND	Antarctic krill	SW Pacific	E Australia, SE Queensland, Moreton Bay	Coastal, oceanic	2015
	Bengtson Nash et al. (2018) + Males	86	-25.1	1.0	7.8	1.2	ND	ND	Antarctic krill	SW Pacific	E Australia, SE Queensland, Moreton Bay	Oceanic	2008, 2009, 2011, 2013, 2014, 2015
	Bengtson Nash et al. (2018) + Females	63	-25.1	1.0	7.4	1.6	ND	ND	Antarctic krill	SW Pacific	E Australia, SE Queensland, Moreton Bay	Oceanic	2008, 2009, 2011, 2013, 2014, 2015
	Owen et al. (2024) Subtropical, 2011	22	-26.0	0.2	8.0	0.1	ND	ND	Antarctic krill	SW Pacific	E Australia, SE Queensland, off Peregian Beach, sub-tropical site	Coastal, oceanic	2011
	Owen et al. (2024) Subtropical, 2012	8	-25.9	0.2	7.4	0.2	ND	ND	Antarctic krill	SW Pacific	E Australia, SE Queensland, off Peregian Beach, sub-tropical site	Coastal, oceanic	2012
	Owen et al. (2024) Temperate, 2011	19	-25.1	0.3	9.2	0.2	ND	ND	Antarctic krill, temperate krill, pilchard <i>Sardinops sagax</i>	SW Pacific	E Australia, New South Wales, off Eden, temperate site	Coastal, oceanic	2011
	Owen et al. (2024) Temperate, 2012	19	-25.2	0.2	8.1	0.2	ND	ND	Antarctic krill, temperate krill, pilchard	SW Pacific	Temperate site, off Eden, New South Wales, Australia	Coastal, oceanic	2012
	J. Groß (unpublished data) D breeding stock	40	-25.5	0.5	7.1	0.5	2.8, 0.1	1	Mainly krill	SW Pacific	W Australia, 21° 55' S, 114° 10' E	Coastal, oceanic	2019
	J. Groß (unpublished data) E1 breeding stock	21	-25.5	0.5	6.8	0.4	3.0, 0.1	1	Mainly krill	SW Pacific	E Australia, 27° 26' S, 153° 34' E	Coastal, oceanic	2019
	J. Groß (unpublished data) E2 breeding stock	26	-25.3	0.6	7.3	0.5	3.1, 0.2	1	Mainly krill, some fish	SW Pacific	New Caledonia, 22° 36' S, 167° 00' E	Coastal, oceanic	2019
	Haro et al. (2020)	NA	ND	ND	ND	3.4	Ecopath plus Ecosim	Coastal sources of lobster krill <i>Munida gregaria</i> , euphausiids <i>Euphausia lucens</i> , amphipods, Fuegian sprat <i>Sprattus fuegiensis</i>	SE Pacific	SE Pacific, Magellan Strait, off Chile	Coastal, oceanic	NA	
	Haro et al. (2020)	33	-16.3	0.6	14.7	1.0	ND	ND	Coastal sources of lobster krill, euphausiids, amphipods, Fuegian sprat	SE Pacific	SE Pacific, Magellan Strait, off Chile	Coastal, oceanic	2011, 2012
	Haro et al. (2021)	64	-15.9	1.2	14.4	0.9	ND	ND	Coastal sources of lobster krill, euphausiids, amphipods, Fuegian sprat	SE Pacific	SE Pacific, Magellan Strait, off Chile	Coastal, oceanic	2011, 2012, 2017
	Witteveen et al. (2009a)	597	-17.8	0.0	12.9	0.1	ND	ND	Unspecified	N Pacific	Bering Sea and Coastal areas off: W & E Aleutian Islands, W & N Gulf of Alaska, SE Alaska, N British Columbia, California, Oregon, Washington	Coastal, oceanic	2004, 2005, 2006
	Witteveen et al. (2009b)	1105	-17.6	0.0	13.2	0.0	ND	ND	Fish, zooplankton	N Pacific	Bering Sea and Coastal areas off: Russia, W & E Aleutian Islands, W & N Gulf of Alaska, SE Alaska, N British Columbia, California, Oregon, Washington	Coastal, oceanic	2004, 2005
	Witteveen et al. (2011)	1105	ND	ND	13.2	0.0	3.6, 0.02	2	Fish: Pacific herring <i>Clupea pallasii</i> , capelin <i>Mallotus villosus</i> , zooplankton (copepods: <i>Neocalanus</i> spp., <i>Calanus</i> spp.), crustaceans (krill)	N Pacific	Bering Sea and Coastal areas off: Russia, W & E Aleutian Islands, W & N Gulf of Alaska, SE Alaska, N British Columbia, California, Oregon, Washington	Coastal, oceanic	2004, 2005
	Witteveen et al. (2011) Recalculated TP values from Wright et al. (2015)	81	ND	ND	12.3	0.2	3.1, 0.1	2	Predominantly zooplankton, some fish	N Pacific	W Aleutian Islands and Russia	Oceanic islands	2004, 2005
	Witteveen et al. (2011), Hiron (2001) Recalculated TP values from Wright et al. (2015)	282	ND	ND	12.6	0.1	3.3, 0.0	3	Predominantly zooplankton (e.g. <i>Neocalanus</i> spp., <i>Calanus</i> spp.), euphausiids, some fish	N Pacific	W Gulf of Alaska, E Aleutian Islands, and Bering Sea	Coastal & oceanic islands	2004, 2005
	Witteveen et al. (2008, 2011), Hiron (2001) Recalculated TP values from Wright et al. (2015)	199	ND	ND	13.6	0.1	3.7, 0.0	3	Predominantly fish e.g. capelin, some zooplankton (<i>Calanus</i> spp.)	N Pacific	N Gulf of Alaska	Coastal, oceanic	2004, 2005
	Witteveen et al. (2011)	227	ND	ND	12.7	0.1	3.4, 0.03	2	Predominantly zooplankton (euphausiids), some fish	N Pacific	SE Alaska	Coastal, oceanic	2004, 2005
	Witteveen et al. (2011) Recalculated TP values from Wright et al. (2015)	135	ND	ND	13.0	0.1	3.3, 0.0	3	Predominantly zooplankton (euphausiids), some fish	N Pacific	N British Columbia	Coastal, oceanic	2004, 2005
	Witteveen et al. (2011), Miller (2006)	181	ND	ND	14.7	0.1	3.9, 0.03	2	Predominantly fish, some zooplankton (<i>Calanus</i> spp.)	N Pacific	California, Oregon, Washington, and S British Columbia	Coastal, oceanic	2004, 2005
	Witteveen et al. (2012)	93	-17.9	0.6	13.3	0.9	ND	ND	Predominantly euphausiids (<i>Thysanoessa</i> spp. and <i>Euphausia pacifica</i>), plus juvenile walleye pollock <i>Gadus chalcogrammus</i> , capelin, and Pacific sand lance <i>Ammodytes hexapterus</i>	N Pacific	Kodiak Island, Alaska	Oceanic islands	2004–2006
	Wright et al. (2015, 2016)	63	-18.0	0.6	13.7	0.8	3.3, 0.1	3	Predominantly zooplankton (euphausiids, dominated by <i>Thysanoessa inermis</i>) 27%, forage fish e.g. capelin 27%, walleye pollock 12%, Pacific sand lance 10%, eulachon <i>Thaleichthys pacificus</i> <5%, Pacific herring <5%, Pacific sandfish <i>Trachurus trachurus</i> <5%	N Pacific	Kodiak Island, Alaska: N feeding ground	Oceanic islands	2004–2013

	Wright et al. (2015, 2016)	55	-17.9	0.7	13.0	0.8	3.0, 0.1	3	Predominantly zooplankton (euphausiids, dominated by <i>Thysanoessa inermis</i>) 66%, some forage fish e.g. capelin <10%, walleye pollock <5%, Pacific sand lance <5%, eulachon <5%, Pacific herring <5%, Pacific sandfish <5%	N Pacific	Kodiak Island, Alaska: S feeding ground	Oceanic islands	2004–2013
	Witteveen & Wynne (2016)	145	-17.9	0.6	13.4	0.9	ND	ND	Krill (dominated by <i>Thysanoessa inermis</i>), copepods, juvenile capelin	N Pacific	Gulf of Alaska, Kodiak Island	Oceanic islands	2003, 2005
	Witteveen & Wynne (2016)	86	-18.3	0.7	13.2	0.7	ND	ND	Zooplankton, small fish e.g. juvenile capelin	N Pacific	Gulf of Alaska, Shumagin Islands	Oceanic islands	2004, 2005
	Wild et al. (2018)	1	-17.5	0.3	12.4	0.8	ND	ND	Krill, herring, small schooling fish	N Pacific	Gulf of Alaska	Coastal, oceanic	2010
	Filatova et al. (2013)	47	-18.7	0.1	10.4	0.1	ND	ND	Zooplankton (deep oceanic areas), likely euphausiids (<i>Thysanoessa raschii</i> , <i>T. inermis</i> , <i>T. spinifera</i> , <i>T. longipes</i> and <i>Euphausia pacifica</i>)	NW Pacific	Russian Far E whale feeding grounds: Commander Islands	Oceanic islands	2004, 2005, 2009, 2010, 2011
	Filatova et al. (2013)	48	-17.2	0.1	12.7	0.2	ND	ND	Fish (neritic areas) Pacific sand lance, likely euphausiids (<i>Thysanoessa raschii</i> , <i>T. inermis</i> , <i>T. spinifera</i> , <i>T. longipes</i> and <i>Euphausia pacifica</i>)	NW Pacific	Russian Far E whale feeding grounds: Karaginsky Gulf	Coastal, oceanic	2004, 2005, 2009
	Filatova et al. (2013)	16	-17.8	0.1	14.0	0.4	ND	ND	Fish (neritic areas), likely euphausiids (<i>Thysanoessa raschii</i> , <i>T. inermis</i> , <i>T. spinifera</i> , <i>T. longipes</i> and <i>Euphausia pacifica</i>)	NW Pacific	Russian Far E whale feeding grounds: Anadyr Gulf	Coastal, oceanic	2005
	Fleming & Jackson (2011)	204	-18.4 to -17.7	ND	12.8 to 13.1	ND	Lower	ND	Predominantly euphausiids	NE Pacific	California Current system, Negative N Pacific Gyre Oscillation	Coastal, oceanic	1993–2003, 2010–2012
	Fleming & Jackson (2011)	155	-16.4	ND	14.2	ND	Higher	ND	Predominantly Californian anchovy <i>Engraulis mordax</i> , pilchard	NE Pacific	California Current system, Positive N Pacific Gyre Oscillation	Coastal, oceanic	2004–2006
	Clark et al. (2016)	62	-17.3 to -17.8	ND	12.5 to 13	ND	ND	ND	Unspecified	NE Pacific	Monterey Bay, California coast	Coastal, oceanic	May–Nov 2011
	Clark et al. (2016)	64	-17.8 to -18.2	ND	12.3 to 12.9	ND	ND	ND	Unspecified	NE Pacific	Monterey Bay, California coast	Coastal, oceanic	April–Jul 2012
	Pauly et al. (1998)	NG	ND	ND	ND	ND	3.6	4	Large zooplankton (55%), miscellaneous fishes (30%), small pelagic fish (15%)	N Pacific, NW Atlantic, NE Atlantic, N Atlantic/ Norwegian Sea & unspecified	Unspecified	NW Atlantic & Unspecified	Unspecified
	MacKenzie et al. (2022)	6	-19.4	1.1	12.7	1.5	4.1	5	Euphausiids (<i>Thysanoessa inermis</i>), fish e.g. capelin	European Arctic	Near Svalbard and Barents Sea	Oceanic islands	2013–2018
	Ostrom et al. (1993) ^	1	-18.7	ND	13.4	ND	4.5	6	Zooplankton, euphausiids, crustaceans, small fish, small squid	NW Atlantic	Waters off Newfoundland	Coastal, oceanic	1986–1990
	Todd et al. (1997)	4	-18.8	0.1	14.2	0.1	ND	ND	Unspecified	NW Atlantic	Newfoundland	Coastal, oceanic	1992–1994
	Gavrilchuk et al. (2014)	97	-18.7	0.4	14.3	0.6	ND	ND	Zooplankton, northern krill <i>Meganyctiphanes norvegica</i> and American sand lance (48%), capelin and Atlantic herring <i>Clupea harengus</i> (44%), Arctic krill (<i>Thysanoessa raschii</i>) (10%)	NW Atlantic	Gulf of St Lawrence, Canada	Coastal, oceanic	1992–2010
	Ryan et al. (2014)	4	-17.8	0.3	12.9	0.7	ND	ND	More fish e.g. Atlantic herring, less northern krill and <i>Nyctiphanes couchii</i> (<10%)	NE Atlantic	Celtic Sea	Coastal, oceanic	2009–2011
Fin whale <i>Balaenoptera physalus</i>	Haro et al. (2020)	NA	ND	ND	ND	ND	4.5	Ecopath plus Ecosim	Fish, cephalopods	SE Pacific	SE Pacific, Magellan Strait, off Chile	Coastal, oceanic	NA
	Witteveen & Wynne (2016)	6	-18.6	1.0	12.5	0.8	ND	ND	Copepods, krill	N Pacific	Gulf of Alaska, Kodiak Island	Oceanic islands	2003, 2005
	Witteveen & Wynne (2016)	9	-18.3	0.7	12.5	1.2	ND	ND	Copepods, krill	N Pacific	Gulf of Alaska, Shumagin Islands	Oceanic islands	2004, 2005
	Wild et al. (2018)	1	-20.2	0.2	12.1	0.4	ND	ND	Euphausiids, copepods, small schooling fish	N Pacific	Gulf of Alaska	Coastal, oceanic	2016
	Gendron et al. (2001)	2	-16.0	0.6	15.4	1.1	ND	ND	Euphausiids (e.g. <i>Nyctiphanes simplex</i>), small pelagic fish e.g. pilchard	Central E Pacific	Gulf of California	Coastal, oceanic	1995, 1996
	MacKenzie et al. (2022)	27	-19.5	0.8	10.7	0.7	3.4	5	Pelagic Crustacea e.g. krill, amphipods, plus fish e.g. Atlantic herring, capelin	European Arctic	Near Svalbard and Barents Sea	Oceanic islands	2012–2020
	Pauly et al. (1998)	NG	ND	ND	ND	ND	3.4	4	Large zooplankton (80%), small squid (5%), small pelagics (5%), mesopelagics (5%), miscellaneous fishes (5%)	N Atlantic/ Norwegian Sea & unspecified	Unspecified	Unspecified	Unspecified
	Gavrilchuk et al. (2014)	69	-18.6	0.4	12.4	1.3	ND	ND	Zooplankton, Arctic krill (56%), northern krill and American sand lance (40%)	NW Atlantic	Gulf of St Lawrence, Canada	Coastal, Oceanic	1992–2010
	Aguilar et al. (2014)	55	ND	ND	9.8	0.4	ND	ND	Northern krill	NE Atlantic	NW Spain	Coastal, Oceanic	1983–1985
	Ryan et al. (2014)	21	-18.2	0.5	12.1	1.1	ND	ND	Northern krill and <i>Nyctiphanes couchii</i> about 50%	NE Atlantic	Celtic Sea	Coastal, oceanic	2009–2011
	Silva et al. (2019)	42	-19.4	0.8	9.5	0.7	ND	ND	Euphausiids (37–81%), e.g. northern krill and Arctic krill, epipelagic and mesopelagic schooling fish	Central N Atlantic	Azores	Oceanic islands	2002–2014
Blue whale <i>Balaenoptera musculus</i>	S. Bury (unpublished data)	1	-25.5		6.9	ND	ND	ND	Zooplankton	Antarctic	Ross Sea Shelf	Oceanic	2015
	Gendron et al. (2001)	2	-18.2	0.6	12.9	0.3	ND	ND	Euphausiids (e.g. <i>Nyctiphanes simplex</i>)	Central E Pacific	Gulf of California	Coastal, oceanic	1995, 1996
	Pauly et al. (1998)	NG	ND	ND	ND	ND	3.2	4	Large zooplankton (100%)	E Pacific, Norwegian Sea & unspecified	Unspecified	Unspecified	Unspecified
	MacKenzie et al. (2022)	21	-18.7	1.3	9.4	0.6	3.0	5	Pelagic Crustacea e.g. Arctic krill, amphipods	European Arctic	Near Svalbard and Barents Sea	Oceanic islands	2014–2019
	Ostrom et al. (1993) *	1	-20.1	ND	9.6	ND	3.2	6	Zooplankton	NW Atlantic	Waters off Newfoundland	Coastal, oceanic	1986–1990
	Gavrilchuk et al. (2014)	22	-18.7	0.4	9.9	1.4	ND	ND	Zooplankton, Arctic krill (70%), northern krill + American sand lance (26%)	NW Atlantic	Gulf of St Lawrence, Canada	Coastal, oceanic	1992–2010
	Silva et al. (2019)	17	-18.7	1.0	9.1	0.7	ND	ND	Euphausiids, e.g. northern krill, Arctic krill and <i>Thysanoessa inermis</i>	Central N Atlantic	Azores	Oceanic islands	2002–2014

Minke whale <i>Balaenoptera acutorostrata</i>		MacKenzie et al. (2022)	17	-19.4	0.4	12.2	1.3	3.9	5	Generalist diet	European Arctic	Near Svalbard and Barents Sea	Oceanic islands	2009–2019
		Ostrom et al. (1993) ^	1	-18.3	ND	12.3	ND	4.1	6	Zooplankton (euphausiids, crustaceans) small fish, small squid	NW Atlantic	Waters off Newfoundland	Coastal, offshore	1986–1990
		Gavrilchuk et al. (2014)	53	-18.6	0.4	13.0	1.4	ND	ND	Northern krill + fish (57%), capelin and Atlantic herring (22%)	NW Atlantic	Gulf of St Lawrence, Canada	Coastal, offshore	1992–2010
		Pauly et al. (1998)	NG	ND	ND	ND	ND	3.4	4	Large zooplankton (65%)	N Atlantic, NE Atlantic, Norwegian Sea, W Pacific, Antarctic & unspecified	Unspecified	Unspecified	Unspecified
Sei whale <i>Balaenoptera borealis</i>		Silva et al. (2019)	36	-17.5	1.0	9.0	0.6	ND	ND	Predominantly calanoid copepods, also euphausiids	Central N Atlantic	Azores	Oceanic islands	2002–2014
		Pauly et al. (1998)	NG	ND	ND	ND	ND	3.4	4	Large zooplankton (80%), small squid (5%), small pelagics (5%), mesopelagics (5%), miscellaneous fishes (5%)	NE Atlantic/ Norwegian Sea & unspecified	Unspecified	Unspecified	Unspecified
Bryde's whale <i>Balaenoptera edeni</i>		Gendron et al. (2001)	2	-18.1	1.5	15.8	0.6	ND	ND	Small pelagic fish, euphausiids	Central E Pacific	Gulf of California	Coastal	1995, 1996
		Pauly et al. (1998)	NG	ND	ND	ND	ND	3.7	4	Large zooplankton (40%), small pelagics (20%), mesopelagics (20%), higher invertebrates (20%)	NE Pacific, Arctic & unspecified	Unspecified	Unspecified	Unspecified
Northern right whale <i>Eubalaena glacialis</i>		Pauly et al. (1998)	NG	ND	ND	ND	ND	3.2	4	Large zooplankton (100%)	NW Atlantic, N Atlantic & unspecified	Unspecified	Unspecified	Unspecified
Southern right whale <i>Eubalaena australis</i>		Pauly et al. (1998)	NG	ND	ND	ND	ND	3.2	4	Large zooplankton (100%)	Antarctic & unspecified	Unspecified	Unspecified	Unspecified
		Best & Schell (1996) #	11	-26.0 to -16.0	ND	6 to 11	ND	ND	ND	Antarctic krill, post-larval lobster krill, zooplankton	SE Atlantic	Off coast of S Africa	Coastal, oceanic	1963–1994
Bowhead whale <i>Balaena mysticetus</i>		Hoekstra et al. (2002)	84	-21.0	0.3	13.2	0.4	2.9	7	Zooplankton (calanoid copepods, euphausiids), pelagic and epibenthic crustaceans and invertebrates	N Pacific, Arctic	Bering–Chukchi–Beaufort Sea	Oceanic	1997–2000
		Lee et al. (2005)	27	-20.7	0.6	13.2	0.7	ND	ND	Zooplankton (copepods, euphausiids, amphipods, mysids)	N Pacific, Arctic	Bering–Chukchi–Beaufort Sea, Barrow and Kaktovik	Oceanic	1986–1988
		Lee et al. (2005)	25	-19.5	0.5	14.3	0.8	ND	ND	Zooplankton (copepods, euphausiids, amphipods, mysids)	N Pacific, Arctic	Bering–Chukchi–Beaufort Sea, Barrow and Kaktovik	Oceanic	1997–1999
		Pomerleau et al. (2018) #	4	-19.0	0.7	14.2	1.5	ND	ND	Zooplankton, mainly calanoid copepods	N Pacific, Arctic	Bering–Chukchi–Beaufort Sea	Oceanic	1988–1996
		Pomerleau et al. (2018) #	4	-17.7	0.9	13.2	1.0	ND	ND	Zooplankton, mainly calanoid copepods	N Pacific, Arctic	E Canadian Arctic/W Greenland	Oceanic	1988–1996
		Pauly et al. (1998)	NG	ND	ND	ND	ND	3.2	4	Large zooplankton (80%), benthic invertebrates (20%)	NE Pacific, Bering Sea, Arctic & unspecified	Unspecified	Unspecified	Unspecified
		Matthews & Ferguson (2015) #	14	-18.2	0.3	13.6	0.3	ND	ND	Pelagic copepods (primarily <i>Calanus</i> spp.) and euphausiids, epibenthic invertebrates	NW Atlantic	Eastern Canadian Arctic/West Greenland (Hudson Bay, Baffin Bay, Davis Strait)	Coastal, oceanic	1998–2011
		Matthews & Ferguson (2015) #	14	-18.9	0.4	12.8	0.3	ND	ND	Pelagic copepods (primarily <i>Calanus</i> spp.) and euphausiids, epibenthic invertebrates	NW Atlantic	E Canadian Arctic/W Greenland (Hudson Bay, Baffin Bay, Davis Strait)	Coastal, oceanic	1998–2011
Pygmy right whale <i>Caperea marginata</i>		Pauly et al. (1998)	NG	ND	ND	ND	ND	3.2	4	Large zooplankton (100%)	Unspecified	Unspecified	Unspecified	Unspecified
Sperm whale <i>Physeter macrocephalus</i>		Wild et al. (2018)	1	-16.8	0.5	17.2	0.4	ND	ND	Deep-sea fish, including sablefish <i>Anoplopoma fimbria</i> and halibut <i>Hippoglossus stenolepis</i> from long-line fisheries, and squid	N Pacific	Gulf of Alaska	Coastal, offshore	2015
		Wild et al. (2018)	28	-17.5	0.6	16.8	0.8	ND	ND	Deep-sea fish, including sablefish and halibut from long-line fisheries, and squid	N Pacific	Gulf of Alaska	Coastal, offshore	2003–2017
		Pauly et al. (1998)	NG	ND	ND	ND	ND	4.4	4	Large squid (60%), miscellaneous fishes (15%), small squid (10%), benthic invertebrates (5%), small pelagics (5%), mesopelagics (5%)	NE Atlantic, Norwegian Sea, NE Pacific, SE Pacific, W Pacific, SW Pacific & unspecified	Unspecified	Unspecified	Unspecified
		MacKenzie et al. (2022)	5	-16.9	1.4	13.8	0.3	4.4	5	Pelagic–benthic/coastal–offshore/sympagic open-water prey sources	European Arctic	Near Svalbard and Barents Sea	Oceanic islands	2020
		Ostrom et al. (1993) ^	1	-22.8	ND	11.1	ND	3.7	6	Mainly squid	NW Atlantic	Waters off Newfoundland Canada	Coastal, offshore	1986–1990
		Troina et al. (2021)	6	-17.2	0.2	14.4	0.6	5.3, 0.5	8	Deep-water squid	SW Atlantic	Off SE coast of Brazil, S America	Coastal, offshore	2009–2015
Beluga whale <i>Delphinapterus leucas</i>		Hoekstra et al. (2002)	22	-18.7	0.2	16.6	0.1	3.8	7	Benthic and pelagic invertebrates, small fish+J106	N Pacific, Arctic	Bering–Chukchi–Beaufort Sea	Coastal, oceanic	1998–1999
		Lesage et al. (2001) Males	11	-16.7	0.2	15.8	0.6	4.6	9	Benthic or demersal prey, invertebrates, small estuarine and pelagic fish, higher trophic level prey than females	NE Pacific	Gulf of St Lawrence, Canada	Coastal, estuarine	1988–1990
		Lesage et al. (2001) Males	4	-16.2	0.3	16.3	1.1	4.8	9	Benthic or demersal prey, invertebrates, small estuarine and pelagic fish, higher trophic level prey than females	NE Pacific	Gulf of St Lawrence, Canada	Coastal, estuarine	1997
		Lesage et al. (2001) Females	16	-17.3	0.2	15.1	0.4	4.4	9	Benthic or demersal prey, invertebrates, small estuarine and pelagic fish, in summer feed in ¹³ C-depleted upper estuary	NE Pacific	Gulf of St Lawrence, Canada	Coastal, estuarine	1988–1990
		Lesage et al. (2001)+B109 Females	6	-16.7	0.2	15.3	0.5	4.5	9	Benthic or demersal prey, invertebrates, small estuarine and pelagic fish, in summer feed in ¹³ C-depleted upper estuary	NE Pacific	Gulf of St Lawrence, Canada	Coastal, estuarine	1997
		MacKenzie et al. (2022)	10	-17.2	0.5	17.5	0.5	5.7	5	Coastal and benthic prey, preferred prey are ice-reliant gadoids	European Arctic	Near Svalbard	Coastal	2013–2016
		Ostrom et al. (1993) ^	1	-17.6	ND	13.6	ND	4.6	6	Zooplankton, euphausiids, crustaceans, small fish, small squid	NW Atlantic	Waters off Newfoundland	Coastal	1986–1990
		Pauly et al. (1998)	NG	ND	ND	ND	ND	4.0	4	Miscellaneous fishes (40%), benthic invertebrates (20%), small pelagics (20%), mesopelagics (10%), large squid (5%), small squid (5%)	Unspecified	Unspecified	Unspecified	Unspecified

(1) $TP = \lambda + (\delta^{15}N_{\text{consumer}} - \delta^{15}N_{\text{base}}) / \Delta n$ where λ = TP of the organisms used to estimate $\delta^{15}N_{\text{base}}$ and Δn = enrichment of ^{15}N per trophic level. A λ of 2 was assigned to Antarctic krill *Euphausia superba* using an enrichment of Δn of 3.4 ‰.

(2) $TP = 2 + (\delta^{15}N_{\text{specimen}} - \delta^{15}N_{\text{primary consumer}}) / 2.4$, where 2 is the TP of the primary consumer and 2.4 is the mean $\delta^{15}N$ enrichment per trophic level for marine mammals (Hobson et al. 1994, Post 2002). Mean TP values for each feeding group were calculated by averaging the TP of individuals within feeding groups.

(3) $TP = 2 + (\delta^{15}N_{\text{humpback whale}} - \delta^{15}N_{\text{scallop}}) / 2.8$, where 2 was the assumed TP of weathervane scallop *Patonopecten caurinus*, which was used to define the baseline nitrogen stable isotope value. The trophic discrimination factor (TDF) of 2.8 was that measured between euphausiids and fin whale skin (Borrell et al. 2012).

(4) Trophic level (TL) assigned from stomach contents/observation diet composition data. Diet composition (DC_{*j*}) trophic levels (TL_{*j*}) were computed for each whale species *i* feeding on 8 prey types *j*, using the equation of Pauly et al. (1998):

$$TL_i = 1 + \left(\frac{\sum_{j=1}^8 TL_j \cdot DC_{ij}}{\sum_{j=1}^8 DC_{ij}} \right)$$

(5) $TP = (\delta^{15}N_{\text{species}} - \delta^{15}N_{\text{base}} \Delta^{15}NT-D) + rTP_{\text{base}}$ where $\delta^{15}N_{\text{species}}$ and $\delta^{15}N_{\text{base}}$ are the mean $\delta^{15}N$ values of the species of interest and of the species used as a proxy baseline, respectively. $\Delta^{15}NT-D$ is the TDF value and rTP_{base} is the relative TP of the proxy baseline species. Blue whales were assigned as the rTP_{base} with a value of 3, and $\Delta^{15}NT-D$ had a value of 3 as a relative scaling factor (Hobson & Welch 1992, Hobson et al. 1996, Hoekstra et al. 2002; e.g. Matthews et al. 2020).

(6) TP assigned from $\delta^{15}N$, using a TDF of 3 ‰ and defining basking shark as an operational TP 1. Since basking shark consume zooplankton and small crustaceans, 2 TP were added to each value to bring their estimates in line with usual TP definitions.

(7) $TP = 2 + (\delta^{15}N_{\text{consumer}} - \delta^{15}N_{\text{calanus spp.}}) / 3.8$, TDF was taken to be 3.8 ‰ following Hobson & Welch (1992).

(8) TP estimated using ^{15}N in trophic (Tr) and source (Sr) amino acids (AAs), using a multiple amino acids equation, weighted mean $\delta^{15}N$ values of the trophic amino acids (Tr-AAAs) alanine, aspartate, glutamate, isoleucine (Ile), leucine and valine ($\delta^{15}N_{\text{Tr-AA}}$) and the source AAs (Sr-AAAs) phenylalanine and lysine ($\delta^{15}N_{\text{Sr-AA}}$). A mean TDF of 3.1, 0.4 ‰ (Ruiz-Cooley et al. 2021) and a mean β of 3.4, 0.9 ‰ (Nielsen et al. 2015) was used.