Supplementary Table 1. Data sources

Sources of stage-specific abundance data for *C. glacialis* and *C. hyperboreus* (ind. m⁻²/ind. m⁻³). For each dataset, any associated publications and information about temporal and spatial data coverage and net type/mesh size are listed (see Literature Cited below). ID numbers of datasets that contain depth-specific abundance data (not only depth-integrated) are bolded. The data compilation is available online: arcticdata.io/catalog/#view/doi.org/10.18739/A2KD1QK3Q

į	C	Detect	Dublications	V	A	Not time (moch size um)
1D 1	Source COPEPOD Global Plankton Database	Biological Atlas of the Arctic Seas 2000	Publications	1938, 1939, 1952-1957, 1962, 1981	Area Barents Sea, Kara Sea, Nansen Basin	Net type (mesh size, μm) Juday net (168/170)
2	COPEPOD Global Plankton Database	Brodskii 1950	(Brodskii, 1950)	1950-1951	Greenland Sea	Nansen net (65), K-100 (94)
3	COPEPOD Global Plankton Database	NEWP (NorthEast Water Polynya Project)	(Ashjian <i>et al.</i> , 1997)	1992-1993	Greenland Sea	Mocness (149), Bongo net (153)
4	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	Pautzke CG (1979): Copepoda collected from the Canada Basin Arctic Ocean; Fletcher's Ice Island (T-3) 1970-1972 and AIDJEX, 1975	(Dawson, 1978)	1970-1972, 1975	Canada Basin	English net (215), ring net (73), plankton net (223)
5	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	Scott DA, English TS (1969). Copepoda collected from Fletcher's Ice Island (T-3) in the Canadian Basin of the Arctic Ocean. Technical Report No. 240, Reference M69-62. University of Washington and Arctic Ocean Diversity, University of Alaska Fairbanks, Fairbanks		1966-1969	Canada Basin	0.5m pump (215), 1m ring net (110/215), 2m ² net (215/223), 3m ² net (300)
6	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	Darnis G, Barber DG, Fortier L (2008) Sea ice and the onshore-offshore gradient in pre-winter zooplankton assemblages in southeastern Beaufort Sea. J Mar. Syst. 74:994–1011	(Darnis et al., 2008)	2002	Beaufort Sea	1m² plankton net (200)

7	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere NSF Arctic Data Center. Russ Hopcroft	Grainger EH, Grohe C (1975). Zooplankton Data from the Beaufort Sea, 1951-1975. Environment Canada, Fisheries and Marine Service, Technical Report No 591, 51, pg.		1951	Canada Basin	Plankton net (282)
8	(2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	Hopky GE, Lawrence MJ, Chiperzak DB (1994) NOGAP B2; Zooplankton Data from the Canadian Beaufort Sea Shelf, 1984 and 1985. Can Data Rep Fish Aquat Sci 922		1985-1988	Beaufort Sea	Bongo net (85/500), Neuston net (85/500), Wisconsin net (63)
9	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	K.N. Kosobokova	(Kosobokova and Hirche, 2009)	1972, 1975- 1977, 1998- 2003	Central Artic Ocean, White Sea	Juday net 0.1m² (180)
10	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	Kosobokova KN, Hopcroft R (2010). Diversity and vertical distribution of mesozooplankton in the Arctic's Canada Basin. Deep Sea Res Part 2 57:96-110	(Kosobokova and Hirche, 2009; Kosobokova and Hopcroft, 2010)	2005	Canada Basin	Multinet 0.25m diameter (150)
11	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	Hopcroft R, Clarke C, Nelson RJ, Raskoff KA (2005). Zooplankton Communities of the Arctic's Canada Basin: the contribution by smaller taxa. Polar Biol 28: 198-206	(Hopcroft et al., 2005)	2002	Canada Basin	Bongo net 6m diameter (53)
12	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	Walkusz WJE et al. (2008). Zooplankton and Ichthyoplankton Data Collected from the Chukchi and Beaufort Seas During the R/V/ Mirai Cruise, September 2002. Canadian Data Report of Fisheries and Aquatic Science 1211		2002	Chukchi Sea, Beaufort Sea	Bongo net (333)
13	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 1: Western Hemisphere	Fortier L, Darnis G. The pre-winter 2007 vertical distribution of zooplankton in the Cape Bathurst and North Water polynyas, and Lancaster Sound, Canadian Arctic		2007	Canadian Archipelago	Hydrobios Multinet (200)

14	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities (doi: urn:uuid:c717717b-8b5c-459d-80cc-575ac6f9d445). Part 2: Eastern Hemisphere	Hirche HJ et al. (2006) Structure and function of contemporary food webs on Arctic shelves: A panarctic comparison. The pelagic system of the Kara Sea - Communities and components of carbon flow. Prog Oceanogr 71:288–313	(Hirche <i>et al.</i> , 2006)	1999-2001	Kara Sea	Nansen net (150)
15	NSF Arctic Data Center. Russ Hopcroft (2014): Environmental change in the Arctic Ocean: a synthesis and retrospective analysis of zooplankton communities. Part 2: Eastern Hemisphere	Markhaseva EL, Golikov AA, Agapova TA, Beig AA (1985). Archives of the Arctic Seas Zooplankton Contributions from the Zoological Institute RAS. No 8NA. Updated version from I. Rutzen (personal communication)	(I more et al., 2000)	1935-2001 1935, 1938, 1939, 1946- 1948, 1950, 1952, 1954- 1956, 1970, 1972, 1973	Barents Sea, Kara Sea, Laptev Sea, East Siberian Sea, Chukchi Sea, Central Arctic Ocean	Juday net (64/168/333), K- 100 (569), Nansen closing net (94/333), Nansen surface net (333), plankton net (569)
16	NSF Arctic Data Center	Carin Ashjian. 2010. AON: Annual Observations of the Biological and Physical Marine Environment in the Chukchi and Nearshore Beaufort Seas near Barrow, AK (doi:10.18739/A2X08K, urn:uuid:14610858-43d4-42f0-ade1-c6f065787339)		2010-2015	Beaufort Sea	Tucker trawl (350/500), ring net (150)
17	NSF Arctic Data Center	Carin Ashjian, Robert Campbell, and Stephen Okkonen. 2013. Collaborative Research: A winter expedition to explore the biological and physical conditions of the Bering, Chukchi, and Southern Beaufort Seas (urn:uuid:9f967a18-997a-4f8b-816d-39e4a0b9d74b).		2011	Bering Sea, Chukchi Sea, Beafort Sea	Paired Bongo net/Hydrobios Multinet (53/150)
18	NSF Arctic Data Center	Carin J. Ashjian and Robert G. Campbell. 2016. Mesozooplankton Abundance and Biomass. SHEBA drift experiment (urn:uuid:a4b4aa8c-f600- 4fd1-a0e2-c259cc8aa83d)	(Ashjian <i>et al.</i> , 2003)	1997-1998	Canada Basin, Chukchi Sea	Ring net (53/150)
19	NSF Arctic Data Center	Peter Lane, Dora Sorarrain-Pilz, Sharon L. Smith, and Leopoldo Llinas. 2016. HLY-02-03 Zooplankton Abundance (HLY0203: doi:10.5065/D6FQ9TQZ; HLY0402: doi:10.5065/D69G5JWQ; HLY0403: doi:10.5065/D6PK0D73)	(Lane <i>et al.</i> , 2008)	2002, 2004	Chukchi Sea, Beaufort Sea, Canada basin	Mocness (153), Bongo net 60cm diameter (150/153), 0.25m ² Multinet (150)

		Carin J. Ashjian and Robert G. Campbell. 2016. SBI mesozooplankton abundance (HLY0201: doi:10.5065/D69W0CJD; HLY0203: doi:10.5065/D6ZW1J11; HLY0402: doi:10.5065/D68S4N15;		1998, 2002,	Chukchi Sea, Beaufort Sea, Canada	
20	NSF Arctic Data Center	HLY0403: doi:10.5065/D6W9578G)		2004	basin	1m ² ring net (150)
21	NSF Arctic Data Center	Sharon L. Smith. 2016. Copepod Abundance and Measurements in Historical Zooplankton Samples (doi:10.5065/D6G44NCZ)	(Johnson, 1956)	1950-1951	Chukchi Sea, Beaufort Sea	Nansen net (158)
22	NSF Arctic Data Center	Carin J. Ashjian. 2016. SNACS: Environmental Variability, Bowhead Whale Distributions, and Inupiat Subsistence Whaling - biological data (doi:10.5065/D6KW5D58).		2005-2006	Beaufort Sea	Bongo net (150)
23	NSF Arctic Data Center	Kenneth O. Coyle and Alexei I. Pinchuk. 2016. Mesozooplankton population and biomass in the eastern Bering Sea-CalVET data-Preliminary (doi:10.5065/D6833Q25)		2008	Bering Sea	CALVET vertical tow 25cm diameter (150)
24	NSF Arctic Data Center	Edward Durbin and Maria C. Casas. PSEA-10-01 Zooplankton abundance. Arctic Data Center (doi:10.5065/D61N7Z4T)		2010	Bering Sea	Ring net 0.5m diameter (64)
25	Arctic Ocean Diversity (arcodiv.org/Database/Plankton_datasets.htm l)	Archives Arctic Seas Zooplankton 1900-1973 (R. Hopcroft, accessed by S. Mills [personal communication]. No longer available)	Various. Some data overlapped with dataset ID 1 and 15, these were removed from the present dataset.	1934,1935, 1939,1948, 1950,1951, 1954- 1956,1969, 1971-1973	Central Arctic Ocean, Kara Sea, Barents Sea	Juday net (168), Nansen net (333), water pump (64)
26	Arctic Ocean Diversity (arcodiv.org/Database/Plankton_datasets.htm I)	Zooplankton in the Nearshore Beaufort Sea (Accessed by S. Mills [personal communication]. No longer available)	(Horner and Murphy, 1985)	1978-1979	Beaufort Sea	Ring net 0.75m diameter (308), ring net 0.5m diameter (209)
27	Arctic Ocean Diversity (arcodiv.org/Database/Plankton_datasets.htm I)	Beaufort Sea Zooplankton (CASES). (Accessed by S. Mills [personal communication]. No longer available)		2003-2004	Beaufort Sea/ Canadian Archipelago	Multi-sampler 0.5m² (200)
28	Arctic Ocean Diversity (arcodiv.org/Database/Plankton_datasets.htm I)	Chukcki Sea Zooplankton 1953/1954 (Zooplankton vertical stratified collections on board of the Russian R/V Lomonosov, program ANII A-65). (Accessed by S. Mills [personal communication]. No longer available)		1953-1954	Chukchi Sea	Nansen net (333)

		Ecosystem monitoring information		1		
		collected in Hanna Shoal in the				
		Chukchi Sea for the COMIDA CAB				
29	NODC NOAA	project from August 2012 to August 2013 (NODC Accession 0123220)	(Dunton <i>et al.</i> , 2014)	2012-2013	Chukchi Sea	Bongo net (150)
29	NODE NOAA	Zooplankton, temperature, and salinity	(Dunton et al., 2014)	2012-2013	Chukchi Sea	Bongo net (150)
		from various instruments from multiple				
		ships in the White Sea during the				
		period 1961-1999 (NODC Accession				
30	NODC NOAA	0001302)	(Persson et al., 2012)	1963-1998	White Sea	Juday net (168)
		Kosobokova KN, Hirche HJ (2014):				
		Zooplankton abundance measured on				
		multinet samples during POLARSTERN cruise ARK-IX/4 to the			Laptev Sea,	
		Laptev Sea and Arctic Ocean in 1993.	(Kosobokova <i>et al.</i> ,		Nansen	
31	pangae.de	doi:10.1594/PANGAEA.839758	1998)	1993	Basin	Multinet (150)
	Femigue	Swalethorp R, Kjellerup S, Nielsen TG				(123)
		(2013): Mesozooplankton abundance				
		data from Disko Bay, West Greenland,	(Swalethorp et al.,		Western	Hydrobios Multinet (50),
32	pangae.de	2008. doi:10.1594/PANGAEA.815102	2011)	2008	Greenland	WP2 (50)
		Swalethorp R, Kjellerup S, Nielsen TG				
		(2013): Mesozooplankton abundance data from the fjord branch Kapisigdlit				
		located in the Godthaabsfjord system,				
		West Greenland, 2010.	(Riisgaard <i>et al.</i> ,		Western	Hydrobios Multinet (50),
33	pangae.de	doi:10.1594/PANGAEA.810996	2014)	2010	Greenland	WP2 (50)
		DFO (2017). BioChem: database of	,		Scotian	
		biological and chemical oceanographic			Shelf, Gulf of	Ring net 0.5m (73), ring
		data. Department of Fisheries and			St.	net 0.75m (202), ring net
		Oceans, Canada (accessed		1992-1993,	Lawrence,	1m (158/333), Bongo net
34	BioChem	3.27.2017)	(Devine <i>et al.</i> , 2014)	1997-2016	Hudson Bay	50cm (158/333)
						Juday net 36cm (180), Juday net 80cm (250/375),
		IMR Zooplankton Barents Sea				WP2 net 56 cm (180),
35	Norwegian Marine Data Centre (NMDC)	(accessed 10.9.2018)	Various	1981-2016	Barents Sea	Russehåv/Judav (180)
	Terregian manne bata contro (TWBO)	(2000000 10.0.2010)		.331 2310	Norwegian	. tacconavioudaj (100)
					Sea, N/W	Juday net 36cm (180),
		IMR Zooplankton Norwegian Sea			Spitsbergen	Juday net 80cm (250),
36	Norwegian Marine Data Centre (NMDC)	(accessed 10.9.2018)	Various	1984-2016	Shelf	WP2 net 56cm (180)
	(Vices et al. 2017)	Date manifed by Circle 14 and 400	(Arnkværn <i>et al.</i> ,	2004 2002	Consile a set	WP2 net (180), WP3 net
37	(Visser et al., 2017)	Data provided by Sigrún Jónasdóttir	2005) (Astthorsson and	2001-2002	Svalbard	(180)
38	(Visser et al., 2017)	Data provided by Sigrún Jónasdóttir	(Astthorsson and Gislason, 2003)	1995	Iceland Sea	Bongo net (200)
		, ,	,,			, , ,
39	(Visser et al., 2017)	Data provided by Sigrún Jónasdóttir	(Auel <i>et al.</i> , 2003)	2000	Fram Strait	Multinet (300)

(Visser <i>et al.</i> , 2017) (Visser <i>et al.</i> , 2017)	Data provided by Sigrún Jónasdóttir Data provided by Sigrún Jónasdóttir	(Gislason and Silva, 2012)	2006-2008	Iceland Sea	
(Visser <i>et al.</i> , 2017)	Data provided by Signin Jónasdóttir	(Hirobo and		iceiailu Sea	Multinet (200)
	Data provided by Signan Johasdottii	Kwasniewski, 1997)	1993	Greenland Sea	Bongo net (200)
(Visser et al., 2017)	Data provided by Sigrún Jónasdóttir	(Hirche and Mumm, 1992)	1987	Nansen Basin	Kiel Multinet (300)
(Visser et al., 2017)	Data provided by Sigrún Jónasdóttir	(Hirche, 1997)	1988-1995	Greenland Sea	Multinet (150)
(Visser et al., 2017)	Data provided by Sigrún Jónasdóttir	(Munk et al., 2003)	1996	Greenland	WP2 net (200)
(Visser et al., 2017)	Data provided by Sigrún Jónasdóttir	(Pasternak et al., 2001)	1992	Northern Norway	Mocness (180)
(Visser <i>et al.</i> , 2017)	Data provided by Sigrún Jónasdóttir	(Hirche and Kosobokova, 2003)	1997	Barents Sea	Multinet (150)
(Visser <i>et al.</i> , 2017)	Data provided by Sigrún Jónasdóttir	(Madsen <i>et al.</i> , 2001)	1996-1997	W. Greenland	WP2 net (200)
(Visser <i>et al.</i> , 2017)	Data provided by Sigrún Jónasdóttir	(Daase et al., 2008)	2002	N/W Spitsbergen Shelf	Multinet (180)
(Visser <i>et al.</i> , 2017)	Data provided by Sigrún Jónasdóttir	(Falk-Petersen <i>et al.</i> , 1999)	1995	Barents Sea	WP2 net (180)
(Visser et al., 2017)	Data provided by Sigrún Jónasdóttir	(Sameoto and Herman, 1990)	1984-1988	Scotian Shelf	BIONESS/Ring net (246)
Munk P, Nielsen TG, Hansen BW (2015). Horizontal and vertical dynamics of zooplankton and larval fish communities during mid-summer in Disko Bay, West					Submersible pump (50)
	(Visser et al., 2017) Munk P, Nielsen TG, Hansen BW (2015). Horizontal and vertical dynamics of zooplankton and larval fish communities	(Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir Data provided by Sigrún Jónasdóttir	(Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Munk et al., 2003) (Pasternak et al., 2001) (Pasternak et al., 2001) (Hirche and Kosobokova, 2003) (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Madsen et al., 2001) (Hirche and Kosobokova, 2003) (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Daase et al., 2001) (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Falk-Petersen et al., 1999) (Visser et al., 2017) Data provided by Sigrún Jónasdóttir Data provided by Sigrún Jónasdóttir (Sameoto and Herman, 1990) Munk P, Nielsen TG, Hansen BW (2015). Horizontal and vertical dynamics of zooplankton and larval fish communities during mid-summer in Disko Bay, West	(Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Munk et al., 2003) (Pasternak et al., 2001) (Pasternak et a	(Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2017) Data provided by Sigrún Jónasdóttir (Visser et al., 2018) (Visser et al., 2018) Data provided by Sigrún Jónasdóttir (Visser et al., 2018) (Visser et al., 2018) (Visser et al., 2018) Data provided by Sigrún Jónasdóttir (Visser et al., 2018) (Visser et al., 2018) (Visser et al., 2018) Data provided by Sigrún Jónasdóttir (Visser et al., 2018) (Visser et al.,

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