Supplementary Table S1: Location code (Figure 6), average ∫ρ, the depth of integration, the ρ Euphotic zone density, and references. Note: some studies report data from multiple sectors or zones within a specific region.

Location Code	Zone	Average ∫ρ (mmol Si m^{-2} d^{-1})	∫ depth (m)	ρ Euphotic zone density [(mmol Si m^{-2} d^{-1}) x m]	Reference:
SO	Ross Sea	37.6	30	1.253	(Nelson and Smith Jr 1986)
SO	Atlantic Sector	30.8	30	1.027	(Quéguiner and Brzezinski 2002)
SO	Ross Sea	34.0	45	0.756	(Nelson et al. 1991)
SO	Australian sector	57.6	100	0.576	(Beucher et al. 2004)
SO	Pacific Sector	19.5	100	0.195	(Brzezinski et al. 2001)
SO	Pacific Sector	18.7	100	0.187	(Brzezinski et al. 2001)
SO	Weddell/Scotia Sea	10.9	75	0.145	(Tréguer et al. 1991)
SO	Australian Sector	10.2	100	0.102	(Beucher et al. 2004)
SO	Pacific Sector	7.9	100	0.079	(Brzezinski et al. 2001)
SO	Pacific Sector	6.8	95	0.072	(Nelson and Gordon 1982)
SO	Pacific Sector	3.6	95	0.038	(Nelson and Gordon 1982)
SO	Pacific Sector	3.6	95	0.038	(Nelson and Gordon 1982)
RP	Mississippi	25.1	11.0	2.277	This study
RP	Amazon	24.0	11	2.182	(DeMaster et al. 1991)
RP	MB	9.4	19.0	0.494	This study
RP	Amazon	3.8	11	0.345	(Shipe et al. 2006)
Open	NE Atl	79.5	53	1.499	(Brown et al. 2003)
Open	North	5.7	50	0.113	(Leblanc et al. 2005)
Open	Warm-Core Ring	6.4	60	0.107	(Brzezinski and Nelson 1989)
CU	Monterey	205	30.0	6.839	(Brzezinski et al. 1997)
CU	Baja	49.4	20	2.470	(Nelson and Goering 1978)
CU	NW Africa	49.4	20	2.470	(Nelson and Goering 1978)
CU	Monterey	42.8	30.0	1.426	(Brzezinski et al. 2003)
CU	Peru	28.5	20.0	1.424	(Nelson et al. 1981)
CU	Santa Barbara Channel	17.5	75	0.233	(Shipe and Brzezinski 2001)
AR	Bering/Chukchi	18.0	20	0.902	(Giesbrecht and Varela 2020)
AR	Bering SE	17.7	36	0.492	(Banahan and Goering 1986)
AR	Bering/Chukchi	8.2	20	0.408	(Krause et al. 2021)
AR	Laborador Sea	4.4	33	0.134	(Hendry et al. 2019)
AR	Svalbard	0.8	20	0.041	(Krause et al. 2018)

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