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Variability in copepod trophic levels and feeding selectivity based on stable isotope analysis in Gwangyang Bay of the southern coast of the Korean Peninsula

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Table S1: Body length, living environment and the empirical equation between dry weight (*DW*) and body length (*L*).

Species	*L* (mm)	Environment	Equation	Reference
Acartia hudsonica	0.67–1.32	Marine	$\ln DW = 3.09 \ln L - 19.19$	Chisholm and Roff (1990); Walter (2010a)
Acartia omorii	0.81–1.22	Marine	$\ln DW = 3.09 \ln L - 19.19$	Chisholm and Roff (1990); Copepoda (2008a)
Acartia ohtsukai	1.03–1.23	Marine, Brackish	$\ln DW = 3.09 \ln L - 19.19$	Chisholm and Roff (1990); Walter (2014a)
Acartia erythraea	1.15–1.25	Marine, Brackish	$\ln DW = 3.09 \ln L - 19.19$	Chisholm and Roff (1990); Copepoda (2014a)
Bestiolina coreana	0.85–0.96	Marine	$\ln W = 3.25 \ln L - 19.65$	Chisholm and Roff (1990); Walter (2010b)
Calanus sinicus	2.07–3.6	Marine	$\log DW = 2.66 \log L - 6.68$	Copepoda (2008b); Uye (1982)
Clausocalanus furcatus	0.7–1.31	Marine	$\ln W = 3.25 \ln L - 19.65$	Boxshall (2004); Chisholm and Roff (1990)
Centropages abdominalis	1.43–1.78	Marine	$\log DW = 3.00 \log L - 8.08$	Copepoda (2008c); Uye (1982)
Centropages dorsispinatus	1.25–1.4	Marine	$\log DW = 3.00 \log L - 8.08$	Copepoda (2008d); Uye (1982)
Paraeuchaeta plana	2.84–3.30	Marine	$\log DW = 2.66 \log L - 6.68$	Boxshall and Walter (2014); Uye (1982)
Eurytemora Pacifica	0.92–1.82	Marine, Brackish	$DW = 1.471*10^{-8} L^{3.064}$	Walter (2014b), Equation Follows *Temora turbinata* (Ara, 2001)
Paracalanus parvus	0.60–1.30	Marine, Brackish	$\ln DW = 3.25 \ln L - 19.65$	Chisholm and Roff (1990); Walter and Boxshall (2014)
Paracalanus aculeatus	0.78–1.36	Marine	$\ln DW = 3.25 \ln L - 19.65$	Boxshall (2008); Chisholm and Roff (1990)
Pseudodiaptomus koreanus	1.09–1.45	Marine, Brackish	$DW = 1.306*10^{-9} L^{3.361}$	Ara (2001); Soh et al. (2012); Walter (2014c)
Pseudodiaptomus marinus	0.95–1.58	Marine, Brackish	$DW = 1.306*10^{-9} L^{3.361}$	Ara (2001); Walter (2014d)
Sinocalanus tenellus	1.30–1.45	Marine, Brackish	$\log DW = 3.00 \log L - 7.42$	Walter (2013a); Uye (1982)
Labidocera rotunda	1.58–2.31	Marine	$DW = 3.770*10^{-8} L^{2.637}$	Ara (2001); Walter (2008a)
Labidocera euchaeta	2.41–2.79	Marine	$DW = 3.770*10^{-8} L^{2.637}$	Ara (2001); Copepoda (2008e)
Tortanus dextrilobatus	1.53–2.05	Marine	$\log DW = 2.50 \log L - 6.11$	Uye (1982); Walter (2013b)
Tortanus forcipatus	1.20–1.27	Marine	$\log DW = 2.50 \log L - 6.11$	Uye (1982); Walter (2013c)
Corycaeus affinis	0.62–0.87	Marine	$\ln DW = 1.7 \ln L - 9.92$	Chisholm and Roff (1990); Copepoda (2014b)
Oithona davisae	0.47–0.61	Marine, Brackish, Fresh	$\ln DW = 1.10 \ln L - 7.07$	Chisholm and Roff (1990); Ferrari and Orsi (1984); Walter (2008b)
Oncaea venella	0.55–1.23	Marine	$\ln DW = 1.96 \ln L - 11.64$	Chisholm and Roff (1990); Walter and Böttger-Schnack (2011)

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Table S2: Abundance composition of copepods in Gwangyang Bay in 2015 (ind. m^{-3}).

Species/Seasons	Stations								
	#1	#2	#3	#4	#5	#6	#7	#8	#9
Winter									
Acartiahudsonica	29.5	489.2	188.7						
Acartiaomorii			310.8	735.4	1413.9	687.5	400.0	566.2	522.0
Calanussinicus			5.6		35.9	27.0	39.4	46.0	120.5
Centropages abdominalis			66.6	227.8	275.6	546.0	259.1	497.1	650.5
Eurytemora pacifica	5.9	17.4	44.4						
Paracalanus parvus	8.8	19.9	194.3	370.9	730.9	498.8	692.9	639.8	939.6
Pseudodiaptomus koreanus		2.5							
Sinocalanus tenellus	8.8								
Corycaeus affinis			5.6	52.1	83.9	128.1	73.2	41.4	64.2
Oithona davisae		9.9	33.3	91.1	191.7	128.1	123.9	244.0	337.3
Nauplii				26.0	95.9	67.4	67.6	124.3	48.2
Unid. harpacticods	11.8	12.4	94.4	110.6	59.9	40.4	16.9	0.0	8.0
Spring									
Acartia hudsonica			169.4	57.2	12.9	24.9	17.4	29.4	114.8
Acartia ohtsukai			29.0	5.7					
Calanus sinicus			33.9	31.5	81.5	145.2	14.5	44.1	3.1
Paracalanus parvus		5.0	29.0	37.2	10.7	12.4	2.9	2.5	4.7
Pseudodiaptomus koreanus	1981.6	79.5	33.9	65.8	10.7				
Pseudodiaptomus marinus						16.6			
Sinocalanus tenellus	283.1	9.9	7.3	2.9					
Labidocera rotunda					4.3	8.3			1.6
Tortanus dextrilobatus		79.5	4.8						
Tortanus forcipatus			2.4		4.3		2.9	2.5	
Corycaeus affinis			9.7	123.0	137.3	145.2	104.5	53.9	15.7
Oithona davisae									1.6
Nauplii			2.4						
Summer									
Acartia ohtsukai	11.3	1326.5	553.7	871.8	133.3				
Acartia erythraea				37.9	42.8	82.8	26.7	109.3	39.8
Calanus sinicus				14.2	7.5	1.3	1.4		
Paracalanus parvus		16.2		19.0	12.6	6.7			
Sinocalanus tenellus		16.2							
Labidocera rotunda							43.6	6.2	32.7
Labidocera euchaeta			1.8	61.6	22.6	26.7			

Tortanus dextrilobatus	41.5	1844.1	226.9	364.8	125.7				
Tortanus forcipatus				28.4	17.6	4.0		1.6	
Corycaeus affinis						1.3			
Oithona davisae						1.3			
Unid. harpacticods						1.4			
Autumn									
Acartia omorii		3.1	4.1	1.7	0.9	4.1	4.5	0.4	0.9
Acartia ohtsukai		2.3	3.3				1.0	0.8	0.9
Acartia erythraea		0.9	4.9		0.9	1.2			0.3
Calanus sinicus					0.5	5.4	13.1	20.1	7.0
Centropages abdominalis		0.0	0.8			0.4			
Centropages dorsispinatus		2.4	0.8			0.4	1.0	0.8	
Paracalanus parvus		7.1	10.6	6.1	1.4	2.1	10.0	9.4	1.8
Paracalanus aculeatus							0.5		0.3
Pseudodiaptomus koreanus	3.6								
Pseudodiaptomus marinus									0.9
Sinocalanus tenellus	13.3								
Labidocera rotunda						0.8			0.3
Tortanus forcipatus				2.6	2.8	4.1	0.5	0.4	
Paraeuchaeta plana							1.5	2.0	1.8
Corycaeus affinis		3.6	5.7	21.0	11.1	22.3	80.3	83.0	7.0
Oithona davisae					0.5			0.4	0.9
Oncaea venella							0.5	0.4	0.3
Bestiolina coreana			3.3						
Nauplii									0.6
Unid. harpacticods		2.6		0.9					

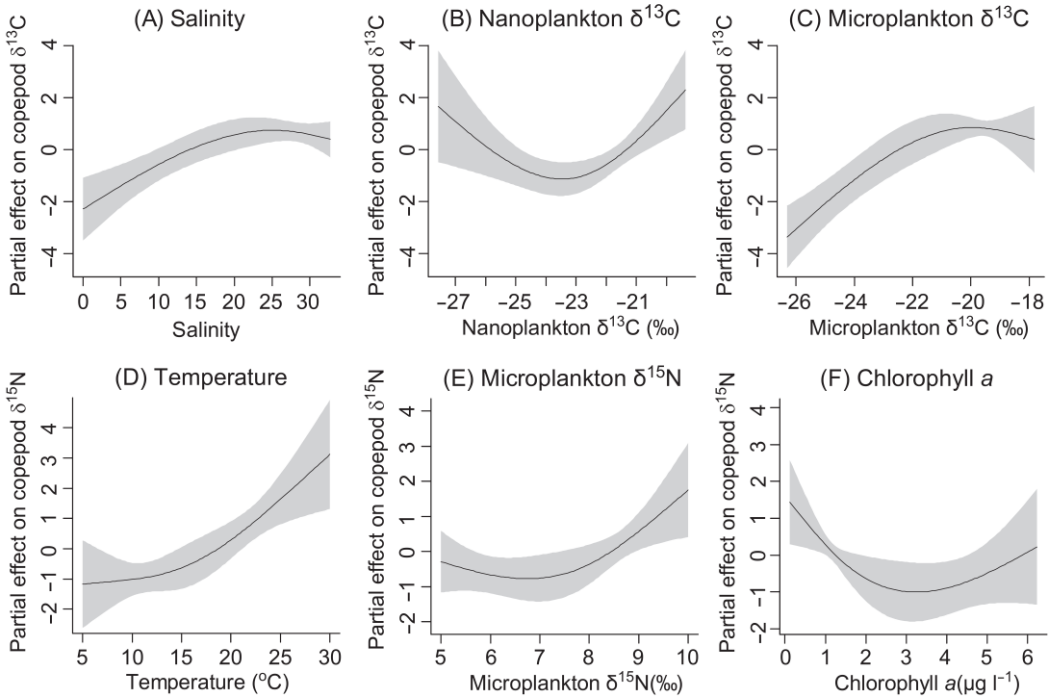

Figure S1: Partial effects of important environmental factors on the variabilities in stable isotopes.

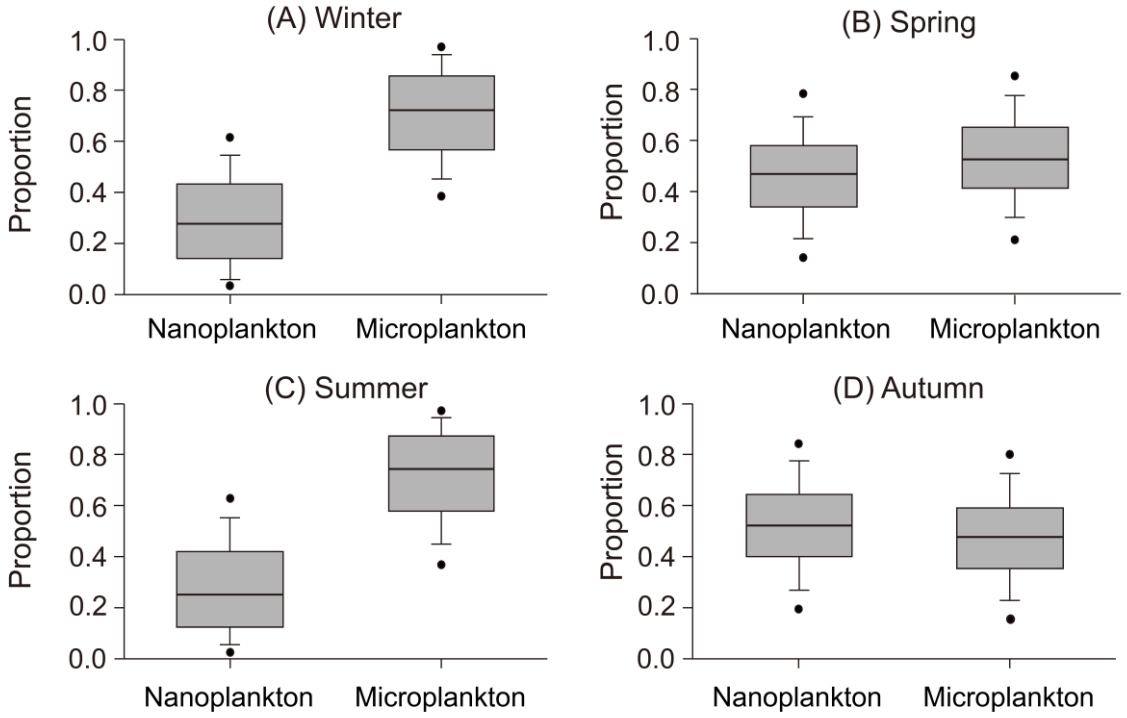

Figure S2: Temporal variations in the contributions of size-fractionated plankton in copepod diets estimated by a Bayesian mixing model using the SIAR package in the R statistical program. Credibility intervals of 95% (dots), 75% (whiskers), and 25% (boxes) and mean values (lines in the boxes) are shown in boxplots for each season.

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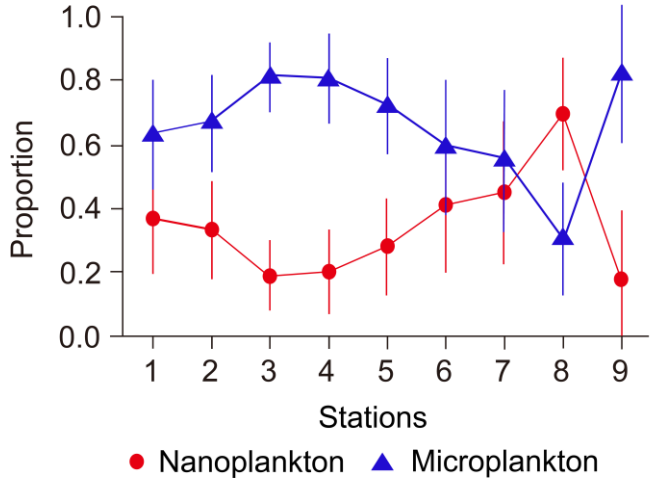

Figure S3: Spatial variations in the contributions of size-fractionated plankton in copepod diets estimated by Bayesian mixing model using the SIAR package. Mean values ± standard deviations from all seasons are shown for each station.