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Supplementary Material

Supplementary Table 1

(a) PERMANOVA model output of variation in meroplankton community structure (log-transformed abundance of macrotaxa) based on in surface and bottom water mass distribution and Latitude, number of permutations 999. Df – degrees freedom

	Df	SumOfSqs	R^2	F	$P_r(>F)$
Water.mass	9	3.92	0.20	7.53	0.001
Year	4	5.19	0.27	22.41	0.001
Water.mass:Year	15	1.88	0.10	2.41	0.001
Residual	178	10.31	0.43		
Total	191	19.43	1.00		

(b) Pairwise comparisons of meroplankton community (log-transformed abundance of macrotaxa) in different water masses and during different years. Water masses are listed as Bottom Water Mass/Surface Water mass BSAW – Bering Sea Anadyr Water; ACW – Alaska Coastal Water or Bering Sea Anadyr/Alaska Coastal Water (mix or uncertain); WW - Winter water; SCW – Siberian Coastal Water. P.adjust – Holm-adjusted p-value. Significant interactions ($p < 0.05$) highlighted in bold.

pairs	**F.Model**	**R^2**	**p.value**	**p.adjusted**
ACW/BSW vs BSW/BSW	3.17	0.03	0.03	0.74
ACW/BSW vs MW/WW	**16.70**	**0.15**	**0.00**	**0.04**
ACW/BSW vs ACW/ACW	**8.15**	**0.09**	**0.00**	**0.04**
ACW/BSW vs ACW/WW	1.49	0.02	0.23	1.00
ACW/BSW vs SCW/WW	**8.11**	**0.09**	**0.00**	**0.04**
ACW/BSW vs SCW/BSW	2.60	0.03	0.07	1.00
ACW/BSW vs BSW/WW	6.05	0.07	0.00	0.13
ACW/BSW vs SCW/SCW	0.23	0.00	0.87	1.00
ACW/BSW vs MW/SCW	5.01	0.07	0.01	0.27
BSW/BSW vs MW/WW	**8.58**	**0.11**	**0.00**	**0.04**
BSW/BSW vs ACW/ACW	**11.17**	**0.18**	**0.00**	**0.04**
BSW/BSW vs ACW/WW	-0.42	-0.01	0.99	1.00
BSW/BSW vs SCW/WW	**7.72**	**0.13**	**0.00**	**0.04**
BSW/BSW vs SCW/BSW	2.27	0.04	0.09	1.00
BSW/BSW vs BSW/WW	3.32	0.06	0.03	0.68
BSW/BSW vs SCW/SCW	0.72	0.02	0.52	1.00

BSW/BSW vs MW/SCW	**7.60**	**0.15**	**0.00**	**0.04**
MW/WW vs ACW/ACW	**13.63**	**0.26**	**0.00**	**0.04**
MW/WW vs ACW/WW	1.37	0.04	0.28	1.00
MW/WW vs SCW/WW	3.46	0.09	0.01	0.35
MW/WW vs SCW/BSW	4.29	0.11	0.01	0.16
MW/WW vs BSW/WW	0.57	0.02	0.68	1.00
MW/WW vs SCW/SCW	1.77	0.06	0.14	1.00
MW/WW vs MW/SCW	4.96	0.15	0.04	0.77
ACW/ACW vs ACW/WW	8.28	0.30	0.00	0.11
ACW/ACW vs SCW/WW	**11.34**	**0.35**	**0.00**	**0.04**
ACW/ACW vs SCW/BSW	5.72	0.25	0.01	0.16
ACW/ACW vs BSW/WW	**5.94**	**0.24**	**0.00**	**0.04**
ACW/ACW vs SCW/SCW	0.83	0.06	0.50	1.00
ACW/ACW vs MW/SCW	10.13	0.46	0.01	0.36
ACW/WW vs SCW/WW	2.11	0.11	0.07	1.00
ACW/WW vs SCW/BSW	0.16	0.01	0.84	1.00
ACW/WW vs BSW/WW	0.65	0.04	0.58	1.00
ACW/WW vs SCW/SCW	0.54	0.06	0.52	1.00
ACW/WW vs MW/SCW	4.59	0.34	0.03	0.65
SCW/WW vs SCW/BSW	2.06	0.11	0.09	1.00
SCW/WW vs BSW/WW	3.76	0.17	0.00	0.11
SCW/WW vs SCW/SCW	1.24	0.10	0.29	1.00
SCW/WW vs MW/SCW	1.70	0.13	0.17	1.00
SCW/BSW vs BSW/WW	3.66	0.21	0.03	0.68
SCW/BSW vs SCW/SCW	0.11	0.02	0.98	1.00
SCW/BSW vs MW/SCW	2.93	0.29	0.04	0.84
BSW/WW vs SCW/SCW	1.27	0.12	0.28	1.00
BSW/WW vs MW/SCW	7.12	0.44	0.02	0.54
SCW/SCW vs MW/SCW	1.38	0.41	0.33	1.00

2007 vs 2004	**64.98**	**0.51**	**0.001**	**0.01**
2007 vs 2009	**12.78**	**0.13**	**0.001**	**0.01**
2007 vs 2012	**28.87**	**0.35**	**0.001**	**0.01**
2007 vs 2015	**13.42**	**0.16**	**0.001**	**0.01**
2004 vs 2009	**25.18**	**0.22**	**0.001**	**0.01**
2004 vs 2012	**16.98**	**0.22**	**0.001**	**0.01**
2004 vs 2015	**37.62**	**0.33**	**0.001**	**0.01**
2009 vs 2012	**15.26**	**0.16**	**0.001**	**0.01**
2009 vs 2015	**9.64**	**0.09**	**0.001**	**0.01**
2012 vs 2015	**12.05**	**0.15**	**0.001**	**0.01**

Supplementary Table 2

(a) PERMANOVA model output of variation in meroplankton community structure (log-transformed abundance of species) at stations where molecular identification was done based on in surface and bottom water mass distribution and Latitude, number of permutations 999. Df – degrees freedom

	Df	SumsOfSqs	MeanSqs	F.Model	R^2	$P_r(>F)$
Water.mass.surf	3	1.9689	0.65631	4.3641	0.34662	0.001
Water.mass.btm	3	0.6297	0.20990	1.3957	0.12085	0.106
Lat	1	0.5251	0.52512	3.4918	0.09245	0.006
Residuals	17	2.5566	0.15039	0.45008		
Total	24	5.6803	1.00000			

(b) Pairwise comparisons of meroplankton community (log-transformed abundance of species) in surface and bottom water masses. BSAW – Bering Sea Anadyr Water; ACW – Alaska Coastal Water; BSAWACW - Bering Sea Anadyr/Alaska Coastal Water (mix or uncertain); WW - Winter water. P.adjust – Holm-adjusted p-value. Significant interactions ($p < 0.05$) highlighted in bold.

Surface water masses					
	Pairs	F.Model	R2	p.value	p.adjusted
1	ACW vs BSW.ACW	1.09	0.08	0.408	0.408
2	**ACW vs BSW**	2.36	0.15	0.008	**0.036**
3	**ACW vs MW**	8.89	0.50	0.006	**0.036**
4	**BSW.ACW vs BSW**	2.09	0.15	0.014	**0.042**
5	**BSW.ACW vs MW**	8.90	0.53	0.006	**0.036**
6	**BSW vs MW**	3.03	0.27	0.022	**0.044**
Bottom water masses					
	Pairs	F.Model	R2	p.value	p.adjusted
1	BSW.ACW vs BSW	0.83	0.04	0.59	1.00
2	BSW.ACW vs WW	2.33	0.32	0.10	0.52
3	BSW.ACW vs ACW	1.63	0.45	0.33	1.00
4	**BSW vs WW**	**4.61**	**0.20**	**0.00**	**0.01**
5	BSW.ACW vs MW	0.99	0.06	0.42	1.00
6	WW vs ACW	1.85	0.27	0.20	0.78