

Supplementary Material

Blue pigmentation of neustonic copepods benefits exploitation of a prey-rich niche at the air-sea boundary

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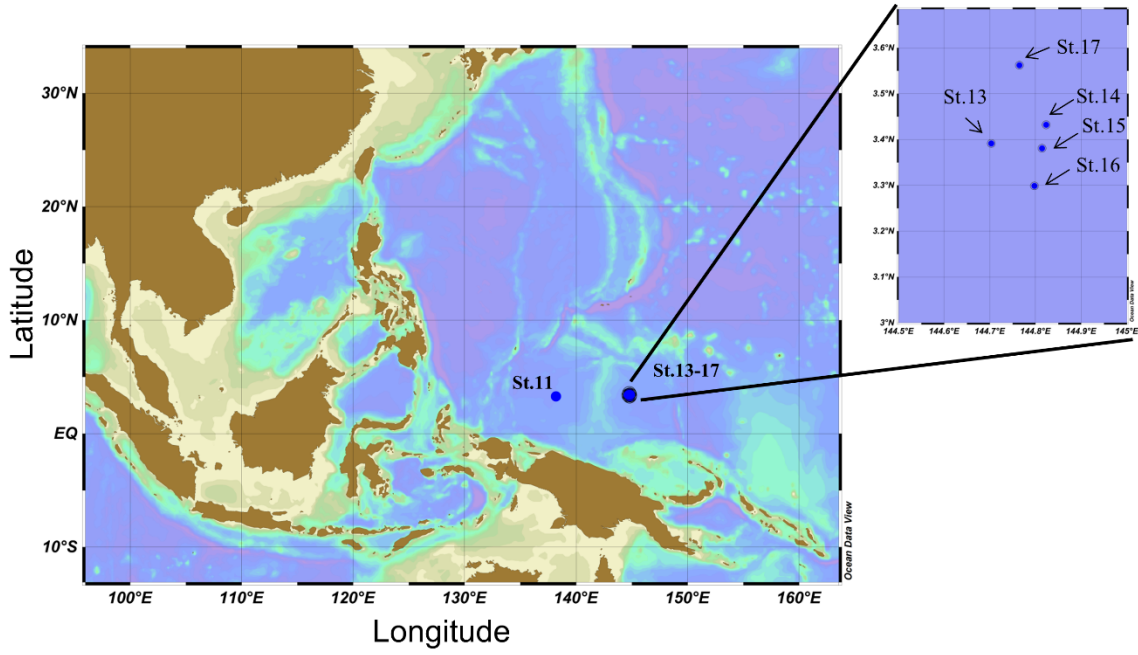
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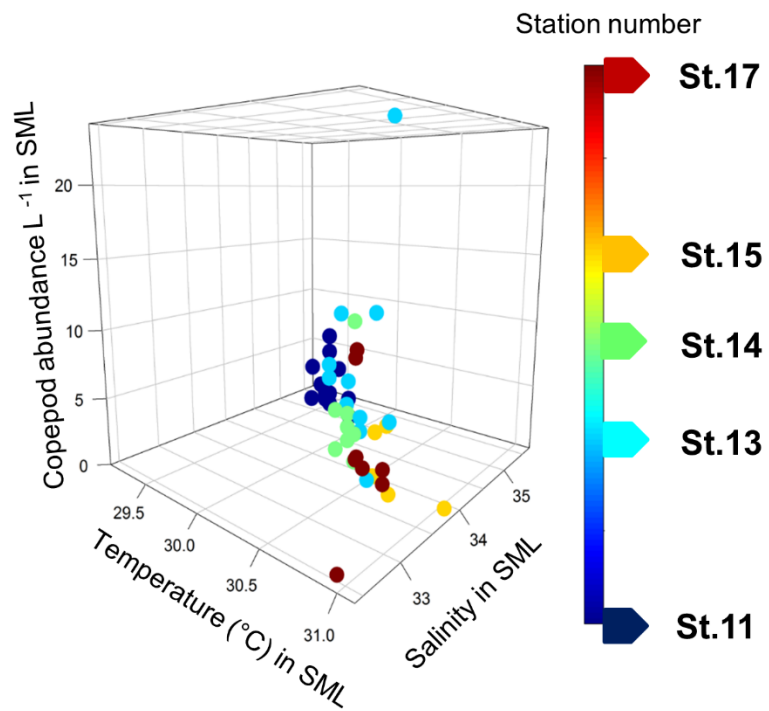
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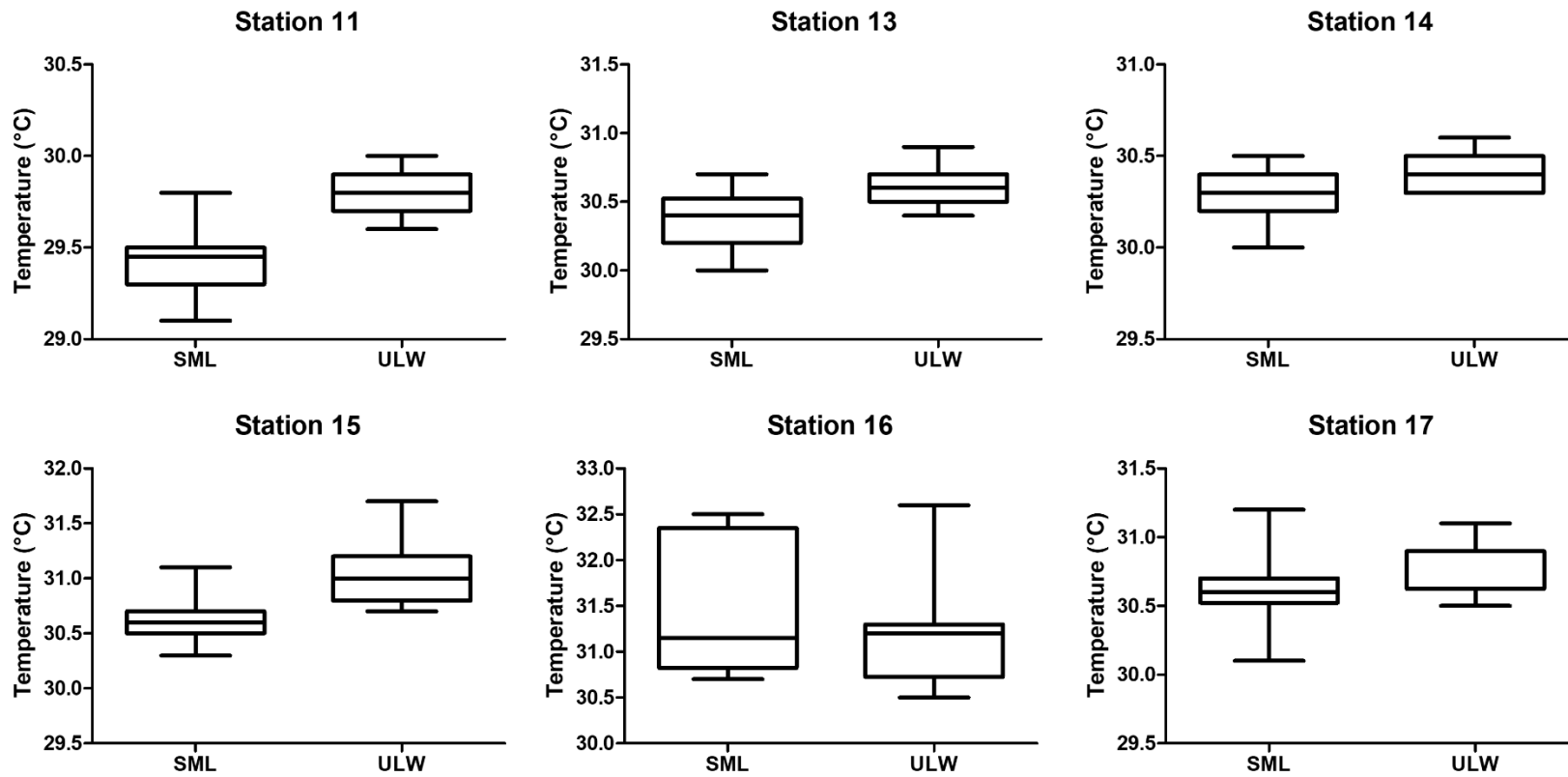
Supplementary Figure S1: Station map for S³ copepod sampling ¹.

Supplementary Table S1: Copepod OTUs found in sea-surface microlayer (SML; min. 10 sequence reads per OTU) of the Pacific Ocean. Samples are derived from manual glass plate sampling. No manual sampling took place at Station 14. BLAST= Basic Local Alignment Search Tool

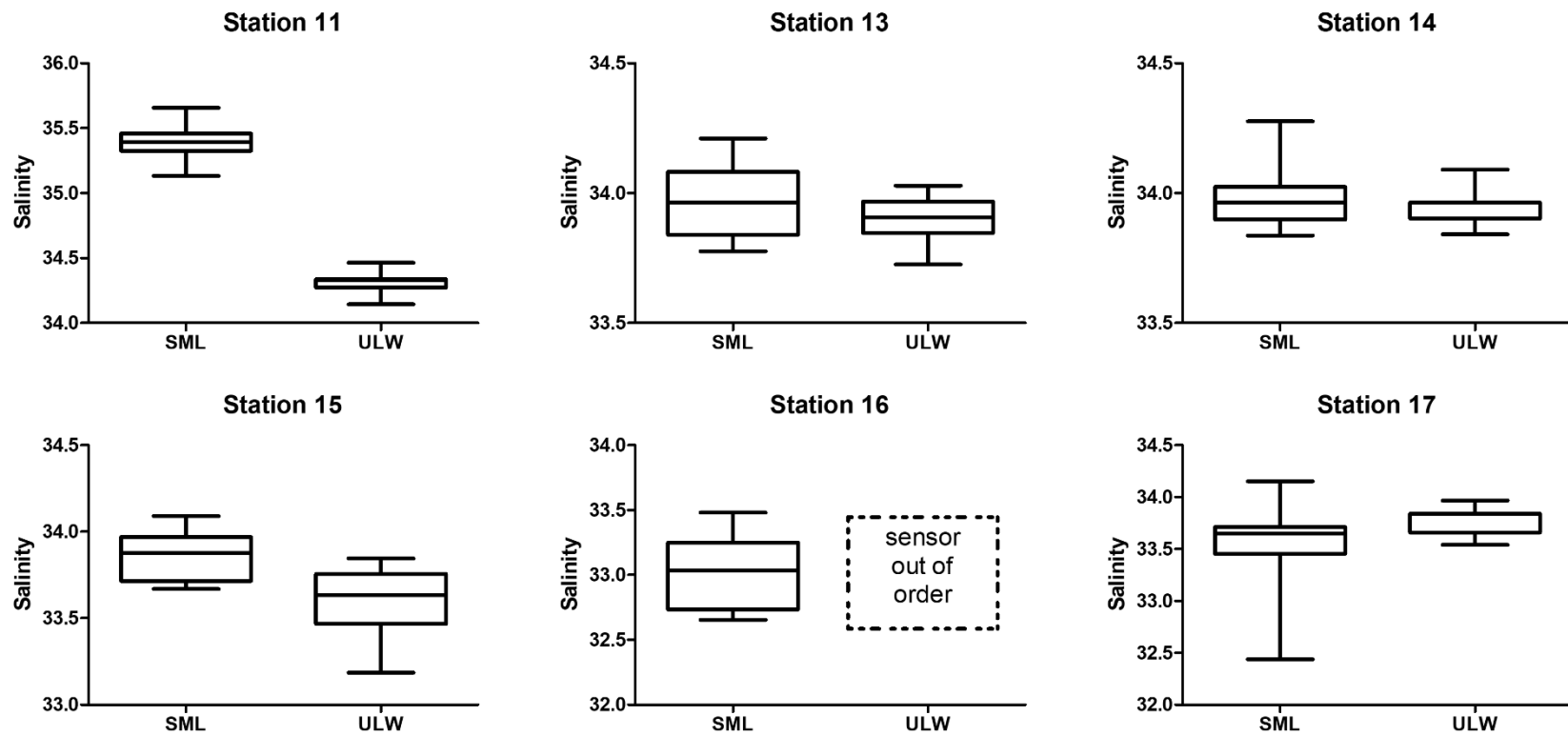
Order	Station	No. of reads in SML	Phylogenetic affiliation (BLAST)	% identity	% query cover	e value	Accession number	Family	OTU#	Genbank Accession number (this study)
Calanoida	11	5476	<i>Acrocalanus gracilis</i>	100%	100%	0	JQ911938.1	Paracalanidae	SML_OTU#5	MG811792
		221	<i>Clausocalanus arcuicornis</i>	100%	100%	0	HM997079.1	Clausocalanidae	SML_OTU#96	MG811798
	13	3638	<i>Anomalocera patersoni</i>	97%	100%	0	JX995305.1	Pontellidae	SML_OTU#22	MG811795
		742	<i>Pontella fera</i>	100%	100%	0	GU969189.1	Pontellidae	SML_OTU#33	MG811796
	15	1290	<i>Delibus</i> sp.	99%	100%	0	JQ911952.1	Paracalanidae	SML_OTU#14	MG811793
		131	<i>Lucicutia flavicornis</i>	100%	100%	0	HM997055.1	Lucicutiidae	SML_OTU#228	MG811801
17	896	<i>Pontella fera</i>	100%	100%	0	GU969189.1	Pontellidae	SML_OTU#33	MG811796	
Cyclopoida	11	11	<i>Cyclopina</i> sp.	95%	100%	2E-172	MF077741.1	Cyclopinidae	SML_OTU#18	MG811794
	13	361	<i>Corycaeus speciosus</i>	100%	100%	0	GU969165.1	Corycaeidae	SML_OTU#64	MG811797
	16	289	<i>Corycaeus speciosus</i>	100%	100%	0	GU969165.1	Corycaeidae	SML_OTU#64	MG811797
		16	<i>Anthessius</i> sp.	95%	100%	3E-169	AY627002.1	Anthessiidae	SML_OTU#937	MG811802
Harpacticoida	17	175	<i>Miracia efferata</i>	99%	100%	0	EU380294.1	Miraciidae	SML_OTU#103	MG811799
		53	<i>Superornatiremidae</i> sp.	85%	100%	1E-117	MF077702.1	Superornatiremidae	SML_OTU#215	MG811800



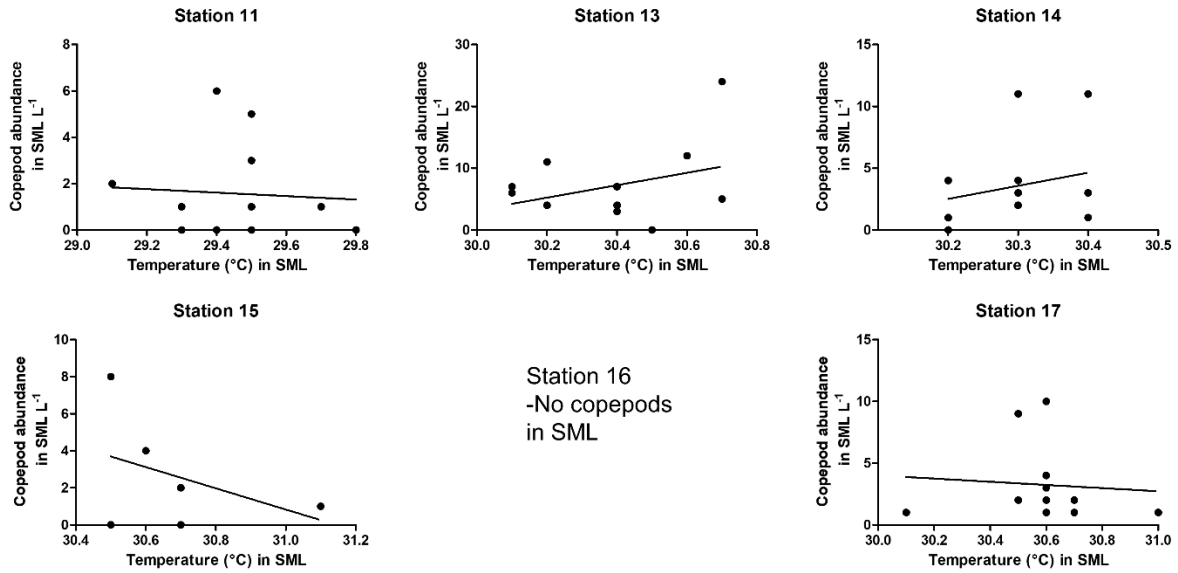
Supplementary Figure S2: Abundance of pontellid copepods in the sea-surface microlayer (SML) versus salinity and temperature of the SML.



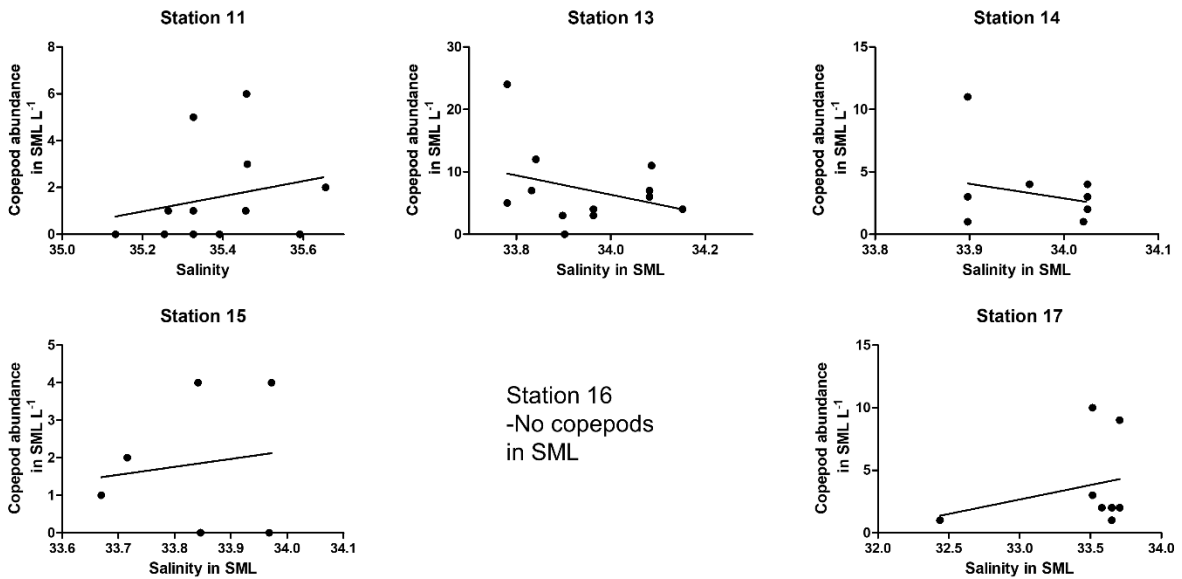
Supplementary Figure S3a: Comparison of SML and ULW temperature for stations 11 and 13-17. Whiskers indicate min. to max. values



Supplementary Figure S3b: SML and ULW salinity for stations 11 and 13-17. ULW salinity for station 16 is missing due to sensor issues. Whiskers indicate min. to max. values.



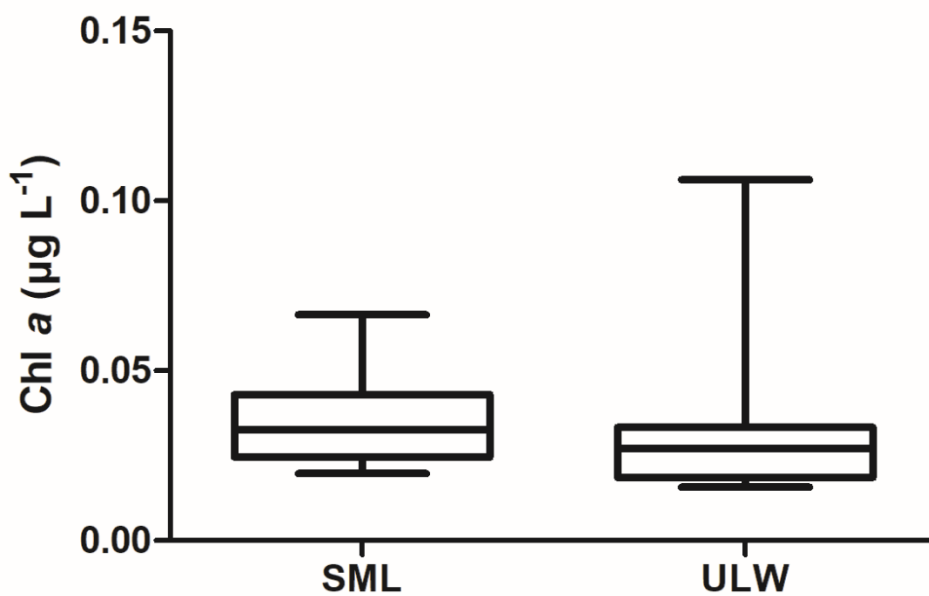
Supplementary Figure S4a: Relation of neustonic copepod abundance and temperature in SML.



Supplementary Figure S4b: Relation of neustonic copepod abundance and salinity in SML.

Supplementary Table S3: Results from Spearman rank correlation for copepod abundance in the SML versus temperature and salinity. n.d.=not determined, n.s.=not significant

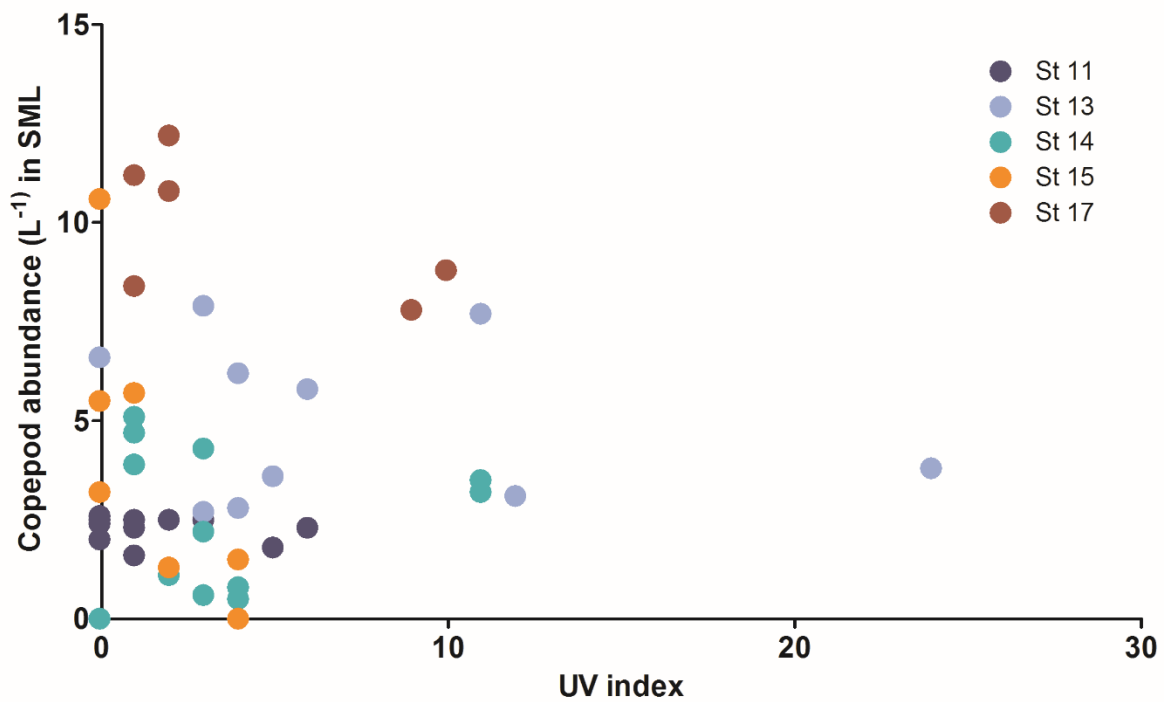
Station number		11	13	14	15	17
Temperature (vs copepod abundance in SML)	Number of XY Pairs	12	12	12	7	12
	Spearman r	0	0.07195	0.1308	-0.3552	-0.2618
	p-value	1	0.8241	0.6853	0.4344	0.4111
	Significance	n.s.	n.s.	n.s.	n.s.	n.s.
Salinity (vs copepod abundance in SML)	Number of XY Pairs	12	12	9	6	8
	Spearman r	0.3973	-0.1996	0.1228	0.02942	0.08126
	p-value	0.2009	0.5339	0.7529	0.9959	0.8483
	Significance	n.s.	n.s.	n.s.	n.s.	n.s.



Supplementary Figure S5: Comparison of chlorophyll a concentration ($\mu\text{g L}^{-1}$) in SML and ULW

Supplementary Table S4: Statistics for chlorophyll a concentration differences in SML and ULW as determined by Mann-Whitney U-test. Whiskers represent min. and max.

Chlorophyll a (SML vs ULW)	Number of observations	17
	Mann-Whitney U value	103
	p-value	0.1579
	Significance	n.s.



Supplementary Figure S6: Abundance of pontellid copepods (L⁻¹) in the sea-surface microlayer (SML) in relation to ultraviolet (UV) index for different stations.

Supplementary Table S5: Sample volumes of SML and ULW (containing copepods)

S³ sampled volumes (L)		
Station	SML	ULW
11	12	12
13	12	10
14	12	11
15	8	7
16	12	12
17	12	12

Supplementary Table S6: Species composition of pontellid subsamples

Station	<i>Pontella fera</i> (%)	<i>Ivellopsiis denticauda</i> (%)	unidentified (%)
11	0	44.4	55.6
13	33.7	0	66.3
14	29.5	0	70.5
15	n.d.	n.d.	100.0
16	n.d.	n.d.	100.0
17	38.5	0	61.5

References:

- 1 Schlitzer, R. (<https://odv.awi.de/> (accessed 24.10.2017), 2009).