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Supplement of

Zooplankton community succession and trophic links during a mesocosm experiment in the coastal upwelling off Callao Bay (Peru)

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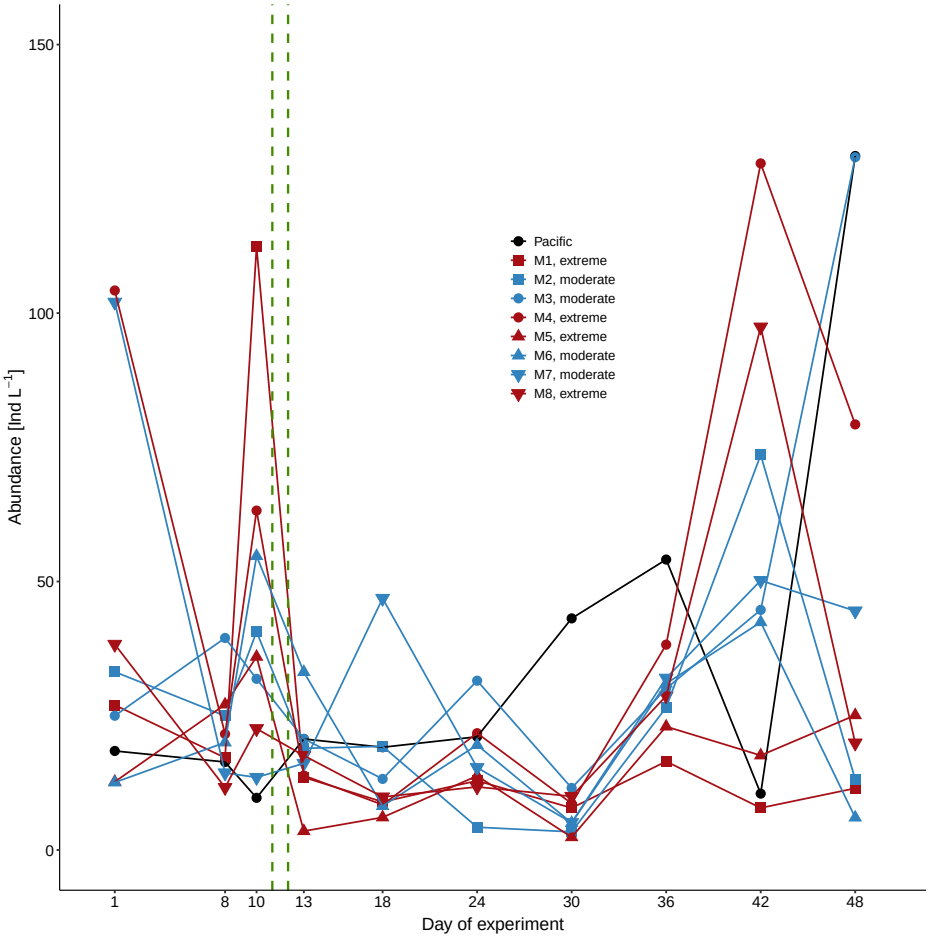


Figure S1. Total abundance of mesozooplankton (individuals per Liter, Ind L^{-1}) in the mesocosms and the surrounding Pacific as a function of experiment day. The green vertical dashed lines indicate the days of OMZ water additions.

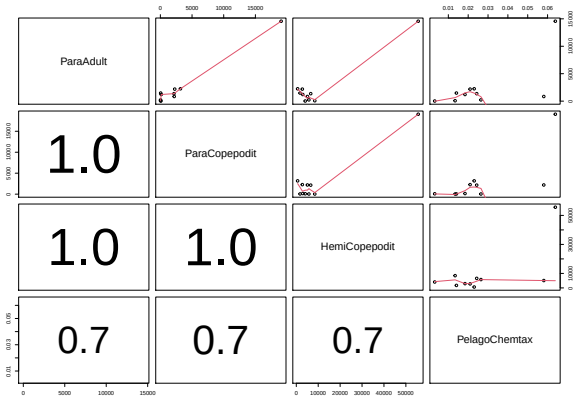
Below results of PEARSON CORRELATIONS performed between total abundance of dominant copepod taxa (*Paracalanus* sp., *Hemicyclops* sp.) as well as their measured gut fluorescence and concentrations of dominant phyto-/microzooplankton groups (either from microscope counts or pigment concentrations, see section 2.9 in the main paper) are summarized (Table S1, Fig. S2–S11). Shown here are only the significant correlations determined.

Table S1. Significant pearson correlations determined per mesocosm and for both OMZ treatments between total abundances of adult and copepodite stages of *Paracalanus* sp. and *Hemicyclops* sp., respectively, and phyto-/microzooplankton groups. Concentrations of phyto-/microzooplankton groups were determined either by microscopy or via pigment analyses (Chemtax, Bach et al. (2020)), corr = correlation coefficient.

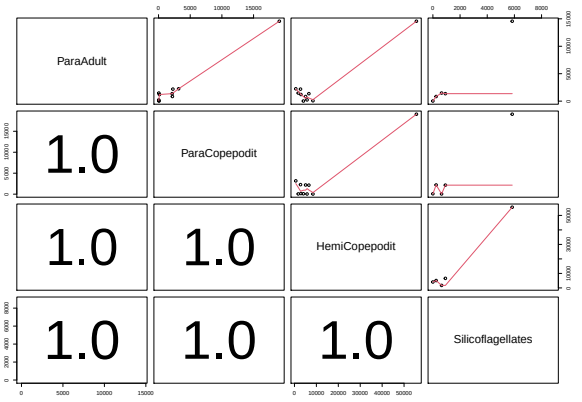
Mesocosm	*Paracalanus* (adults)		*Paracalanus* (copepodids)		*Hemicyclops* (adults)		*Hemicyclops* (copepodids)		Figure
	p	corr	*p*	corr	*p*	corr	*p*	corr	
M1									
Pelagophyceae (Chemtax)	0.0295	0.6829	0.0147	0.7387	–	–	0.0302	0.6809	Fig. S2a
Silicoflagellates (microscopy)	0.0002	0.9972	0.0017	0.9876	–	–	0.0014	0.9887	Fig. S2b
M3									
Pelagophyceae (Chemtax)	0.0064	0.7910	–	–	–	–	–	–	Fig. S3a
Dinoflagellates (microscopy)	0.0031	-0.9542	–	–	–	–	0.0311	-0.8522	Fig. S3b
M4									
Ciliophora (micrsocopy)	–	–	0.0134	0.9497	–	–	–	–	Fig. S4a
Prymnesiophycae (Chemtax)	–	–	–	–	0.0340	-0.6701	–	–	Fig. S4b
Diatoms (Chemtax)	–	–	–	–	–	–	0.0102	0.7634	Fig. S4c
Chl *a*	–	–	–	–	–	–	0.0078	0.7796	Fig. S4c
M5									
Dinoflagellates (Chemtax)	0.0453	0.6422	–	–	–	–	–	–	Fig. S5
M6									
Prymnesiophyceae (Chemtax)	0.0319	-0.7105	–	–	–	–	–	–	Fig. S6a
Pelagophyceae (Chemtax)	–	–	–	–	0.0349	0.6375	–	–	Fig. S6b
Chlorophyceae (Chemtax)	–	–	–	–	0.0100	0.7346	–	–	Fig. S6b
Silicoflagellates (microscopy)	–	–	–	–	0.0051	0.9409	–	–	Fig. S6b
M7									
Cryptophyceae (Chemtax)	–	–	0.0223	0.7069	–	–	–	–	Fig. S7a
Synechococcus (Chemtax)	–	–	–	–	–	–	0.0104	0.7622	Fig. S7b
Diatoms (microscopy)	–	–	–	–	–	–	<0.0001	0.9981	Fig. S7b
M8									
Diatoms (Chemtax)	0.0065	0.7903	0.0056	0.9010	–	–	–	–	Fig. S8a
Chl *a*	–	–	0.0479	0.7589	–	–	–	–	Fig. S8a
Pelagophyceae (Chemtax)	–	–	–	–	0.0420	0.6497	–	–	Fig. S8b
Chlorophyceae (Chemtax)	–	–	–	–	0.0437	0.6457	–	–	Fig. S8b
Diatoms (microscopy)	–	–	–	–	–	–	0.0454	0.8860	Fig. S8b
M9									
Silicoflagellates (microscopy)	0.0003	0.9960	–	–	–	–	–	–	Fig. S9a
Dinoflagellates (Chemtax)	–	–	0.0005	0.9400	–	–	–	–	Fig. S9b
Chlorophyceae (Chemtax)	–	–	<0.0001	0.9739	–	–	–	–	Fig. S9b
Chl *a*	–	–	0.0425	0.7234	–	–	–	–	Fig. S9b
Moderate OMZ signature									
Silicoflagellates (microscopy)	–	–	–	–	0.0031	0.5773	–	–	Fig. S10
Extreme OMZ signature									
Ciliophora (microscopy)	–	–	–	–	0.0032	0.6260	–	–	Fig. S11

Abbreviations used in pairplots with Pearson correlations (Fig. S2–S11):

- ParaAdult: pooled total abundance of *Paracalanus* sp. adults per mesocosm/treatment and experiment duration
- ParaCopepodit: pooled total abundance of *Paracalanus* sp. copepodids per mesocosm/treatment and experiment duration
- HemiAdult: pooled total abundance of *Hemicyclops* sp. adults per mesocosm/treatment and experiment duration
- HemiCopepodit: pooled total abundance of *Hemicyclops* sp. copepodids per mesocosm/treatment and experiment duration
- Chla: Chlrophyll *a* concentration
- ChloroChemtax: Chlorophyceae based on concentrations of extracted phytoplankton pigments (Chemtax)
- Ciliophora: Ciliphora based on microscopy
- CryptoChemtax: Cryptophyceae based on concentrations of extracted phytoplankton pigments (Chemtax)
- Diatoms: Diatoms based on microscopy
- DiatomChemtax: Diatoms based on concentrations of extracted phytoplankton pigments (Chemtax)
- Dinoflagellates: Dinoflagellates based on microscopy
- DinoChemtax: Dinoflagellates based on concentrations of extracted phytoplankton pigments (Chemtax)
- Mesodinium: Mesodinium based on microscopy
- PelagoChemtax: Pelagophyceae based on concentrations of extracted phytoplankton pigments (Chemtax)
- PelagoChemtax: Pelagophyceae based on concentrations of extracted phytoplankton pigments (Chemtax)
- PrymChemtax: Prymnesiophyceae based on concentrations of extracted phytoplankton pigments (Chemtax)
- Silicoflagellates: Siliflagellates based on microscopy
- SynechoChemtax: Synechococcus based on concentrations of extracted phytoplankton pigments (Chemtax)

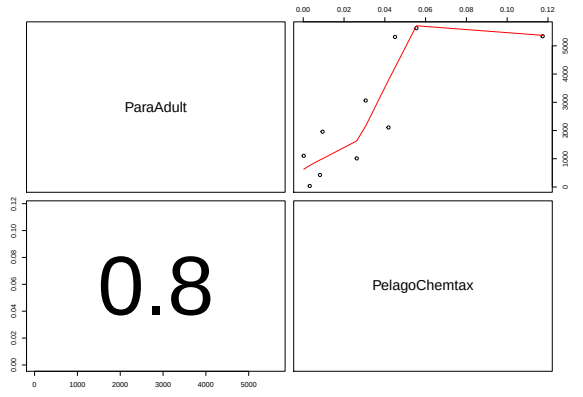


(a)

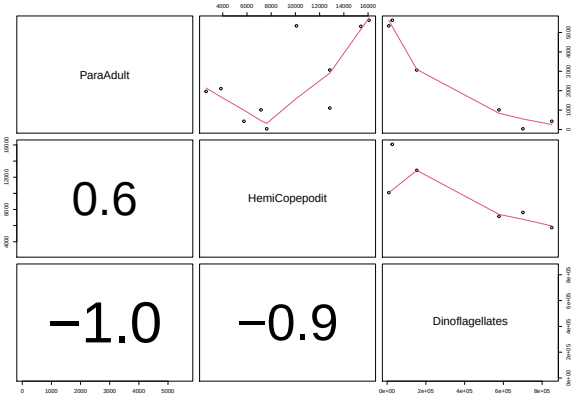


(b)

Figure S2. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration from M1.

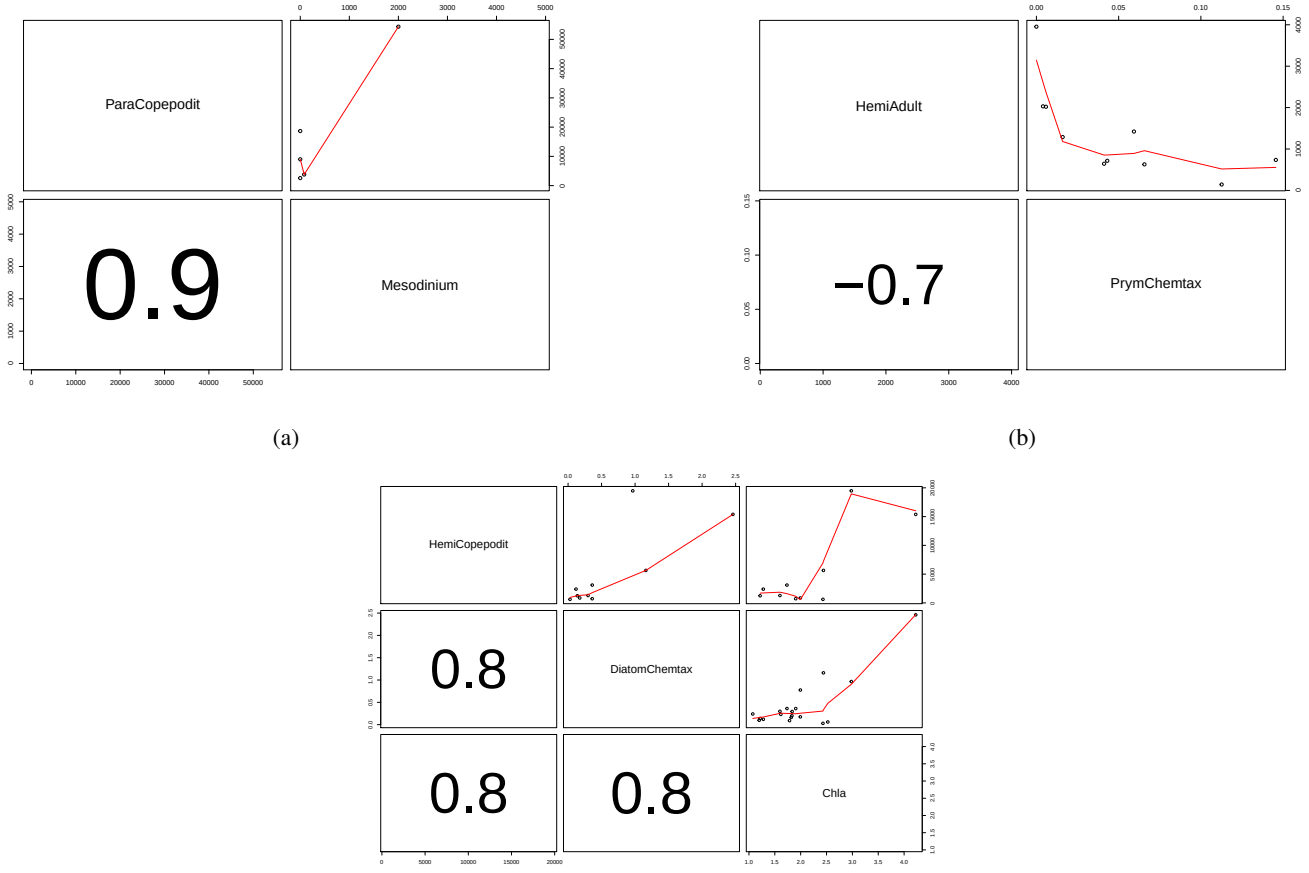


(a)



(b)

Figure S3. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration from M3.



(a)

(b)

(c)

Figure S4. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration from M4.

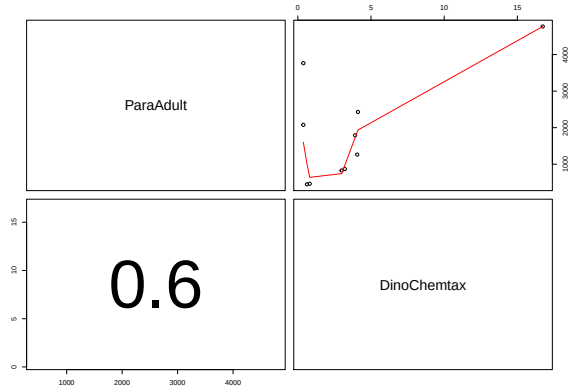
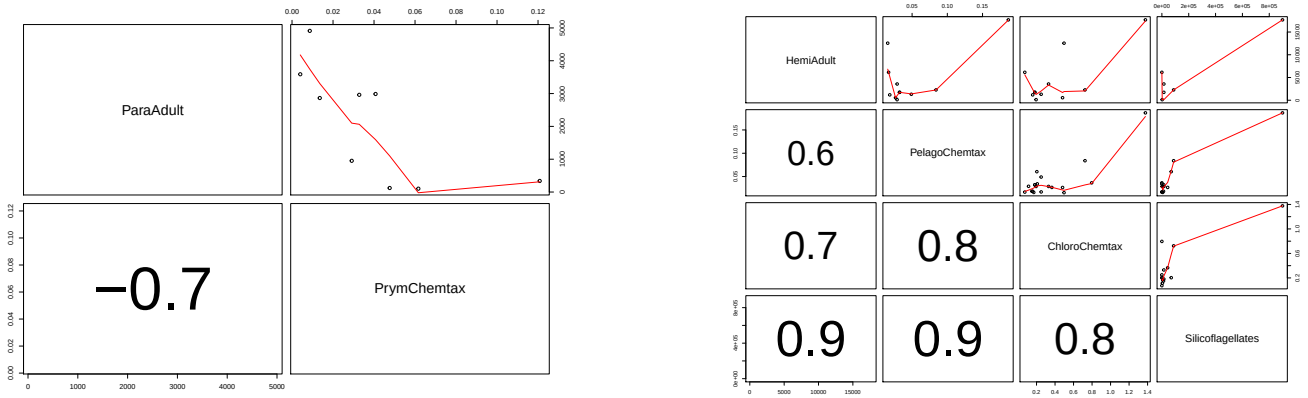
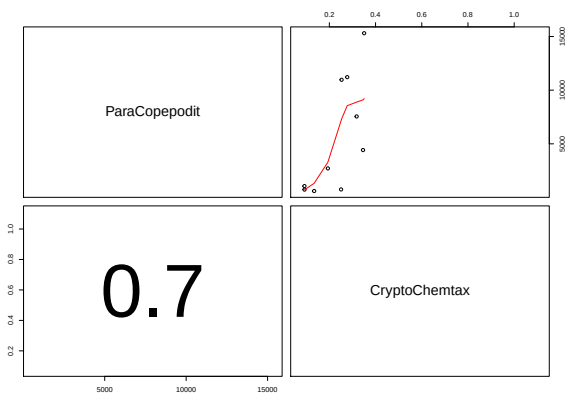


Figure S5. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration from M5.



(a) (b)

Figure S6. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration from M6.



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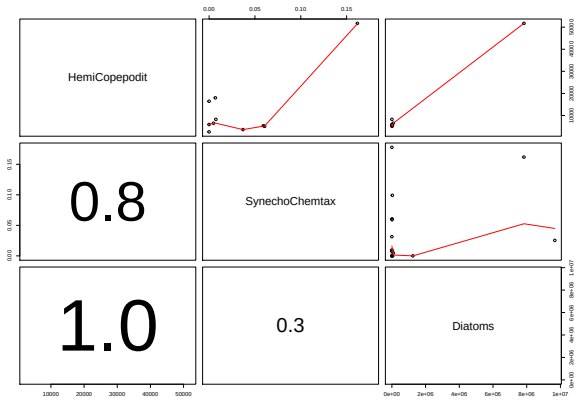
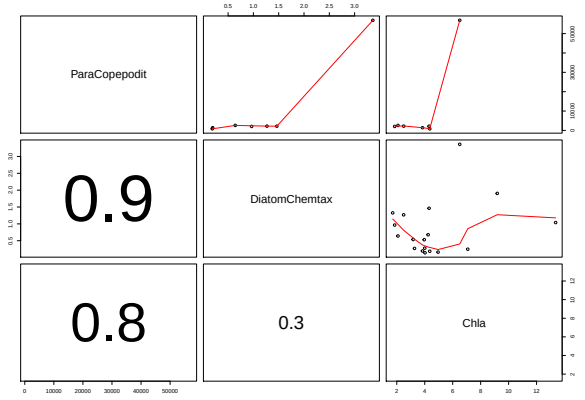


(b)

Figure S7. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration from M7.



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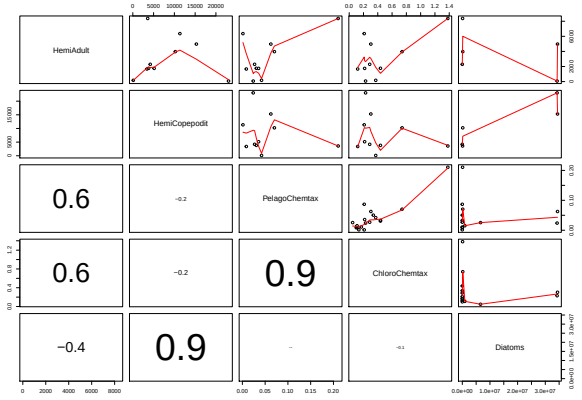
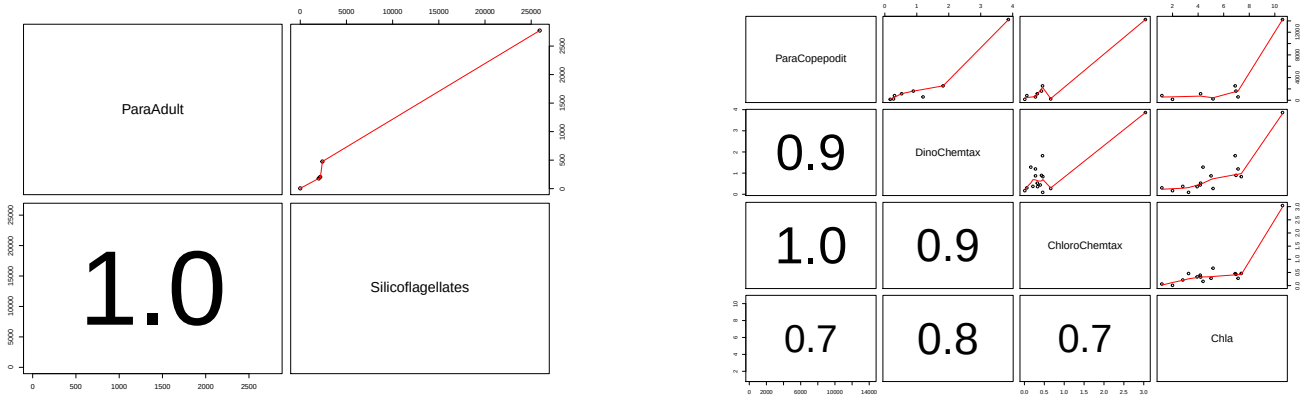


(b)

Figure S8. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration from M8.



(a) (b)

Figure S9. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration from M9.

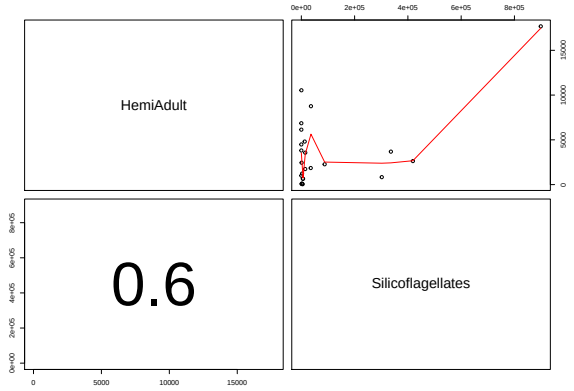


Figure S10. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration for the moderate OMZ signature treatment mesocosms.

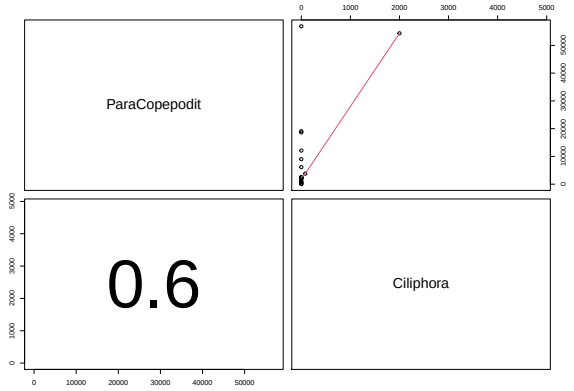


Figure S11. Pair plots with significant pearson correlations between copepods and phytoplankton groups pooled over the experiment duration for the extreme OMZ signature treatment mesocosms.

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Data availability. All data are available on the PANGAEA permanent repository at https://doi.org/10.1594/PANGAEA.947833 (Lischka et al., 2022) and https://doi.org/10.1594/PANGAEA.923395 (Bach et al., 2020). Publication and usage of these data with respect to access and benefit sharing regulations under the Nagoya protocol were approved by the Peruvian Ministry of Production (PRODUCE).