

SUPPLEMENTARY FIGURES

Figure S1. World map showing the location of the Malaspina stations sampled for this study. Orange dots represent stations containing Oxygen Minimum Zone (OMZ) samples.



Figure S2. Richness of picoeukaryotic communities in samples from different water layers of each ocean basin using the rRNA (upper boxplots) and rDNA (lower boxplots) datasets.

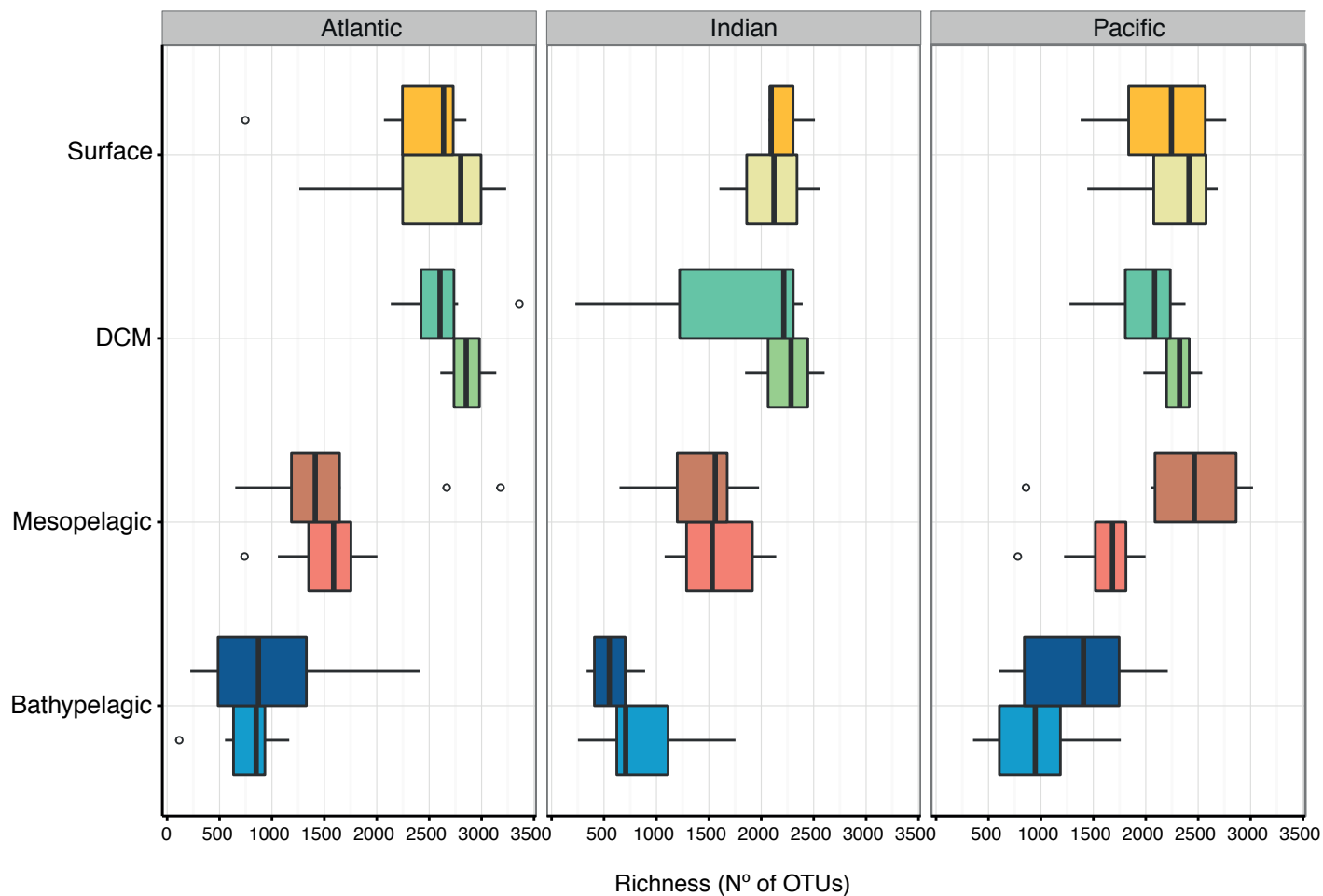


Figure S3. Clustering of all picoeukaryotic samples in a non-metric multidimensional scaling (NMDS) plot. Each sample is colored according to the depth layer and has different symbol shape according to the type of dataset (rDNA or rRNA).

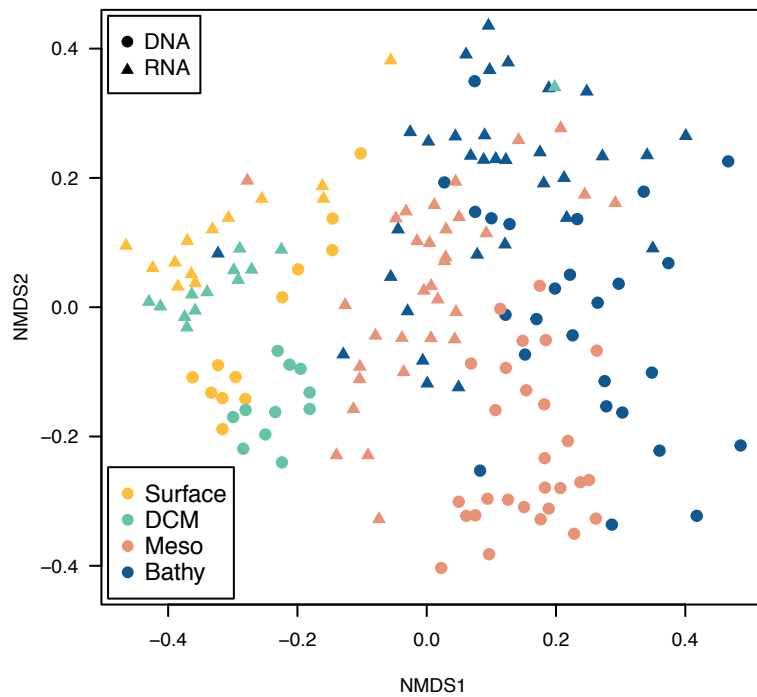


Figure S4. Main environmental variables and inorganic nutrient concentrations in the four layers of the water column (actual values as black dots and averaged values as brown lines).

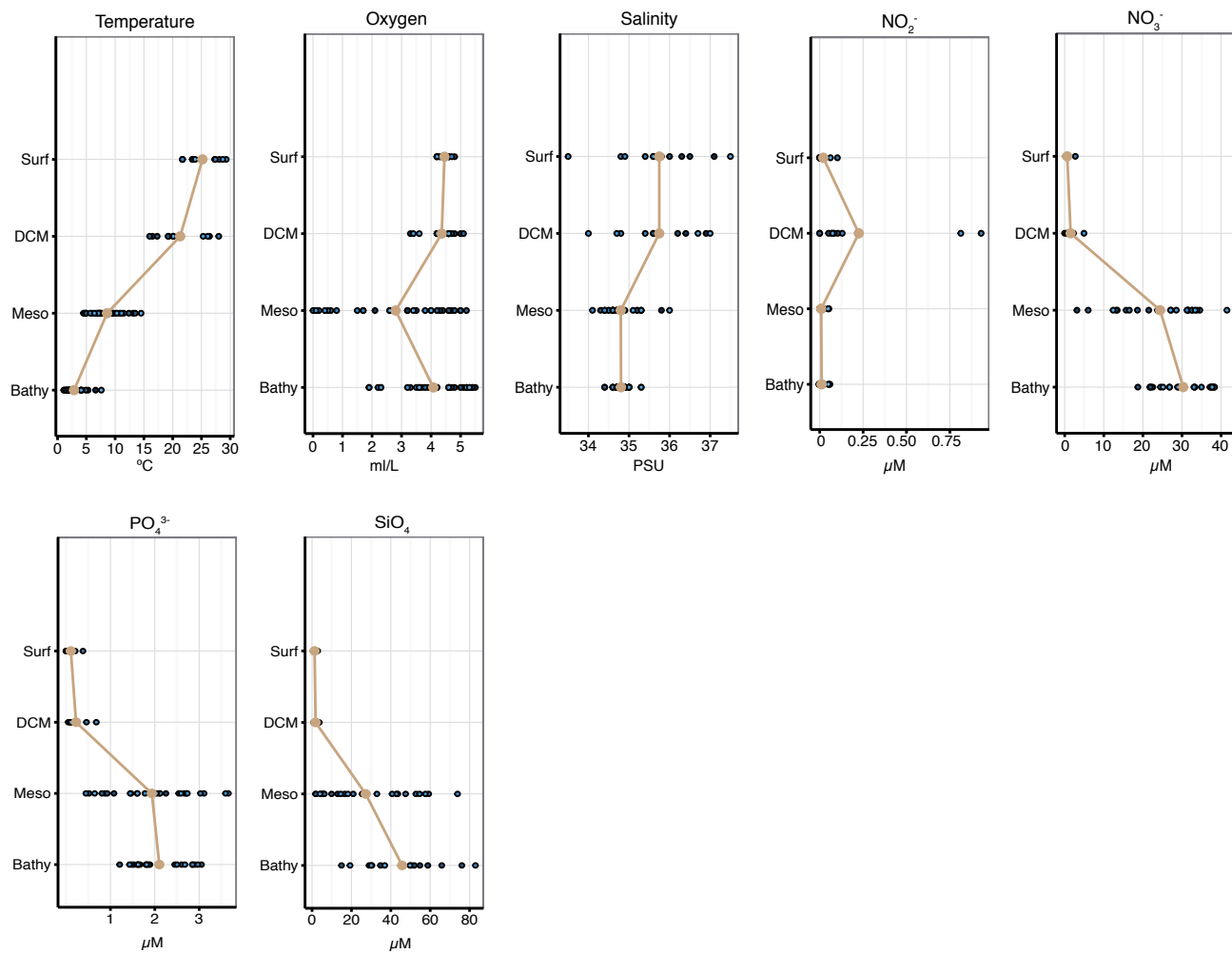


Figure S5. Representation of all phylogenetic groups based in the total abundance in the rRNA and rDNA surveys.

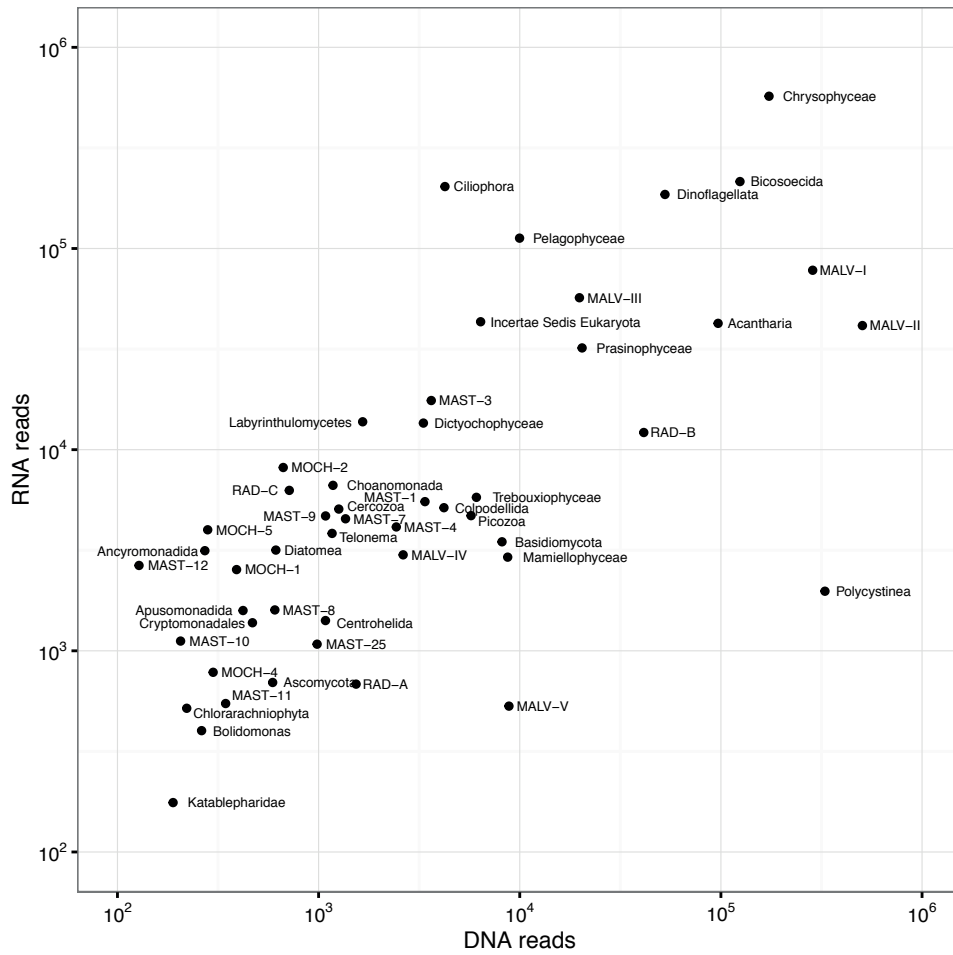


Figure S6. Distribution of the rRNA:rDNA ratios for all OTUs within a given depth layer. The red line indicates a ratio of 1.

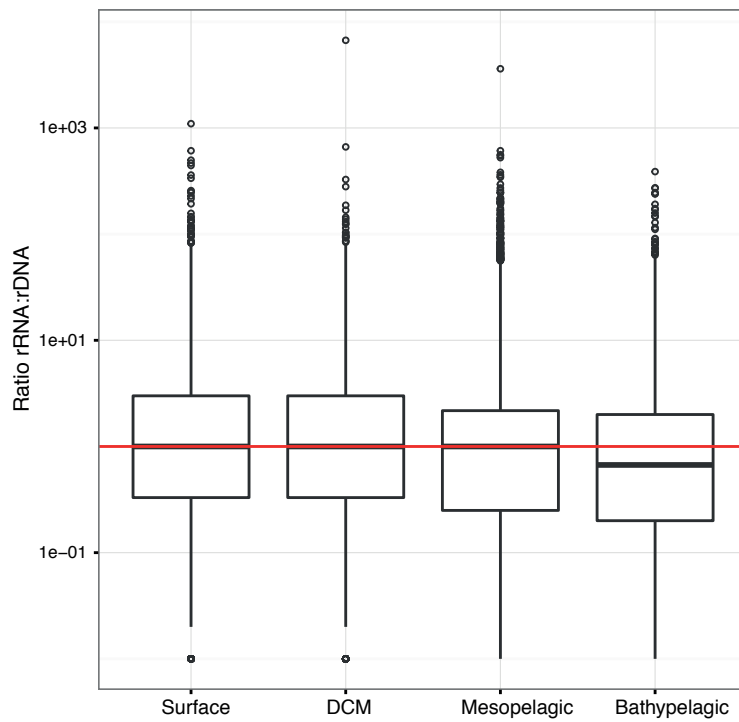


Figure S7. Clustering of all picoeukaryotic samples on a Non-metric multidimensional analysis (NMDS) based on Bray-Curtis dissimilarities differentiating between DSL (a, c) and OMZ (b, d) samples. Each sample is colored according the specific depth layer.

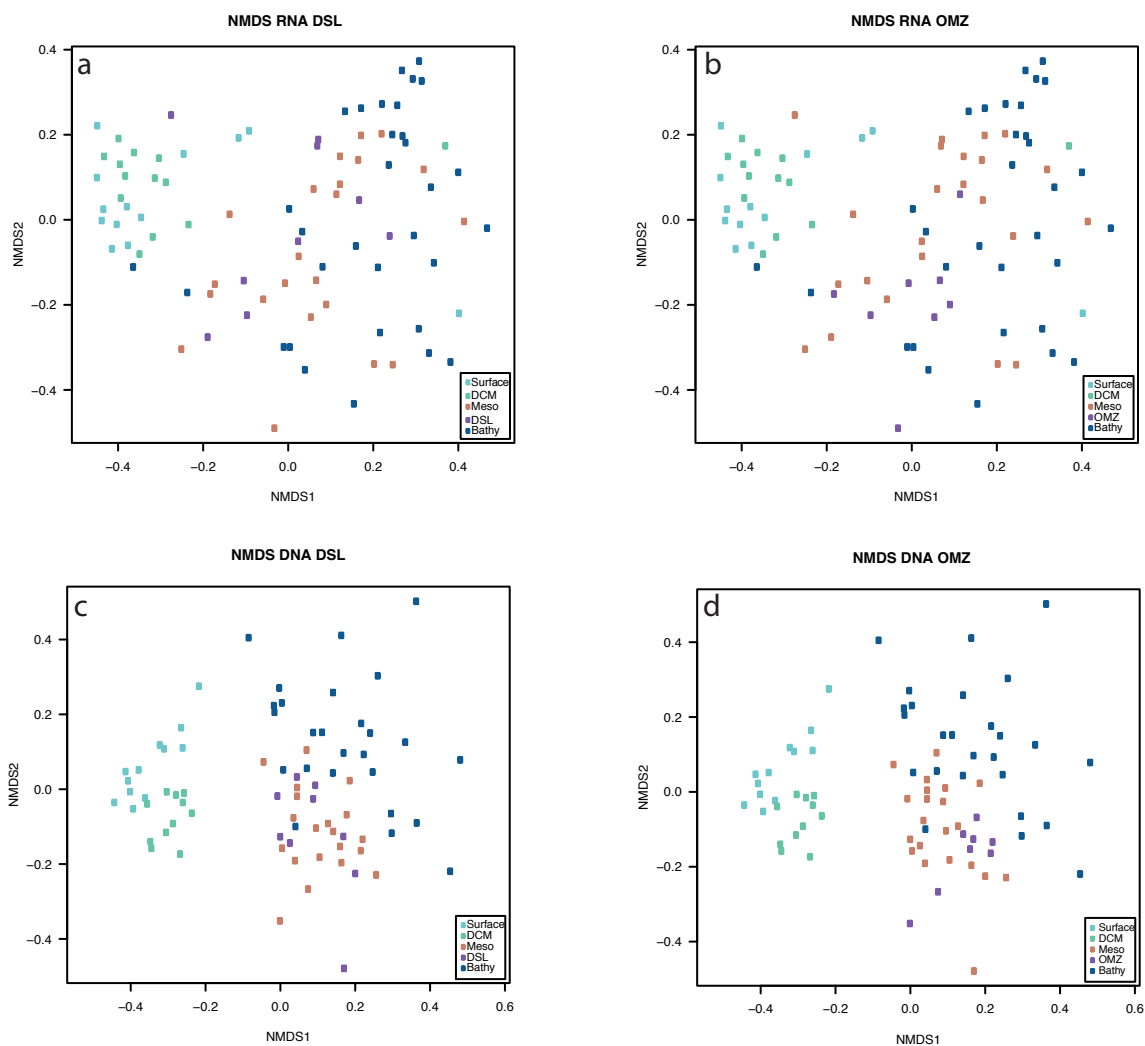
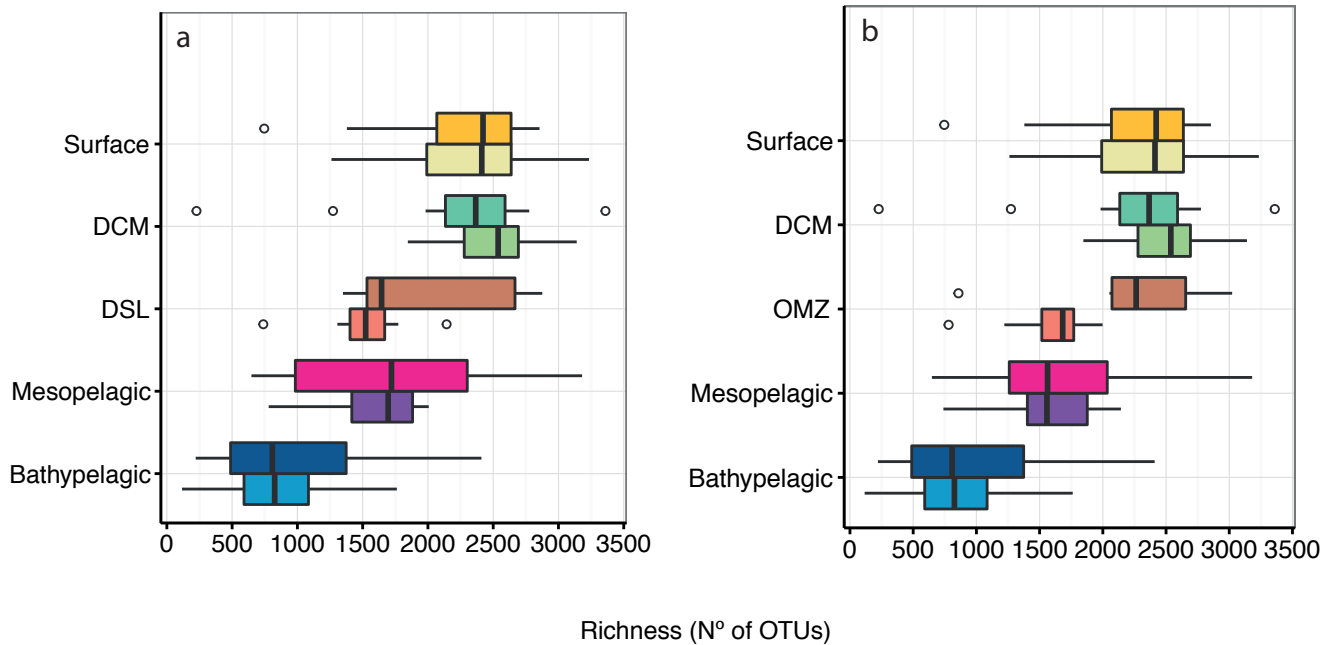


Figure S8. Richness in the different water layers defined as DSL (a) and OMZ (b).
rRNA (upper boxplots) and rDNA (lower boxplots).



SUPPLEMENTARY TABLES

Table S1. Results of the PERMANOVA analysis for the rDNA and rRNA datasets. For each dataset whole water column, and only epipelagic and deep-ocean depths had been analyzed.

	DNA					
	Whole Water column		Surface + DCM (Epipelagic)		Meso + bathypelagic (Deep – Ocean)	
	R2	p-value	R2	p-value	R2	p-value
Light (presence/absence)	0.14	0.001	-	-	-	-
Temperature	0.04	0.001	0.11	0.002	0.08	0.001
Salinity	0.01	0.139	0.06	0.082	0.03	0.021
Water Mass	-	-	-	-	0.24	0.045
O₂	0.04	0.001	0.07	0.014	0.06	0.001
Ocean	0.05	0.001	0.12	0.039	0.08	0.001
Depth	0.07	0.001	0.09	0.001	0.01	0.783
NO₃	0.01	0.511	0.04	0.374	0.02	0.275
PO₄	0.02	0.042	0.04	0.740	0.02	0.105
SiO₄	0.01	0.445	0.04	0.704	0.02	0.386
DAPI	0.01	0.122	0.05	0.268	0.01	0.864
Conductivity	0.02	0.017	0.04	0.495	0.03	0.017

	RNA					
	Whole Water column		Surface + DCM (Epipelagic)		Meso + bathypelagic (Deep – Ocean)	
	R2	p-value	R2	p-value	R2	p-value
Light (presence/absence)	0.15	0.001	-	-	-	-
Temperature	0.03	0.001	0.08	0.045	0.05	0.001
Salinity	0.02	0.017	0.09	0.032	0.04	0.023
Water Mass	-	-	-	-	0.25	0.040
O₂	0.06	0.001	0.04	0.296	0.02	0.173
Ocean	0.06	0.001	0.13	0.052	0.07	0.006
Depth	0.07	0.001	0.11	0.004		
NO₃	0.01	0.227	0.03	0.777	0.01	0.989
PO₄	0.02	0.077	0.03	0.563	0.02	0.260
SiO₄	0.01	0.819	0.02	0.872	0.01	0.506
DAPI	0.01	0.268	0.08	0.038	0.02	0.317
Conductivity	0.01	0.343	0.04	0.438	0.02	0.320

Table S1. Number of total OTUs in each water layer and of the unique OTUs within them in the DNA and RNA dataset.

DNA

Depth	Total OTUs	N° of reads	OTUs unique	N° reads unique	%reads unique
Surface	5968	259,490	765	11,221	4.3
DCM	6741	239,147	849	16,989	7.1
Mesopelagic	8106	643,049	1652	47,084	7.3
Bathypelagic	6117	578,182	584	14,549	2.5

RNA

Depth	Total OTUs	N° of reads	OTUs unique	N° reads unique	%reads unique
Surface	6171	285,018	386	5,415	1.9
DCM	6891	285,525	284	3,339	1.2
Mesopelagic	9622	685,314	1221	22,967	3.35
Bathypelagic	8046	711,808	314	4,510	0.6