Answer to comments raised by Reviewer #2

Dear Reviewer,

Thank you for the comments, which help us to improve our manuscript. We have now carefully considered all your comments. Please see below the answers to each of them.

The authors present a very comprehensive hydrographic biogeochemical and biological dataset from a cross-section at 75°N from the East Greenland Shelf to the Barents Sea shelf in late summer 2021. The data set is very extensive with the various parameters that were investigated and allows an insight into the interrelationships of the biological ecosystem during this time phase. I think the manuscript can be accepted after a view minor change as following:

Line 42/43: Sentence unclear please rephrase

Answer: The sentence has now been revised as follows: *"Phytoplankton biomass, expressed as chlorophyll-a, varies across the transect, with higher values at the westernmost and easternmost stations. The micro-phytoplankton fraction dominates in PW, while the nano-phytoplankton fraction predominates in AW, even at the interface between the two water masses"*

Line 212: How many replicates were taken? How was the spatial variability of the POC on the filter handled?

Answer: At least two replicates were analysed for each sample. Spatial variability was within ±2.5 % on the filter.

Line 222 Could you comment on using (HDPE) bottles, I thought DOC should be in pe-combusted glass vails?

Answer: As reported in Halewood et al. 2022 (https://doi.org/10.3389/fmars.2022.1061646) if glass is logistically challenging, DOC samples can also be collected into acid washed high-density polyethylene (HDPE) or polycarbonate (PC) bottles. Tests have shown that DOC concentration measured from glass, PC and HDPE bottles are comparable at the µmol L^{-1} resolution.

Line 247 Please give µm units for polycarbonate membranes

Answer: µm units are now indicated

Figure 5: Please use same y-scale as for Fig 3 for better visibility of the biological relevant surface data.

Answer: Figure 5 was updated using the same y-scale as for Fig. 3. Here the new figure:
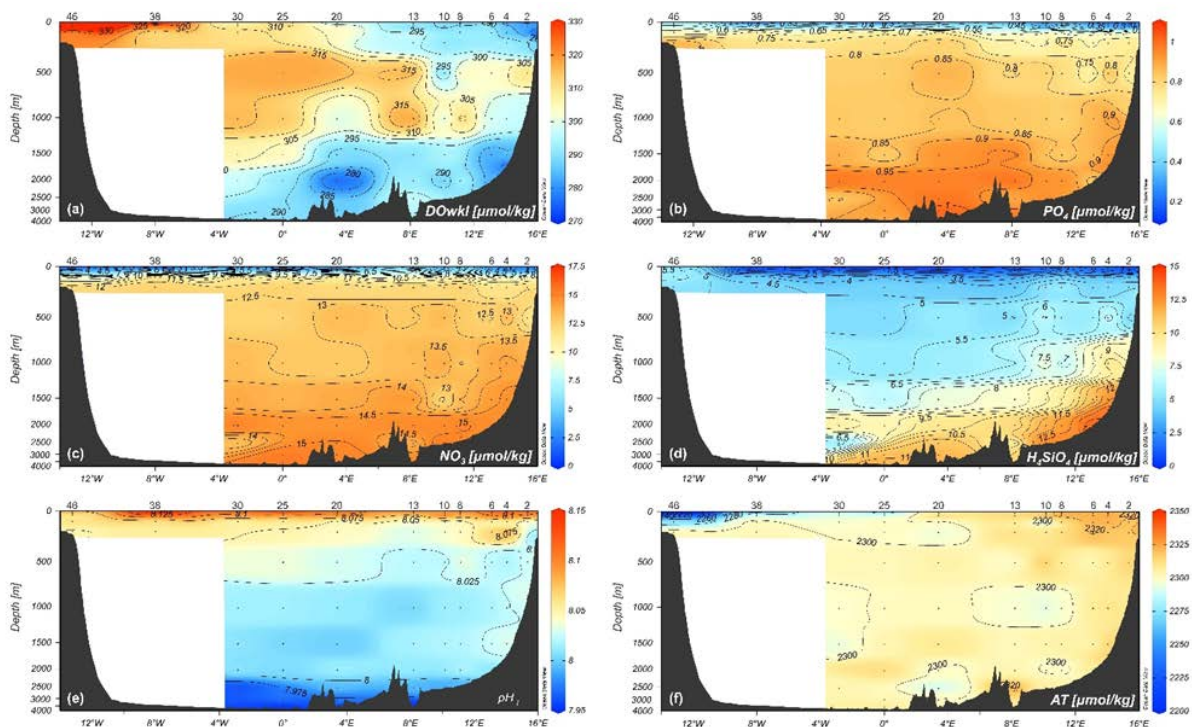
Figure 6 & 14: Please improve the quality of the figures and hange the order in West - East, as done for all other figures

Answer: Figures 6 and 14 have been improved as suggested

Figure 9: Integrated contribution again 0-100m?

Answer: The Figure 9 caption has been modified, the phytoplankton values were integrated 0-100 m.

Figure 10: Integrated values again 0-100m?

Answer: The Figure 10 caption has been modified, the microzooplankton values were integrated 0-200 m.

Figure 14: change unit notation to: µL O$_2$ h$_{-1}$ L$_{-1}$

Answer: We think the reviewer is referring to FIG 15 and not 14, Hence, "µl" has been changed to "µL" in figure 15