

Dear Prof. Hoppema:

Thank you for allowing us the opportunity to respond to the peer reviews. The reviewers' suggestions were addressed in the section Measurements as follows (in blue ink).

Suggestion #1 for revision by Anonymous Referee #1 - The method for calculating vertical (ascent and descent) swimming speeds of zooplankton should be describe in the text (Measurements section).

Response by the authors - The paragraph was added at LL. 232-236: "One method for calculating vertical migration speed of zooplankton from the sound backscatter data of the acoustic current meter at the profiler Aqualog was described in (Pezacki et al., 2017). However the vertical migration speed of mesozooplankton is beyond the focus of this study. Only once when discussing the pattern of the diel vertical migration, the slope of the migration track on the echogram (see Figure 9 below) is considered to give rough idea about the dive and the ascend of mesozooplankton. Much more effort would certainly be needed to visualize the specimens' vertical swimming."

Suggestion #2 for revision by Anonymous Referee #1 - "Appendix A" should be summarised and referred in the manuscript.

Response by the authors – The following changes were made LL. 232-236: "In Appendix, we will consider whether the mesozooplankton specimens' vertical orientation is tilted in the deep aggregations. The analysis will be based on calculation of the ratio of the volume scattering strength of the horizontal beams  $A_1/A_2$  assuming that due to the tilt the standard deviation of  $A_1/A_2$  should be greater than 0."

Suggestion #1 for revision by Anonymous Referee #2 - My only observation to this version is that I still do not see an adequate presentation and justification for the dates shown within the time series that authors have collected. For example, authors indicate that they sampled the hydrographic features 15 times but show sections from 2016 onwards. On the other hand, zooplankton sampling was carried out on 4 dates/years. Why are these discrepancies observed? Any potential limitations that authors can discuss in this regard? It's probably not a big problem but at least for me it's not entirely clear. Perhaps a table could help clarify this minor point so that it is easily interpreted.

Response by the authors – Yes, it is really worth to add the time table of the observational surveys. The table entitled Deployments of the Profiler Aqualog-6 with Nortek Aquadopp Current Meter in the NE Black Sea and the Dates of the Zooplankton Sampling near the Profiler Mooring Site in 2010-2021 was added (please, see LL. 202-206 and below in the revised manuscript).

Finally, please, also notice that we updated Figure 15 of the revised manuscript.

Best regards,

Alexander Ostrovskii