

Comments: The manuscript is in general well written and structured. Some parts could be more detailed. The literature cited is mostly adequate, citations need to be checked as discussion papers might be already published (see Bange et al. 2009, Walter et al. 2006).

> The referee is correct, both of the above studies have already been published and reference will be updated accordingly.

The abstract is quite general; for a first overview it might be helpful to also include main results and numbers.

> More detail will be added to the abstract, along the main results and numbers.

The Introduction part describes the processes very briefly and focus on the main pathways. For several statements (e.g. page 2, line 3-30) an additional citation of more recent publications would be preferable, as well as a more detailed description.

> The text will be revised and the main processes will be described in greater detail with more up to date citations where possible. The concise style of the introduction was a conscious decision in keeping with relative short format of the article.

The sentence “Both advective processes..” (page 2 / 3, line 30 / 1) belongs more to the conclusions than to the introduction.

> Our aim was to investigate the various factors potentially contributing to removal of methane and feel that it is therefore relevant to introduce the main mechanisms in the beginning.

In the Material and Methods part please include a detailed error description and estimation, especially with view on the gas transfers between several plastic syringes.

> A more detailed error description will be included in the revised manuscript, including potential error caused by the syringe transfer.

Please explain the advantages of storing the samples as described.

>The main advantage of transferring the samples into Exetainers already onboard is that they samples can be subsequently transported with ease to be analysed in the home lab. Sturm et al. (2015, Limnology and Oceanography: Methods, Vol 13, Issue 7) have shown that there is no noticeable loss of gas from exetainers over several weeks of storage.

Check the formula and its units.

> The formula has been checked and the manuscript will be updated to use SI units.

Please include information why those 5 stations have been chosen and link them to previous Baltic Sea monitoring programmes.

> All five stations have been consistently monitored for several decades for basic hydrographic parameters and have been used in numerous previous studies. The fieldwork for this study was conducted partly during monitoring cruises, hence the choice of stations was somewhat fixed. However, these stations represent well the conditions in both the eastern and western basin well and had the best monitoring coverage out of all stations based in the Gotland basin during the year after the inflow.

In the Discussion part the CH₄ dynamics in the EGB are not very clear described. Especially the CH₄:PO₄ ratio approach could be more detailed as the figure is relatively complex.

> We appreciate that this section is rather complex and we took care to describe our approach as clearly as possible. However, we take on board the reviewer's comment and try to improve the description of our approach and our interpretations of the results.

Most of the figures are too small and included information is hardly readable. The information in the figure captures might be shortened or included in the text.

> Font sizes of all figures will be increased and captions will be shortened where possible.

Figure 4: if NH₄⁺ and NO_x⁻ have been measured at more than one station (BY15), it would be helpful to include the information into the overview Figure 2.

> Both data are available. However, these data will be presented with greater detail in an upcoming companion paper and therefore we chose not to present them here.

The information given in the supplementary part could be better introduced and referred to in the manuscript.

> The supplementary material will be re-structured and revised.