The paper has now incorporated the main points of the review and is conveying a clearer and stronger message. There are, however, two small points that I think could contribute to strengthen the paper:

1. I would suggest that the authors discuss how the fact that there are transients and climatic trends in the considered variables lead, together, to the observed variability. Because of that, I think that a paragraph discussing how to explore uncertainty in that variability, even mentioning as the authors said, that it will be part of a follow up study, will enrich the paper. I would suggest stressing the importance of exploring the possibility to estimate the ratio of climate signal to internal system variability and how the described modelling tool can contribute to that.

Authors' response: Thank you for your insightful comment. We appreciate your suggestion to discuss the role of transients and climatic trends in the observed variability. It is indeed important to explore uncertainty in this variability and estimate the ratio of climate signal to internal system variability. Our developed modelling framework allows us to quantify the proportion of climate signal to internal system variability. Transients and climatic trends within the system contribute to the observed variability through various processes. For example, changes in salinity in the lagoon can result from increased river inflow, precipitation, and periodic salt-water intrusions from the Baltic. To identify and quantify this variability, we will disassemble climatic projections and analyse model responses at different scales. Our upcoming follow-up study will employ statistical techniques such as the Mann-Kendall test, wavelet analysis, and time series decomposition. We will determine the most significant changes predicted by different RCM and RCP scenarios. By differentiating short-term fluctuations from long-term trends, we can evaluate the driving factors behind the observed variability and suggest appropriate mitigation measures.

2. The fact that the hydrodynamic model and the hydrological model (SHIFEM and SWAT) do not overlap may introduce a further uncertainty in the simulations. I think that the paper should discuss how those uncertainties could be reduced by an overlapping domain, some compatibility conditions or even bulk estimates of key control variables. That is becoming nowadays a very interesting topic where the proposed modelling tools could also contribute.

Authors' response: Thank you for raising the concern about model overlap. SWAT, as a hydrologic 1D model, is not deemed to be suitable for accurately representing the processes that are happening in a delta region. SHYFEM, being a hydrodynamic 3D model is better suited to represent such area. Hence, SWAT is used to represent its domain – basin-scale processes, while SHYFEM – shallow water/coastal processes. It would be complicated to check the overlapping area and confirm that the models are indeed "in sync", just because of the scale and the process representation. One such comparison could be the flow, as modelled by SHYFEM – flux of water thru the channel cross-section, and SWAT – outflow values for the same reach. Although this comparison would not entirely represent the same process, it can be performed to quantify the uncertainty in the representation of the overlapping domain. In the scope of this project – we did not assess such uncertainty, as we "cut" the model boundaries in the same place, meaning that there is no overlap of the domains, i.e., SHYFEM and SWAT do not overlap spatially because the output of SWAT (water discharge and temperature) serves as river boundary data for SHYFEM. This integration allows for the transfer of information between the models, ensuring that the hydrodynamic model captures relevant hydrological processes and responds to boundary conditions from SWAT.

Authors' changes in manuscript: We have created a separate section (4.9. Study limitations and uncertainty) within the Discussion section of the manuscript to specifically address the comments you raised. This approach allows for a focused discussion and helps ensure that the points you highlighted receive the attention they deserve. Additionally, we have carefully re-evaluated the content of our conclusions and decided to relocate certain parts of the conclusions to this newly created section. By doing so, we aim to

provide a comprehensive and cohesive response to your remarks while maintaining the logical flow of the paper. Incorporating your suggestions and implementing adjustments, we are confident that the clarity and effectiveness of our manuscript have been significantly improved.