I read the comments from Reviewer 1 and responses from the authors. I agree with the authors that this article provides a new and valuable dataset and raises attention to the deoxygenation situation of macrotidal estuaries. I also agree with Reviewer 1 that authors can further improve the clarity of statements and word choices (detailed in my specific comments) and include necessary information to help readers interpret results (e.g., SPM data to show the maximum turbidity zone, water depths of monitoring stations to justify using surface data alone). Reading the comments made by the two assessors made us realise that it was necessary to add information about the sites, macrotidal estuaries and the zone of maximum turbidity. This will be corrected in the revised version. We would like to thank the reviewer 2 for their careful reading and the suggestions and questions that followed. They will greatly improve the manuscript.

The turbidity maximum zone (TMZ) appeared on many occasions throughout the Results and Discussion section. However, there is no data or analysis on TMZ presented in the manuscript. According to Sections 3.1 and 3.5, the concentration of suspended particulate matter (SPM) is monitored at several stations and used to conduct path-analysis. However, the data of SPM is not shown anywhere. I suggest presenting the SPM data to directly support the analysis of TMZ and the link between SPM and oxygen dynamics. The reviewer is right, there are indeed measurements of the suspended matter load that were used for the analysis. The low-frequency monitoring carried out by the Water Agency includes this parameter. As the article focuses on dissolved oxygen, we did not include this parameter. Figure 2 will be modified to include the suspended matter load and the presence or absence of the maximum turbidity zone will be discussed for site depending of seasons.

The manuscript mainly presents and discusses variations of temperature, salinity, and dissolved oxygen (DO) in Charente. It suggests that temperature is the main controlling factor of DO. What are the conditions of other water quality parameters, such as inorganic nutrients, organic matter, and chlorophyll, in this estuary? Do they contribute to the low oxygen events in the Charente?
The analysis also suggests that the downstream estuarine water has a lower oxygen level while the upstream river water has a higher oxygen level. This spatial variability doesn't seem to be controlled by temperature. What are the other driving factors? In fact, few studies have been carried out in the Charente estuary, so little reliable data is available. This initial work was initiated following the constant occurrence of hypoxia in neighbouring macro-tidal estuaries. At this stage, the work has revealed summer hypoxia. The link with temperature is strong, because in autumn, although SPM is high, as soon as the temperature drops, oxygenation is restored to levels above 5 mg/L. For further interpretation, more detailed studies of particles (% carbon, lability) will be required. As far as chlorophyll is concerned, SPMs of several grams per litre exclude primary production.

In addition, Figure 4 shows that the measured oxygen level is way below the saturated oxygen level during summer. This suggests remarkable oxygen depletion, which can be related to the biological and chemical processes consuming oxygen. Are they due to microbial degradation of organic matter? While the oxygen-consuming processes are also affected by temperature, there should be sources of organic matter to fuel the microbial degradation. Therefore, I think other parameters in addition to temperature and salinity are also required to better understand the variations of DO. Indeed, in TMZ oxygen consumption is mainly related to microbial degradation, a process that is greatly influenced by temperature. Even if the carbon load is low, the huge charge of particles (several grammes per litre) implies an important oxygen consumption. The discharge was considered in the path-analysis as it influences directly water renewal, but its impact was low regarding the other considered parameters. The impact of discharge on dissolved oxygen will be added in Figure 8.

Specific comments
L31: the first oyster-farming area? → it will be corrected according the suggestion

L35: "salinity sensors"? Do you mean conductivity sensors? Yes, the HOBO Salt Water Conductivity/Salinity Data Loggers measure conductivity, and temperature, salinity is calculated https://www.onsetcomp.com/products/data-loggers/u24-002-c And what are used to measure temperature? HOBO Dissolved Oxygen Data Loggers measured dissolved oxygen and temperature.

L36: "will be" -> "is" → it will be corrected

L36: specify the sampling frequency of the "low-frequency" dataset → it will be precised

L37: "a degradation of oxygenation" -> "a deoxygenation trend" It is not exactly the idea, the sentence will be modify to clarify it.

L41: -> "main controlling factor of DO" → it will be corrected

L46: "diagnosing of" -> "diagnosing" → it will be corrected

L60: "less the attention" -> "less attention" → it will be corrected

L60: Not sure how we can conclude that "hypoxia in estuaries has received less the attention than in coastal waters". → just a rapid check: 775 results from Web of Science Core Collection for estuary/hypoxia (considering that some of the articles concern more the outer estuary) 922 + 174 for coastal water and continental shelf/hypoxia, or only 14 references in Gilbert and al 2010. Anyway, the sentence will be modified according this comment.

L67: "given their large impact on aquatic organisms" – can be deleted. It has been elaborated by the preceding sentences. → suggestion will be considered

L81-84: please provide references for these predicted changes. → relevant references will be added

L131: the depth of the selected sites should be described to help readers better interpret the data collected at 50 cm below the surface. Maybe mark them in Figure 1. → range of water depth will be added

L135: What parameters are measured through the multi-parameter sensor? → the same (temperature, conductivity and dissolved oxygen, and turbidity) it will be precised

L154: consistently use "50 cm" or "0.5 m" → it will done

L160: "Charente estuary is not known to have hypoxic situation" - is this statement based on monitoring or the geographic, physical, and/or chemical characteristics of the estuary that make it not prone to develop hypoxia? It is based on the absence of publication

L161-170: What methods are used to collect these low-frequency data? And at what depths are the measurements conducted? Are they comparable to those of the high-frequency data? These data are produced by certified laboratories that produced qualified data. Measurements are also made in surface waters. Details will be added

L175: delete "that" → it will done

181: "varies" -> "vary" → it will be corrected

187-188: This should be divided into two sentences. → it will done

L197: insert "with" before "DO reaching …"→ it will done

L200: the unit of saturation in Fig. 2(d) is incorrect. The time period of the observations at Saint-Savinien is missing. …"→ it will be corrected. Indeed, there is a mistake, Matrou will be replaced by Saint-Savinien

L217: delete "even" …"→ the sentence will be modified to better convey the idea

L230: Fig. 4a. The shaded area of discharge is covered by that of salinity from time to time. Suggest plotting the discharge using a solid line on the top of salinity. …"→ the figure 4a will be modified
Fig. 4d. The legend of the gray line could be modified as "DO at saturation". "DO-100%" can be misinterpreted as the "DO saturation – 100%" with a unit in percentage. …"→ it is written in the figure caption, but it could be modified

L240: In Figure 4, where can we tell "the presence of a moderate TMZ"? → the presence of the TMZ is related to the fluvial discharge. Turbidity will be added in Figure 4.

L248: considering -> consider …→ it will be changed

L251, 257: will be -> was → it will be changed

L250-260: Please pay attention to the tense being used. It should be consistent throughout the manuscript. …→ it will be checked
L260: Please include the unit. → unit will be added

L262: "..allowed TMZ to develop and persist until the autumn floods (Fig. 4)." – this cannot be inferred from Figure 4. → as previously

L270: "This validates the use of these data …" -> "The agreement between the two datasets validates the use of the low-frequency data …"→ it will be corrected

L273: "inability of the low-frequency data to …"→ the low-frequency data will be added

L282: What trends of what variables? Figure 5 only shows dissolved oxygen. L295: Figure 5 – suggest marking the period of high and low tides on the time series. …"→ salinity will be added

L302: The previous paragraph (L284-286) suggests that at high tide, the advection of oxygen-poor water from downstream leads to low-oxygen condition. But this sentence suggests the opposite. L305: This contradicts L284-290 which suggests that the downstream estuarine water has a lower DO concentration while the upstream river water has a higher DO concentration → It depends of the site, this will be clarified

L310: "Oxygen" -> "oxygen"; Do you mean "localization" or "location" of the oxygen minimum zone? Location

L318-319: Do you mean the DO data collected in the summer of the 3 years shows a decreasing trend? The time series presented in Figure 4 is not obvious to support this statement. The data in 2018 only covers 3 weeks, which is not sufficient to represent the entire summer condition of 2018. → no, we want to say that DO decrease in summer as observed by low-frequency monitoring. The sentences will be clarified

L336-337: We need the information on the depths of these monitoring sites. Are there any data to show how stratified the water column is? …"→ there is no or limited stratification in macrotidal estuaries, especially in the upper section. It will be precised

L346: "reach borderline or even hypoxic, levels" -> "reach borderline or even hypoxic level" L353: delete "comprised" L355: delete the second → "," and "comprised" "target"will be suppressed

L354: add a "," after "conditions" L356: -> "summer levels of DO": → it will be added

L365: "However, it is clear that the number of studies is limited and rather dated. " – not clear to me how we can come to this conclusion. The cited references in the preceding sentences are mostly between 2021 and 2023. → Yes indeed and the most recent is Arevalo et al. (2023) that a review of the literature focusing on temperate estuaries. Therefore, the recent references do not rule out the fact that a large part of the works is not of recent date.

L382: "used the 2020 dataset, which has the interest to include also …" -> "used the dataset obtained in the year 2020, which has included …" → The suggested change will be considered, but we need to check that it doesn't change the idea.

L384: -> "water quality parameters" → "water' will be added

L385: Should wind speed also be considered? This parameter links to the oxygenation of shallow waters. → summer is not the period during which winds are the highest. In addition, high particulate load

limits exchange. *Abril G., Commarieu M.V., Sottolichio A., Bretel P., Guerin F. (2009) Turbidity limits gas exchange in a large macrotidal estuary, Estuarine, Coastal and Shelf Science, 83, 342-348.*

L381-389: Please provide a bit more information on how the path-analysis was conducted. How do we interpret the numbers shown on the arrows and the circles in Figure 8? Does the thickness of the arrows represent the strength of the correlation between the two variables? If so, please make it clearer in the caption. → Details on the patch analysis will be provided, in the method section and the figure caption will precise that the thickness of the arrows corresponds to the strength of the correlation. The correlations between DO and salinity/ discharge will be added, they were not plooted to avoid

L408: "less the attention" -> "less attention" …→ it will be corrected

L415-417: Do you mean the existence of turbidity maximum zone promotes severe deoxygenation? Why is temperature mentioned here? → Yes in macrotidal estuaries; hypoxia is not related to eutrophication but to warm and highly turbid waters.

L418-420: Got confused here. Why can low summer flows (with water stored in reservoirs) limit water warming? → water is stored in winter and released during the low summer flow to sustain river discharge. Sustaining summer river help to reduce the residence time of the water and to a less extend temperature rise (more stagnant water tends to warm up more when there is a lot of sunshine). And how can a lower summer flow increase the inflow of more oxygenated river water? As shown by the Saint-Savinien, the fluvial waters are more oxygenated, then the water released from fluvial reservoirs
Is also expected to be well oxygenated. Such scenarios have been modelled for the hyper-turbid Gironde estuary (Lajaunie-Salla et al Comparing the efficiency of hypoxia mitigation strategies in an urban, turbid tidal river via a coupled hydro-sedimentary–biogeochemical model Nat. Hazards Earth Syst. Sci., 19, 2551–2564, 2019 https://doi.org/10.5194/nhess-19-2551-2019. This section is be written more precisely to explain the low-water replenishment.