

Response to the Editor – Public Justification Comments

We would like to thank the Editor for the constructive and detailed feedback and for acknowledging the improvements made to the manuscript and the clarity of the online data file.

We have carefully addressed all the points raised. Below is our point-by-point response:

1. Abstract adaptation for a data paper

We have revised the abstract to better reflect the nature of the manuscript as a data paper. The revised abstract now provides more explicit details about the dataset itself (e.g., temporal coverage, spatial scale, parameters), before presenting its potential for trend analysis. We have aligned the style and content with examples from recently published articles in *ESSD*.

2. Line 55 – replace "oxygen" with "dissolved oxygen"

Done. The term "oxygen" has been replaced with "dissolved oxygen" to improve precision.

3. Lines 64–65 – "offer a robust dataset in order to examine the long-term evolution"

Done. The sentence has been corrected.

4. Line 69 – Modify sentence structure

Done. The sentence now reads: "HYDRONOR offers a higher spatial resolution within a single department, with a focus on shellfish-farming ecosystems."

5. Line 74 – Replace "study" with "dataset"

Done. The term "study" has been replaced with "dataset" to remain consistent with the nature of the article.

6. Figure 1 – Caption and visual improvements

Done.

- The caption of Figure 1 now includes an explanation of the blue lines, which represent the river network of the department.
 - The station names have been enlarged for better readability.
 - The label "Blainville" has been repositioned to avoid overlap with the land background.
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7. Line 180 – Replace "experimental" with "French" standard AFNOR

Done. The term "experimental standard" has been replaced with "French standard (AFNOR)". As the AFNOR standard does not have a freely accessible online version, we did not include a direct link.

8. Section 3.1 title – Style correction

Done. The title has been modified to: "Increase in winter temperature and pH levels" to reflect consistent grammar and parallel structure.

9. Figure 2 – Add details on boxplot statistics and clarify suppressed parameters

Done. The caption now specifies what the box, line, whiskers, and outliers represent (*e.g.*, median, 25th/75th percentiles, 1.5× IQR).

10. Figure 6 – Reorder categories for readability

Done. The categories have been reordered to enhance readability and consistency across subplots.

11. Figure 8 – Clarify structure of triplet graphs and reuse in later figures

Done. The caption for Figure 8 now clearly explains that each set of graphs corresponds to one station and one parameter. In subsequent figures, we now indicate that the same triplet format is used.

12. Line 501 – Sentence about PCA to be removed

Done. The sentence "Principal Component Analyses (PCA) were performed for each station (Figures 10, 11, and 12)." has been removed, as this is already indicated in the section title.

13. Figure 13 – On suggested modifications

We appreciate the suggestion to plot the N:P ratio against the Si:N ratio and to use a log scale on the X-axis. However, we chose to retain the current format for the following reasons:

- The current representation of molar nutrient ratios is consistent with how these ratios are commonly analyzed and discussed in coastal ecosystem studies. In particular, several published works use the same approach to identify potential nutrient limitation regimes (*e.g.*, Lefebvre *et al.*, 2011; Loyer *et al.*, 2006; Schapira *et al.*, 2008; Pannard *et al.*, 2008). Maintaining this format facilitates comparison with previous datasets and strengthens the relevance of the long-term trends shown.
- We acknowledge the suggestion to use a logarithmic scale for the X-axis (Si:N), but we chose to retain a linear scale to ensure better readability of the stoichiometric regions and consistency with the cited literature.

- Finally, regarding the interpretation of the stoichiometric regions, the figure caption already includes the phrase “*potentially limiting nutrients*”, which we believe clearly conveys that these regions represent indicative and not absolute limitation regimes. For these reasons, we propose to keep both the figure and its caption unchanged.

References:

- Lefebvre, A., Guiselin, N., Barbet, F., & Artigas, F. L. (2011). Long-term hydrological and phytoplankton monitoring (1992–2007) of three potentially eutrophic systems in the eastern English Channel and the Southern Bight of the North Sea. *ICES Journal of Marine Science*, 68(10), 2029–2043.
- Loyer, S., Lampert, L., Menesguen, A., Cann, P., & Labasque, T. (2006). Seasonal evolution of the nutrient pattern on Biscay Bay continental shelf over the years 1999–2000. *Scientia Marina*, 70(1), 31–46.
- Schapira, M., Vincent, D., Gentilhomme, V., & Seuront, L. (2008). Temporal patterns of phytoplankton assemblages, size spectra and diversity during the wane of a *Phaeocystis globosa* spring bloom in hydrologically contrasted coastal waters. *Journal of the Marine Biological Association of the United Kingdom*, 88(4), 649–662.
- Pannard, A., Claquin, P., Klein, C., Le Roy, B., & Véron, B. (2008). Short-term variability of the phytoplankton community in a coastal ecosystem in response to physical and chemical condition changes. *Estuarine, Coastal and Shelf Science*, 80(2), 212–224.

14. Section 4.4 (Data quality and limitation) – Reordering suggestion

Done. As suggested, we have moved the “Data quality and limitation” section to become section 4.1 of the discussion. This allows the reader to first understand the dataset’s limitations before the presentation of results.

We hope these revisions address all concerns, and we thank you again for your detailed feedback and support throughout the review process.