

Editor

Public justification:

Thank you for the revised manuscript, which I believe addresses both reviewers' comments well.

Please could you also address couple of additional minor final points from me before we move to the next stage:

Our Response:

We would like to thank you for your careful consideration and valuable comments on our revised manuscript. We are pleased that the manuscript is now considered suitable for publication after addressing the reviewers' comments.

Following your recent note, we have made all requested minor revisions:

1. Please make sure all abbreviations are defined on their first appearance – e.g. NO_x, in the abstract.

Our Response:

All abbreviations (e.g., NO_x) are now clearly defined at their first appearance.

Several sections, especially the new text inserted in response to the reviewers, lack appropriate citations. For example (line numbers refer to the track-changes manuscript):

2. 319-321 pycnocline restriction of vertical transport (perhaps this comes from your own data, in which case, please refer to relevant figure)
3. 353-355 the description of chlorophyll-a and processes influencing it
4. 498-499 “global-scale trends of changing nutrient stoichiometry”

Please add relevant references to support these points, and carefully check through for other examples.

Our Response:

Additional citations have been included to support the following points:

2. The restriction of vertical nutrient transport by the summer pycnocline (Randelhoff et al., 2017; Tuerena et al., 2021; Fig. 3).
3. Processes influencing chlorophyll-a variability, such as grazing, sinking, and advection (Behrenfeld and Boss, 2014; Siegel et al., 2013).
4. Global-scale changes in marine nutrient stoichiometry and the role of Arctic fjords as climate-sensitive sentinels (Liu et al., 2025; Weber and Deutsch, 2020).

The reference list has been carefully checked and updated to ensure full consistency with the in-text citations.

We sincerely appreciate your time and efforts in handling our manuscript. We believe that these final revisions have improved the clarity and completeness of the paper.

Thank you very much for your kind consideration.

Sincerely,

Tae-Hoon Kim

Corresponding Author

Department of Oceanography, Chonnam National University

thkim80@jnu.ac.kr