

Review report and responses:

I am glad the authors chose to include the additional exposition making clear that tidal effects on nutrient flow are minimal. I'm sure the transect is well-studied and the local tidal movements are well known to the authors and have thus been described before, but tasking a reader with the transect's publication history for these details is rather impractical. The addition serves the text considerably by eliminating the tide from the stage.

Thank you for your positive remarks. We have addressed all comments, and the manuscript has been modified accordingly.

I like the image but agree it is perhaps a bit much to include, perhaps a variant of the second line of your explanation thereof ("we did not identify...") can be included in discussion to strengthen the point together with the prior studies now cited indicating that tide affects direction of flow primarily. Note that section 2.1 starts out to bring up high tidal ventilation directly inline with estuarine nutrient input, so the reader will seek its importance naturally.

We have now incorporated this suggestion in Section 4.1 of the Discussion: 'Although we did not identify a measurable effect of tidal phase on the post-storm observations (not shown here), previous studies indicate that tides primarily influence biological processes through their control of the width of the coastal current and associated transport of riverine inputs, rather than through the coastal–offshore tidal cycle itself (Brylinski et al., 1996; Fettweis et al., 2022)'.
Lines 422–426

Regarding the community response, I was not so much alluding to the species level or monospecific groups, but the main groups' as in your table 2 and their typical nutrient utilisation strategies. I am pleased to see that this revision's discussion now contains much more of this (perhaps the other reviewer raised this better than I did, I did not have time to go into their comments in the response document). This helps to build insight into mechanistic response description.

Was the conclusion header removed in error? If not, I'm not sure omitting a concluding section was the right choice. The end of 4.2's "low wind stress and picophyto(...)" subsection does not read as part of it, and more like a concluding section. In regard to the conclusions, I do feel the authors have in the prior text shown mechanistic insights that merit reiteration here. The differing group responses to different modes of storm

driven nutrient suppletion are worth positing as such here. e.g., your statement "(...) highlighting the wider relevance of our observations i.e., post-storm high abundance of certain phytoplankton groups" (revision lines 552-553) invites a paragraph expounding that wider relevance. The findings are there - diatoms leveraging replete riverine input rich in Si, picoeukaryotes reflecting a more oligotrophic state, etc. Bringing the discussion together into an argued conclusion on mechanistic interaction between episodic modes of nutrient suppletion and phytoplankton community structure would greatly benefit the manuscript in the opinion on this reviewer

We have revised the Conclusion section to more clearly highlight how storms differentially affected the various phytoplankton groups. Although we retained the final paragraph of Section 4.2 within the discussion, we updated its opening to ensure better alignment with the overall narrative. This paragraph remains in place because the stochastic and drift mechanisms discussed originate from the earlier work of Skouroliakou et al. (2022), rather than from our own study.

We have also added a separate "Conclusions" section. We moved the final part of Section 4.2 into this section and expanded it to emphasize how different types of storms forcing influence nutrient supply, while providing a synthesis of the mechanistic interactions underlying phytoplankton community responses. The new text is the following:

"5 Conclusions

The present study revealed that summer phytoplankton dynamics were strongly shaped by the interplay of stratification, turbulence, and riverine inputs due to storms. Summer storm impacts in the EEC were highly variable between years, arising from different combinations of river inflows and wind storms that are themselves modulated by large-scale atmospheric circulation. This interannual variability was reflected in phytoplankton community composition, with storms repeatedly disrupting seasonal succession and generating short-lived but pronounced shifts in community structure. Storm events disrupted seasonal succession by introducing episodic nutrient pulses and modifying the physical environment. Riverine inputs enhanced diatom dominance through increased silicate availability, resulting in elevated Chl-a concentrations in coastal waters. In particular, enhanced riverine inputs promoted transient monospecific diatom blooms, such as *Leptocylindrus danicus* and *Chaetoceros socialis*. In contrast, when riverine nutrient inputs were limited, strong wind-driven mixing promoted nanophytoplankton, whereas these conditions were associated with reduced picophytoplankton

abundance. Picophytoplankton, particularly *Synechococcus* in offshore waters, were associated with oligotrophic conditions and were sustained under low-nutrient environments. These findings emphasize the role of episodic summer storms in redistributing nutrients and shaping phytoplankton succession in post-spring bloom coastal ecosystems.” Lines 557–571

Specific remarks

line 411 "nanophytoplankton such as cryptophytes and picophytoplankton"

this sentence does not function as expected...

We have removed the phrase "such as cryptophytes" from the sentence for clarity. It now reads: "Specifically, our findings indicate that high-inflow storms favoured diatoms, whereas wind-driven mixing during low-inflow summers promoted nanophytoplankton and picophytoplankton (Table 4)." Lines 406–408.

In addition, we incorporated remarks from the precedent review file validation:

27 May 2026

Uploaded files validated

by Svenja Lange

Notification to the authors:

a) Figure 7 has separate captions for each panel; this is not allowed in the final, accepted manuscript. Please combine all panels in one single figure using (a), (b), (c) labels, etc. and combine all captions in one single caption. b) Figures F1–F6: please either provide for each figure a separate caption. or name the figures F1a, F1b, etc. c) Your reference list includes a work “in review”. Such works can be cited upon submission if being available to the reviewers. They cannot be cited in the final, accepted manuscript, unless published, accepted for publication, or available as preprint with a DOI.

- a) Figure 7 has been updated and is now uploaded as a single-page figure on page 15.
- b) We have provided separate captions for Figures F1–F6.
- c) The previous “in review” reference has now been updated and replaced with the accepted publication. Lines 818–820

Additional changes

We modified the institutional affiliation by adding ‘IRD’ line 4. In addition, we replaced “of” with “in” at line 8 in the abstract.

We added the word “weekly” at line 76 and the citation (Hubert et al., 2025b) at line 106.

We modified the phytoplankton descriptions in Table 2 by adding “free” to *Phaeocystis globosa* when detected as a RedNano, and “colonies of” when detected as RedMicro.

We also expanded the acknowledgements by including collaborators and funders at line 715, as well as the statement on French State funding operated by the ANR under the France 2030 plan and the EU NextGenerationEU programme (reference 21-EXES-0011) at lines 720–722.