

Biogeosciences Discuss., referee comment RC2
<https://doi.org/10.5194/bg-2021-306-RC2>, 2021
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Comment on bg-2021-306

Anonymous Referee #2

Referee comment on "The onset of the spring phytoplankton bloom in the coastal North Sea supports the Disturbance Recovery Hypothesis" by Ricardo González-Gil et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2021-306-RC2>, 2021

The present manuscript evaluates the annual cycle of phytoplankton biomass at a coastal site in the North Sea using a 21-year time series of high temporal resolution (weekly) measurements. The analysis demonstrates that the onset of positive accumulation rates consistently occurred shortly after the winter solstice, when light limitation was strongest. More importantly, that the rate of biomass accumulation was primarily driven by the rate of change in light availability, reflecting the covariation of r with the rate of change in division. The paper is well-written with data and results presented clearly, therefore I only have a few minor comments.

Suggestions to authors to improve the manuscript.

Line 56 – do not capitalize And

Line 66 – as you do not present the results of 'other nutrient concentrations' in the manuscript, I would suggest removing the vague reference to additional nutrient measurements. I would also suggest somewhere mentioning that TOxN is considered as a general proxy for nutrient concentration.

Line 80 – remove 'using'

Line 81 – remove 'the exact' and change 'mixing' to mixed

Line 83 – remove occurs at the end of the sentence

Line 84 – remove 'the two'

Line 124 – more accurately – you observed evidence of phytoplankton succession over the annual cycle with small taxa dominating in winter and larger diatoms and dinoflagellates dominating in during the spring bloom maximum.

Line 137 – comma before and after respectively

Figure 3 – why are 'others' separated. Why are these not included with the nanoeukaryotes?

Line 152 – perhaps just at maximum instead of strongest in the year

Line 154 – perhaps time interval instead of time distance

Line 177 – as the manuscript does not report nutrient concentrations perhaps state either that nutrient concentrations as proxied by TOxN.

Line 180 – high latitude, storm frequency, and light attenuation

Line 188 – time interval

Line 221 – as we could not the mixed layer depth

Lines 233-237 – I would suggest elaborating on this point a bit more to reduce the need for readers to see other references to follow.