C1: 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.

AR: We sincerely thank the reviewer the positive assessment of our manuscript and its careful revision. Below, we address the minor comments.

Suggestions to authors to improve the manuscript.

C2: Line 56 – do not capitalize And

AR: We have corrected this.

C3: 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 a considered as a general proxy for nutrient concentration.

AR: We have made the suggested modifications.

C4: Line 80 – remove 'using'

AR: We have deleted this 'using'.

C5: Line 81 – remove 'the exact' and change 'mixing' to mixed

AR: We have made these changes.

C6: Line 83 – remove occurs at the end of the sentence

AR: We have removed it.

C7: Line 84 – remove 'the two'

AR: We have removed 'the two'.

C8: 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.

AR: We have made the suggested changes.

C9: Line 137 – comma before and after respectively

AR: We have included these commas.

C10: Figure 3 – why are 'others' separated. Why are these not included with the nanoeukaryotes?

AR: We thank the reviewer for this comment. After thinking about it, we think that there is no clear justification for keeping the 'others' group separated and thus, we have included them in the nano-eukaryotes as suggested. Another possibility could be to separate the phytoplankton groups within the 'others' category into single nano-eukaryote groups, but we consider this could complicate the figure and corresponding legend.

C11: Line 152 – perhaps just at maximum instead of strongest in the year

AR: We have replace 'strongest' by 'at maximum'.

C12: Line 154 – perhaps time interval instead of time distance

AR: We have replaced it as "for the same number of days" to be consistent with new Line 188.

C13: Line 177 – as the manuscript does not report nutrient concentrations perhaps state either that nutrient concentrations as proxied by TOxN.

AR: We have included this.

C14: Line 180 – high latitude, storm frequency, and light attenuation

AR: We have made these modifications.

C15: Line 188 – time interval

AR: This sentence has been modified: "Thus, r cannot just depend on μ since mean seasonal PAR levels (and probably the associated μ) are similar around the same number of days before and after the winter solstice (Figure 4a)."

C16: Line 221 – as we could not the mixed layer depth

AR: We have made this modification.

C17: 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.

AR: We have included examples of the potential mechanisms contributing to the spring bloom development: "For instance, a water column stratification due to the surface heating or a relaxation of the turbulent mixing caused by weak or calm winds can lead to fast (albeit temporary) increases in both light availability and division rates".