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**Biogeosciences Discussions**

# *Interactive comment on* "Net community production and stoichiometry of nutrient consumption in a pelagic ecosystem of a northern high latitude fjord: mesocosm $CO_2$ perturbation study" *by* A. Silyakova et al.

**Anonymous Referee #1**

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This paper reports the results of total CO2 and nutrient drawdown, following nutrient additions, in mesocosms placed in Arctic waters. The experimental design included 7 elevated pCO2 bags and 2 controls (ambient pCO2).

The paper is well organized, and the data clearly presented. Unfortunately, I don't know how to relate the results of the mesocosm experiments to what might happen in nature with increasing pCO2. The experimental outcomes were variable throughout various phases of the time course experiment. In considering the significance of these findings in a natural setting, I don't know if I should be considering the final incubation results



(at day 27), or those at the end of one of the experimental phases.

It is the responsibility of the authors to tell the readers how we should interpret the significance of the results. At present, the paper is more of a 'data dump' than it is an advance of our understanding of the system. The Summary simply restates the findings, and the findings are limited to quantifications, but no insights. The reader needs better guidance from the authors as to the real world/ocean meaning of the results. I do not object to this article being published since it is apparently complementing several other papers in a special issue. But to have some impact the article needs to do a better job of standing on its own; what did the authors learn from this work, other than just C:N and C:P drawdown ratios, etc? Given the results of this work, what do we now know about increasing pCO2 in the Arctic in terms of its impact on NCP and elemental drawdown ratios? The paper would be much strengthened if those issues were addressed.

The Abstract, Intro and Methods have several grammatical problems.

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