

Earth Syst. Dynam. Discuss., author comment AC3
<https://doi.org/10.5194/esd-2021-104-AC3>, 2022
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Reply on CC2

Jiajun Wu et al.

Author comment on "Carbon dioxide removal via macroalgae open-ocean mariculture and sinking: an Earth system modeling study" by Jiajun Wu et al., Earth Syst. Dynam. Discuss., <https://doi.org/10.5194/esd-2021-104-AC3>, 2022

Dear Marius Wiggert,

Thank you very much for your comments on our manuscript.

We apologize for an error in the legend in Figure 3 (erroneously interchanging Area I and II) and have corrected this in the new version below and also updated in the upcoming revised version of our manuscript.

According to **Sec. 3.1** and **Tab. 2**, the seeding date for MOS is **1st of May in Area I** and **1st of January in Area II**, while the sinking dates are **31st October and 31st December** correspondingly. As a result, the macroalgae NPP in **Area I** peaks around September with the accumulation of macroalgae biomass in that area.

In **Area II**, due to the nutrient limitation and nutrient competition with ambient phytoplankton, macroalgae biomass grows slower than in the other two areas, leading to a later peak of NPP around October.

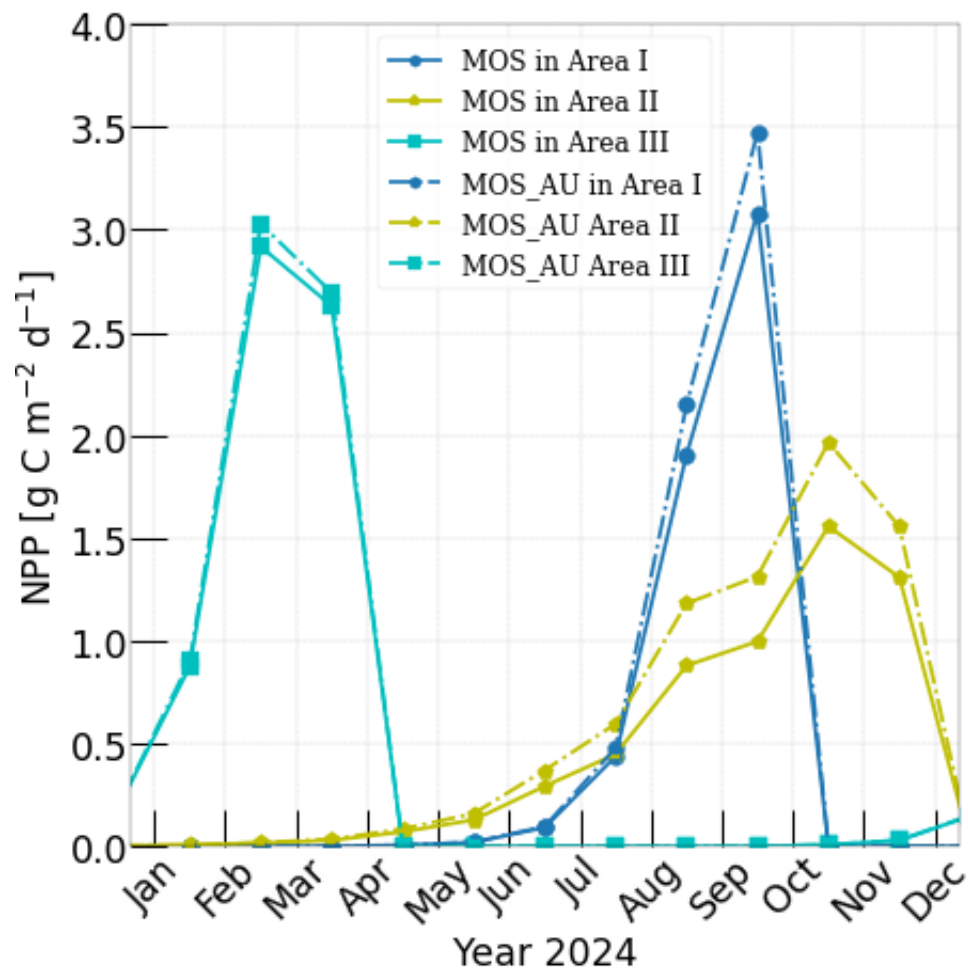


Figure 3. Vertically integrated macroalgae NPP simulated by experiment MOS (solid lines) for year 2024 and representative Areas I (dark blue circle), II (yellow pentagon) and III (cyan rectangle) highlighted by rectangles with corresponding colors in Fig.2. The NPP of macroalgae of experiment MOS_AU (dashed) shows an enhancement of NPP as expected.

Thank you for pointing out this lack of detail in the description of the seasonality shown in Figure 3. We will include the text in the manuscript in the 2nd paragraph of Sect. 4.1.2.

Thank you again for your attention to our manuscript!