

Interactive comment on “Ocean acidification and nutrient limitation synergistically reduce growth and photosynthetic performances of a green tide alga *Ulva linza*” by Guang Gao et al.

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The authors investigated the combined effects of ocean acidification and nutrient limitation on physiological performances, including growth, photosynthetic oxygen evolution, PSII fluorescence parameters, nitrogen assimilation, in a green tide alga, and found that ocean acidification did not affect growth and photosynthesis under the nutrient replete condition but reduced them when nutrient was limited. Nitrogen assimilation was stimulated by ocean acidification when nutrient was replete. The experiments were reasonably performed and the results were clearly presented. This study is of interest, indicating the interactive effects of global and local stressors on a green tide alga. But

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there are still some points to be revised before it could be published in Biogeosciences. Major revisions 1. Why were different cultivation periods used for sporeling and adult thalli? Are these periods enough for algal acclimation to ocean acidification? 2. Please clarify the culture density used in this study and to what extent pH fluctuated during the culture period. How to maintain a stable pH in the cultures? 3. Why was the light density of 300 photons m⁻² s⁻¹ used for the cultures since lower levels were used for the previous studies as mentioned in the text. Is the one used in this study close to ambient sunlight? Minor revisions Line 113 change μmol to μmol photons m⁻² s⁻¹ Line 123 add a space after 106.1 Line 156 change weight to mass Line 329 delete activity and be consistent for using NRA or NR activity throughout the text. Figure 3 change FW to FM in Y axes legend Figure 7 I doubt there is a significant difference between HC and LC for the treatment of HNLP

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