

Interactive comment on “A red tide alga grown under ocean acidification up-regulates its tolerance to lower pH by increasing its photophysiological functions” by S.-W. Chen et al.

Anonymous Referee #2

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The study of Chen et al. helps to explain some of the heterogeneity in the responses of non-calcifying algae to elevated pCO₂. It clearly states that the used irradiance and the acclimation state towards elevated pCO₂ are crucial for the observed response to OA. The underlying physiology is well examined and the findings should be considered for all subsequent studies in ocean acidification research. Consequently, the findings are a clear step forward in OA-research. The objectives of the study and the state of the art are well introduced and the experiments precisely described, easily allowing a reproduction. The results are clearly presented and the discussion is rational and logical. The discussion is taking in to account the positive effects of elevated pCO₂ and the negative effects of a lowered pH, a very valuable approach. Since the authors

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also discuss the constitutive CCM-type of *Phaeocystis globosa* and are able to relate their findings to the current scientific knowledge the physiological discussion of the results is sound and inspiring. The conclusion of the ecological impact, which the observed findings will have, are modest and careful expressed. In my opinion this study is publishable without any changes and should be accepted.

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