

Interactive comment on “Variation in brachiopod microstructure and isotope geochemistry under low pH–ocean acidification–conditions” by Facheng Ye et al.

E. Cross

e.l.cross@cantab.net

Received and published: 27 September 2018

Firstly, it is great to read that other researchers are using living specimens of this highly calcium-carbonate-dependent group to address outstanding questions of biological responses to ocean acidification. I look forward to future publications from this lab. I have a few minor comments in relation to correctly citing previous research on ocean acidification impacts on brachiopods:

Page 2, Line 21-23: Please add to this sentence about previous findings of ocean acidification impacts on brachiopods that Cross et al. (2018) also found that punctae have become thinner over the last 120 years, which partially explained the increase in

C1

shell density over this time period.

Page 2, Table 1: Please specify that shell growth rates and shell repair frequencies of *Calloria inconspicua* were not affected by low pH in the row related to Cross et al. (2016) in the column stating “not affected by lower pH”.

Page 3, Table 1: Please correct the number of specimens used in the row related to Cross et al. (2018). 389 adult specimens were used in the shell morphology analysis. A subsample of 40 brachiopods (2-5 specimens per decade over the last 120 years) were used for further shell analysis on shell density, punctal width, punctal density, shell dissolution, shell thickness and shell elemental composition. Please also add that no changes were found in shell dissolution over the last 120 years.

Page 3, Table 1: Please specify that shell growth rates and shell repair frequencies of *Liothyrella uva* were not affected by low pH and temperature in the row related to Cross et al. (2015) in the column stating “not affected by lower pH”.

Page 31, Line 9: To avoid confusion, please add in that these specimens are from the same locality in New Zealand (Paterson Inlet, Stewart Island, New Zealand).

Page 31, Line 10: Please also add that the pH decrease by 0.1 pH units occurred over the last two decades whilst the 2°C increase in temperature occurred over the last 60 years.

Page 32, Line 5-8: Majority of the studies listed here did not investigate brachiopod growth rates. To avoid confusion and strengthen the authors point that there is a limited database on ocean acidification impacts on brachiopods, only include studies here on brachiopods.

Interactive comment on Biogeosciences Discuss., https://doi.org/10.5194/bg-2018-332, 2018.

C2