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Interactive comment on “Effect of ocean acidification on the early life stages of the blue mussel (*Mytilus edulis*)” by F. Gazeau et al.

Anonymous Referee #3

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Overall this is an interesting manuscript that should eventually be published in Biogeosciences. The authors investigate for the first time the effect of ocean acidification on *Mytilus edulis*, an extremely important (ecologically and economically) mollusk. The study was conducted well and the data seem robust.

I feel that the layout of the manuscript is good, but that the language could be improved. On several occasions the phrasing of sentences is slightly off.

My most major comment is that the authors need to present more of the wealth of information that exists about this species. More on the natural range of environments this organism inhabits would be useful, especially when they discuss how it probably plays a role in determining the effect of ocean acidification on individual species. I have documented adults living in pH as low as 7.5.

C1204

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Perhaps they should also list the annual economic value of the species?

The authors should also list pCO₂ and CO₃ concentrations earlier on in the paper. Just listing pH can be misleading.

I like how the authors briefly discuss the fact that mollusks heavily modify their calcification space (as many calcifiers do), but I think they should expand on it. Stating that freshwater mussels grow in low pH is not enough (and as an aside, the reference they use is not correct for this, Miller et al 2009 did a lab study on oyster larvae and did not study the tolerances of freshwater mussels). There is also literature on the internal pH of mollusks which might be useful to discuss.

Three last minor comments:

Give more data on the natural habitat of the adult mussels.

P 2937, L 27, Miller et al., 2009, did not study estuaries – please use a more appropriate citation.

P2943, L 10, The CO₂ software should be cited as 'CO₂ 1.1' or whatever version they used. Perhaps a link to the website of the lab that developed this would be appropriate?

Interactive comment on Biogeosciences Discuss., 7, 2927, 2010.

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