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Biogeosciences
Discussions

Interactive comment on "Multi-scale interactions between local hydrography, seabed topography, and community assembly on cold-water coral reefs" *by* L.-A. Henry et al.

L.-A. Henry et al.

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We would like to thank this reviewer for taking the time to examine our manuscript. We are happy to make the adjustments this reviewer recommended, including the ordering of some paragraphs and making minor edits to terminology.

We are also happy to revise our manuscript with respect to the following:

-we will clarify on the new hydrographic model. Currently the model is due to be submitted for publication in a peer-reviewed journal in the next month. However we can explain the model in more detail and provide a table of validated variables estimates derived from the model in a new supplementary table.

-we will clarify on experimental design: specifically we will make sure to explain the random design of our sampling, and how all stations were on similar substrata, which was primarily a mix of live and dead coral framework with rubble. The nature of the statistics we used means that our model determines what spatial scales are important to the fauna: this is different from what most other studies do, which is to sample across what you expect might be adequate spatial scales, but in many cases, these are not ecologically relevant. In our case, because we sampled across the reef complex across several kilometres at the most, we can potentially detect ecologically relevant effects across any spatial scale from tens of metres (the minimum distance between stations in our study) up to several kilometres (maximum distance between stations in our study).

-we agree that adding a species list (with functional guilds) is a good recommendation, and will add this as supplementary material for reference.

-with respect to the reviewer's point about whether we potentially undersampled mobile fauna, we will ensure this is considered in a revised Discussion section. For now, it is important to note that even the most mobile fauna in our study of the macrofauna, the brachyuran crabs, were likely not undersampled in our study. In most cases, the video-assisted grab shows crabs maintaining (defending??) their patches on the reef framework, and do not try to escape the grab. Other smaller mobile fauna have high mobility e.g. errant polychaetes, but do so much slower, relatively to the crabs, in which case they do not have time to escape the 1m2 grab in time. There is not a lack of replication, it is simply that the statistical models we used look for variation across stations and try to relate this variation to environmental and inherent spatial effects. However we only had 14 stations across the reef complex, so we could discuss how more samples might enable us to detect variation at spatial scales other than the ones we detected using the dbMEM method.

We would like to thank the reviewer again for making these recommendations, we will ensure they are considered in a revised mansucript if the editors make this recommendation.

Sincerely, Lea-Anne Henry, Juan Moreno Navas and J. Murray Roberts.

Interactive comment on Biogeosciences Discuss., 9, 17885, 2012.