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Biogeosciences Discussions

Interactive comment on "Dynamics of nutrients, total organic carbon, prokaryotes and viruses in onboard incubations of cold-water corals" *by* C. Maier et al.

Anonymous Referee #1

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This study investigated the effects of cold-water corals incubated on board on inorganic nutrients, total organic carbon, prokaryotes and viruses. Two deep water coral specimens belonging to Lophelia pertusa and Madrepora oculata collected at depths ranging from 560 to 780 m by several independent box corer deployments in the Rockall margin (NE Atlantic ocean) were utilised for the onboard experiments. Five different time-course experiments were carried out up to 72 hours using triplicate microcosms for both coral specimens: using natural seawater collected at two different depths and locations, and three "manipulated" seawater typologies (virus- and cell-free-seawater, seawater enriched with viruses or prokaryotes). On the basis of the results the authors provided evidence of a potential major role of cold-water corals through the release of

mucus and nutrients on microbial food web dynamics. In general, I found the article well presented, the experiments sufficiently detailed also using an iconographic approach, the results interesting and sufficiently discussed. However I have some points which deserve considerations before the acceptance of the manuscript. Bleaching procedure to eliminate biofilms from dead corals should be better explained and before claiming the lack of biofilm on the skeleton some SEM images should be provided. Viral loss due to the use of preservative as in the case of the present study has been extensively documented, but I have not find any mention on that issue. The authors have rightly recognised that a source of variability in their experiments has been introduced by the use of different microcolonies and deep waters for incubations, but handling stress as well as the effect of changes in the hydrostatic pressure after sample recovery have been not taken into account. Some comments on this should be also included. The patterns of viral changes in viral-enriched systems shown in Figure 4 need to be better explained. I'm not convinced that differences claimed after 6 hours between the controls and systems containing corals are really significant. Any hypothesis why in all virus-enriched microcosms viruses significantly decrease (by a factor ca. 2) with increasing incubation time. Although I understand that the authors have probably presented tables instead of figures to save space, I would like to see not only results at the beginning and the end of the experiments (as shown in Table 2 and 3), but also the overall temporal patterns in the different experiments they carried out. These results can be eventually presented as supporting material and will allow to better appreciate changes in the different variables analysed occurring with time. Why the authors have not included the temporal patterns of TOC from the variables presented in Figure 2.

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