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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 #2

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The paper by Maier et al. provides data from a series of ship-board experiments on the effect two species of cold-water corals on the concentrations of nutrients, total organic matter, microbes and viruses in the surrounding water. Two experiments are carried out with natural seawater, three experiments with altered concentrations of microbes or viruses. The laudable attempts by the authors to cover a wide scope of parameters, manipulations and controls, are thwarted, however, by the low, and partly insufficient amount of replication in the experiments (N=3, corals; N=2, controls). A more fundamental concern not critically addressed by the authors, however, is the finding that virtually all of the parameters investigated show a neutral (nitrate) or negative (all other variables) mass balance for the corals. Unbalanced losses of both, inorganic and or-

ganic materials are difficult to reconcile with a healthy and growing organism, unless we invoke some combination of parameters (e.g. uptake of dissolved inorganic carbon+dissolved organic nitrogen balancing the DIN+TOC losses) not covered by the study or supported by the literature, or a metabolism based on stored materials (e.g. large zooplankton eaten prior to the experiments). As such, the reported direction of fluxes and magnitude remain at best fragmentary, or artefactual at worst: It is not clear from the information provided in the ms if the corals were subjected to heavy siltation in the box cores, if they suffered aerial exposure when transferring to aquaria or glueing to their holding plates, how they were held in the process, etc. Given the limited time for the corals to recover between sampling and experiments (2 days), much of the leaching of materials could thus also be attributed to insufficient healing of the lesions inflicted from breaking the colonies, handling the branches, etc.

These two major issues need to be addressed by the authors for the paper to be acceptable for publication.

Although the paper is well written for the most part, some restructuring is needed: parts of the Materials & Methods need to go to the Discussion, parts of the Results into the M&M, etc., as highlighted in the ms, attached. There are a number of minor comments/ suggestions in the ms.

Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/8/C1517/2011/bgd-8-C1517-2011-supplement.pdf

Interactive comment on Biogeosciences Discuss., 8, 3829, 2011.