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Interactive comment on "Opportunistic feeding on various organic food sources by the cold-water coral *Lophelia pertusa*" *by* C. E. Mueller et al.

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This manuscript presents an experiment that manipulated food supply to the cold-water coral Lophelia pertusa. It is a natural progression from earlier studies investigating potential food sources from the field and is an interesting and well-conducted piece of work. I do have a few questions that may need clarification in the manuscript:

1. During this time the corals were fed with larvae (nauplii) of the Brine Shrimp Artemia spp. every 3 to 4 days.

For a total of 3 months, the coral were fed an unmixed, single-source food supply of Artemia? How does this affect your study? Will the coral be more likely to better process this food over others as it has had no acclimation to them? Justification is

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required for this. Also, why the very long wait before experimentation. Should a batch of fresh samples (frozen immediately after collection) have been analysed for lipid content to contrast with your experimentally fed individuals?

2. Artemia nauplii were chosen to represent mesozooplankton because they can be cultured in high densities, are the essential food source for successfully keeping L. pertusa in the laboratory and have been used in earlier cold-water coral feeding studies (Naumann et al., 2011; Purser et al., 2010; Tsounis et al., 2010).

These have been used in feeding/capture rate experiments, but has Artemia been shown to be processed in the same way as in situ zooplankton by the corals? Does it have the same nutritional value? This question translates to all of the chosen food supply items, are these both morphologically and nutritionally similar to what corals will be exposed to in the field?

Should the above questions be addressed, then the manuscript is acceptable and I think this is an interesting piece. I think there are areas that need explanation, for example, as mentioned above, the experimental food supply might not be fully compatible with what is observed in the field. This is particularly true, because samples of the food from Tisler do not appear to have been obtained, nor were there any control (fresh) samples retained for comparison with what happened after the experimental manipulation.

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