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Interactive comment on "Role of *Calanus sinicus* (Copepoda, Calanoida) on dimethylsulfide production in Jiaozhou Bay" *by* Juan Yu et al.

Anonymous Referee #1

Received and published: 16 February 2018

This work looked at the relationship between copepod grazing and DMS(P) production. Laboratory experiments were conducted using the copepod Calanus sinicus and four phytoplankton species with varying morphologies and intracellular DMS(P) concentrations. Field measurements of zooplankton species and abundances, and DMS(P) concentrations were also conducted at monthly intervals. For reasons outlined below, I recommend that the authors separate the lab and field measurements and focus on publishing the lab studies in a journal such as Marine Ecology Progress Series.

Major comments (1) The major issue associated with this manuscript is the design of the field study. It is not clear to me why the authors would measure DMS(P) and zooplankton species composition and abundance, in order to determine the influence of grazing. I would have thought that dilution grazing experiments (see the work of Mike

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Landry) are an appropriate method to look at the effect of grazing on DMS(P). The identification and abundance of zooplankton are insufficient to determine their relevance to water-column DMS(P) concentrations. The alternative would have been to measure phytoplankton composition/abundance. (2) What is the motivation for varying salinity in some lab experiments? How will this affect the intracellular DMS(P) concentrations of the phytoplankton if it is an osmolyte? Were the DMS(P) concentrations measured at the different salinities? (3) In my experience, copepods will pretty much eat anything if they are hungry enough. Of course, this will have a big effect on IR and CR. Did you starve the grazers prior to adding the prey phytoplankton? (4) If you ever repeat the laboratory grazing experiments, you could include a treatment with antibiotics? This will inhibit any bacteria that metabolize DMS and you could see how relevant they are.

Smaller comments Page 1, Line 13 The field work should be referred to as measurements and not experiments. Page 1 Line 27 Remove this 'recently came under close scrutiny'. Page 3 Line 8 remove 'a conductivity–temperature–depth probe' Page 3 Line 9 Waterman or Whatman? Page 4 Line 1 what is meant by 'which served as a good-quality food,' Page 4 Line 10 I don't know the equations of Frost (1972) so some description is needed. To measure IR you presumably measure algal abundance before and after grazing? Page 4 Line 15 why were samples stored at -70oC? I wasn't aware that this is part of the typical DMS(P) protocol Page 5 Line 9 Report chlorophyll concentrations to 1 decimal place Page 5 Line 28 I suspect DMS(P) concentrations should also be reported to 1 decimal place Page 5 Line 30 Replace contents with concentrations Page 5 Line 16 Change 'would result' to 'resulted in'

Table 3 Why show correlations which are not significant?

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