

Interactive comment on “Variability in copepod trophic levels and in feeding selectivity based on stable isotope analysis in Gwangyang Bay off the southern coast of Korea” by Mianrun Chen et al.

Anonymous Referee #4

Received and published: 14 November 2017

Review of the manuscript “Variability in copepod trophic levels and in feeding selectivity based on stable isotope analysis in Gwangyang Bay off the southern coast of Korea” by Mianrun Chen, Dongyoung Kim, Hong bin Liu, Chang-Keun Kang, Biogeosciences Discuss., bg-2017-364

This manuscript provides results from seasonal and spatial variation in the stable isotopes ^{13}C and ^{15}N of POM and copepods along a salinity gradient in Gwangyang Bay, off the southern coast of Korea. The authors combined this information with linear mixing models, Bayesian isotopic mixing models and generalized additive models to derive a statement on food selectivity and trophic level of copepods. In general, this

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manuscript is very well structured and provides valuable information on the flow of matter through the food web. Still, some concerns have to be clarified before publication.

Below are some specific comments.

Introduction 1. Page 3, line 7: Please give more information here on the usage of different N sources and enrichment factors.

2. Page 3, line 19: “highly mixed species”- Please clarify, mixed with what? 3. Page 3, line 21: Instrument sensitivity has increased and compound specific analysis (CSI) of stable isotopes in amino acids make it possible to track diets of mesozooplankton and determine their trophic position. 4. Page 3, line 21: Please give some reason why this site was chosen.

Material and Methods 5. General: why did the authors not use literature data on average weight values for each of the species investigated instead of assigning the weight to each group? 6. General: How were copepodite stages treated regarding abundance and body mass? 7. Page 4, line 15: Change to “increasing”. 8. Page 4, line 16: Specify “in the middle of Gwangyang Bay. 9. Page 4: Please add information on when sampling took place- day or night? 10. Page 5, line 11: “pico- and nano- sized phytoplankton”. Doesn’t sampling with a mesh also include nanozooplankton like heterotrophic and mixotrophic flagellates- so it does not only comprise phytoplankton?! 11. Page 6, line 29: something is missing at the end of the sentence- “illustrated in figures?”.

Results and Discussion

12. There are too many figures. Some might be moved to the supplemental section, e.g. Fig. 3, 7,8,11 13. Page 12, line 16: What is a “heavy carbon pool”, give an example? 14. Page 12, line 31: Wording! Please revise “much reduced”. 15. Page 13, line 15: “with low fractionation effects”- give example.

Conclusion

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16. Please provide a simplified figure of the energy flow for the different seasons.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2017-364>, 2017.