

Interactive comment on “Comparative study of vent and seep macrofaunal communities in the Guaymas Basin” by M. Portail et al.

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This is a truly outstanding paper that offers a detailed look at the faunal and environmental overlap between hydrothermal vents and methane seeps in close proximity in the Guaymas Basin. This paper will go a long way in altering the current paradigms about chemosynthetic ecosystems by indicating that vent conditions do not necessarily explain major patterns of composition and that there is significant overlap in common species at vents and seeps.

Minor edits are suggested to make this excellent paper even better.

Abstract – I recommend a more quantitative description of the findings. For each results statement in the abstract try to include a quantitative aspect. E.g., What is an important

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number? What number or fraction of species were shared between the ecosystems.

Introduction – this section is well written and contains a nicely worded set of questions that establish the framework for the paper.

Methods – Are all the sites below the main oxygen minimum zone? If so this should be stated. What are the levels in overlying waters?

Results – These are well presented. In section 3.2.1 I suggest you present some comparisons of densities in hard and soft substrates. While these may reflect 2 dimensions on hard and 3-D on soft substrates, the foundation species add dimensionality to all. Have you examined densities in relation to hydrogen sulfide concentrations?

The sites should be introduced earlier in the methods section (under 2.1 study area) rather than in 2.2 sampling design. The description of the sites should include whether they are considered to be hard or soft substrate. Fig. 6 relationships are not linear (although they might be if you plotted methane on a log scale). Is there a better fit linear correlation?

The section on relationships with site characteristics contain many interesting comparisons that could be presented earlier in the paper as hypotheses.

e.g., Methane and temperatures and foundation species densities as indicators of composition

p. 20 line 15-17 – does the relationship to fluid flux indicate sulfide tolerance?

How many seep families were unique?

p. 24 line 1-3 Check Marlow et al. papers for ANME composition of carbonates. I think ANME 1 was dominant on less active rocks.

Section 4.2 Consider including a conceptual diagram to illustrate the points made in this section as they pertain to vents and seeps studied here.

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Page 27 line 25-26. Does overlying low oxygen water influence this?

Page 28 par 1. See Levin et al. 2013 (DSR) on dorvilleids and Thurber et al. 2012 on ampharetids for more information about radiation, resource partitioning and coping with stress. Levin, Lisa A., Wiebke Ziebis, Guillermo F. Mendoza, Victoria J. Bertics, Tracy Washington, Jennifer Gonzalez, Andrew R. Thurber, Brigitte Ebbe, Raymond W. Lee. Ecological release and niche partitioning under stress: Lessons from dorvilleid polychaetes in sulphidic sediments at methane seeps. *Deep-Sea Research II*, 92: 214-233. <http://dx.doi.org/10.1016/j.dsr2.2013.02.006> (2013)

Thurber, A.R., Levin, L.A., Rowden, A., Sommer, S., Linke, P., Kroger, K. Microbes, macrofauna and methane: a novel seep community fueled by aerobic methanotrophy. *Limnol. Oceanography* 58: 1640-1656. (2013)

p. 30 line 5-11. Are there useful comparison of vents and seeps in the Okinawa Trough by Watanabe which should be cited? Watanabe, H., Fujikura, K., Kojima, S., Miyazaki, J. I. & Fujiwara, Y. 2010 Japan: vents and seeps in close proximity. In *The vent and seep biota: aspects from microbes to ecosystems* (ed. S. Kiel), pp. 379–401. Netherlands: Springer.(doi:10.1007/978-90-481-9572-5_12)

p. 31 line 5 – explain ecosystem filtering.

Minor edits. Be sure to include spaces between references (e.g., page 2 line 24)

Cite reference strings in chronological order from earliest to latest (e.g. p. 4 line 16-17)

Page 4 line 22 – clarify if you are referring to overlying waters? Vent fluids?

p. 5 line 13 insert 'sites' after vent and before suggest

p. 6 line 8 delete 'an'

p. 6 line 17 were the carbonate concretions sampled?

p. 6 line 28 insert 'has' after but

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p. 8 line 24.

p. 19 line 14 a word is missing after whereas

p. 20 line 1 repland end with 'hand'

p. 21 line 3-4 ... all the 22 families found at ventS were also found at seep ecosystemS while seep SAMPLES had 28 additional families.

p. .21 line 8 were restricted to vents.

p. 26 line 27 and an 'a' after 'to0'

p. 28 line 32 – explain the alvinelid engineering role.

p. 29 line 6 should this be Trough?, line 15 should be taxon not taxa, line 23 place an 'a' after indeed

p. 31 line 2 ecosystemS, line 4 ventS than seepS

Interactive comment on *Biogeosciences Discuss.*, 12, 8497, 2015.

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