

Interactive comment on “Megafauna community assessment of polymetallic nodule fields with cameras: Platform and methodology comparison” by Timm Schoening et al.

Anonymous Referee #2

Received and published: 14 January 2020

GENERAL COMMENTS

Abstract is clear and in line with the paper content

Title is appropriate

Language is at times murky, specific suggestions included in comments (other examples not included in referee comments exist).

This paper identifies the influence of methodology (i.e. camera resolution) in the assessment of macrofauna. Relevant in a rapidly evolving technology capabilities, particularly with respect to comparing data sets collected with older technology with those

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captured with newer tech. Greater impact is particularly relevant as efforts to extract geological resources from the seafloor grow.

Experiment design: 8 data sets of polymetallic nodule fields at different depths, 5 people used the same identification catalogue on all 8 data sets. *Sustainable and environmentally thoughtful method. Field methods clearly described. Statistical analysis description could be expanded, albeit references are included. Gold standard process could be explained more obviously.

Results image resolution greatly changes identification → Important to consider the impact of the resolution of images (and all the factors going to the resolution) used in assessing nodule field communities. At times the writing becomes a bit too qualitative when describing the agreement of the annotators. The figures in Figure 6 support the authors but also include outliers that probably drive the regression, making the link to the conclusions weak.

Novelty: Authors note that similar studies have been done, but highlight that this one is different because it considers that background of the ecosystem function. *Authors response to scientific comment about incorporating taxonomic identification information is sufficient

SPECIFIC COMMENTS

Second 1.4- to 1.4.1 Transition: This is a little Murky. Consider removing the bit about the limitations of box cores and just focusing on the considerations for photo data sets. authors could move the limitations of box cores/trawls to Section 1.3 (Methodologies for fauna abundance assessment) if they wanted to keep it in the text.

Section 1.4.5 is very Method Like. Consider removing first sentence to Section 2 at the end of second sentence (These 8 datasets were collected by three different towed camera platforms and an AUV during three research cruises and were compared based on their resolution. . .). Start section 1.4.5 with 'Image resolution is controlled by the

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camera optics and the deployment altitude and allows to data sets to be compared numerically. The camera...'

Section 3.1: In Figure 7b, d, h, l, and l, there is a single point that appears to drive the regression. If this point is removed, particularly in figure 7d, it may not be a strong argument that resolution and acquisition efficiency of an inverse relationship (Line 308). Consider including a greater discussion into how the inclusion and removal of outliers in figure 6 influence the regressions.

Section 4.1: Considering supporting this assumption by including information or references to previous studies on the spatial and temporal variability in the Peru Basin.

TECHNICAL CORRECTIONS

*throughout listing of citations is variable, sometimes in alphabetical order, sometimes in order of publication year.

*Throughout the paper authors use numerical symbols i.e. Line 196: (8 as oppose to eight), except in this line the spell out three (instead of use 3). Suggestion to be consistent. Also occurs in lines 296/297 with five and 8.

Line 5 and Line 135: Consider using Autonomous in place of Automated, and in Line 135 just use AUV since you've already defined the acronym

Line 76: The etymological plural of octopus is octopuses or octopodes because the root is Greek. Note, the word octopi does not make the sentence any less clear.

Line 149: consider word order change to: (Finally, the colour spectrum of light also needs to be considered because the returned yellow...)

Line 150: Confusing, I think the authors are saying that the set up of the lighting system is based on the altitude of the vehicle? Consider rewording for clarity.

Line190: Insert word 'they' after shelf, (Norwegian continental shelf, they all used...)
OR remove 'these' from like 189: 'Despite 5 survey cruises...)

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Line 232: Consider changing to: The 1989 data set was digitized by the JPIO...)

Line 316: Comma missing after anyhow

Line 336 and Line338: Two sentences in a row start with 'Given the', considering rewording.

Table 1: For Date Column, consider adding (dd/mm/yyyy) but not necessary as all days at greater than 12.

Figure 6: In figure caption, note the reason for the circles on each sub-image

Figures 8 and 9: in X-axis labeling consider adding to the method description the data set name as authors refer to them in the text (DSA etc.)

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2019-363>, 2019.

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