Biogeosciences
Discussions

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Interactive comment on "Observations of deep-sea fishes and mobile scavengers from the abyssal DISCOL experimental mining area" *by* Jeffrey C. Drazen et al.

Kathy Dunlop (Referee)

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Reviewer #2. Kathy Dunlop. Akvaplan-niva, Fram Centre, Tromsø. (Norwegian Institute of Marine Research, Tromsø from April 15th 2019).

The manuscript from Drazen et al. examines data from towed camera transects and baited camera surveys to resolve communities of deep-sea fishes and mobile scavengers at the DISCOL site (Peru Basin). Abyssal fish and scavenger communities were compared to the communities from the Clarion Clipperton Zone and between disturbed plough and reference sites.

I think this is a nicely put together manuscript, which presents a lot of new and interesting data that provides an important contribution to the evaluation and management of the environmental impact of deep-sea mining. I am therefore happy to recommend that the manuscript be accepted with some minor revisions. My suggested revisions are detailed below.

Some general points are that there are several long running sentences that I think could be improved by separating. Also in the discussion I think it is important to discuss some of the limitations more clearer, i.e. site classification, identification of species in images (perhaps it was more difficult to identify species in the 1989 images compared to those more recently taken) and also the uneven sampling effort. One primary aspect I was uncertain about was whether it is possible to detect differences in mobile fauna between some of the habitat treatments that are quite close together.

Abstract Line 22. Replace "were performed beginning" with "were began". Line 28. Please state which years that abyssal fish surveys were conducted. The abstract would benefit from a clearer distinct of the DISCOL data analysed and when it was collected if possible. Line 33: I found that the reference to "regional environmental conditions" didn't fit as I could find no analysis of the data in relation to environmental parameters. Lines 39 – 42: Separate the final sentence.

Introduction Lines 72 – 74. Long sentence. Consider revising and mentioning loss of prey items. Line 77 – 79. "constructing a biogeography" I found the meaning unclear. Consider revising sentence. Line 85. Include in the DISCOL region Lines 84 – 89. Consider separating.

Methods Line 115. Can the details of the camera and the laser systems be briefly described. Lines 118 – 125. It would seem more correct to me to classifiy the level of physical disturbance by the known position in relation to the ploughs and EBS (if possible) than being manually assessment in the images. Line 134. Missing open brackets Lines 143 - 144. Repetition from earlier on how fish density was estimated.

Lines 145 - 150. I wasn't clear on the information on the transect areas with few images. I was unsure how you can tell if an image is likely or unlikely to detect a fish. Sounds like these transects were not used in the analysis so maybe not necessary to discuss them in detail. Line 160. Please specify which type of bait was used. Line 168 - 169. I would recommend using a clearer definition of the criteria on how it was determined whether species were included on eliminated in the analysis. Line 171: I was not clear to me why PERMANOVA was used for the first analysis but ANOSIM for the second.

Results Line 176. 46 habitats sampled – consider re-wording as sounds like there is 46 different habitat types. Table 1. C. leptolepis? (remove ?), unided fish (spell out in full) Table 3. Some improvement can be made on the spacing of the headers. Figure 6. I can recommend improvement be made on the presentation of some of the overexposed images in the plate.

Discussion Line 286. Our results, 26 years

The difference in the effects on sedentary and more mobile bentho-pelagic fauna is touched upon in the discussion. Something that was highlighted to me was whether it is possible to detect differences in mobile fauna (especially with baited underwater camera surveys) between some of the habitat treatments that are close together (i.e undisturbed, EBS, Plough and Transition). I would think that some species could travel between the habitat types to reach the bait.