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Interactive comment on “Macrofauna community inside and outside of the Darwin Mounds SAC, NE Atlantic” by N. Serpetti et al.

Anonymous Referee #1

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The paper addresses important issue of human impact on benthic communities in the Darwin Mounds region in the Rockall Trough. The macrofaunal communities from the area affected by deep-sea bottom trawling and since 2004 closed for fishing and designated as a Special Area of Conservation (SAC) are compared to those outside the SAC. The manuscript contains valuable original information and can be published, however, after some revision.

1. My major concern is that the study was conducted seven years after the bottom trawling has been closed in the Darwin Mound SAC. The baseline information on macrofaunal communities in the area is not presented in the manuscript. To understand the effect of bottom trawling, data needs to be collected before the impact, in disturbed communities and monitored after the impact. When material is collected

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seven years after the impact, it is not clear what is analysed. Seven years is a good time for complete (or almost complete) recovery of heavily disturbed deep-sea benthic communities, even abyssal, i.e. less dynamic (see results of the DISCOL experiment, summed up by Thiel, 2003).

The ms by Serpetti et al. presents data on patterns of horizontal distribution of macrofaunal communities in the Darwin Mound area. There is no convincing evidence of any effect of trawling. All reported differences can be explained by patchiness and scale of benthic communities in the deep-sea (e.g. Budaeva et al., 2008). By the way, the distance between the two studies areas, inside and outside the SAC, remains unclear from the ms.

2. Data is lacking on the composition of macrofauna in the studied area. A list of recorded taxa is essential.

3. The section Results needs to be re-written. It starts immediately with discussing observed differences before presenting actual results on community characteristics in the two areas.

Other comments were made in a form of sticky notes alongside the manuscript.

References

Budaeva, N.E., Mokievsky, V.O., Soltwedel, T. and Gebruk, A.V. 2008. Horizontal distribution patterns in Arctic macrobenthic deep-sea communities. *Deep-Sea Research Part I*, 55: 1167– 1178.

(In sticky note comments) Pipenburg D and Juterzenka K. v. 1994. Abundance, biomass and spatial distribution pattern of brittle stars on the Kolbensy Ridge north of Iceland. *Polar Biology*, 14:185-194.

Thiel H. 2003. Anthropogenic impacts on the deep sea. In: P.A. Tyler (Ed) *Ecosystems of the Deep Oceans*, pp. 427-472.

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Please also note the supplement to this comment:
<http://www.biogeosciences-discuss.net/9/C6925/2012/bgd-9-C6925-2012-supplement.pdf>

Interactive comment on Biogeosciences Discuss., 9, 16907, 2012.

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