Biogeosciences

Discussions

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Interactive comment on "Functional trait responses to sediment deposition reduce macrofauna-mediated ecosystem functioning in an estuarine mudflat" *by* Sebastiaan Mestdagh et al.

Sebastiaan Mestdagh et al.

sebastiaan.mestdagh@ugent.be

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We are thankful for the useful comments of Anonymous Referee #2. We have revised the figure and table captions accordingly.

- Referee's comments: The current table legend is more like discussion, and a mere descriptive of data is preferred. It would be more appropriate that the authors simply provide the objective data, and let the readers to judge whether your conclusion or interpretation are reasonable or not.

1. For example, in Table 1 (page 16) (1) Table legend. The top 3 species with the cumulative contribution (>50%) to the total dissimilarity between treatments. The SIMPER analysis, and the cumulative contribution can be described as footnote. (2) Treatment. Please explain what these treatment mean. For example. What does T0-1 refer to. Please simply state what these data represent. In addition, the cumulative contribution column is redundant and can be deleted, or the contribution column can be deleted because these two column are essentially the same.

2. As for Table 2 (page 17) (1) In table legend, Please do not start with "Results ...". Please go straight forward what you want to present. For example, statistical factors (2) Is it necessary to show all these factors?

3. As for Table 3 (page 19). Please consider whether all these equations need to be shown in a table. Maybe the equations could be placed in the supplementary materials.

4. Figure 1. please explain the x axis, i.e., what the treatment of 0, 1, 2 and 5 mean.

- Authors' response:

1. We deleted the 'Contribution' column from the table and rewrote the caption according to the referee's suggestions. In addition, we added a footnote to the table.

2. We agree that a mere representation of F- and p-values could be sufficient for a decent understanding of our results. All unnecessary columns (i.e. df, SS and MS) were therefore deleted in the revised manuscript. We suggest the following caption, based on the referee's comment.

3. We opted to present the results of the linear regressions entirely in the main manuscript, as it provides a complete understanding of the strength and direction of the relationship between the response and predictor variables. Therefore, we would prefer to keep the results as they are currently presented in the table. In accordance to Comment 2, we opted to rewrite the caption of this table.

4. We added this extra information to the figure caption of this and the next two figures.

- Authors' changes in the manuscript:

Caption Table 1: "The three species with highest cumulative contribution (> 50 %) to the total dissimilarity between treatments. The first column shows the treatments being compared (e.g. T0-1: a comparison between treatments T0 and T1)."

Footnote Table 1: "Results from a SIMPER analysis."

Caption Table 2: "Statistical factors from 2-factor blocked ANOVA tests with 'Treatment' (4 levels) and 'Tank' as factors. M1 till M4 stand for motility classes, as defined by Solan et al. (2004) (M1: living fixed in a tube, M2: sessile, but not fixed in a tube, M3: slow movement through the sediment, M4: free movement in a burrow system). Significant pair-wise differences between treatments are given in the table. All results for species and functional groups are given for densities."

Caption Table 3: "Linear regressions of sediment community oxygen consumption (SCOC) against sets of species (or functional group) densities, and ecosystem processes (bio-irrigation - Q - and bioturbation - D_b^{NL}), and of bio-irrigation against the densities of species. Only significant models (P (slope) < 0.05) were considered. M2 and M3 are motility classes as defined by Solan et al. (2004) – M2: sessile, but not fixed in a tube, M3: slow movement through the sediment."

Captions Figures 1-3: "... The four treatments represent the thickness of the applied sediment layer (in cm)."

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