

## ***Interactive comment on “Multi-scale data on intertidal macrobenthic biodiversity and environmental features in three New Zealand harbours” by Casper Kraan et al.***

**Casper Kraan et al.**

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Dear Referee, Thank you for the positive and constructive review of our paper. Below we list how the minor comments were incorporated. Additionally, a pdf-file with track-changes is provided.

Specific comments: Abstract (P.1 l.4) and introduction (P.2 l.5) “it is virtually unknown how the relationships between abundance patterns and different biotic and environmental processes change depending on spatial scales” Is that for any ecological communities or only referring to the seabed fauna? - This is for any ecological community, making our efforts so special. Therefore, we also phrased the statement in such a

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general way.

Abstract (P.1 I.9) Are there only bivalves, polychaetes and crustaceans? Further down, I found out that it wasn't the case, I suggest a formulation like 'dominated by' - Changed to "dominated by"

Abstract (P.1 I.13) I was a bit disappointed that the authors did not measure the taxa-level biomass. I do appreciate the substantial work that has already been put into the database and that it may not have been possible to do so but as for 'gaining insight in the role of biodiversity in maintaining ecosystem functioning', it would have been great to have some idea of the biomass of each taxa at each station considering that ecosystem processes (e.g. energy flow or productivity) are more tightly linked to the biomass. - Indeed, measuring biomass of each taxa was not feasible. We agree that it would have been "nice to have".

Introduction (P.2 I.2) "...diversity and abundance is fundamental" and biomass as well, see above. - We added "biomass" to the sentence.

Introduction (P.2 I.18) "i.e. bivalves, polychaetes and crustaceans...", same comment as before regarding the formulation. It feels like there are only those three taxa at the moment. - Changed to "dominated by"

Introduction (P.2 I.22) Why is it time-effective? - Changed to "efficient".

Introduction (P.2 I.27) "from the mangroves to the mid-tidal" the first time I read this bit I thought you meant 'halfway down the intertidal', I realised further down that it wasn't the case. I'd suggest the reformulation: "to the lower end of the middle intertidal zone" or something like that. - Changed to "from the mangroves to the lower end of the intertidal zone in three. ..."

Introduction (P.3 I.4) "Shellhash", I did not know that word, thank you. It is however spelt in one or two words within the manuscript, be careful about consistency. - Throughout the manuscript we now use "shellhash".

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Mat & Met (P.4 I.13) (n= 1200), it took me awhile to work out where this number came from. Can you remind the reader that you have taken 400 cores in each of the three harbours here please? - In part 2.1 we state “In each Harbour we took 400 cores”. But, we added “on foot during low tide (n = 3\*400 [1200 in total], thereby. . . . .)”

Mat & Met (P.4 I.23) How was the seagrass coverage estimated? Was it in percentage, how was it done? - Section 2.5 describes how seagrass coverage (%) was estimated, including references to software and my own publication with more details.

Mat & Met (P.4 I.24) How this number (n=960) relates to the previous one (n=1200), it wasn't 400 point per harbour this time then? - P5, Section 2.5 states : ” Note that at the smallest spatial scale, i.e. 30 cm, we took 3 adjoining benthic cores, but we limited ourselves to taking one photograph and one sediment sample to represent the environmental features for these three locations. This was done to economically manage our time in the field and our financial budget for processing samples, leading to 320 photographs and 320 sediment samples per Harbour. See Kraan et al. (2015, 2019) or Greenfield et al. (2016) for details”

Mat & Met (P.5 I.11) Was the size-classes only done for bivalves? -Yes. P5, Section 2.2. Here we state “For bivalves, the longest shell axis was also measured”.

Mat & Met (P.5 I.21) Can you give reference(s) for the standard methods? - Yes. We added here “(see Kraan et al., 2015)”.

Mat & Met (P.5 I.21) Does the start and end dates of sample measurements matter? If so, why? - We added “, avoiding degradation of samples over time”.

Mat & Met (P.6 I.4) Can you give reference(s) for the standard methods? - Yes. We added here “(see Kraan et al., 2015)”.

Mat & Met (P.6 I.7) I think it should be mention earlier that you've also measured the-carbon content (i.e. in the abstract along with the other environmental variables) - We added “organic content” in the Abstract.

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Mat & Met (P.6 I.16) I wouldn't list the failed samples here, this is a bit tedious for something in the main text, I suggest putting it somewhere else together with the other lost sample from the macrobenthic data (table, footnote, supplementary). - We added this information to Table 1.

Technical corrections: Mat & Met (P.4 I.23) Shell hash in two words here, consistency - Changed into "shellhash"

Mat & Met (P.5 I.19) "0.1gr." The convention for grams is "g" - Changed to "01.g"

Mat & Met (P.5 I.20) "Chlorophyll a", the "a" is not in italic - Changed to 'a'.

Please also note the supplement to this comment:

<https://www.earth-syst-sci-data-discuss.net/essd-2019-151/essd-2019-151-AC2-supplement.pdf>

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Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-151>, 2019.

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