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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Landscape scale remediation reduces concentrations of suspended sediment and associated nutrients in alluvial gullies of a Great Barrier Reef catchment: evidence from a novel intensive monitoring approach" *by* Nicholas J. C. Doriean et al.

Anonymous Referee #1

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The manuscript hess-2020-268 titled "Landscape scale remediation reduces concentrations of suspended sediment and associated nutrients in alluvial gullies of a Great Barrier Reef catchment: evidence from a novel intensive monitoring approach" has been reviewed. The manuscript is really interesting and fits in the broad scope of the journal. The authors present a detailed comparison analysis of two gullied areas in Australia: One remediated area and one control area. I consider that moderate/major revisions should be carried out before a final decision. Some important questions

should be answered and small issues should be improved.

- One of my main concerns is the limited study period: only two years, and some limitation in sediment samples that were only recorded during three events. The authors stated this problem in the text, but I think that the limitations should be highlighted in the results and discussion section and also in the conclusion section. - I consider that the landscape scale remediation that has been carried out in this area, is really significant to understand all the process, and it should be noted. In that sense, I consider that: - Some photos should be included with situations before and after the reclamation activity (it is included the video, but I consider interesting to include some photos). - In the abstract, you should already inform about the remediate measures. - You should also discuss about the feasibility of this remediation work. Would it be possible to carry out this work in other study areas? Which was the cost of this remediation technique? - I don't really understand the information that you provided in the lines 95-115. Is it about previous remediation activity? I'm not totally sure if this information should be included in this section or it should be moved to the introduction or event results section.

- One really important issue is about literature review and other reclamation examples. In your case, your literature is mainly focused in studies carried out related to the GBR. However, there are other worldwide examples that could be included in the introduction and discussion section to discuss about remediation works. Some examples of remediation can be found in other areas as the Draix catchments (Rey et al. Burylo et al., 2014; Breton et al., 2016) or in Spain (Ballesteros et al. 2017; Oleagordia Montaña et al. 2016). I think that this information could be included and discussed about the feasibility of remediation works in gully and badland areas.

- Other important issue is about the methodology to check the effectiveness of remediation works. You have been mainly focused in this work in turbidity measures, water samples. . . but what about UAVs information? Maybe it could be also interesting to use other kind of instrumentation that can provide different data to complete the dataset. Which are the topographic changes that have been observed in the area?

- I consider that an initial research hypothesis should be included together with the objectives and research questions at the end of the introduction section. - You should specify all the abbreviations and that you have used in the text, in figure and table captions (for example table 1) - In my opinion the tittle is too long.

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