

Review of “Monitoring tidal hydrology in coastal wetlands with the ‘Mini Buoy’ : application for mangrove restoration” by Thorsten Balke et al.

This study presents a novel yet low-cost bottom-mounted float Mini Buoy that can be used to monitor tidal inundation characteristics and current velocities based on the single-axis equilibrium acceleration principle. As far as I know, the facility is particularly useful for deriving the key parameters such as submersion time and current velocities, which can further be used for hydrodynamics analysis and mangrove restoration planning. Generally, this is a good study and I read it with great interests. However, the quality of the paper can be improved if the authors can properly address the following major and minor concerns.

- 1) I would suggest the authors to reshape the paper structure in order to improve the readability. Specifically, the different subsections in the Introduction part can be integrated to highlight the studied topic, the existing problem and the solution etc. With regard to the Method part, I would suggest the authors to separate the ‘Field sites’, while the rest parts were used to detail the adopted facility and how the results were generated. Finally, the Discussion part is rather long, while the Conclusions part is missing.
- 2) Subsections 2.3 and 2.4: it appears that the authors include some results in the method section. I would suggest the authors to move these parts to the Results section.
- 3) It is worth noting that the deployment period of the Mini Buoys in both field sites are less than a typical spring-neap cycle (approximately 15 days). What’s the potential influence of deployment period on the calibration against the observed current velocities? In general, if one would like to use the Mini Buoys in their own studied sites, suitable calibration against observed velocities using ADCP is rather critical. The longer the measurements of current velocities, the better the calibration of the Mini Buoys, am I right?
- 4) The Bay of Fundy Mini Buoys were fitted with a temperature and light logger. What’s the purpose? And Does these additional parameters help to set a scientific guidelines for mangrove restoration planning?
- 5) Appendices: some of the materials can be moved to the supplemental material. In addition, the arrangement of each figure can be improved to have a better readability. For instance, in Figure A1, the authors mixed the Figure and Table together.

Some minor comments:

- 1) Line 53: Here you only need define the “Windows of Opportunity (WoO)” once, for the rest you could directly refer to “WoO” (such as Lines 363 and 412).
- 2) Lines 280-285: the format of the equations should follow the journal’s requirements. Such as the “ Y_{acc}^3 ” should be replaced by “ Y_{acc}^3 ”, the “ $R^2_{adj.}$ ” should be replaced by “ $R^2_{adj.}$ ” etc.
- 3) Figure 3A: It is difficult to immediately understand the key points.
- 4) Figure 4: legends can be added.
- 5) Figure 6: It is better to separate the Table from the Figure. In the table, it is not

necessary to show the numerical data of “Average high tide duration (min)” and the “Average flooding duration (min/d)” with too much accuracy (i.e., integral would be enough).