

Dear Dr. Peter von Bodegom

We are very grateful for the chance to resubmit our manuscript. Although we must go back through the review process, we believe this updated version of our manuscript has been greatly improved by the previous reviews.

As to the changes we made from our original submission (that went to review), we incorporated all of changes we proposed in response to the comments of Anonymous Referee #2. These specific changes were detailed in our replies to Referee 2, please let us know if you need these again. We have also incorporated most of the changes in response to comments of Anonymous Referee #1 but have taken your advice and did not include all suggested changes to the introduction, specifically in regards the addition of the following:

“A suite of studies have shown that larger OC stocks can be found in sediments under seagrasses with conservative ‘slow’ plant traits, such as high above and belowground biomass (Armitage and Fourqurean, 2016; Dahl et al., 2016; Gullström et al., 2017), and low-quality tissues (Kaal et al., 2016; Serrano et al., 2016b; 2012; Trevathan-Tackett et al., 2017). OC stocks have also been positively correlated with shoot density, both directly (Dahl et al., 2016) and indirectly (Serrano et al., 2014). However, at global and regional scales, when comparing OC storage across disparate sites, the explanatory power of plant traits can be overshadowed by abiotic factors, such as differences in sediment properties and water flow regimes (Campbell et al., 2014; Dahl et al., 2016; Lavery et al., 2013; Serrano et al., 2016a). Although the largest OC stores are found within meadows of seagrasses with ‘slow’ plant traits (Fourqurean et al., 2012b; Serrano et al., 2012; 2016a), further evidence is needed to confirm the universality of plant traits as proxies for sediment OC content within a given site.”

We believe this placed too much of the discussion into the introduction and made our introduction very long. However, if this was not what you were referring to please let us know and we can add this back to the last paragraph of the intro where we indicate the aims of our study. Likewise, if you need the specific changes to the manuscript made in response to comments by Referee 1, they are detailed in our previous response but can provide them again if needed.

Thank you again for this opportunity and we look forward to any further improvements that can be gained by the additional round of reviews.

Kind regards, E. Fay Belshe