

## ***Interactive comment on “Carbon storage in seagrass soils: long-term nutrient history exceeds the effects of near-term nutrient enrichment” by A. R. Armitage and J. W. Fourqurean***

**Anonymous Referee #2**

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**Summary** The authors detail an experiment looking at the effects of long-term nutrient history at the scale of Florida Bay in terms of the low and high phosphorous regions and near term nutrient enrichment in terms of the results of experimental nutrient additions to seagrass plots. The authors use the nutrient data to attempt to explain above- and belowground seagrass tissue carbon contents and sediment carbon content. They found that P addition can increase tissue C in seagrass and that both above- and belowground seagrass tissue carbon are good predictors of soil organic carbon. The manuscript is concise and well written. It fits within the scope of BGS and is important to the popular discussion of carbon sequestration, especially in coastal systems. I recommend that the manuscript be published given the minor revisions and points

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made below are addressed.

### General Comments

1. Were sediment samples acidified prior to LOI or were sediment samples run on the CHN analyzer to determine total C content? These would serve as good checks on the LOI method to ensure that only organic C is being measured given the high carbonate concentration of your sediments.
2. You did not address root/rhizome exudation as a potential factor for higher sediment C in the P enriched plots. Increasing nutrients and therefore production may stimulate belowground tissue activity and potentially increase the exchange of labile organic C with the sediments.

### Specific Comments

1. Page 16290 Lines 8-10: Re-word to simplify this sentence, it is awkward as written.
2. Conclusions page 16296 line 11: delete unnecessary “lead” before “cause plankton or algal blooms. . .”

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Interactive comment on Biogeosciences Discuss., 12, 16285, 2015.

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