**Interactive comment on** “Unusually negative nitrogen isotopic compositions ($\delta^{15}N$) of mangroves and lichens in an oligotrophic, microbially-influenced ecosystem” by et al.

et al.

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Response to Reviewers Comments:

Three reviews and one comment were received on this manuscript. The primary author thanks all for their helpful suggestions, which have been largely adopted in the revision.

Reviewer #1:

1. Suggested change: refer to other mangrove and papers. This has been done. 2. Materials and Methods section: P fertilization experiment: I am highlighting only 3 of the treatments in this revision: control, 1 cm fertilization, and 1 m fertilization. I deleted reference to the P spraying treatment, which was not as controlled as it might have
been if the study area were nearby. Changes were made in the Methods, Results, and the figure. 3. Section 2.4-2.6: More information was added to strengthen the descriptions of ammonia measurements. 4. Results: data was listed negative isotopic values first, then positive values. 5. Defined floc zone in the methods section. 6. Section 4: Major rewriting of this section adding %N data and correlations between P, N:P, %N. Also added the sedimentary data. 7. Discussion: references to carbon isotopes were added where appropriate. 8. I added several sentences regarding the relationship between added P, root biomass, and N isotopes. 9. Table 1: recruits were collected from all zones. Added to the table. 10. Table 6: I corrected the data for the 1‰ fractionation measured with our ammonium standard. This explanation has been moved out of the table to the methods section. 11. The difference between Figures 1 and 2 in terms of Rhizophora data: in Figure 1, the growth form is known and characterized. In Figure 2, for Rhizophora data, growth forms were not specified. No fertilization data is included in this figure. 12. Figure 4: Foliar spray data removed. 13. Figure 5. Units are NH3-hour, unusual yes, but correct. Explanation of why values might vary are located in the methods section. 14. Figure 7: Changed legend to "Diagram".

Reviewer #2: 1. Specific comments on the text sent directly to M. Fogel: >90% of the suggested changes were made. 2. Hyphenated adjective-noun pairs. 3. P Values were calculated for lines and correlations referred to in the text. New statistics are added throughout the paper. 4. Introduction: A concluding sentence was added to the first paragraph. 5. The Amundson et al reference was added as requested. 6. Table 1: standard deviation for transition trees corrected. 7. Table 4: P, N, and C were explained.

Reviewer #3: 1. A paragraph on isotopic mass balance was added to the discussion. An equation introduced by Vallano and Sparks was used to given an estimate of foliar N importance as outlined in their paper. 2. For a measurement to be a proper flux, one needs to have an estimate of the area: rate or change per unit area over time. With the
ammonia badges, we did not use a defined area, so we are not able to report a true flux. We did do a true flux experiment with cores, and that data is reported in flux units.

3. A paragraph on the microbial influence was added. 4. Figure 5: we did not calculate the flux from this data; for our calculations we used data from a flux experiment with isolated cores as described in the methods section.

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