Biogeosciences Discuss.,
https://doi.org/10.5194/bg-2018-220-AC2, 2018

Biogeosciences Discussions
Open Access
EGU

Interactive comment on "Evidence of high N_2 fixation rates in productive waters of the temperate Northeast Atlantic" *by* Debany Fonseca-Batista et al.

Debany Fonseca-Batista et al.

dbatista8@hotmail.com

Received and published: 24 September 2018

Biogeosciences Reviewer #1's comments (for more clarity, see supplement file uploaded which contains the revised manuscript, figures, responses to Editor and Reviewer #1 and supplemental material, respectively)

Review of "Evidence of high N2 fixation rates in productive waters of the temperate Northeast Atlantic" by Fonseca-Batista et al.

The editor should understand that neither N fixation, N-fixing gene abundances, nor bioecology are within my realm of expertise. Despite that, I have sailed on many re-

Printer-friendly version

Discussion paper

search cruises with N-fixation scientists, and even collected nifH samples for them on my own cruises. So I should be classified as a knowledgeable non-expert: I appreciate the research area but cannot analyze or critique details.

From that perspective, the paper is a fine contribution, calling attention to high N fixation rates and relatively high N-fixing gene copies in the temperate eastern Atlantic in the springtime following the spring bloom. This has not been observed before, partially due to methodological issues and partly due to the lack of observations in this season. Obviously it may change our view of how to assess global N fixation rates and how to model them.

We would like to thank the Reviewer #1 for reviewing this manuscript even though the topic it covers are not exactly within his/her area of expertise. We have considered the comments, and we appreciate the Reviewer's recognition of our manuscript.

I could only find a couple of small issues with the text (noted below), otherwise I believe it can be published with only minor revisions, hopefully with more guidance from a reviewer expert in this field.

(1) p. 1, line 31: For the sake of clarity, I recommend modifying the text to "At the sites where N2 fixation activity was the highest, we recovered sequences affiliated to UCYN-A1 (obligate symbiont of eukaryotic preymnesiophyte algae)."

The sentence was modified and now reads as follows (lines 31-35):

"At the two sites where N2 fixation activity was the highest; nifH sequences assigned to the prymnesiophyte-symbiont Candidatus Atelocyanobacterium thalassa (UCYN-A) dominated the nifH sequence pool recovered from DNA samples, while the remaining sequences, as for all the ones recovered from the other sites, belonged exclusively to non-cyanobacterial phylotypes."

(2) p. 5, line 161: the Ambar and Fiúza, 1994 paper is not in the list of references.

The missing reference was added to the reference list:

“Ambar, I., Fiúza, A.F.G. (1994). Some features of the Portugal Current System: a poleward slope undercurrent, an upwelling-related summer southward flow and an autumn-winter poleward coastal surface current. In: Proceedings of the Second International Conference on Air-Sea Interaction and on Meteorology and Oceanography of the Coastal Zone. Katsaros, K.B., Fiúza, A.F.G., Ambar, I., American Meteorological Society, pp. 286-287.”

Please also note the supplement to this comment:
https://www.biogeosciences-discuss.net/bg-2018-220/bg-2018-220-AC2-supplement.pdf

---

Interactive comment on Biogeosciences Discuss., https://doi.org/10.5194/bg-2018-220, 2018.

Printer-friendly version

Discussion paper