

Biogeosciences Discuss., referee comment RC2
<https://doi.org/10.5194/bg-2020-485-RC2>, 2021
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Comment on bg-2020-485

Anonymous Referee #2

Referee comment on "Influence of land use and occupation on the water quality of a microbasin in the southwestern Amazon" by Alan Gomes Mendonça et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2020-485-RC2>, 2021

The manuscript presents data on water quality parameters of a watershed in the Brazilian Amazon. These data are rare and extremely important for the knowledge of Amazonian aquatic systems. However, these are presented and discussed in a regional view and can be valuable for local monitoring. I suggest reconsidering after major revisions or rejected.

Abstract

The abstract has a very regional view of the data and conclusions. I suggest rewriting it to demonstrate how the findings of this study in the Igarapé Nazaré basin can be extrapolated to other streams around the world (or at least in tropical/equatorial systems).

Introduction

Like the abstract, the introduction is also very local. It discusses the problem of water quality and its management in Brazil. I suggest thinking how that occurs worldwide. For example, I put some questions below that can be thought of to enrich the introduction:

- Are there National Policies in other countries? Brazil has the PNRH (line 34), and other countries have similar programs. This could be mentioned in the introduction, giving a more global aspect to the study.

- The implementation of water quality monitoring is cited (line 41). Is there effective monitoring anywhere in the world? Why? Why hasn't in Brazil?

- The aim is very regional and fits well in a local journal. With these findings in Nazaré, is it possible to understand other streams in the Amazon or in the tropical/equatorial biomes?

Material and Methods

In lines 49-51, the manuscript says that there are rainy and dry seasons. In lines 72-73, the manuscript says that water sampling occurred in high-water and low-water seasons. Are these same stations? Are these aquatic systems subject to the flood-pulse of the main river? Is there water fluctuation in sampling points due to the season? This is not described in the Study area section.

The methods can be briefly described. Example:

- lines 73-76: Are these places of discharge accounted for? When they were seen, did the water collection take place upstream or downstream from discharge points?

- lines 83-85: These methods can be briefly described.

- Total nitrogen was not measured in unfiltered water? Why?

Results and discussion

- There is a lack of correlation between the parameters evaluated and land use. The data was presented extensively with a temporal perspective, but not a spatial one (and that was the primary objective of the work).

- Like the other sections of the paper, I suggest putting in a global perspective. What is the relationship of your results with global parameters observed in anthropized streams?

- There is a discussion about the parameters listed by CONAMA. Does being within the limits established by CONAMA mean that the water is from a preserved site? And on the contrary? Does being off limits mean that the environment is anthropic or that the water is not fit for human use? Ex: very acidic pH may indicate a black water river, and not that the environment has been modified.

This discussion should be added to the discussion section since the work gave a lot of emphasis to CONAMA.

- Results were compared using ANOVA, but a post hoc test was not done to identify the different group(s) – example: lines 198-199.

Final considerations

The authors summarized the findings. It would be more interesting to relate these findings to others in the world. Are such changes commonly seen in anthropic environments? What is the most frequent type of anthropization (e.g., sewage or pasture)?

Figure 2: It is difficult to see the dots (sewage, food and frigorific industries) in the picture. I suggest increasing them.