

## ***Interactive comment on “Carbon and nitrogen isotope variations in the water column of Lake Bled (NW Slovenia)” by A. Bratkič et al.***

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Bratkic and colleagues present the interesting results of their measurements of the carbon and nitrogen compositions of water samples collected over a range of depths and during the transition from summer stratification through fall overturn of Lake Bled, Slovenia. They nicely discuss these complicated data, and they interpret them in terms of the processes responsible for the changes that they find. The manuscript is written very well, and the results are displayed well. After a few modest improvements, it should be suitable for publication in BG.

The most important improvement that is needed is a better connection between the principal scope of the study, which is stated in the Introduction as characterizing the processes affecting the isotopic compositions of the water column, and the actual in-

C4245

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terpretation and description of the processes. As presently written, these important components of the study are dispersed throughout the Discussion. This dispersion is logical and necessary, inasmuch as it deals with each process that is responsible for the experimental results as it they are presented and discussed, but creation of a new Summary and Conclusions section that briefly summarizes the process and evidence for them would tie the whole manuscript together better.

Two minor technical issues could use some clarification. First is in the beginning of the Discussion where the present wording implies that biological activity in Lake Bled is controlled by temperature. Microbial activity is indeed likely controlled by temperature, but photosynthetic activity is more likely to be controlled by light penetration, which is the source of water warmth. I encourage the authors to reword this paragraph more thoughtfully. Second, the discussion of nitrogen isotopic kinetics on page 8528 seems to combine fractionation in aqueous systems with distillation in gaseous systems. Although the processes are indeed linked by differences in isotopic mass numbers, they are still different. I recommend deleting the comment about Rayleigh distillation. The explanation is fine without it.

A small but important improvement is to modify the title to better represent the time element in the nature of the study and its results. I suggest something along the lines of “Semi-annual carbon and nitrogen isotope variations in the water column of Lake Bled, NW Slovenia”.

In addition, I provide a modest list of stylistic corrections for the authors to consider: Page 8517, line 25 – change to read “This effort is usually difficult,” Page 8520, line 28 – insert a space after CO<sub>2</sub> Page 8521, line 11 – replace “spanning” with “extending” Page 8521, line 18 – change to read “Deeper O<sub>2</sub> concentration dropped steadily” Page 8522, lines 2-3 – delete “It is seen that” Page 8522, lines 4+9 – replace “more abundant” with “larger” Page 8522, line 8 – delete comma after “prevailed” Page 8523, line 6 – specify whether the C/N ratio is weight or atomic Page 8523, line 23 – replace “it” with “the value” Page 8525, line 12 – replace “failed” with “fell” Page 8525, line 21 – correct

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spelling of “Cyanophyta” Page 8526, line 17 – replace “0.57 to 0.59” with “57 to 59 %” to be consistent with the rest of this sentence Page 8528, line 6 – change “incorporates” to “incorporate” Page 8529, line 1 – replace “On the contrary” with “In contrast” Page 8529, line 4 – replace “as” with “is” Page 8529, line 21 – insert “case” after “In the former” Page 8531, line 9 – insert “difference” after “This” Page 8531, line 23 – should this line read “250 ml of rainfall per square metre”?

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