

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

Anonymous Referee #1

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Comments on Carbon and nitrogen isotope variations in the water column of Lake Bled (NW Slovenia) Author(s): A. Bratkič et al. MS No.: bg-2011-301 MS Type: Research Article

This is a well-written manuscript which described both carbon and nitrogen cycling in the water column of Lake Bled using stable isotopes. I recommend it for publication with minor revision. Major Comments: 1. Page 8526, line 18-21: Atmospheric CO₂ invasion is only possible when pCO₂ in water is lower than pCO₂ in the air. The authors have not demonstrated why this is possible by providing data for pH, CO₂, pCO₂, Chl a and primary productivity. Since the lake was significantly influenced by anthropogenic inputs and might have been a net sink for organic matter, this lake is not likely a sink for atm CO₂. It might be a sink for CO₂ during the summer algal bloom but in he

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remaining months with low temperature are expected to be a source of CO₂. 2. The authors did not provide an explanation on the lower C-13POC and higher DIC-13 at the bottom water in September than other months especially in December. 3. Page 8530: line 15 to 19: The authors should explain why they expected the N-15 of NH₄ is lower than that of NO₃. If NO₃ is derived from NH₄, then the substrate (NH₄) should have the higher values. Unless NO₃ is used intensively as the substrate for denitrification. Minor comments: 1. Please give the latitude and longitude of the location 2. I suggest a table with major limnological variables be added to the MS. Such a table will give the readers a better understanding of the biogeochemical features of the study lake. 3. Page 8517: line 22: “import” should be “important”. 4. Page 8518: line 20: spell out “OECD” 5. Page 8523: line 14: Figure 2 showed the lowest C-13POC in September but here it was said in August. 6. Page 8526: “utilized” should be “utilize” 7. Page 8532: line 1: change “weather” to whether” 8. Page 8534: line 19: This reference should be Gu, B., and V. Alexander. 1993. Estimation of N₂ fixation based on differences in the natural abundance of ¹⁵N among freshwater N₂-fixing and non-N₂-fixing algae. *Oecologia* 96: 43-48.

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