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Hydrology and Earth System Sciences
Discussions

# *Interactive comment on* "Local nutrient regimes determine site-specific environmental triggers of cyanobacterial and microcystin variability in urban lakes" *by* S. C. Sinang et al.

**Anonymous Referee #1**

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I mostly agree with the explanation provided by authors to my previous comments. The inclusion of cyanobacterial absolute biomass in the RDA analysis gave quite a different picture, that, I believe, could be summarized as follows: 1) A variable nutrient concentration can regulate the amount of cyanobacteria, as indicated by the positive relationship between biomass and TP. 2) The relative importance of cyanobacteria is controlled by the competition with other phytoplankton groups, mediated by a lower growth rate, but an higher ability to store nutrients. 3) The relationship between microcystin concentration and nutrients can be explained by the physiological needs related to toxin biosynthesis: this is reasonable, however, this relationship could also indicate



that the amount of toxin produced is a function of biomass (both show a positive relationship with TP). Therefore, the potential toxicity of cyanobacteria is not necessarily related to their dominance or their high relative biomass, but to their absolute amount of biomass. I would like to suggest to the authors to take into account all the implications of the above relationship when discussing the management strategies for cyanobacterial control. In particular (see Conclusion, lines 22-24, pag.16), I think it would be important to mitigate the statement that "reducing nutrient loading... might not always be successful in preventing the occurrence of cyanobacterial blooms", because the relationship TP vs biomass seems to indicate that nutrient reduction could be a valuable strategy to control cyanobacterial growth in the studied lakes.

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