

Dear Referee #1,

Thank you very much for your helpful and very positive comments on our manuscript “Local nutrient regimes determine site-specific environmental triggers of cyanobacterial and microcystin variability in urban lakes” by S. C. Sinang et al (HESS-11-C4894-2014). They provide very important feedback to improve this manuscript.

Here, we would briefly like to discuss your comments, including your main concern, which is the use of the concept of nutrient limitation, which you suggest might not be fully applicable to the lakes that we investigated.

Comments	Response
Line 15, pag.4. A map showing the position of the lakes would be helpful.	We agree to this comment and we will include a map to show the position of the study lakes.
Line 11, pag.10. Bimonthly: I suppose this means twice a month...	We will substitute the word bimonthly with twice a month.
Pag.12, line 9. It is possible that the positive correlation with TN:TP is not driven by nitrogen, but is simply the result of the negative correlation between cyanobacteria and TP.	We agree and have mentioned this briefly on page 15 (lines 3-4); we will ensure to put this more upfront in the final manuscript (e.g., page15; line 13)
Pag.15, lines 2-5. About the relationship between cyanobacteria and TP, my main concern is that none of the lakes you studied are phosphorus limited. Moreover, the absolute biomass of cyanobacteria is significantly higher in the lake with the highest TP concentration. Why do not carry out a RDA analysis with the absolute cyanobacterial biomass, instead of their relative proportion? I suspect that the relationships could be quite different...	Although all of our lakes have high concentrations of P, they still present a range of P levels, with TP in Bibra Lake being an order of magnitude higher than the other two lakes. If P was not limiting, we would not expect any correlation with cyanobacteria. However, we did find various correlations between P and cyanobacterial dominance and microcystin dynamics and these were different between lakes. We think that this is very interesting as it shows that even in (by definition) non-nutrient limited lakes, triggers for cyanobacteria depend on the local nutrient regime and that a generalisation by only using concentrations of nutrients might not be sufficient for future management of lakes. We will certainly add this into the discussion in our next draft. Further, as suggested by you, we have included cyanobacterial

	<p>biomass in the RDA analysis and found, as anticipated by you, a positive correlation between TP and biomass; if P was not limiting, we would expect no such correlation. This indicates that although the lakes were not limited in P (according to the concentration), different P concentrations still had an effect on the community, probably due to its concentration in relation to other nutrients. We will certainly consider including the result of the RDA into the next draft.</p>
<p>Pag.15, lines 7-13. According to Reynolds (2006), the ability of Microcystis, the most abundant taxon in your lakes, to become dominant under P limiting conditions is not so straightforward. In general, cyanobacteria as a group can dominate under a very wide spectrum of trophic conditions, depending on the species involved and their respective growth and survival strategies</p>	<p>You are right and we will make this clear by changing this sentence (will now read: “Although cyanobacteria as a group can dominate under a wide range of conditions, high phosphorus concentrations have been shown to potentially limit the ability of cyanobacteria to become dominant in the phytoplankton community (Chorus and Bartram, 1999; Reynolds et al., 2006). One reason for that is the higher grow rate of other phytoplankton compared to cyanobacteria, and, as such, their ability to utilize nutrients faster under high nutrient conditions.”</p>
<p>Pag. 15, lines 27-29. In general terms, a high TN:TP ratio does not necessarily indicate a P limitation, because the limitation depends on the absolute nutrient concentration, not on the ratio. Nutrient ratio can be quite varibale from time to time, but, considering the data on absolute concentration, phosphorus limitation seems to be an exception in these lakes.</p>	<p>We would like to agree that our use of the words “nutrient limitation” or ”low phosphorus concentration” were not strict enough and we will carefully edit our manuscript accordingly. For instance, we will substitute “low phosphorus availability” [p 13 line 3] or “phosphorus limited conditions” [page. 15, lines 27-29.] with “lower relative phosphorus availability”.</p>
<p>Table 1. Check the range for TDP in Bibra Lake: 16.0-18.0 seems not correct respect to Mean and SD.</p>	<p>It was a typing error. The range should be 16.00 – 180.01</p>