

## ***Interactive comment on “Diel and seasonal variability of methane emissions from a shallow and eutrophic pond” by Wenli Zhang et al.***

**Anonymous Referee #1**

Received and published: 15 July 2020

In the manuscript "Diel and seasonal variability of methane emissions from a shallow and eutrophic pond" the authors Zhang et al discuss the influence of temperature and phosphor content on the diffusive and ebullitive methane flux from a small pond. The authors put a lot of effort in sampling on a monthly as well as on hourly basis. However, there are several points which should be considered: - The focus of their study is an artificial pond, with a concrete bottom and water input from rain and street run-off. I do agree, that these anthropogenic structures also emit methane (in this case substantially), the importance of similar structures in China, Asia or worldwide should be discussed. (and not a comparison to beaver ponds in Canada) - The fact that methane production and methane fluxes are enhanced with increasing temperature is nothing new, and this study does not reveal any further insights here. - The same is

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true for the influence of organic matter, for which phosphorus content is taken as proxy in this study. The more organic material can be degraded, the higher is the methane production. - Other aspects which from an ecological point of view could have been more interesting have not been taken into account, such as the influence of precipitation or street run-off, absence of vegetation and fauna(?), or as it is a man-made construction which measures could be taken to reduce the methane emission?

Please also note the supplement to this comment:

<https://www.biogeosciences-discuss.net/bg-2020-178/bg-2020-178-RC1-supplement.pdf>

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Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2020-178>, 2020.

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