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Discussions

Interactive comment on "Catchment tracers reveal discharge, recharge and sources of groundwater-borne pollutants in a novel lake modelling approach" *by* Emil Kristensen et al.

Anonymous Referee #1

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The authors applied different potential tracers in order to improve the reliable identification of recharge and discharge areas around lakes. Their main point is that they apply a model which is they claim to enable a quantitative determination of groundwater discharge of single sites based on tracer concentrations. Similar to the other reviewer I have several concerns about the manuscript's structure and concept. Overall I have to say that it is quite hard to judge the scientific quality of the work by now since too much is unclear to me and I am unable to evaluate if this is due to poor writing/style or due to an actual lack of a scientifically profound basis of the study. However, it is quite clear that a lot of effort was put into the investigations, especially regarding analysis of samples and data which at least justifies granting the authors the option

to revise their manuscript. Having said this, I strongly recommend being much more specific in the description of the approaches and methods applied. In many parts, the manuscript is extremely vague and statements and descriptions are kept far too general. My major concern about the study is the fact that mass concentrations and hydrology do not necessarily correspond linearly as the model assumes. This means that it is not possible to relate high tracer concentrations to high groundwater discharge rates. The authors have not made clear how the model overcomes this problem.

Please also note the supplement to this comment:
https://www.biogeosciences-discuss.net/bg-2017-209/bg-2017-209-RC2-supplement.pdf

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