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Discussions

Interactive comment on "Modelling hyporheic processes for regulated rivers under transient hydrological and hydrogeological conditions" *by* D. Siergieiev et al.

Anonymous Referee #2

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General comments: The presented analyses of the effects of hydrological and hydrogeological controls influencing the hyporheic exchange in the Lule River (Schweden) is whether a case study not a parameter or scenario study. Therefore the authors made a decision what they want to say. Nevertheless, is the topic of great interest especially in direction of managing impounded river systems according to the Water Framework Directive? The most important suggestion is: concentrate more in detail in one of the two parts which are described in the manuscript: site specific description and results or scenario analyses. Therefore a more specific discussion part would be possible and more helpful for the readers. Specific comments: - The site description is to short. It

would be helpful to know more about the surrounding aquifer situation in respect to the boundary conditions. - The same applies to the Data collection part. For example a description of the method to analyze the conductivity of the clogging layer. - It is not clear what you mean with a conceptual model – is it a analytical model with a simplified Aquifer? A description of the calculation behind would be useful. - The boundary condition in the conceptual model may influence the model output significantly. - It is not clear why a numerical model was used. If it was used as comparison to the conceptual model, the comparison is to show. But then a question is, why you need a conceptual model for the scenario study. - It is not clear how you calculate the bank storage (Flux multiplied by the time step), when comparing in the results Fig. 6 and Fig 7. In Fig. 6 you have minus values for the flux and you don't have this in Fig.7. Maybe this needs an explanation. - In general it is confusing if the scale in the figures are not the same. - It would be helpful in the discussion to refer this part more to the questions in the introduction.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 9327, 2014.