

# ***Interactive comment on “Impact of climate change on freshwater ecosystems: a global-scale analysis of ecologically relevant river flow alterations” by P. Döll and J. Zhang***

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It is a good strategy to put the potential effects of climate change on river discharge regimes in the context of past alterations of discharge in response to anthropogenic withdrawals and dam regulations, certainly if one is aware of the limitations of the underlying assumptions and modelling concepts. It is also advisable to limit the assessments to the degree where quantitative information can be derived from numerical simulations, and to avoid speculative assessment of impacts on e.g. ecosystem functioning. Although I am not familiar with quantitative relations between number of species and discharge characteristics, relations like Eq 1 in the paper intuitively seem overly simplis-

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tic and should be used as a rough indicator, not as a quantitative assessment. Large discrepancies between observations and this equation in several basins of the world may be expected, given the wide range of factors determining (variability in) ecosystem composition and functioning. However, the application of eq 1 to only basins where discharge is reduced introduces the risk of a biased picture of the impacts of climate change on species richness.

The points raised by the reviewers have resulted in a better balance between risks and opportunities, and between quantitative and qualitative arguments. The manuscript is suitable for publication in HESS.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 1305, 2010.

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