

Interactive comment on “Assessing ecosystem services under water stress in the largest inland river basin in China based on hydro-ecological modeling” by Yang Yu et al.

Anonymous Referee #1

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This paper presents a case study of water resources management and ecosystem service protection for a major basin in western China. While the case study is of potential interest, the methods used are standard, and there seems to be no methodological innovation or research interest. In addition, the paper is a very long way from the standard required for presentation in an international journal such as HESS. A few examples are presented below. There are very basic problems with the presentation of material. For example, the catchment is not defined on a location map, and the area modelled seems to be a particular reach of river, but this is not discussed. There is no discussion of the relevant climatological or hydrological processes, and any associated modelling challenges. The sub-catchments modelled are not defined, nor is there

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any discussion of the selection of the boundaries for the modelling, and the boundary conditions. Standard models are used, but there is no discussion of model parameterization, model calibration or model uncertainty, and there is no discussion of the data available to support the modelling. Where simulations are presented in Fig 5, the units are not defined. The models overlap in scope, but there is no recognition of associated problems and no discussion of how potential inconsistencies are handled. Where the ecosystem services DSS is presented, methods are not defined. e.g.153-155 ‘Tree species were determined by the fuzzy logic between groundwater level and the flooding of natural vegetation. Apocynum and reed production were influenced by groundwater level, groundwater salinity, and grazing area.’

Certain aspects of the water resources management are unclear. For example, ‘ecological gates’ are mentioned, without any clear explanation of the physical situation and any associated control rules. There is much vague writing – apart from the lack of definition of modelling methods, terms are used such as line 83 ‘a huge amount of investment’. In addition, the discussion of the regulatory context is presented as quite partial and subjective, rather than objective –e.g. ‘Due to government determination and the aspiration of the people, a new era of ecosystem protection has been predicted to emerge in China.’

One minor point of detail - Ref to McDonnell should be McDonnell

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