

Interactive comment on “Determination of the Optimal Lake-Marsh Pattern in the Lake-Marsh Wetland System based on Ecological Land Use and Ecological Water Use” by Wuxia Bi et al.

Anonymous Referee #1

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The paper presents an assessment of the combined use of water by a marsh and lake system in China. The authors estimate the best combination of marsh and lake system water use in order to maximise ecological outcomes given a number of restrictions due to the lake operation. While the subject is of potential interest to the readers of HESS, the methods and analysis presented are extremely basic and with very little innovative content. More detailed comments follow. Introduction: the introduction is too long for its content, due to excessive repetition of ideas. There is also insufficient references to optimization methods applied to water resources, which is an important aspect of the manuscript objectives. Methods: The equations presented in the methods are extremely simple and consist essentially of basic water mass balances. These mass

C1

balance equations are combined with ecological service evaluation equations (Table 2) taken from the literature in order to maximise ecosystem services and minimize water shortage. The optimization procedure is not described anywhere, only pointing out to the use of the GAMS software package. No description of optimization method used and criteria for selection. Results: There is very critical analysis of the results, the results section is essentially an enumeration of the model outputs on an annual and monthly basis. There is not much analysis of what would happen if some of the restrictions are relaxed, for example.

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C2