

***Interactive comment on* “Potential impacts to freshwater ecosystems caused by flow regime alteration under changing climate conditions in Taiwan” by J.-P. Suen**

Anonymous Referee #2

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1. General comments

This manuscript describes an application of the Indicators of Hydrologic Alteration Approach and Range of Variability Approach to stream flow data in Taiwan for detecting flow regime alteration under changing climate conditions. These information could be, as suggested by the authors, used to evaluate potential impacts of the alterations on freshwater ecosystems. I am afraid that the application of established methods to a selected area and demonstration of the method applicability are the only contribution to the journal or researchers. It falls short on several grounds:

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1) the paper title does not reflect the content presented. It seems that the potential impacts to freshwater ecosystems caused by flow regime alteration are to be presented and discussed. However, the impacts themselves, or the connections between ecosystem and flow regime, have not been presented. No information of changes in freshwater ecosystem, except the flow regime itself, has been introduced. Actually the flow regime alteration has been long studied, what is really interested is the impact.

2) the main methods used are well-established ones, not any new method or idea was proposed. The IHA and RVA approaches have originally been used to evaluate impacts of hydraulic constructions on flow regimes. Any changes in flow regime caused by any activity (construction, land use change, climate change) could be assessed with the same methods. The only results of detected flow regime alteration by using the methods, without further studies on the ecosystem impacts do not provide a rigorous ground or contribution.

3) the paper structure and the content organization are not in a common or standard format. For example, the abstract is not a summary of research results, but something like introduction; some general introduction was placed in the conclusion section.

2. Specific comments

1) As said above, the abstract is not a good summary, needs to be re-written.

2) The title needs to be changed. Impacts are not the main topic in the paper.

3) If the impacts are targeted, more references are required to reflect: studies on the impacts, applications of other methods for the purpose, and studies on changes in entire flow regime and its impacts.

3. Technical corrections

1) Page 3006, line 19. What does "over its lifetime" mean here? 2) Page 3007, line 25-28. The terms "the entire flow regime", "characteristics of the entire regime" need to be defined or explained. 3) Page 3009, line 7-29. The whole paragraph for Stream

alteration and ecological responses has no content related to Methods. It is general information and should be moved to the Introduction section. 4) Page 3018, line 6-12. The paragraph has not much to do with the study presented here. It should be removed. 5) Page 3022, Table 2. Does the word "Timing" for Group 1 really mean "magnitude"? 6) Page 3032, Figure 2. The figure looks small and unclear.

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