

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

**J.-P. Suen**

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First of all, I would like to thank Dr. Chen for his thoughtful comments and useful suggestions. I will incorporate his advice into the revised version of my manuscript.

I agree with Dr. Chen’s comment that flow regime alterations resulting from human activities are more significant than those from current climate change – this is especially true in Taiwan. As Dr. Chen wrote, it is essential to address how seriously the natural flow regime has been altered by human activities, and Shiau and Wu (2004) have effectively demonstrated a case study in Taiwan. However, while human-caused flow alteration is the focus of most work, I would like to raise the issue that climate

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change is also increasingly affecting the natural flow regime, a factor that most studies are ignoring. The streamflow data I used for the analysis are generally defined as undisturbed flow data (based on website: <http://water.hre.ntou.edu.tw/~river/>). By analyzing these streamflow data, it is possible to examine the flow regime alteration in the past few decades. Unlike most recent articles (e.g. Shiau and Wu 2004; Chen et al. 2008), which use the range of variability approach (RVA) to examine the degree of hydrological alteration in the downstream areas of an artificial construction, I use RVA to examine the degree of hydrological alteration in the upstream undisturbed areas where more indigenous species may present there. Because most recent analyses of the impacts of climate change on water resources or streamflow management focus on the trend determination, paying special attention to extreme water conditions such as flood and drought, this article considers the changes of the entire flow regime, which may potentially impact to the indigenous species and aquatic ecosystems.

In the revised manuscript, I intend to describe to the readers how I intend to tackle the issue raised by the Dr. Chen and modify the figure as Dr. Chen has suggested.

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