

## ***Interactive comment on “Hess Opinions: An interdisciplinary research agenda to explore the unintended consequences of structural flood protection” by Giuliano Di Baldassarre et al.***

### **Anonymous Referee #1**

Received and published: 7 August 2018

The paper by Di Baldassarre et al. aims to review and provide critical analysis of the incidental impacts associated with structural flood protection measures. The authors make the case that the unintended consequences, often referred to as the ‘levee effect’ (among other names), are ubiquitous but poorly understood due to a i) lack of generalizable knowledge or comparative analysis, ii) dearth of holistic and long-term data and monitoring, and iii) incomplete or insufficient methods. While the levee effect phenomena has been established in the literature for decades, a coherent, interdisciplinary research agenda has not been set to understand the causes, feedback dynamics, and vulnerabilities of these systems. This paper provides such an agenda, albeit very briefly. In general, the commentary is well-written, of good quality, and adequately

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addresses the aims set forth. Therefore, I recommend the paper be formally accepted for publication upon the following improvements.

Specific comments 1) Identify specific research questions that remain outstanding and how your research agenda will help address them. The language expressing the current knowledge gap is vague. One of the key purposes of these paper is to set a research agenda for the field; as such, this paper would be greatly strengthened by i) providing specific research questions that remain unanswered, ii) explaining how answering these questions will lead to transformative results, and iii) how the proposed research agenda will enable these questions to be addressed. Not only will this help the authors meet one of their chief aims, but it has the potential to make a true novel contribution to the literature, possibly serving as a catalyst for further research in this area. 2) Make the two examples more explicit. In the abstract, the authors say their commentary explores the “intended benefits and unintended effects of flood protection with two main examples”. However, these two examples are difficult to identify given the authors briefly highlight numerous examples throughout their commentary.

Technical corrections Be consistent in use of Oxford comma.

Page 1 Line 32: “phenomenon, by” -> “phenomenon by” Line 32: “effects of flood protection” -> “effects of structural flood protection” Line 33: “and then propose” -> “and then we propose”

Page 2 Line 18: “2 The troubles with flood protection” -> “2 The troubles with structural flood protection” Line 25: “Sacramento valley” -> “Sacramento Valley” Line 26: “and in the United States” -> “in the United States”

Page 3 Line 5-6: “transport cost, or areas in cities to benefit” -> “transport cost or areas in cities that benefit” Line 16: “not always realistic, while large” -> “not always realistic. Moreover, large” Line 19: remove “for instance” Line 24: “flooding” -> “flood”

Page 4 Specify the meaning of the Likert scale values used in the survey (e.g. a

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response of 1 signifies strong disagreement with the statement, while a response of 5 indicates strong agreement).

Page 6 Line 18: “together, within” -> “together within” Line 20: “flood risk, and provide” -> “flood risk and provide”

Table 1: “evolution of of regulatory” -> “evolution of regulatory”

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2018-333>, 2018.

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