

Interactive comment on “Environmental impacts of human action in watercourses” by J. S. Antunes do Carmo

Anonymous Referee #2

Received and published: 6 November 2014

General comments The title of the paper suggests a very interesting and relevant topic, and is in accordance with the NHESS scope. The paper discusses catastrophic responses of river systems to human alterations. However, I have many concerns about the manuscript. 1. The title promises to address environmental impacts, however, the manuscript is solely focused on the fluvial response to human disturbance through large constructions in the river bed, and it doesn't address the large picture of environmental effects like e.g. change in water quality or vegetations destruction from a change in flood magnitude and frequency or a change in groundwater level to name a few. 2. Most of the problems of the manuscript originate in the large lack of relevant citations, and as a result, the reader is not able to distinguish between the actual work of the author and the work of others. Especially the discussion suffers severely from

C2427

the absence of relevant literature, which are e.g. Graf, 2006, Kondolf, 1997. Additionally, more than 1/3 of the citations come from the author himself. This is poor scientific practice. 3. The manuscript fails to reflect the state of science in the field. 4. The discussion is too short, disconnected from the result section and remains generic. The statements made here are widely published, and as a result the novelty of the study is questionable. 5. In order to publish this manuscript, the author would have to modify it fundamentally. I therefore recommend to reject the manuscript. In case the author would like to publish his study, I suggest that the author focuses on section 3, includes the relevant literature, extends the discussion and gives it a title similar to the heading of section 3.

Scientific Significance The manuscript makes a contribution to the understanding of the responses of rivers to bed altering human activities, which can result in natural hazards. The concept on which this manuscript relies upon, the Lane relation of fluvial hydraulics (Lane, 1955) is not new, and there has been substantial work done in the past years in order to advance it (Dust and Wohl, 2012, 2014, Huang et al., 2014). None of this more recent work is mentioned in the manuscript, neither is the original cited, and as a result the manuscript is not up to date with recent scientific advances in the field. Scientific Quality As mentioned above, the manuscript suffers from a very low number of citations. As a result, the state of the art in the scientific field is not well summarized. This is not only limited to the method section (Lane's relation), but more importantly also to the discussion of the results within the relevant literature of the geomorphic effects of dams on rivers. The discussion is also detached from the result section, and constitutes a series of general geomorphic effects of construction and mining in river beds, all of which are already well published. As a result, it stays unclear to me what the novelty of this manuscript is. Presentation Quality The general structure of the paper is ok, but the discussion is too short in comparison to the earlier sections. Some figures are of poor quality, especially Figure 10. There is no location Figure. The abstract doesn't represent the content of the manuscript and stays far too general. The language is ok, however, sometimes there were some unusual textbook-like ex-

C2428

pressions, e.g. in p. 6508, line 1: “..let us turn...”. Dust D, Wohl E. 2012. Conceptual model for complex river responses using an expanded Lane’s relation. *Geomorphology* 139–140: 109-121. DOI: <http://dx.doi.org/10.1016/j.geomorph.2011.10.008> Dust D, Wohl E. 2014. Response to commentary by Huang et al. regarding “Conceptual model for complex river responses using an expanded Lane’s relation” *Geomorphology*, volume 139–140, March 2012, pages 109–121. *Geomorphology* 209: 143-146. DOI: <http://dx.doi.org/10.1016/j.geomorph.2013.09.036> Graf WL. 2006. Downstream hydrologic and geomorphic effects of large dams on American rivers. *Geomorphology* 79: 336-360 Huang HQ, Liu X, Nanson GC. 2014. Commentary on a “Conceptual model for complex river responses using an expanded Lane diagram by David Dust and Ellen Wohl”, *Geomorphology*, Volume 139–140, March 2012, Pages 109–121. *Geomorphology* 209: 140-142. DOI: <http://dx.doi.org/10.1016/j.geomorph.2013.07.008> Kondolf GM. 1997. PROFILE: Hungry Water: Effects of Dams and Gravel Mining on River Channels. *Environmental Management* 21: 533-551. DOI: 10.1007/s002679900048

Interactive comment on *Nat. Hazards Earth Syst. Sci. Discuss.*, 2, 6499, 2014.