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Earth Surface Dynamics Discussions

Interactive comment on "The role of log jams and exceptional flood events in mobilizing coarse particulate organic matter in a steep headwater stream" *by* M. Jochner et al.

Anonymous Referee #2

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This is an interesting and useful paper, but I think that it requires revision before acceptance. I found the use of CPOM as confusing at times, as it seemed to imply LW as well as the more traditional use of CPOM as organic matter greater than 1 mm but smaller than large wood. The conceptual model is nice. I think it could be strengthened by mentioning that the timescale and magnitude of effects should differ by at least an order of magnitude between streams, even if the general pattern is consistent. Specific comments: Abstract 1) Exceptional discharge events, if produced by rainfall or by accelerated snowmelt, would also affect CPOM dynamics by mobilizing forest litter and duff from upland areas. Introduction 2) The citation for the definition of CPOM is a bit misleading. Ecologists pioneered the CPOM literature, starting in the 1970s, and the

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size criterion mentioned here should be supported by appropriate ecological citations. 3) In the discussion of how wood affects stream characteristics and CPOM, it would also be appropriate to cite Beckman and Wohl (2014, Water Resources Research, on CPOM storage behind logjams). 3) The second paragraph of the introduction has a confusing mix of LW and CPOM. I think it would be more effective to treat CPOM that is finer than the typical LW definition (1 m long, 10 cm diameter) and then to discuss LW. Also, there is a much greater literature on downstream trends in CPOM abundance and dynamics than is reflected in this paragraph. See papers by Naiman and Sedell (1979, Archives Hydrobiology), Newbold et al. (1982, Oikos), and Webster et al. (1999, Freshwater Biology), for example. Methods 4) Why not measure the CPOM stored with pebble & finer size sediment upstream from and apart from jams? This can be substantial in some streams, although the photos included in this manuscript suggest that it is not likely to be as important in this very steep and dynamic stream. Even if this storage is not substantial, it would provide the basis for a very interesting comparison with the ecological literature from equally small and steep but more stable streams, such as Hubbard Brook.

Interactive comment on Earth Surf. Dynam. Discuss., 3, 173, 2015.