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Hydrology and Earth System Sciences Discussions

Interactive comment on "Training hydrologists to be ecohydrologists and play a leading role in environmental problem solving" *by* M. E. McClain et al.

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The authors attempt to lay out the curriculum and philosophical foundation for the education of eco-hydrologists. They achieve their end admirably and their article will aid others in figuring out how to structure the education of individuals working on the boundary between hydrological and ecological processes. I do have some comments that might help the authors better structure their discourse and aid in better focusing their thoughts on the fundamental nature of ecohydrologic education.

First, in defining ecohydrology in the abstract and introduction the authors need to

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better state the particular domain of knowledge that ecohydrology occupies. It is of course a broad category of study but the authors current definition "... examining mutual interactions of the hydrological cycle and ecosystems" is not defined enough. This definition needs to be refined in some way because as it currently stands it almost encompasses all of hydrology itself. The essential note of ecohydrology would seem to me to be the specific ways in which the biological processes of life influence hydrologic processes. I agree that is reasonable to perhaps include the inverse as well - that ecohydrology includes the ways in which hydrologic processes control biological processes. I do think restructuring here to state that ecohydrologists study the intersection of hydrologic processes with the biological processes operating in ecosystems. This comment at some level does amount to some level of word smithing. But I do think a careful definition of the field is important so that we know what we are talking about when we discuss ecohydrology. Second, the authors need to tone down the reference to the 3 spheres of ecohydrology. These are certainly areas of research investigation and are in fact the current primary areas of research in ecohydrology. However if we are developing a curriculum for educating Ecohydrologists these three areas should be couched as examples rather than specific domains as it is currently stated. As an example of another area that could have been listed catchment biogeochemistry is arguably both an influence on and a domain of ecohydrology. Third, if we are expecting to train ecohydrologists who are out in the real world making decisions and advising policy makers the current curriculum as described comes up short. Table 1 includes some policy and management courses. The text however comes up short in this regard. Ecohydrologists will not be political scientists nor will they be policy experts but there is some core of knowledge about how policy influences decision making and constrains decision making about the environment that would be valuable for students to know. Fourth- The opening of the Conclusions section with the statement about Darwinian versus Newtonian "opposing" world views I find puzzling. Little intro on this opposition of these two world views is offered earlier in the text. Additionally I find little in opposition about these two views in my own view and my own work I find the two

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views more complementary than in opposition. Minor comments- On page 1488 Using Nemani, R.R., C.D. Keeling, H. Hashimoto, W.M. Jolly, S.C. Piper, C.J. Tucker, R.B. Myneni, S.W. Running. (2003) Climate-Driven Increases in Global Terrestrial Net Primary Production from 1982 to 1999. Science 300 (5625):1560-1563. Might help make case for water limited systems importance to ecohydrology since most (∼75%) of the world's ecosystems are water limited at some point during the growing season.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 1481, 2012.