

## ***Interactive comment on “Accounting for environmental flow requirements in global water assessments” by A. V. Pastor et al.***

**Anonymous Referee #2**

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General comments: - The paper clearly states the questions that the authors seek to address. - The authors show familiarity with literature on setting environmental flows. Major papers and schools of thought appear to be accurately summarized and referenced. - There is a lot presented in this paper: (a) comparison of five hydrologic methods with local methods for determining EFRs; (b) comparison of environmental flow methods applied globally (presented in Figs 3-5); (c) application to 14 global river basins (presented in Fig 6). - The bulk of the paper is on (a), and the related methods, results, discussion and conclusions are pretty well presented and explained. In comparison, (b) and (c) receive almost cursory treatment and may be better presented as separate papers - expanding on them here would likely be too much to digest in one paper. I could follow (a) to its conclusion about advantages/disadvantages of the five

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hydrologic methods and whether they EFRs are high/low relative to each other and in different major habitat types, which will be useful context for understanding both global and local applications of these five methods. In contrast, there was relatively little discussion and few conclusions to take away from the analyses in (b) and (c). They seem almost as an afterthought.

Specific comments: - Page 14989, line 15: The terms 'green' and 'blue' water may not be familiar to all readers. To clarify the point, which is important, consider replacing these terms with a description of these two components of the water cycle. - Page 15002, lines 15-20: I suggest saying a little bit more about the 'locally-calculated EFRs', perhaps a short paragraph explaining some of the 'environmental flow type methods' used. As written, there is only one sentence referring the reader to Table 3, where the methods are listed in a column. I read past that section without noticing that that was where the local methods were referenced. And since these are the basis for many conclusions about how the global methods perform, the reader deserves a little more information about them. - The comparisons between the global and local methods used to calculate EFRs are pretty well summarized, although in several places the authors make comments that the amount allocated to the environment is 'too large' (e.g., p 15008, line 14-15). The authors should revise to clarify that the EFRs are 'higher' or 'lower' than the local method, and not imply that they are allocating 'too much' to the environment. The strength of the paper is the comparison of methods - none of which actually estimate how much water these rivers need based on ecological goals. The authors should refrain from concluding that the methods allow 'too much' or 'too little' for the environment - such conclusions could only be drawn if they also present presented data on ecological impacts that confirm that EFRs (either local or global) are too conservative or not protective enough. Instead, the authors should use language that emphasizes consistencies and differences among methods.

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