Interactive comment on "Importance of considering riparian vegetation requirements for the long-term efficiency of environmental flows" *by* Rui Rivaes et al.

M. Ertsen (Referee)

m.w.ertsen@tudelft.nl

This paper discusses an interesting modelling approach, in which two different models (vegetation and fish) are combined. The main argument to do so would be that these two different species/agents require different flow regimes and that they influence each other. My comments are mainly focussing on the way the argument is presented.

Introduction

If I understand the argument correctly, the claim is that environmental flows for fish are typically studied. Apparently, "longer term species" are neglected. Are these longer-term species the vegetation? If so, this should be made much more explicitly.

Assuming that the paper focusses on fish and vegetation, the introduction should clarify much more how these two relate to each other. Riparian restoration, for example, is discussed without any clear relation to the life cycles of fish (and other species).

The research questions are not defined in a way that allows any other answer than that excluding habitat analysis is wrong. The second question introduces the term "overlook" which suggests that the researchers already know the answer to question 1. Then why pose it?

What is the "structural response" of riparian vegetation?

Detailed remarks: page 1, line 33: I would avoid using words like "truly". page 1, line 36: why "Therefore"? page 2, line 6: "It is now in agreement" with only one reference is not very strong. page 2, lines 10-11: what does "holistic"mean? Why are these drafted in these two countries, what to they entail? page 2, line 15: why "clearly"? page 2, line 16: do you need the word "biased"? page 2, line 35: "In what extent", does that exist?

Methods

It is clear how the models link to the measurements. It is not clear at all how the models have been calibrated etcetera. The whole paper does not discuss sensitivity or similar concepts. Can we be sure that the model results are similar to the data for the right reason? Please explain.

Results

Detailed remarks: Page 7, lines 19-35: please separate in three paragraphs. The reader can hardly distinguish between the three cases. Page 8, lines 7-17: when the term "significant" is introduced, I would recommend to use it more specific and add "statistically" (as is finally done on page 9, line 27). I would also recommend including the numbers here and not refer to annexes too soon.

Discussion

Lines 23-26 on page 9 seem to be rather important. I would suggest that these could be more prominent. Morphodynamics and fish need to be understood together. This is done by first modelling vegetation and than fish. I have some questions on that process that could be taken on board in the discussion? - Is the one-way relation that is modelled (from vegetation to fish) possibly a two-way relation (back from fish to vegetation)? - Does the modelling assume stability of the riverbed and -shape, apart from vegetation? - If so, is that a problem? - How do the modelling uncertainties of the two models relate and introduced in each other?

Detailed remarks: Page 9, line 16: what does "pushed through" mean? Page 9, line 36: why suddenly the term "substantially"?

Other remarks:

Please check the abstract. The second sentence is very difficult to understand. The numbers mentioned do not easily relate to numbers that are discussed in the main text.

The language needs to be improved. For example, several times the word "inputted" is used, which as far as I know does not exist. Proofreading may be recommended.

I am in agreement with the comments of my colleague, who provided much more detail on which parts of the paper should be improved and clarified.