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Hydrology and Earth System Sciences Discussions

Interactive comment on "Local and regional impact of anthropogenic drainage on fen contiguity" *by* A. H. van Loon et al.

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General comments

This is an interesting contribution to counteracting environmental degradation of fens. The topic is within the scope of HESS. The paper presents new data and reveals new aspects of the effects of anthropogenic drainage on local and downstream fen areas. The main conclusion (that anthropogenic drainage can reduce fresh groundwater supply to both local and downstream fens, and therefore hinder conservation of the endangered fen plant communities) is substantial and justified.

The methods are clearly described, and could be applied by other scientists. However,

the description of results is difficult to follow, partly because of the very small size of the lettering in the figures (which evidently have been greatly reduced). The authors could consider using larger lettering. Figure 3 is particularly baffling – it needs more explanation. The results are sufficient to support the conclusions. Good reference is given to previous work. The title clearly describes the contents of the paper. The abstract is concise and complete.

The paper is well structured and clear, and the language is fluent and precise. The results and discussion are satisfactory. It is not necessary to eliminate or reduce any section.

Specific comments

My main difficulty with the paper was the struggle to understand the description and interpretation of the results, which is largely caused by inadequacy of the diagrams and the small size of their lettering (which may not be the authors' fault). Likewise for Table 2.

Fig. 1 What is $"$water inled point$"$? Is it $"water inlet point$"$? Transect A-A' is clear enough, transect B-B' is not. Does it stretch from drainage ditch to drainage ditch (as study of Fig. 4 would indicate, or is it floating between drainage ditches as shown in Fig. 1.

Fig. 2 Good, but explain in the caption that the tritium concentration is decayed to the sampling date.

Fig. 3 The key needs to be explained better. All I see from this figure is that Q is close to zero everywhere in summer (July). What is Q?

Fig. 4 The last item in the key should be greater than 1000, not less than 1000.

Figs. 5-7 OK

Detail comments

P4380, L9-10 I suggest you qualify the word $“$groundwater$”$ by using $”$fresh groundwater$”$.

P4386, L2 Use the word $”$missing$”$ not $”$lacking$”$.

P4395, L27 Use the word $”$insufficient$”$ or $”$missing$”$ not $”$lacking$”$.

P4396, L27 Use the word $”$effectiveness$”$ not $”$effectivity$”$.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 4379, 2009.