Hydrol. Earth Syst. Sci. Discuss., 5, S1674–S1676, 2008
www.hydrol-earth-syst-sci-discuss.net/5/S1674/2008/

Hydrology and Earth System Sciences Discussions

Interactive comment on "Hydrologic and land-use change influence landscape diversity in the Ebro River (NE Spain)" *by* A. Cabezas et al.

Anonymous Referee #1

Received and published: 1 November 2008

The manuscript shows relevant data about the transformation of the fluvial Ebro ecosystem along the last century, and it has quality for publication in the journal. Although changes in the study area may be representative of most of the basin, general conclusions can not be drawn from the analyzed data of a specific reach of the middle basin.

Specific comments:

Abstract, line 7: "...as well as the overall basin". This part of the sentence should be delated, since overall basin changes can not be concluded from the analyzed data.

Abstract, line 16: "Under the current socio-economic context...". What do you mean ?

Is the present economic crisis ? Can we lower floodplain heights in a relevant part of the system with limited funding ?

Methods, study area, line 14: the present annual discharge to the Mediterranean Sea is no 18138 Hm3, this was the discharge in natural past conditions. Nowadays is around 12000 Hm3, due to a decreasing trend mostly caused by irrigation; please update the figure with the CHE data or use a reference.

Methods, study area, line 17: same comment than previous, is 230 m3/s the mean discharge at present or is the discharge in natural past conditions ?

Landcape analysis: here an important point is to include some statystical analysis of the accuracy in identifying habitat type. How did you validate the habitat attribution derived from the GIS analysis ? Did you check it with field data ? Please, carry out this type of analysis and include some references of other similar works in which this has been done.

Results, hydrological analysis, line 22 (and discussion, lines 10, 12 and 26): the decrease in mean annual discharge is probably not since 1981. In order to see the hydrological changes along time you do not have to divide the whole data set in the same periods you used for the picture analysis. Please, either apply a staystical test to the whole data set in order to identify when the decreasing trend is significant, or just state that the average discharge of the period after 1981 is significantly lower than the periods before 1981, but without saying that the decrease took place exactly in 1981 (however, to state that the mean annual discharge of some particular period is significantly different than other, you also need to perform some statystical test).

Results, landscape analysis, lines 13-17: this paragraph should rather go to the methods section.

Results, landscape analysis, line 30: at the end of the section, at least in my text, there is 5 lines of text that are not from the manuscript, so just delete them (in case they are

HESSD

5, S1674–S1676, 2008

in the original manuscript).

Discussion, page 2771, line 10: since the closest dams upstream the study area are quite far away (as long as I remember), the riverbed incision is may be not relevant in this reach.

Discussion, page 2775, line 2: is the suggested initial economic investment feasible ? Are you referring only to the study area or is this investment feasible at a larger scale in the Ebro basin ?

Technical corrections:

Results, page 2766, line 7: "...has decreased in since..." should be "...has decreased since..."

Discussion, page 2770, line 25: "...human-manages..." should be "...human-managed..."

Conclusions, page 2775, line 15: "...(1957-1957..." should be "...(1927-1957)..."

References, page 2778, line 11: "Lopea-Moreno" should be "López-Moreno".

Please, put the accent in names, like García, Comín, etc.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 2759, 2008.

HESSD

5, S1674–S1676, 2008

Interactive Comment