

Interactive comment on “Morphology of Tigris River within Baghdad City” by A. A. Ali et al.

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Received and published: 24 June 2012

Dear referee Thank you very much for your comments. We have discussed your comments and we think: 1. The authors compared river cross-sectional data from three different surveys and carried out 1D steady-state hydraulic simulations using HEC-RAS. The work is rather standard, similar to technical work carried out routinely at river management authorities. There are no new concepts, ideas or methods that would carry any scientific significance. The main aim of this work is to predict the maximum flood capacity for Tigris River within Baghdad city recently. It is also to highlight the changing in the morphology of the river and the increasing of the number of islands with time and the deep incision at meanderings. Choosing for the type of the mathematical model depends on the required results from the model and for this work, the 1D steady-state model is enough.

2. Potentially, the cross-sectional data could arouse some scientific interest if the data from all surveys would be made available to the scientific community, but the data have not been made available. The cross-sectional data are available in any “technical work carried out routinely at river management authorities” as mentioned by the referee. On another hand, if the authors go in details with the three surveys carried out, it will be a huge report not a technical paper. Instead of that, the authors show some of comparison in brief in figures 5 and 6.

3. The references to work on the Po, the Rhine and Polish mountain rivers are arbitrary and inappropriate. All these references are focusing on the evaluation of training projects on these rivers. The aim of these training projects is increasing the flood capacity of the rivers and reducing the consequent damages of floods. Since this work carried out to predict the maximum flood capacity for Tigris River with the new topography and the consideration of the training works for the banks of the river, so it similar with these references from this perspective.

4. Line 5 of page 5673 refers to Figure 1 for the drainage area, but the figure shows only international state boundaries and main river courses, without delineating the river catchment boundaries. The aim from figure 1 is to show the extension of the river courses through Turkish, Syrian and Iraqi lands and not to show the boundaries of the catchment areas for the river courses.

5. Section 2 on page 5674 discusses differences between 2000-2010 discharges and discharges prior to 2005 as well as flood discharges in 1971 and 1988, but the corresponding Figure 2 shows only data for the period 2000-2010. The aim from figure 2 is to show the variation of Tigris river flows for the period 2000-2010, also highlighting the dramatic decrease in the quantity of the flow. Since the variation in the flow for the period 2000-2010 is ranging between 200 to 1000 m³/s; therefore, the height of the vertical axis (flow) in figure 2 was restricted to that range with some extension in the upper limit to include the maximum daily flow in 2005 which was 1315 m³/s. It's clear that if we extend the vertical axis in the figure to include the flood discharges for the

years 1971, 1988 (those were 4480, 3050 m³/s respectively), that's will lead to deface the futures of the flow curve.

6. The use of the English language requires improvements of spelling and grammar (please pay attention to the use of "popular" in line 5 of page 5678: is the intended meaning really "popular" (= appreciated by many) or rather "populated" (= inhabited by many)?). The aimed meaning for the word "popular" is (inhabited by many).

7. The title is imprecise as it suggests a morphological study. However, the work does not present a solid study of bed evolution by erosion and sedimentation. The work consists basically of comparing old cross-sectional data with new ones and of calibrating and applying a hydraulic model. This should be reflected in the title by omitting the word "morphology". Do you think we need to change the title of the paper? Actually, I prefer that and I think it is suitable.

Thanking you again. Best regards. Nadhir Al-Ansari

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 5671, 2012.

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