

Queensland Floods Commission of Inquiry

Submission in response to hydraulic modelling – SKM Joint calibration of a hydrologic and hydrodynamic model of the lower Brisbane River; WMAwater review of Hydraulic modelling

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The following constructive comments are made in the interests of improving the hydraulic modelling as it is developed further to satisfy the recommendations in the Interim Report of the Commission of Inquiry:

1. Bed Scour

The MIKE 11 2011 model developed by SKM and used in the Babister report has been based on a fixed-bed approach. However, the flows in the 2011 flood were high enough to scour the bed in the main channel. This scour increases the cross-sectional area, produces sediment transfer and changes the stage-discharge relationship (rating curve). The model should give consideration to bed scour.

2. Bridge Modelling

Bridges, apart from the weir/bridge at Mt Crosby, were removed from the SKM 2011 model on the basis they were too large or too small to affect results but it was suggested they should be included in any further development of the model. SKM's review of the 2005 Seqwater model found that several of the major bridges were not being represented appropriately. For the major bridges, rather than an orifice/weir model, it might be more appropriate to use a model representing the effects of abutment/pier/angle of flow (such as US Bureau of Public Roads "Hydraulics of Bridge Waterways") since these bridges are unlikely to be overtopped except in a very extreme event.

In the list of bridges it might be noted there are two Gateway (Sir Leo Hielscher) bridges, four bridges at Indooroopilly (Jack Pesch footbridge, Albert railway, Main line railway, Walter Taylor road) and two bridges at Jindalee.