Rural Irrigation Price Review

Assessment of Hydrologic Factors - Giru Benefitted Area

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Objectives

- To provide hydrologic advice to the QCA to assist in apportionment of costs between customer groups
- To provide an independent review of the submitted GBA hydrologic study
- To advise on the proportion of water delivered by natural recharge of the aquifer to GBA users compared to that from supplemented releases

Noted that review of non-hydrologic factors is beyond the scope of the review

GBA Report/Model Review

- Issues identified include:
  - Poor description of data, assumptions and calculations used in the model
  - Evaporation effects not well configured
  - Demand pattern is 'lumpy'
  - Effect of local rain ignored
  - Shift of extraction to direct from surface water not assessed
  - Weir operating levels are high
  - No weir outlet rating curves included
  - Ground-surface water interchange rules ignore groundwater level
  - ROL passflow release rule (40 ML/d) not included
  - Unsupplemented case still includes weirs
  - Limited calibration
- In summary, significant issues identified – use of model for pricing not recommended.

A Basis For Pricing - The Model

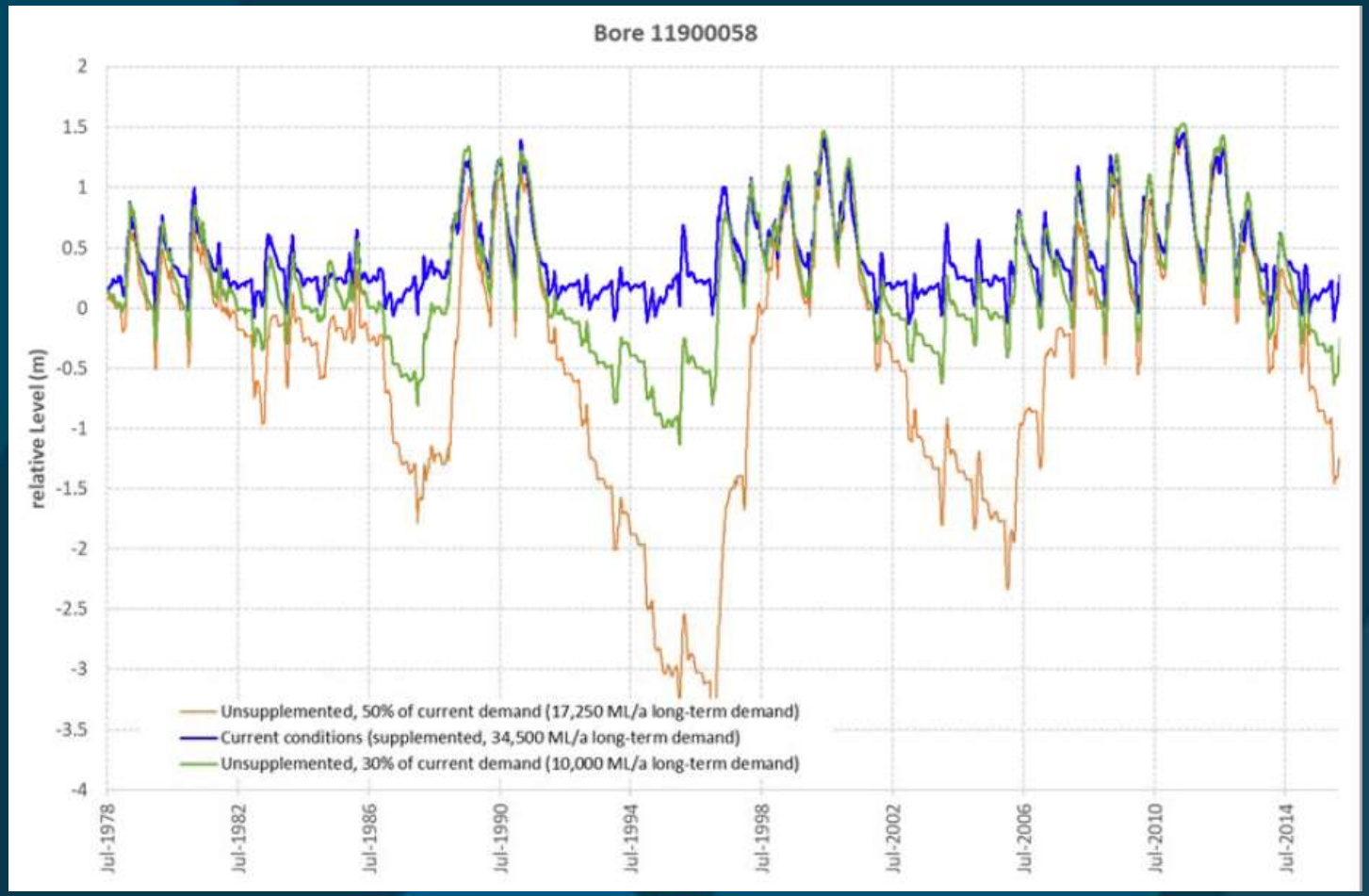
- Use of model for pricing is not recommended - Nevertheless, an assessment of the reported results was performed.
- For the unsupplemented case to provide a valid measure of unsupplemented yield, it must provide the same:
  - Allocation performance, and
  - Environmental performance
- Allocation performance
  - 30% and 50% unsupplemented cases do deliver the indicated demand – same allocation performance as supplemented case
  - However, some difference in access (surface vs groundwater)

Environmental Performance

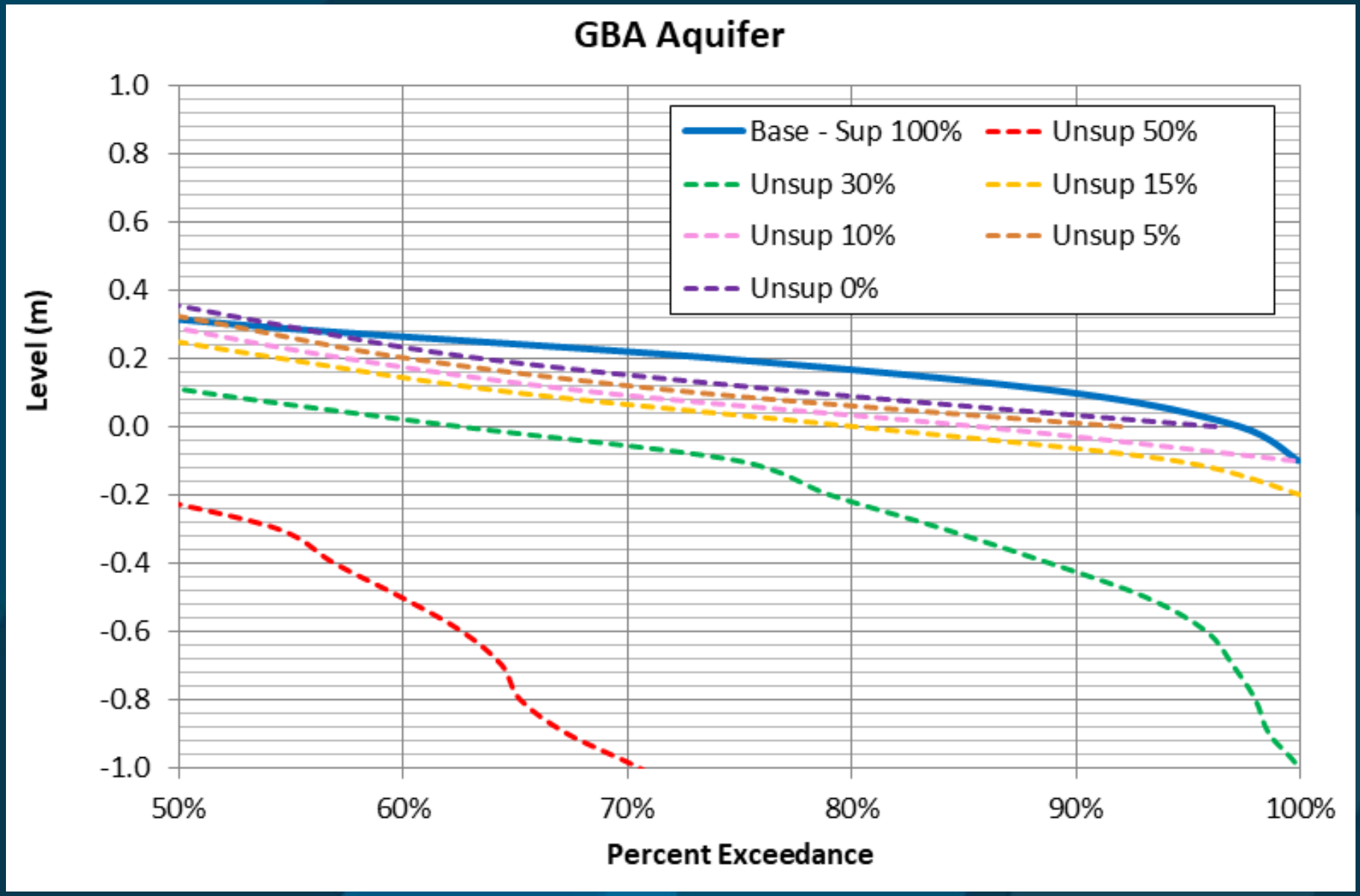
- Key indicators:
  - Water Plan Environmental Flow Objectives (EFOs)
  - Aquifer level
- Water Plan EFOs are complex, and no EFO stats presented in the report
- But - the 40 ML/d passflow rule is likely to be a ~proxy for the EFOs
- Passflow performance in the model:

Case	% Days Passflow Compliance
Supplemented	59%
Unsupplemented, 50% Demand	60%
Unsupplemented, 30% Demand	60%

Aquifer Level Performance



Aquifer Levels – Ranked Plot



Release Data

- OD Hydrology Report
  - 68,000 ML recorded release over 2 years 2016 and 2017
  - Modelled average demand 34,500 ML/a
  - Roughly 1:1 release:diversion ratio
- Kavanagh Report – presents historical data
  - Roughly 1:1 release:diversion ratio over 1997-2016
  - Roughly 1.4:1.0 release:diversion ratio over dry period 2011-2014
- Release data does not appear to indicate that natural flows are significantly contributing

Conclusions

- Significant issues with model – use (without upgrade) is not recommended
- Submitted release data tends to indicate little contribution from natural flows
- Model results, while questionable, also indicate little contribution from natural flows
- Therefore, there does not appear to be a strong hydrologic basis for differential pricing between MP allocations (including the GBA) in the BH Channel Distribution System

QUESTIONS ?

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