

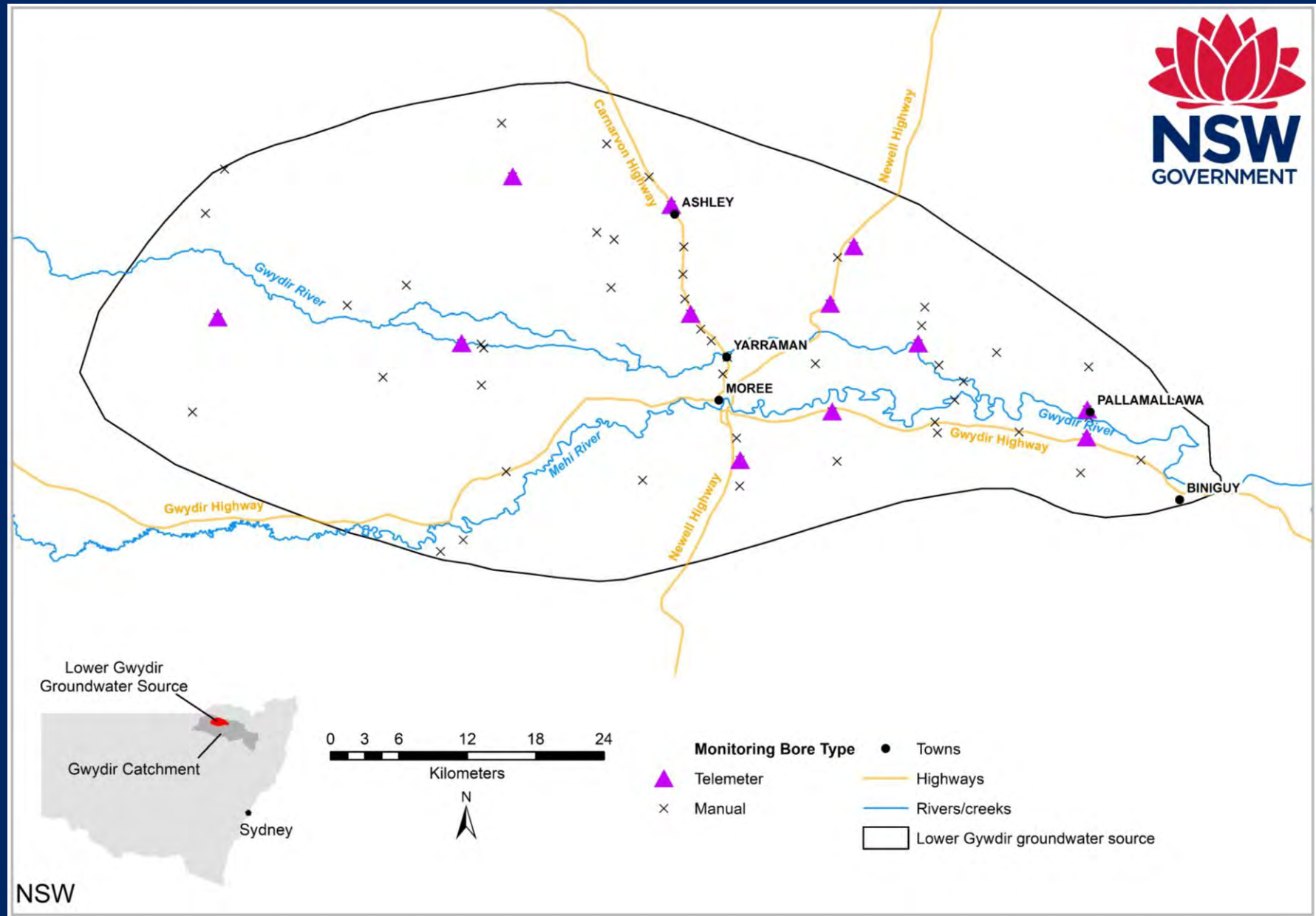
Lower Gwydir groundwater source

Water level trends

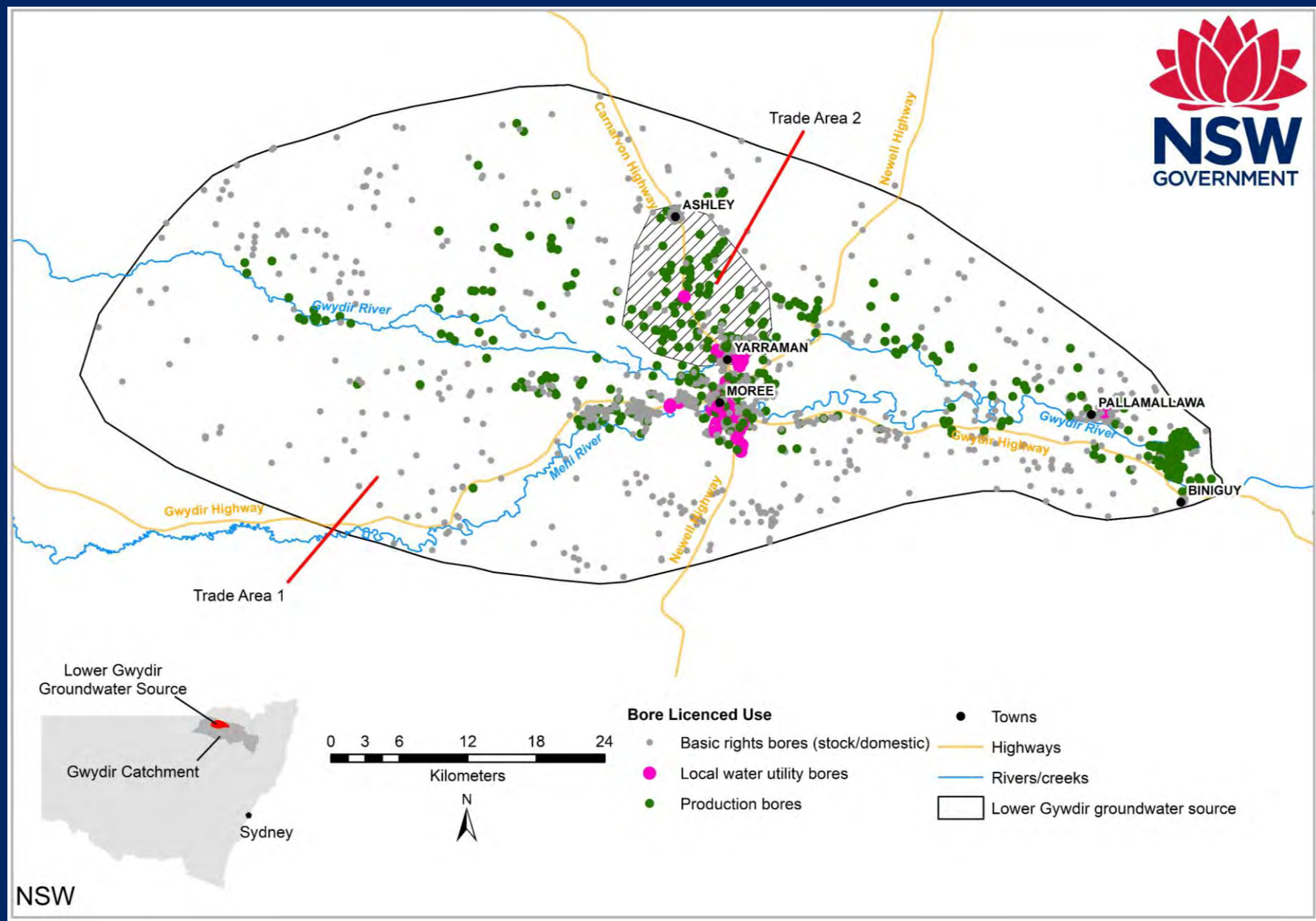
Introduction

- History of declining groundwater levels in the Lower Gwydir Groundwater Source
- In 2008, an area between Moree and Ashley was identified as an area of concern due to cumulative impacts from groundwater extraction on the aquifer
 - two trade management areas were established to assist in the management of temporary groundwater trades
- A water level analysis has been conducted to determine how groundwater levels are responding to current water use and management frameworks

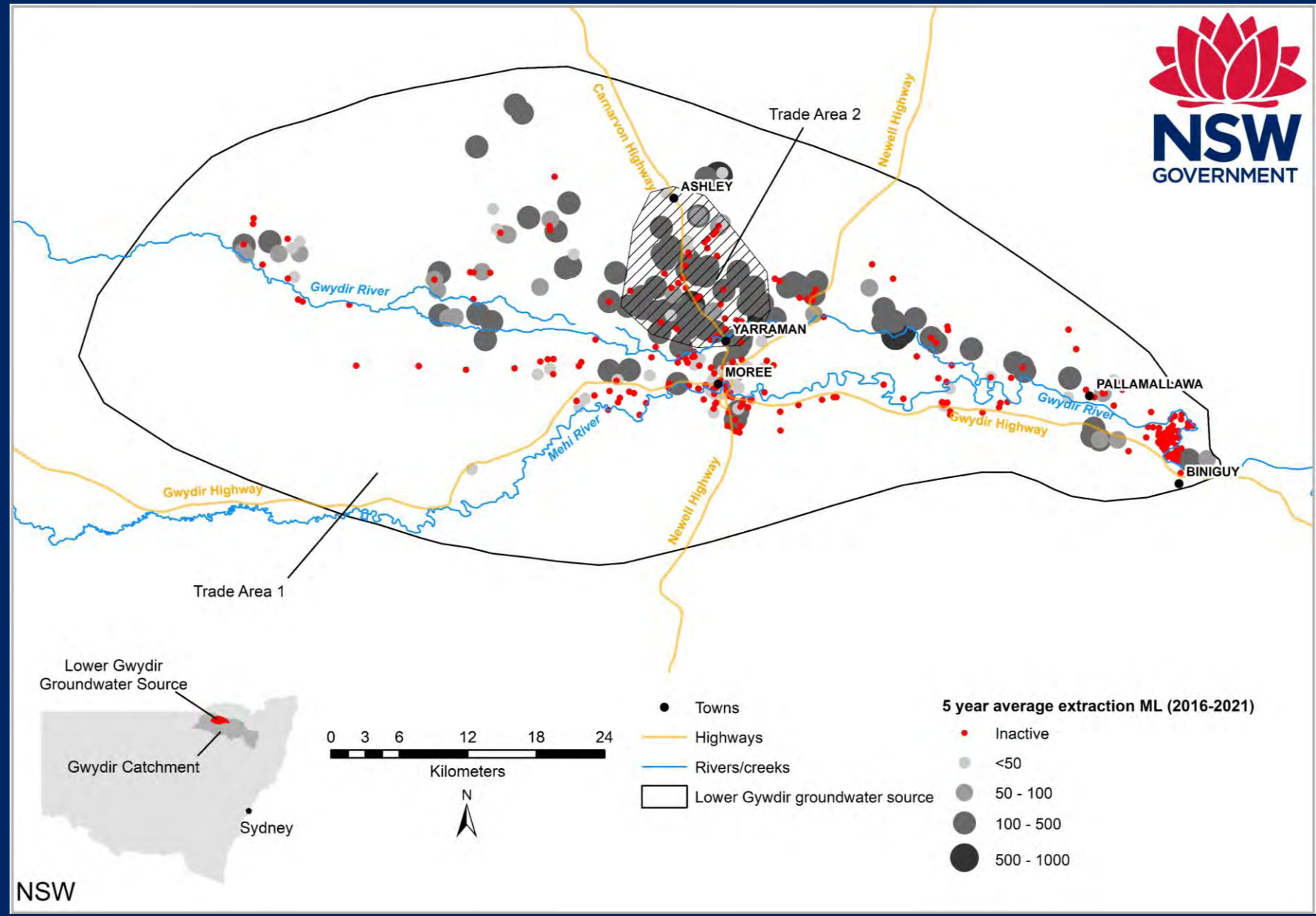
Water level review



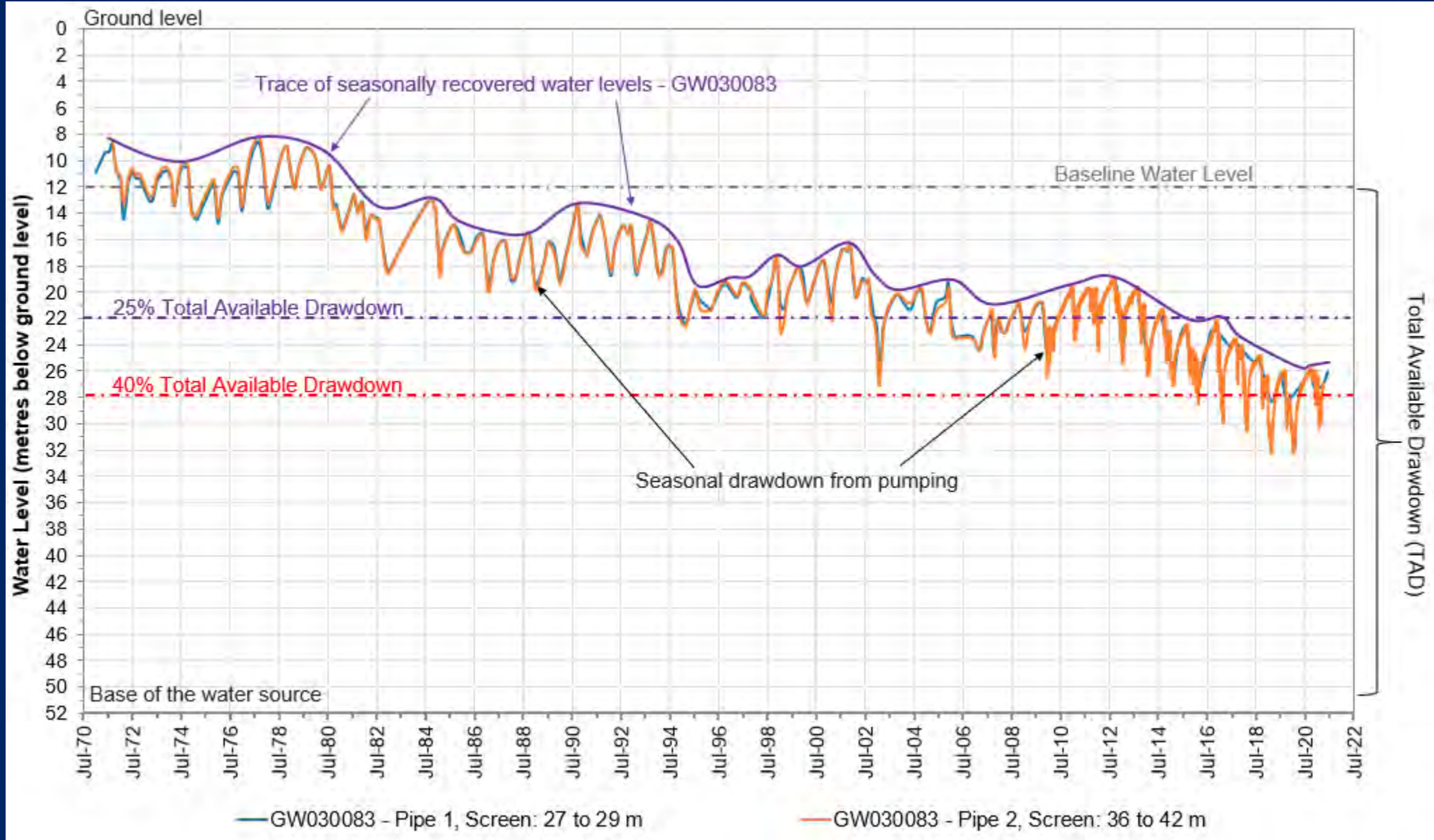
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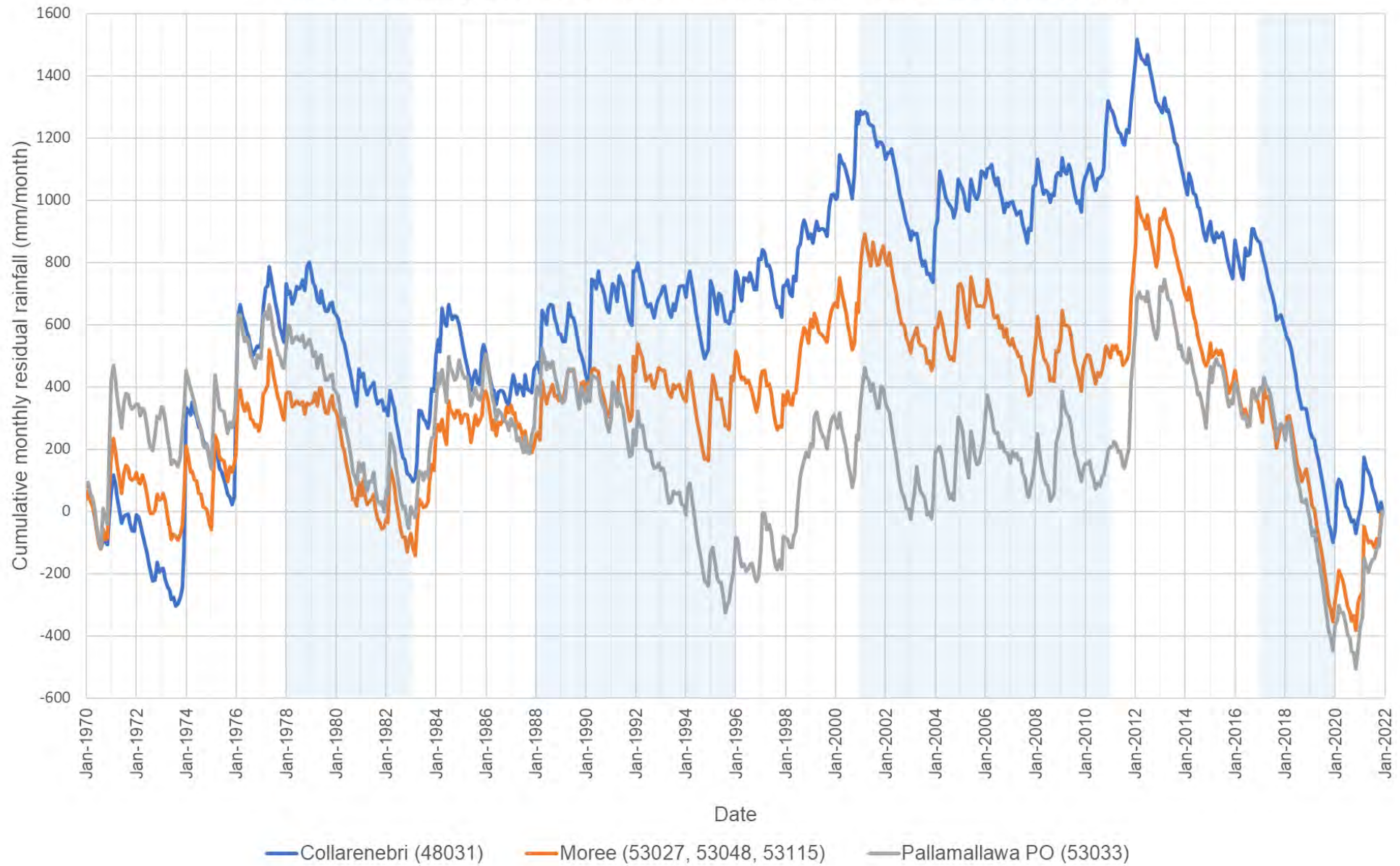
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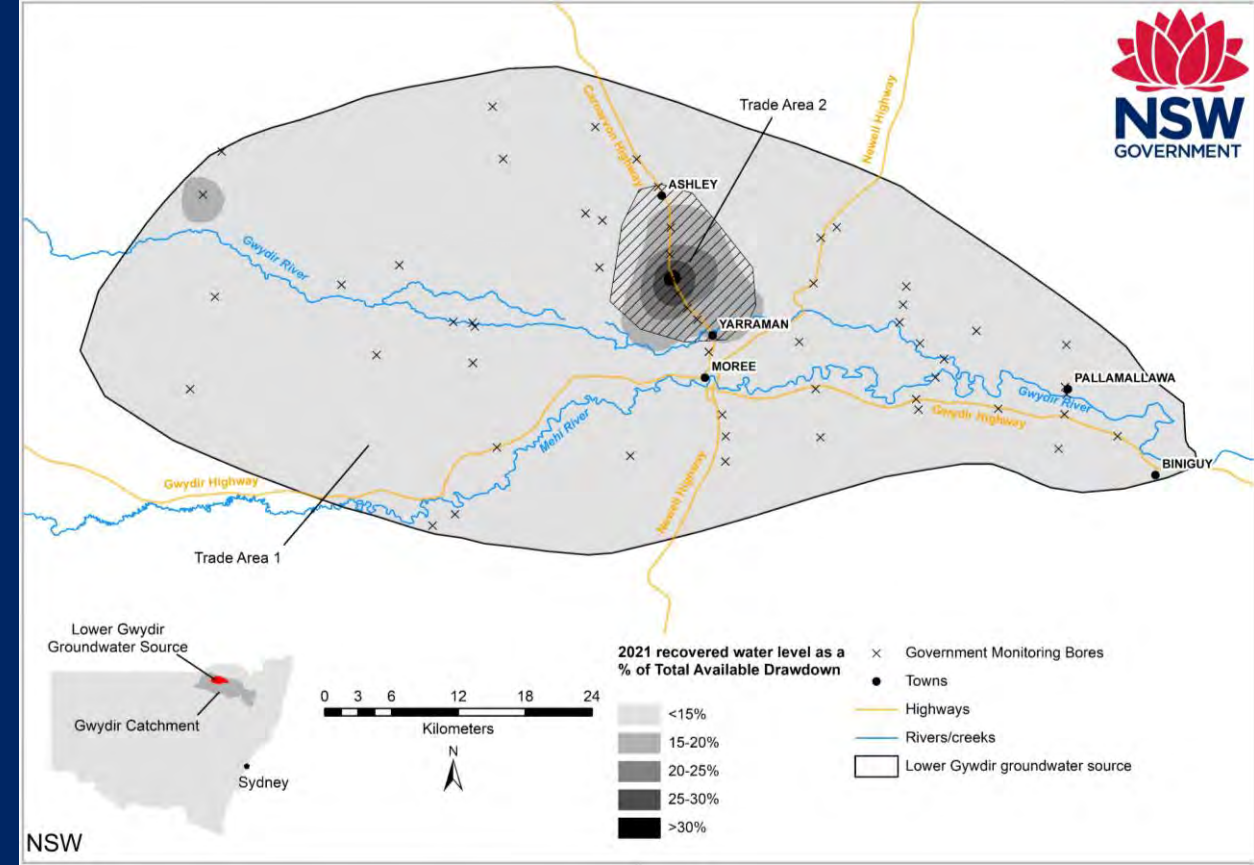
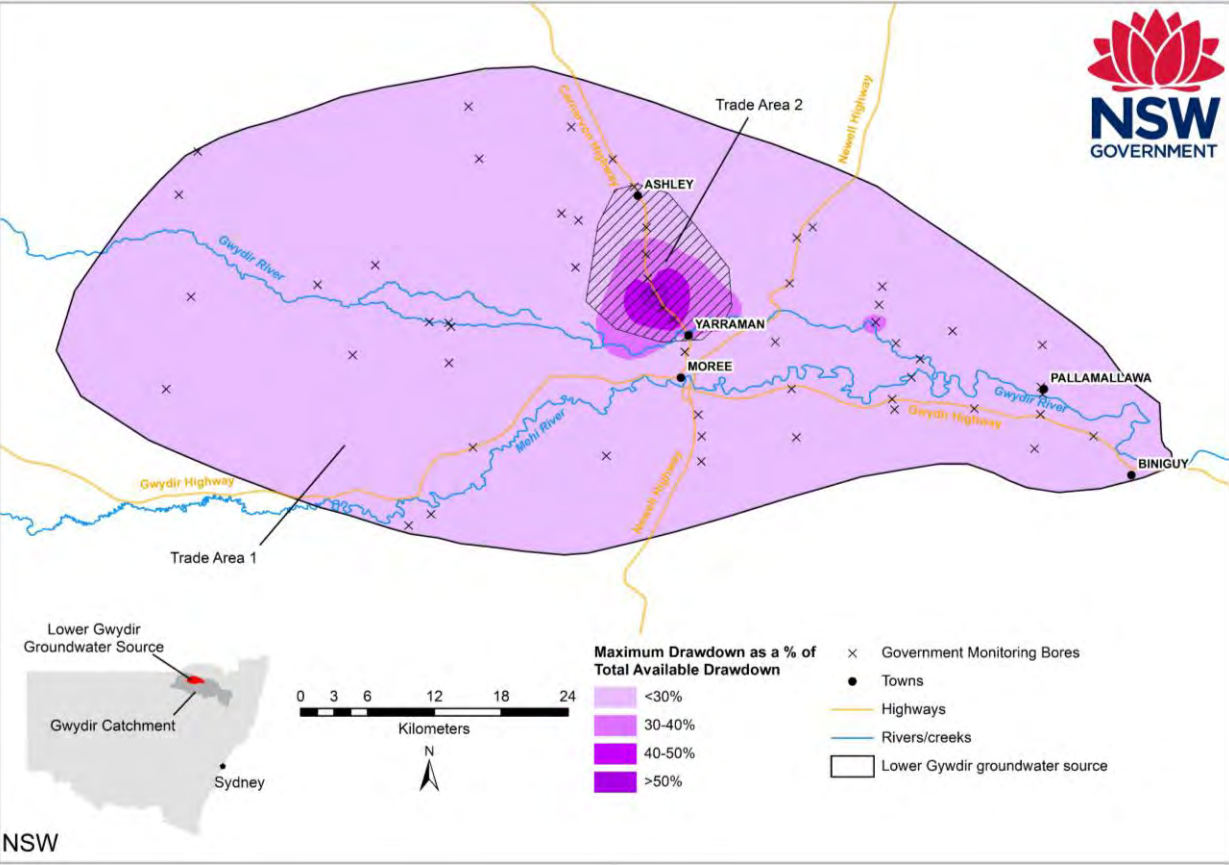


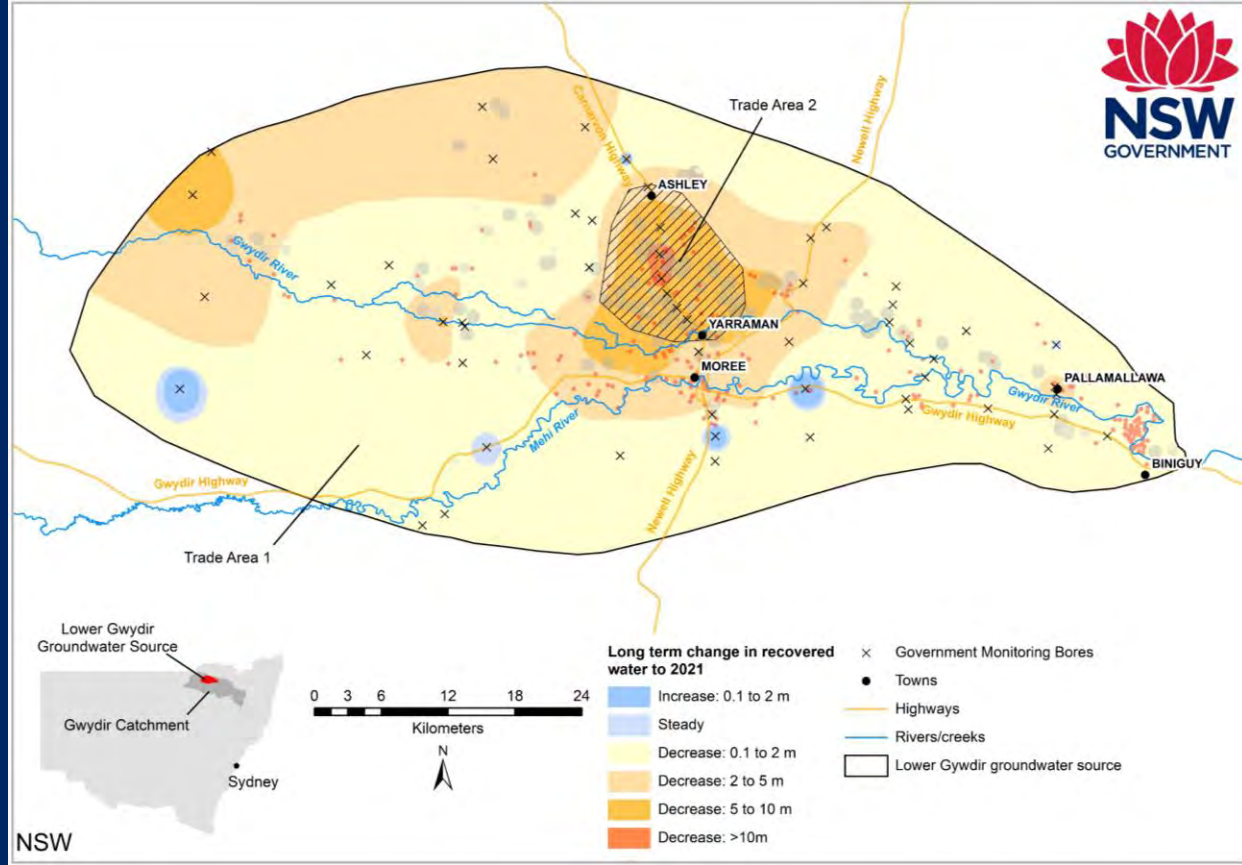
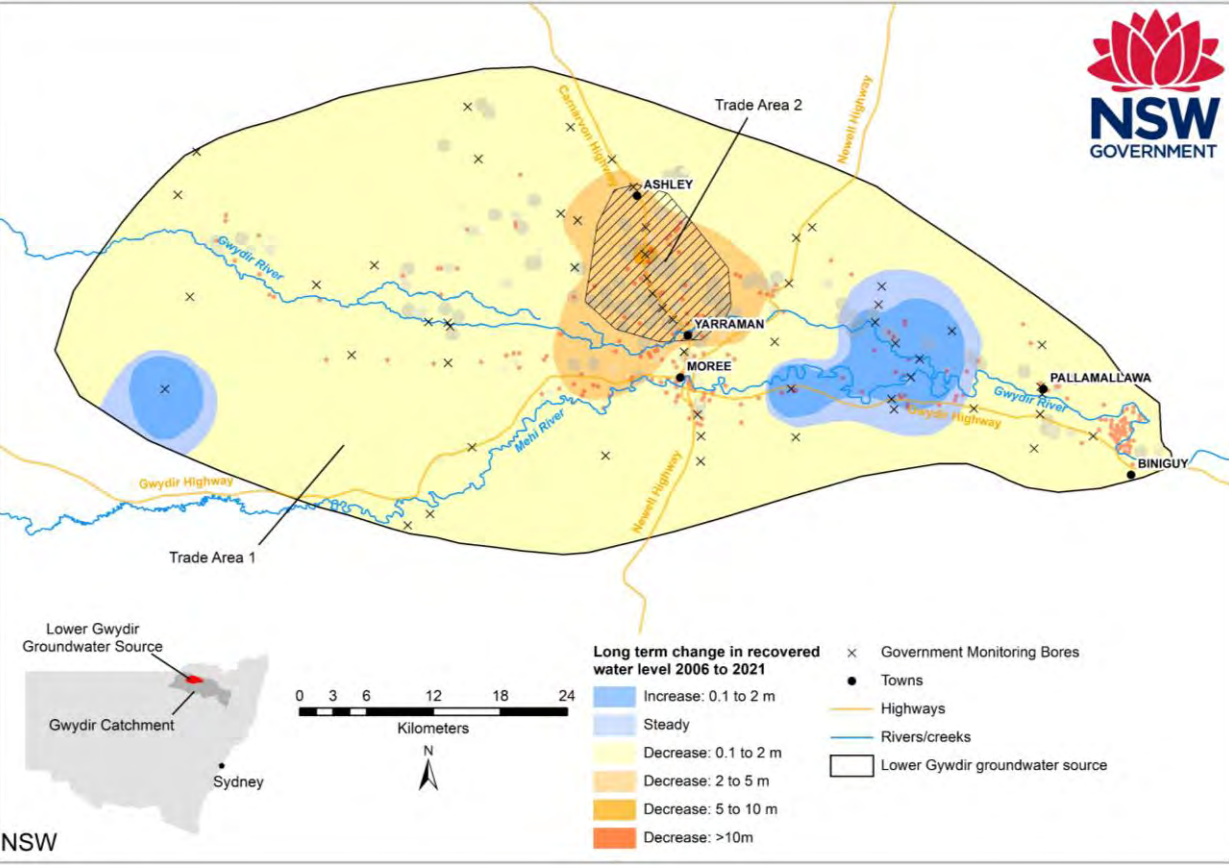
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Cumulative Monthly Residual Rainfall: Collarenebri, Moree, and Pallamallawa (BoM)

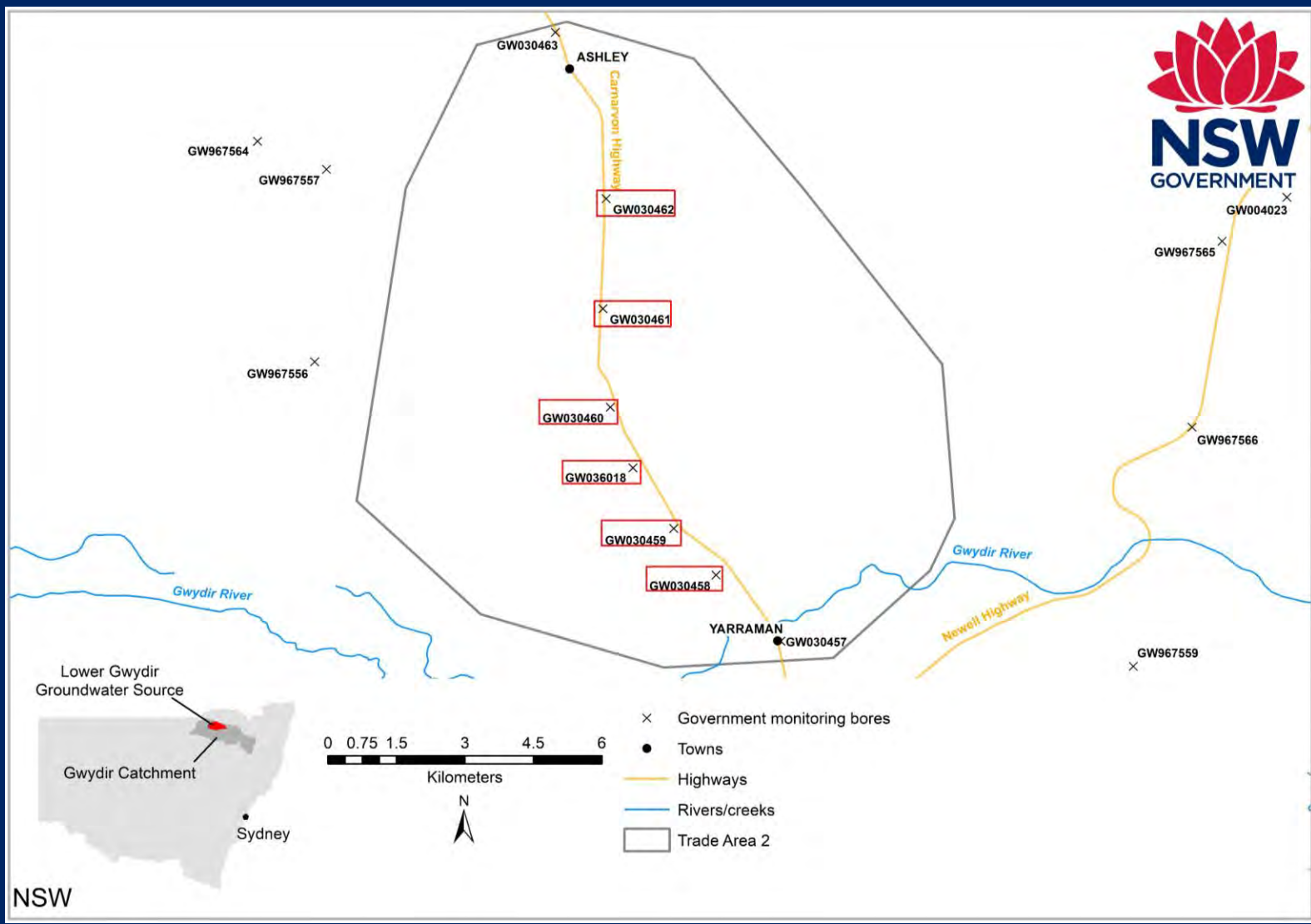




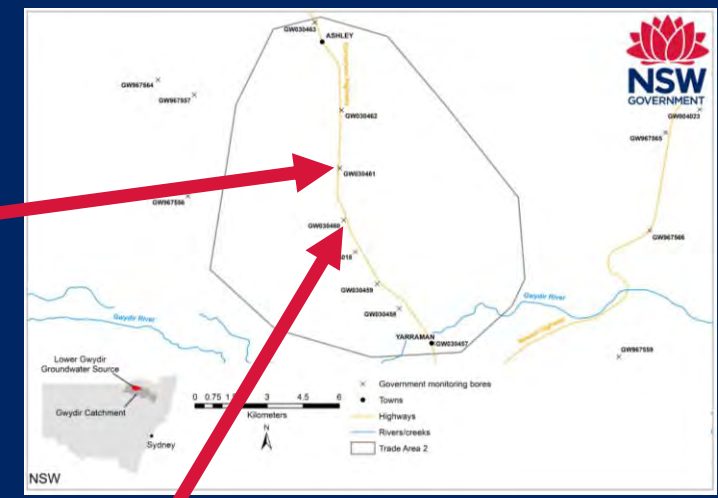
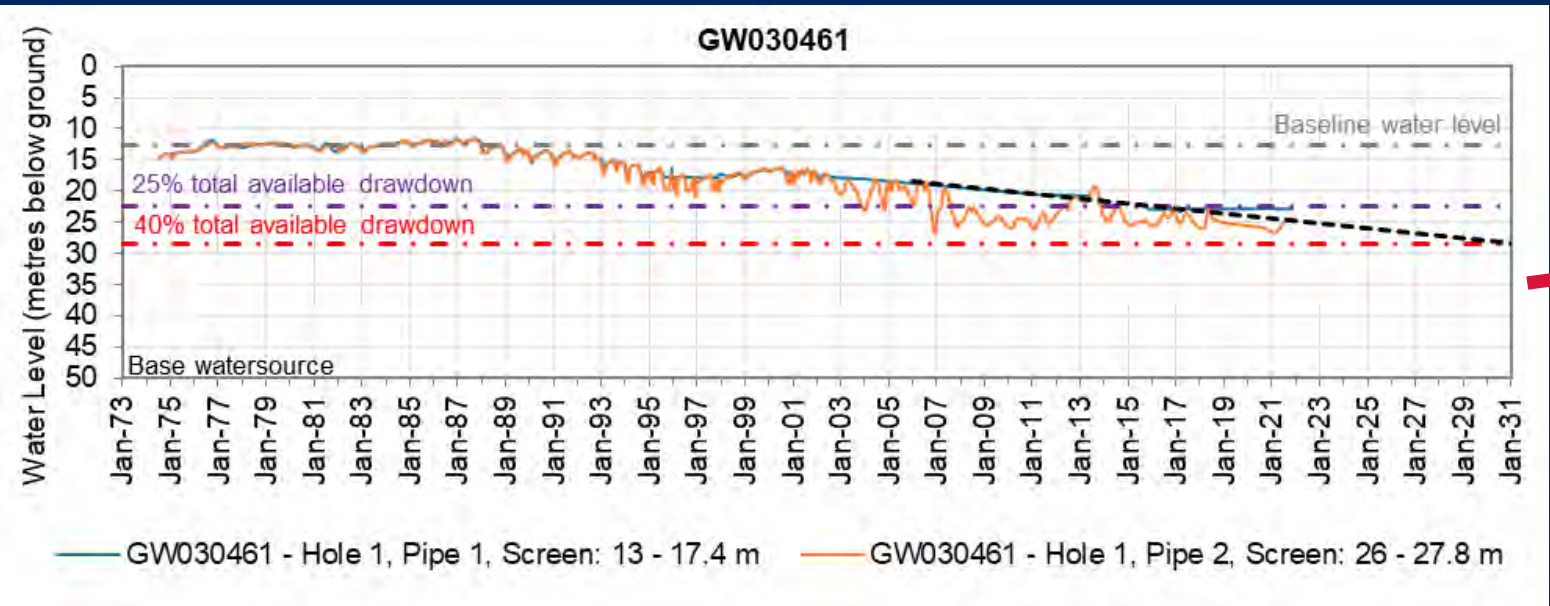




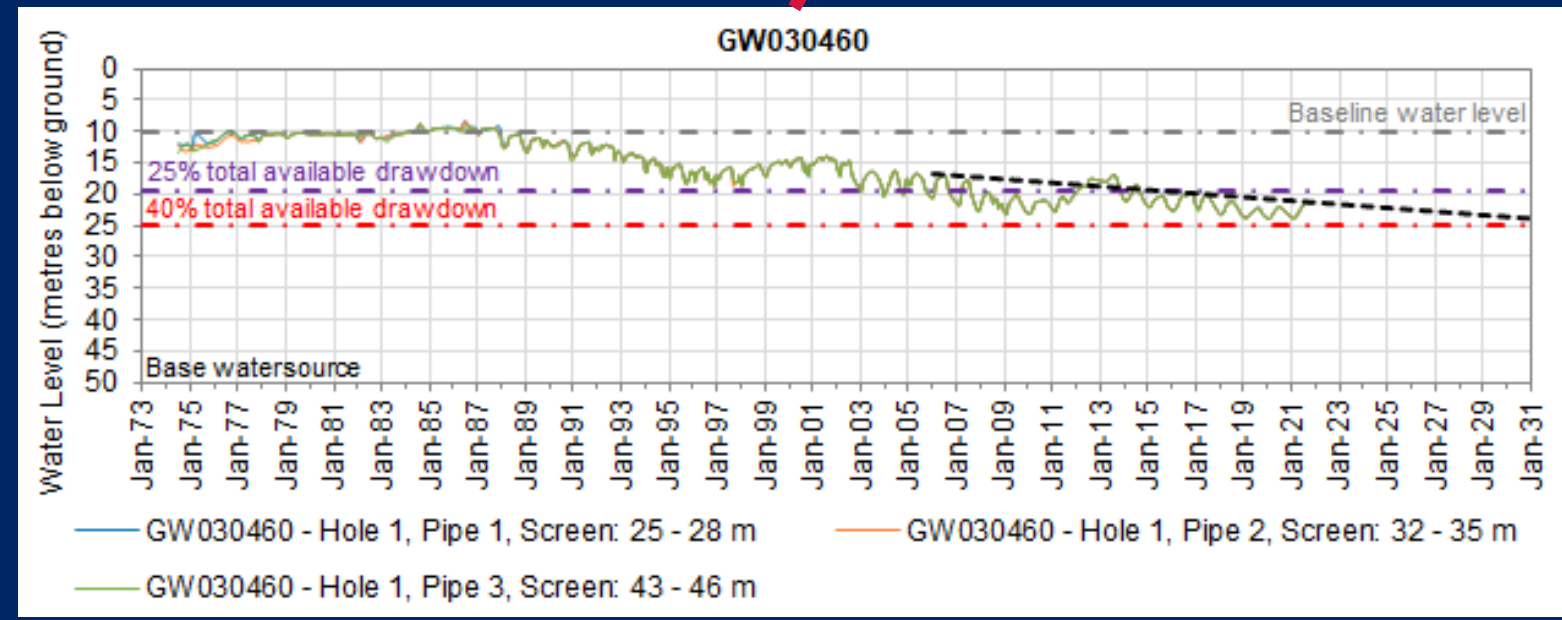
Trade Area 2

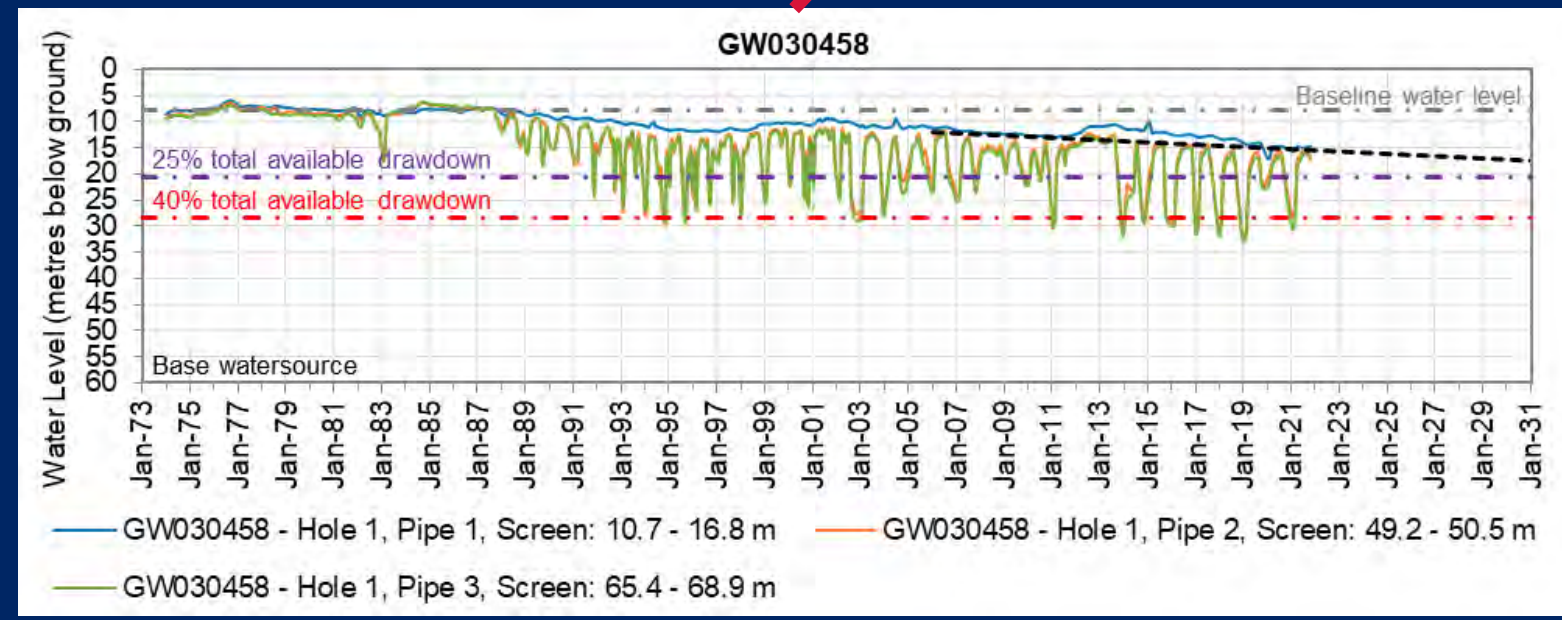
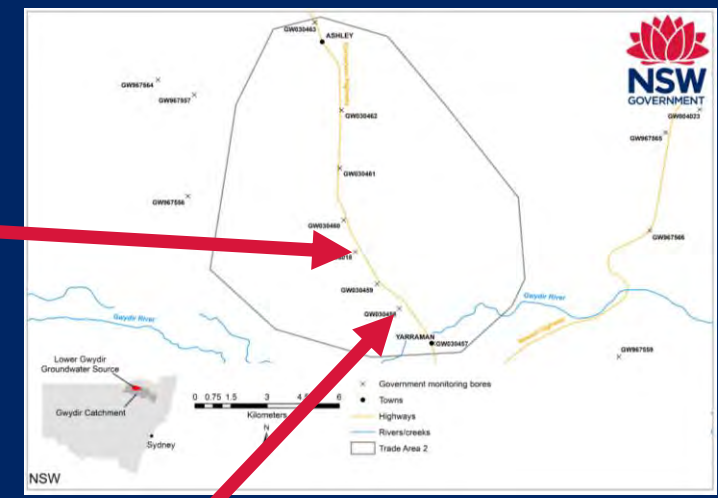
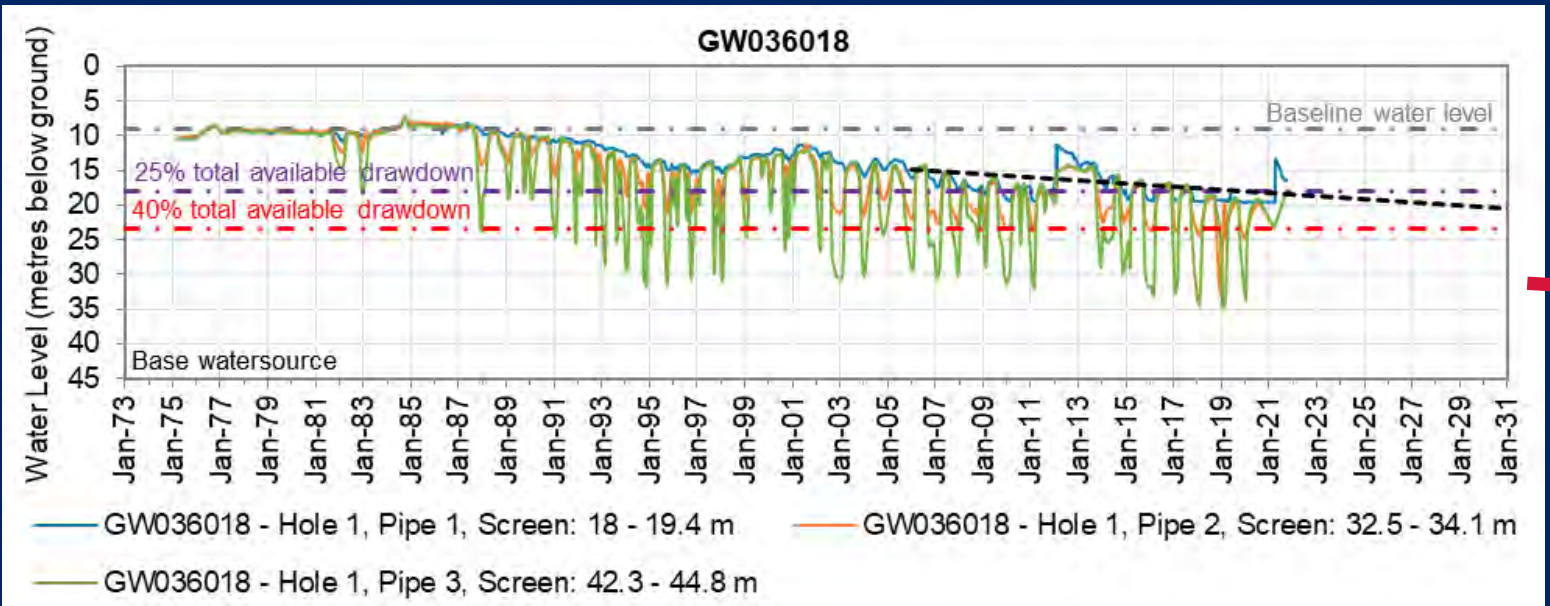


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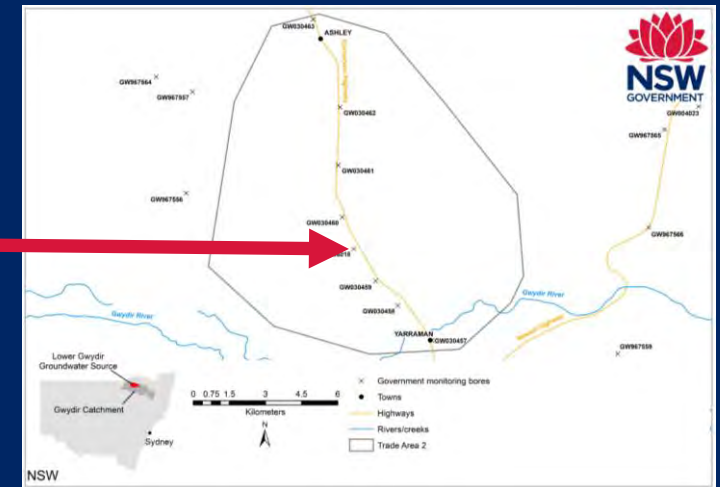
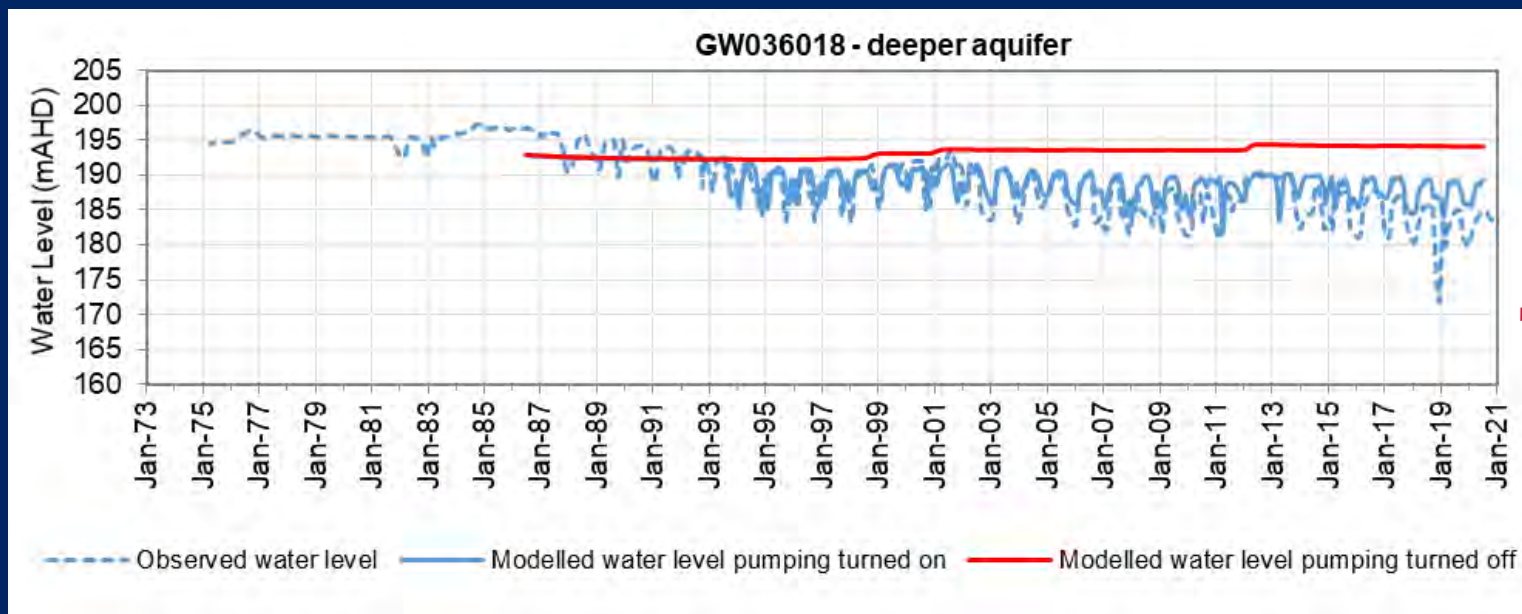
- Recovered water level currently below 25% baseline total available drawdown (TAD)
- Trend projections to potentially breach 40% baseline TAD within 10 years



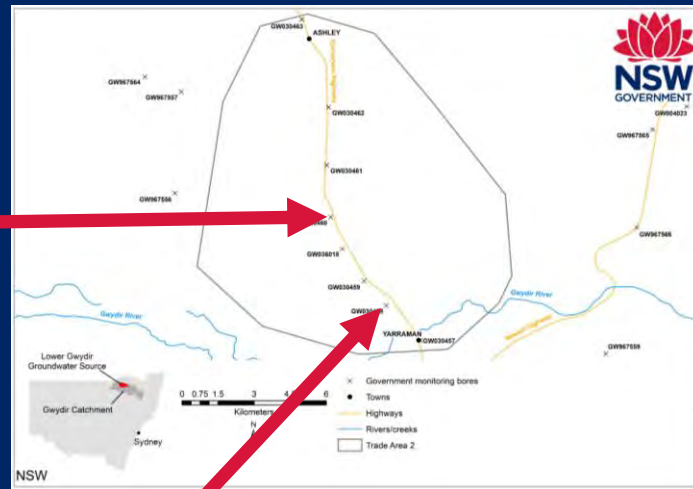
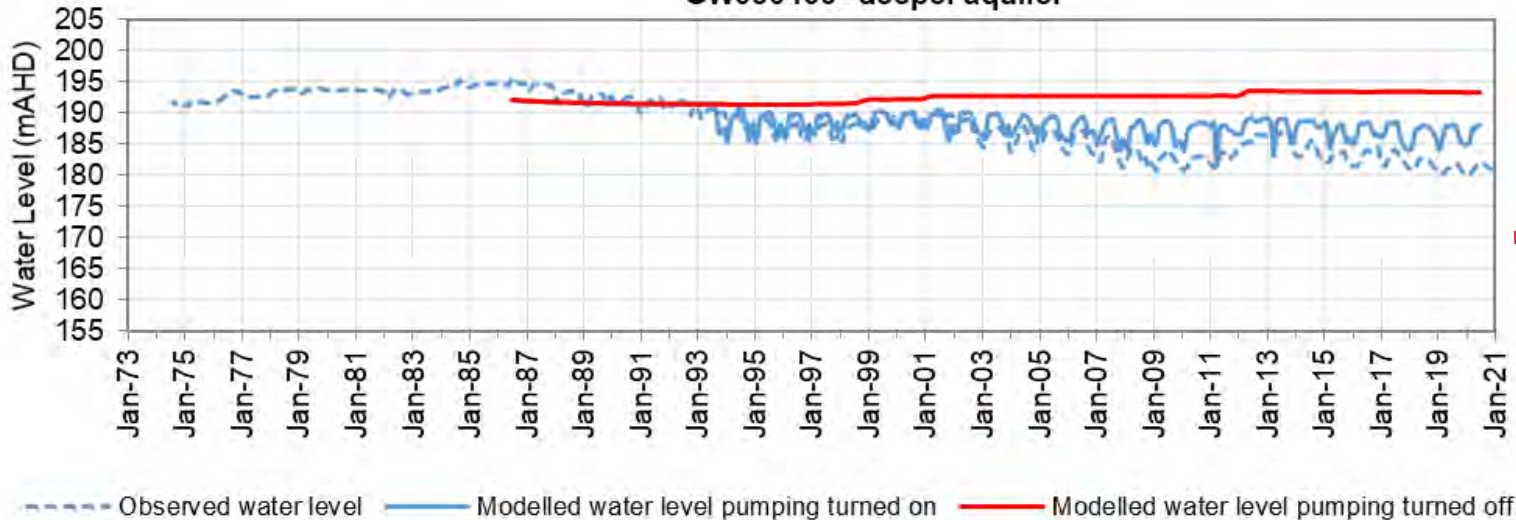


Model Scenarios

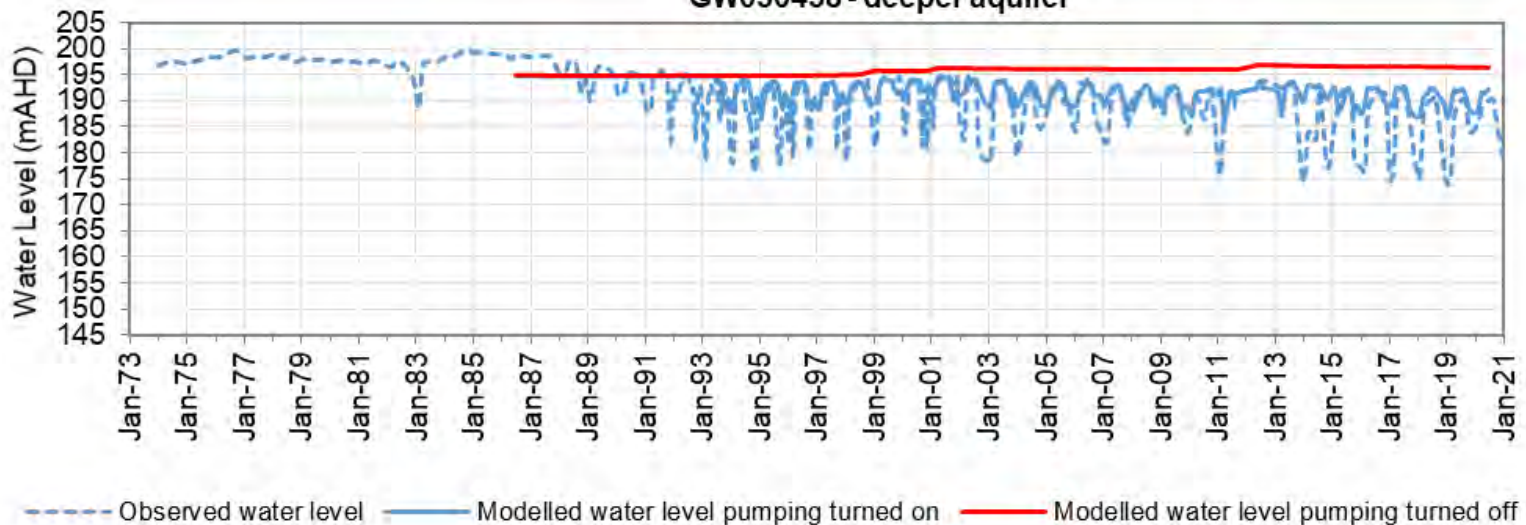
- Groundwater levels under historic extraction were compared to modelled predictions for the same period with no groundwater extraction



GW030460 - deeper aquifer



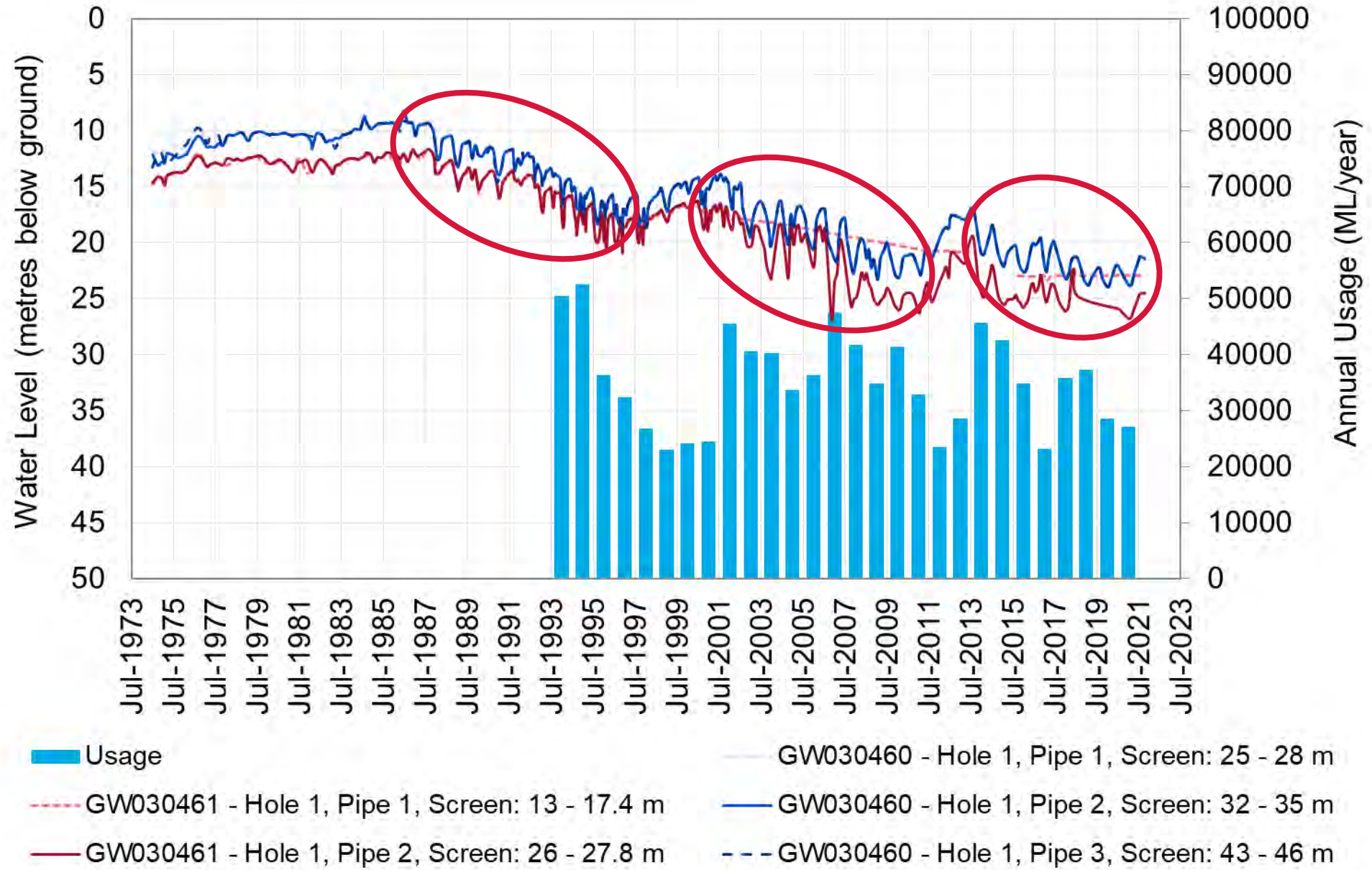
GW030458 - deeper aquifer

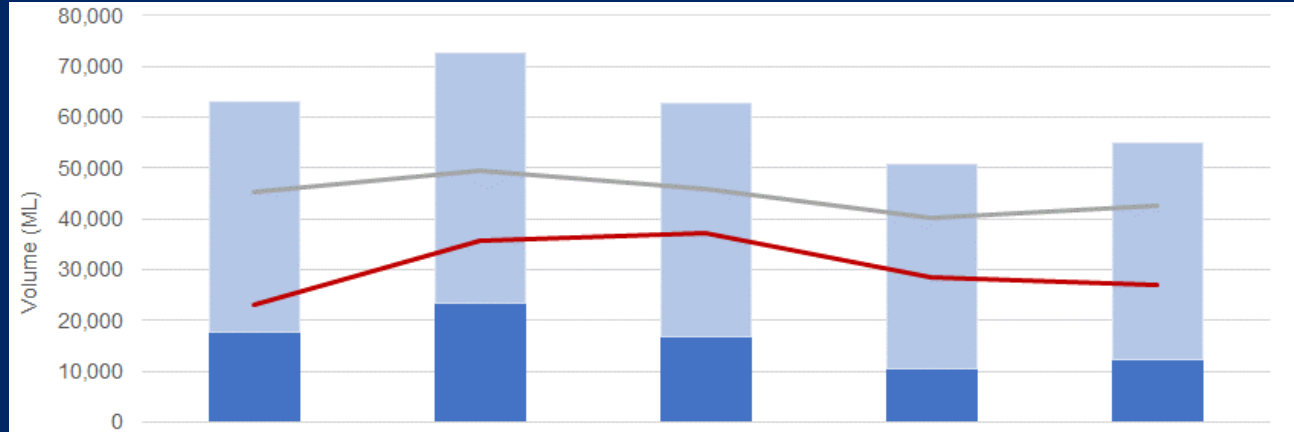


Summary - Water level review

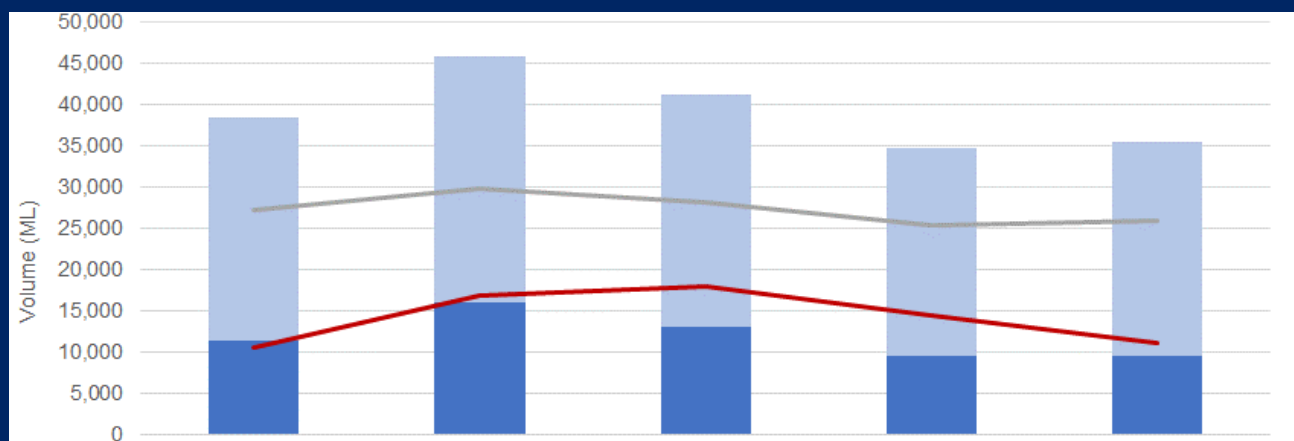
- Long-term overall decline in recovered water levels
- Recovered water level has dropped below the 25% total available drawdown threshold in Trade Area 2
- Modelling shows that the declining trend is mainly driven by groundwater extraction.

Water accounts and use review

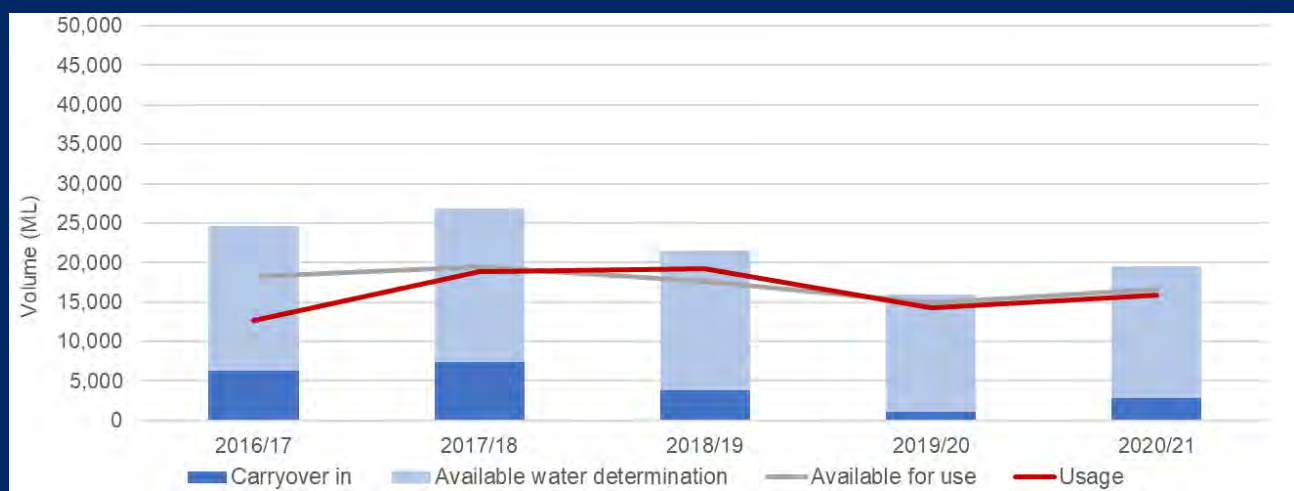




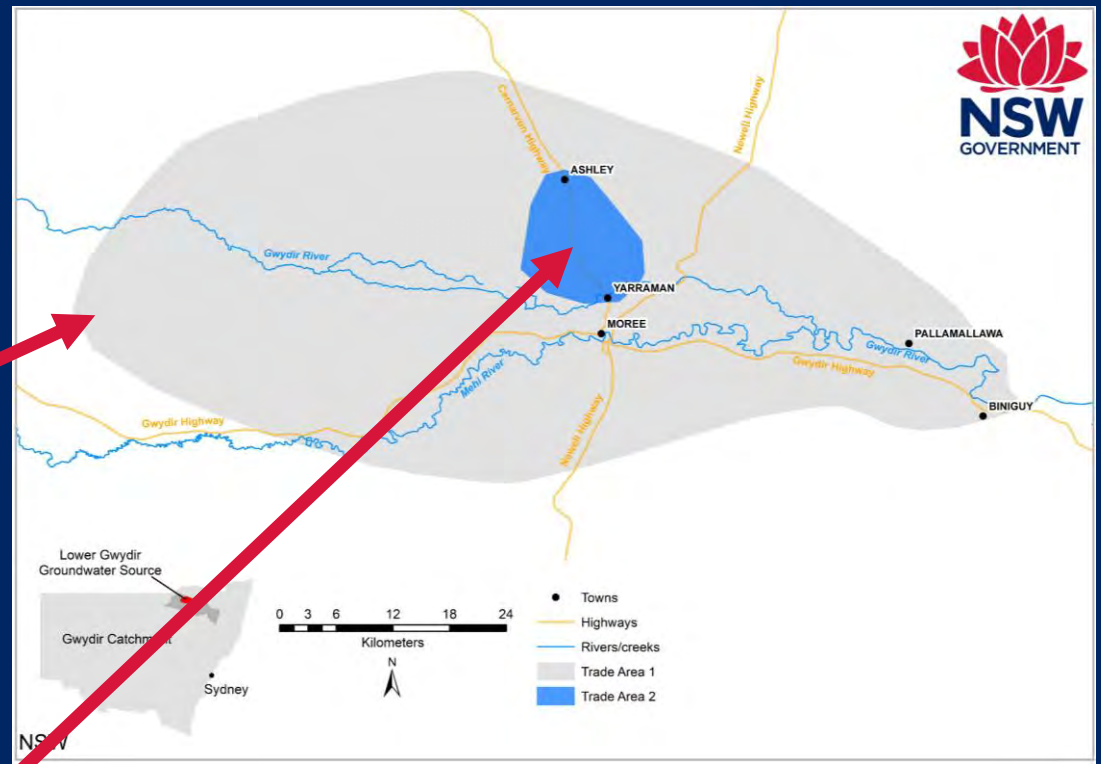
Whole of Lower Gwydir groundwater source



Trade Area 1



Trade Area 2



Account, trade, and usage statistics (annual average from 2016-17 to 2020-21)

	All Lower Gwydir	Trade Area 1	Trade Area 2
Total licences	164	139	25
Total shares	32,712	18,333	13,839
Average Extraction (ML/year)	30,382	14,192	16,190
No. licences who temporary trade IN	23	17	6
Average Volume traded IN (71T) ML	8,875	4,636	4,239
Average volume pumped from accounts that traded IN (ML)	20,626	7,993	12,633

Trade direction statistics (annual average from 2016-17 to 2020-21)

	Number of Trades	% Trades	Volume (ML)	% Volume
Trade Area 1 to Trade Area 1	36	57	4,166	47
Trade Area 2 to Trade Area 1	6	8.8	470	5.3
Trade Area 1 to Trade Area 2	18	29	3,567	40
Trade Area 2 to Trade Area 2	4	5.7	672	7.6

Summary - Water account and extraction review

- Average extraction exceeds the total allocated shares in Trade Area 2.
- Approximately 30% of temporary trading (71T Dealings) occurs from Trade Area 1 to Trade Area 2. This accounts for approximately 40% of the total volume traded
- Around 53% of total usage in the Lower Gwydir is from Trade Area 2.

Management discussion

Examples of local water level management tools applied in NSW

- Trade management areas:
 - Lower Murrumbidgee Deep Groundwater Source – local manage area under Section 71Z of the WMA 2000
 - Lower Namoi and Lower Gwydir groundwater sources – operational rules
- Cease to pump conditions set to trigger levels in monitoring bores
 - Lower Macquarie Zone 4
- Section 324 Order
 - Upper Lachlan Groundwater Source Management Zone 1 – order under Section 71Z and an order under Section 324 of the WMA 2000

Trade management rules

Current Lower Gwydir rules	State-wide rules
<p>Temporary trade (71T Dealing) is allowed:</p> <ul style="list-style-type: none"> • Into Trade Area 1, and • Into and within Trade Area 2, but take limit + temporary Dealings capped to past maximum history of use. 	<p>Temporary trade (71T Dealing)*</p> <p>Automatic approval where:</p> <ul style="list-style-type: none"> • There is an extraction limit condition on the linked approval that applies to all bores. <p>or</p> <ul style="list-style-type: none"> • The Access Licence is not linked to an Approval. <p>Where automatic approval does not apply:</p> <ul style="list-style-type: none"> • You can trade in (cumulatively) $\leq 50\%$ of buyers combined share component (capped at 1,000 ML). • Once this threshold is reached all trades require a simple impact assessment and may be approved, given a lesser volume or refused depending on the outcome of this assessment.
<p>All permanent type applications including new or additional bores and dealings (moving shares) require a full assessment.</p>	<p>*All permanent type applications including new or additional bores and dealings (moving shares) require a full assessment.</p>

* Local management areas apply in some groundwater source that restrict where water can be traded to and from.

Temporary Trade (71T Dealing) analysis

Trade Area 2: annual volume temporary traded into licences under current rules and if state-wide rules had of been applied

Year	Current Rules	State-wide Rules
2016/2017	1,978	1,800
2017/2018	4,434	2,778
2018/2019	5,407	3,240
2019/2020	4,474	3,185
2020/2021	4,647	3,431

Questions / Discussion
