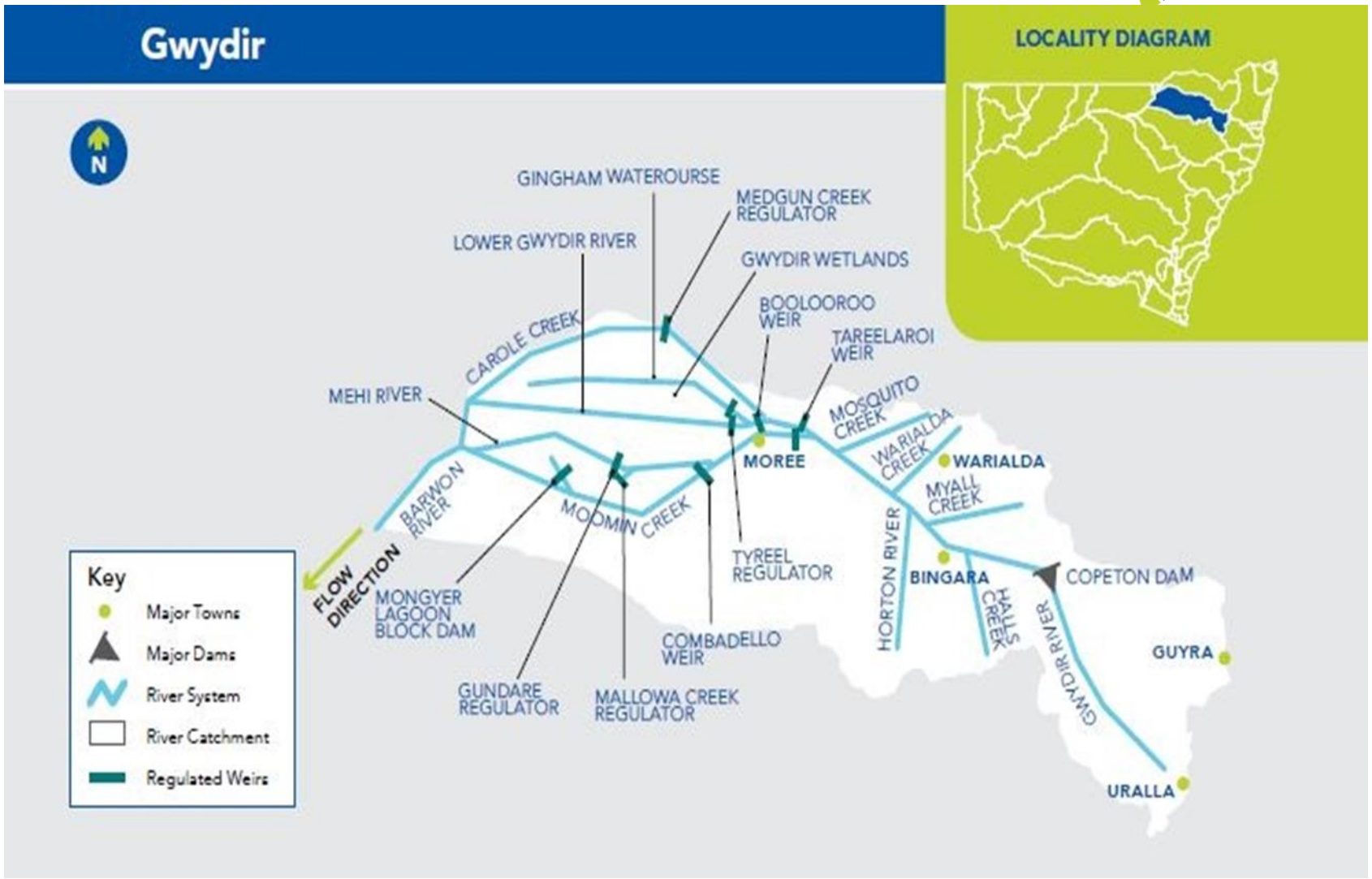
Gwydir ROSCCo

(River Operations Stakeholder Consultation Committee)

21 July 2020

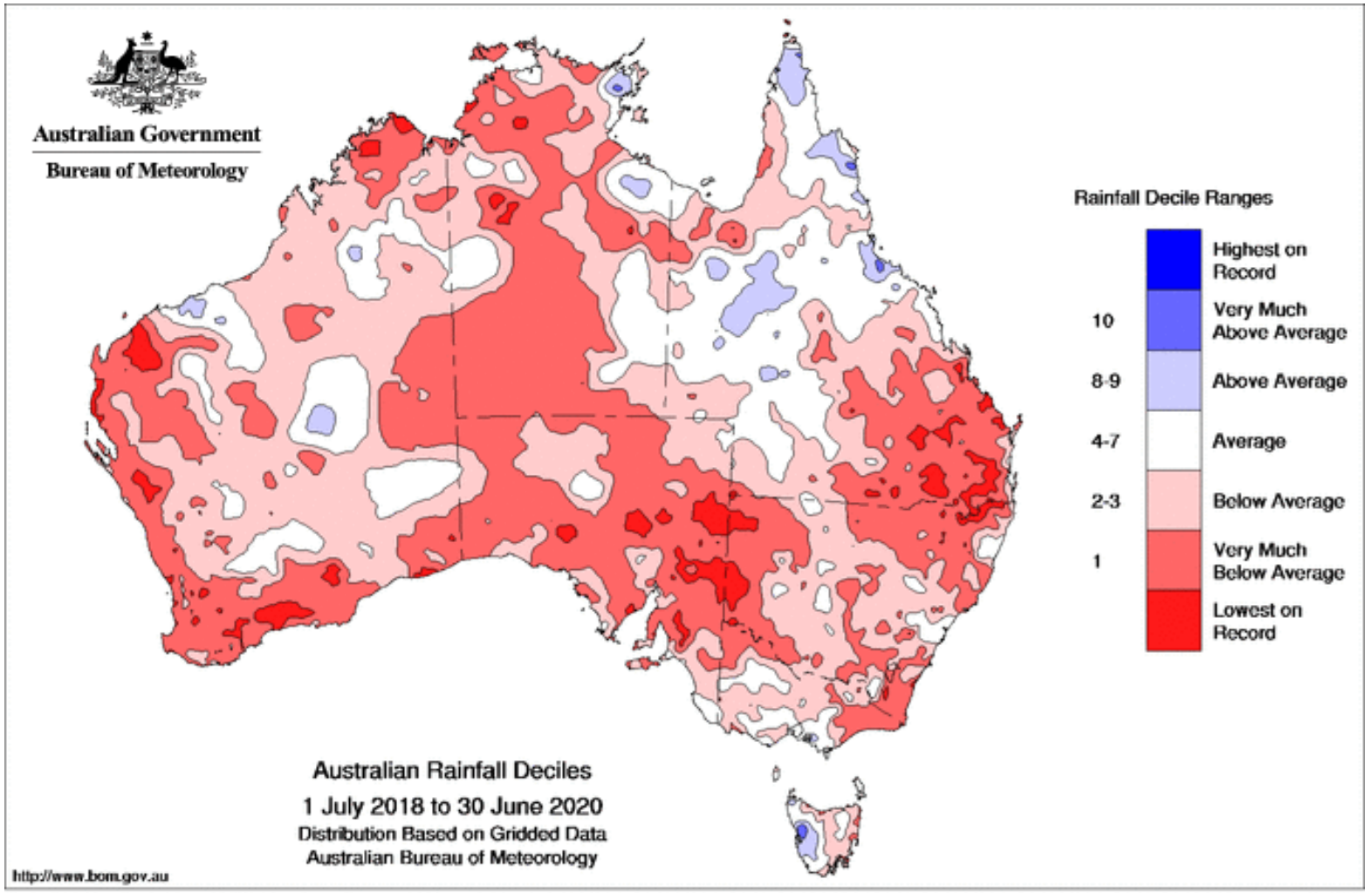
Gwydir Valley Map



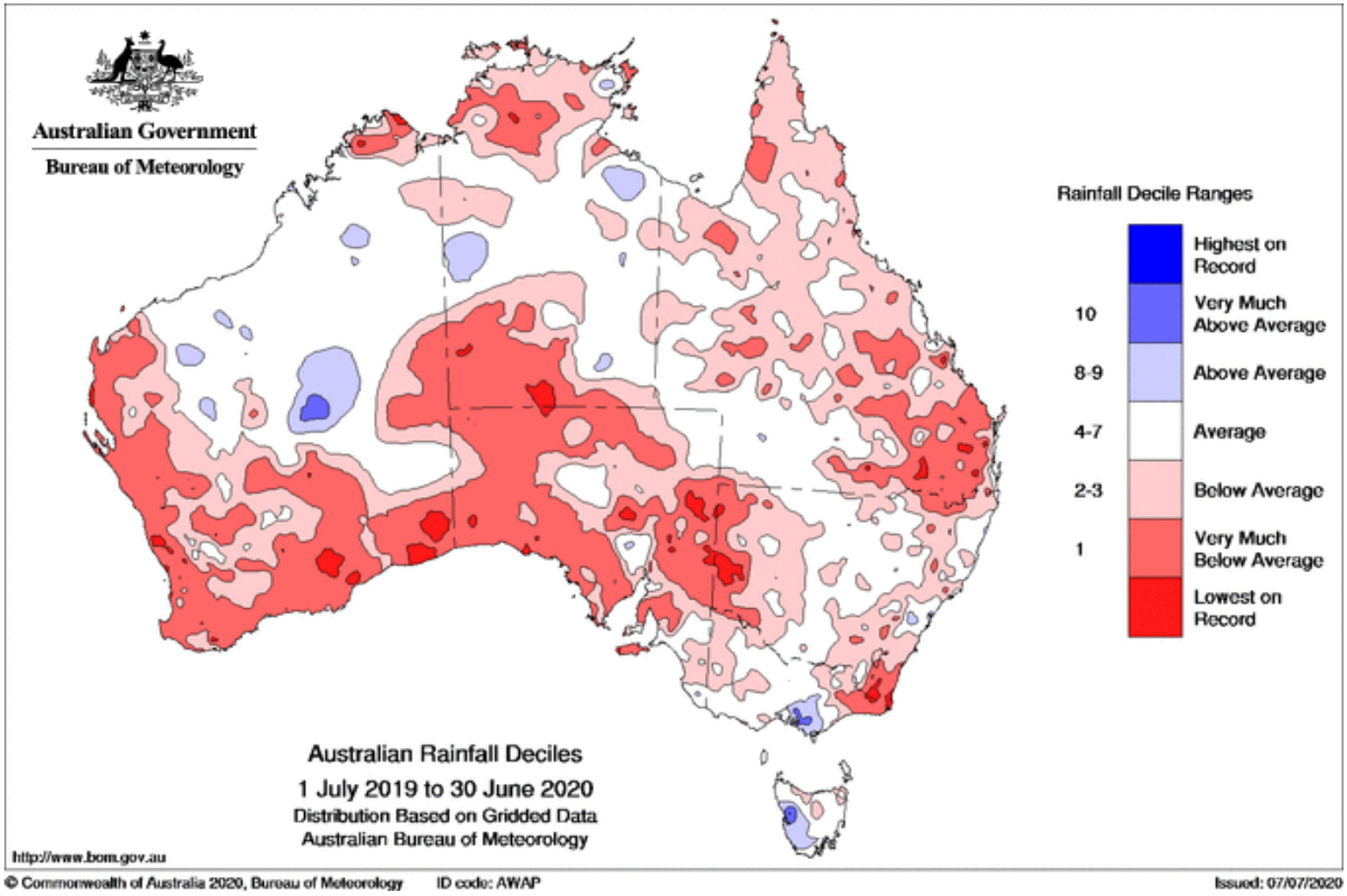
Part 1 - Overview of 2019/2020

- Rainfall and climate
- Allocations and Usage
- Restrictions
- Supplementary access
- 14 media releases relating to restrictions and extraction in northern valleys alone from 17 Jan to 25 Feb 2020
- https://www.waternsw.com.au/__data/assets/pdf_file/0008/145286/Operations-Update-Gwydir-1-July.pdf
- https://www.waternsw.com.au/about/newsroom/2020/324-temporary-pump-restrictions-for-northern-valleys

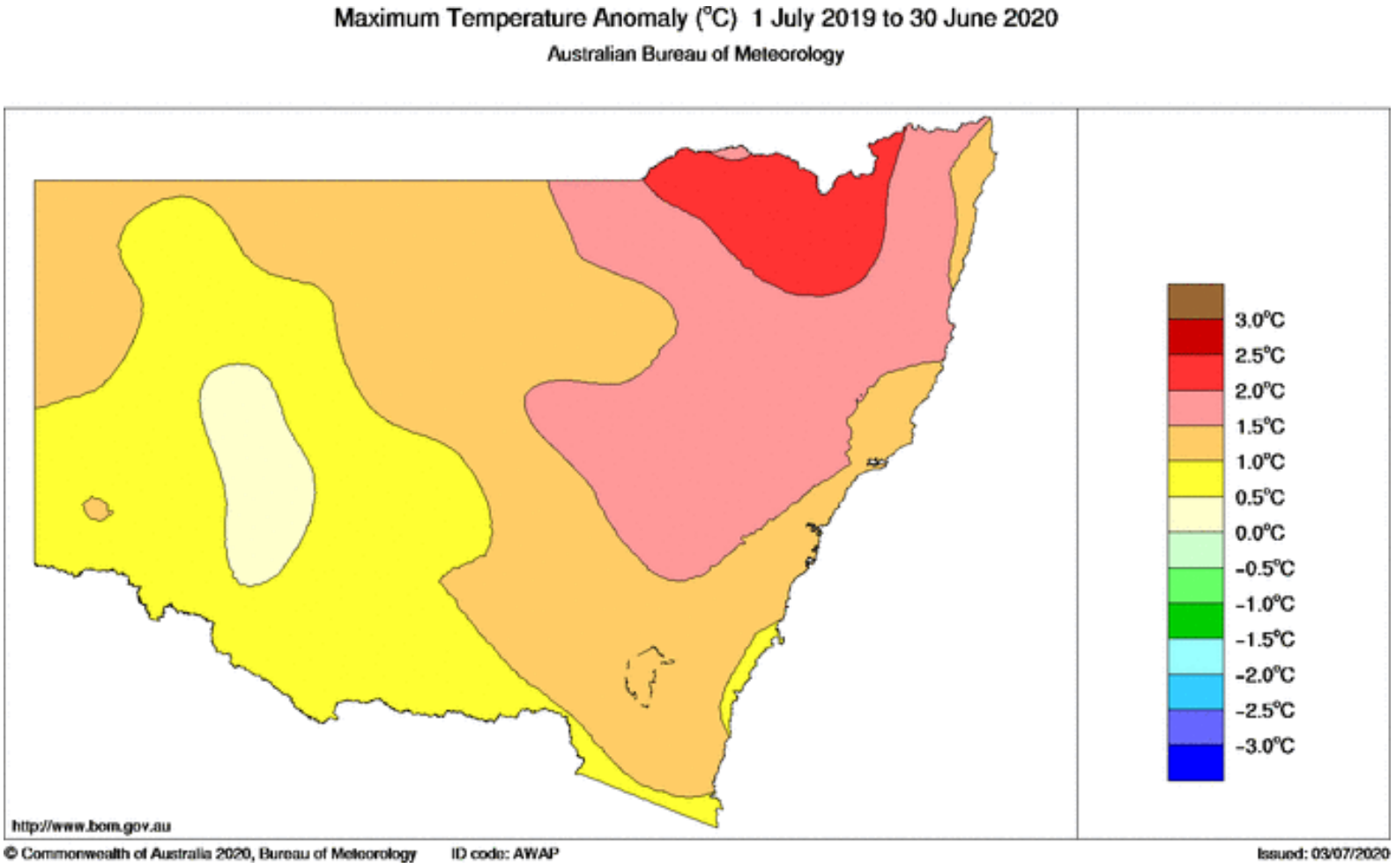
Rainfall – last 24 months



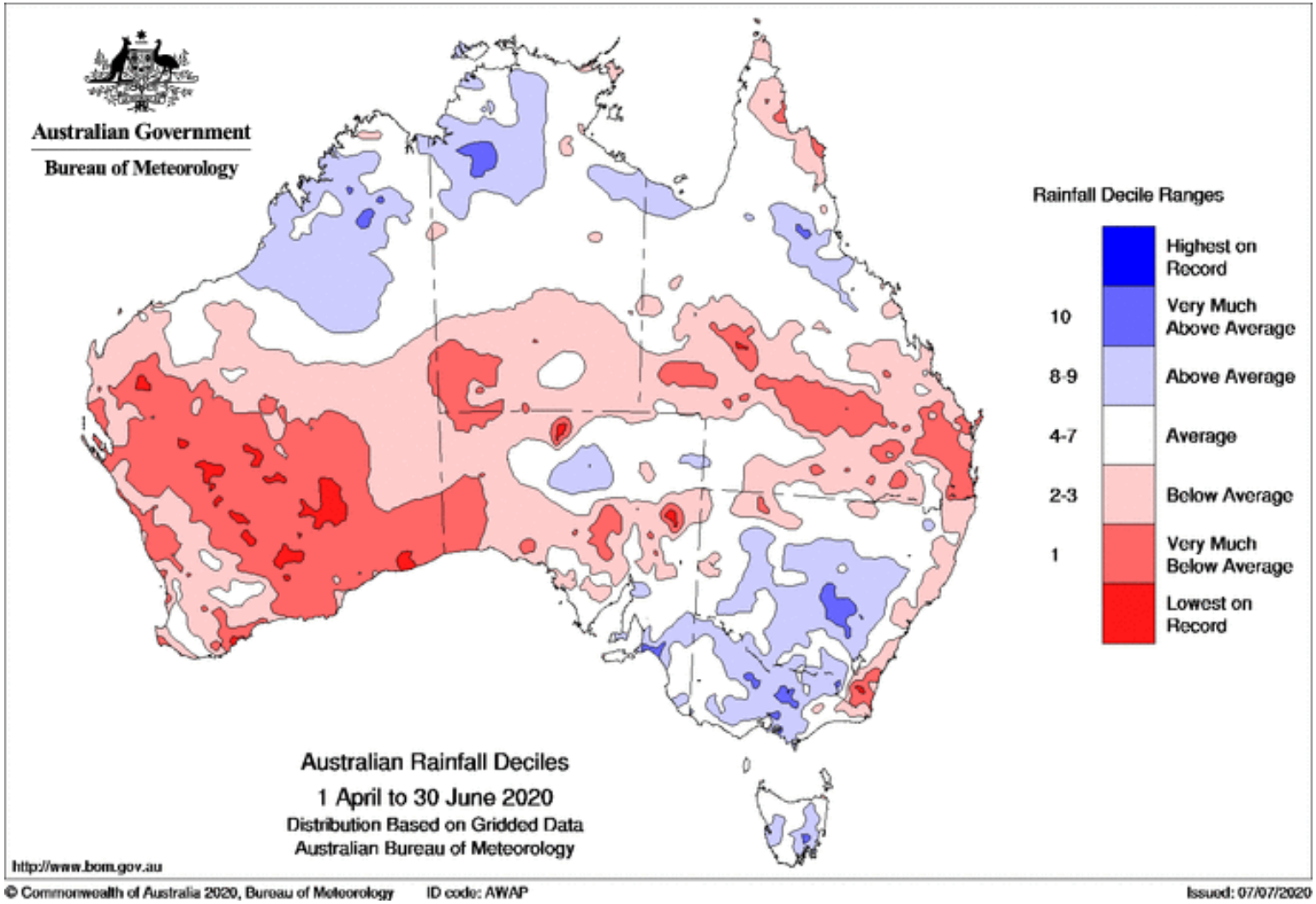
Rainfall – last 12 months



Temperature – last 12 months

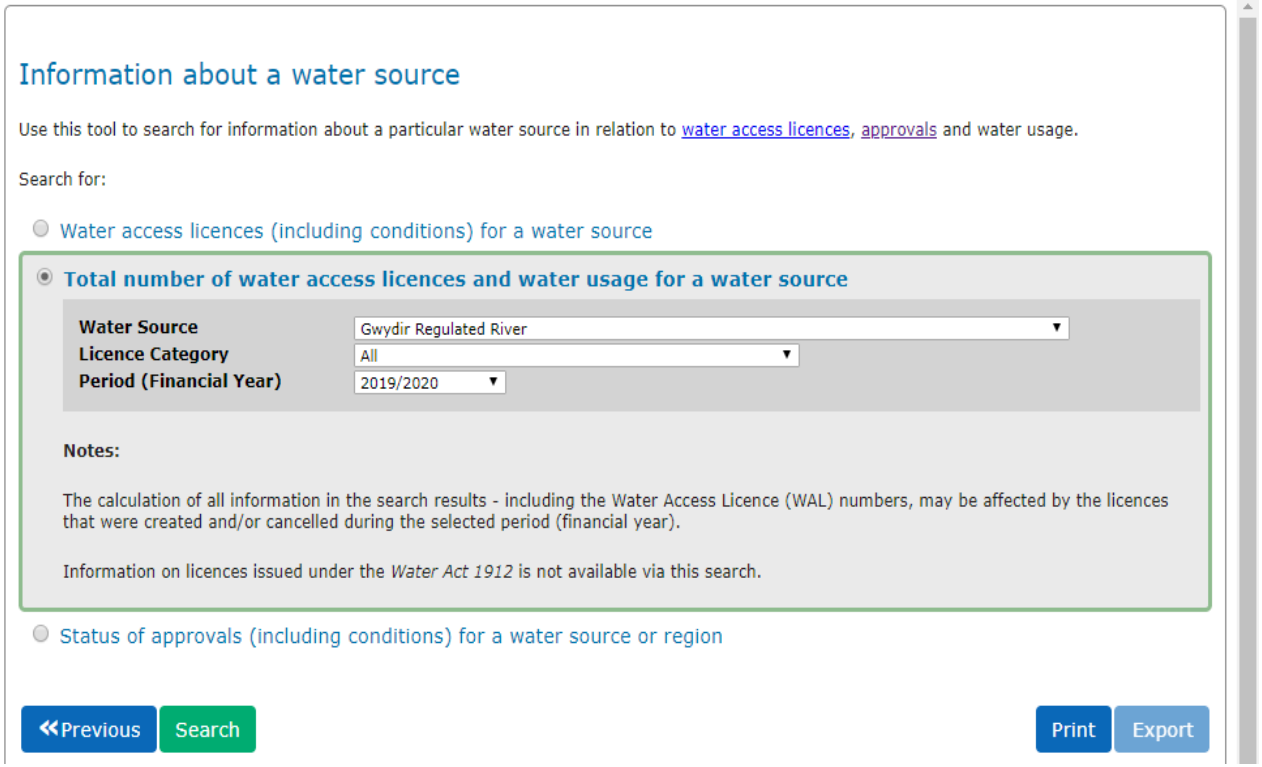


Rainfall – last 3 months



2019/20 Water Availability

NSW Water Register



https://waterregister.waternsw.com.au/water-register-frame

2019/20 Water Availability

Search Results

Access Licence Category	No. of WAL(s)	Total Share Component	Cumulative AWD	Cumulative AWD Unit	Share Component Unit	Water made Available (ML)	Usage YTD (ML)
DOMESTIC AND STOCK	69	2506	1	100	% of Share Component	2506	753.4
DOMESTIC AND STOCK [DOMESTIC]	4	88	1	100	% of Share Component	88	0
DOMESTIC AND STOCK [STOCK]	27	230	1	100	% of Share Component	230	33.6
LOCAL WATER UTILITY	4	3836	1	100	% of Share Component	3836	2440
REGULATED RIVER (GENERAL SECURITY)	173	509665	3	0.0217	ML per share	11059.8	6382.4
REGULATED RIVER (HIGH SECURITY)	20	20199.9	1	1	ML per share	20199.9	10615.4
REGULATED RIVER (HIGH SECURITY) [RESEARCH]	1	60	1	100	% of Share Component	60	0
SUPPLEMENTARY WATER	156	181397.509997	1	1	ML per share	181397.8	19558.5

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Privacy: The information provided is limited to meet the requirements of section 57 of the *Privacy and Personal Information Act 1998*.

Exporting and printing: Search results show a maximum of 50 rows per page. Search results can only be printed page by page.

More information: Should you require further information or technical assistance, please submit your request to water.enquiries@waternsw.com.au or contact 1300 662 077

Northern Basin First Flush Event

- The 2020 Northern Basin First Flush Event:
  - Followed an extensive period of hot and dry conditions with record low rainfall and record low inflows
  - Included significant inflows from across the Northern Basin including the Border, Moonie, Gwydir, Namoi, Culgoa, Bokhara, Macquarie, Bogan and Warrego systems.
  - Involved a large number of Temporary Water Restrictions being placed on extractions in the Northern Basin.
  - Raised issues regarding communication and decision making processes.
  - Resulted in the appointment of an Independent Panel to assess the management of the event
    - https://www.industry.nsw.gov.au/water/allocations-availability/northern-basin-first-flush-assessment
    - Terms of Reference, consultation, Water User Reference Group
    - Final report with recommendations – end of August 2020
  - Resulted in around 585 GL of inflow arriving into the Menindee Lakes system.

WaterNSW published regular Operations Updates throughout the event at https://www.waternsw.com.au/supply/regional-nsw/operations-updates

A draft report is available at https://www.industry.nsw.gov.au/water/allocations-availability/northern-basin-first-flush-assessment

A webinar will also be held by DPIE on Monday 27 July from 1:00 to 2:30pm. For details or to sign up use the above link.

Media releases

- 17 Jan - https://www.waternsw.com.au/about/newsroom/2020/324-temporary-pump-restrictions-for-northern-valleys
- 26 Jan - https://www.waternsw.com.au/about/newsroom/2020/pump-restrictions-lifted-for-peel-high-security-and-unregulated-use-on-mooki-and-quirindi-systems
- 31 Jan - https://www.waternsw.com.au/about/newsroom/2020/324-pump-restrictions-extended-for-northern-valleys
- 7 Feb - https://www.waternsw.com.au/about/newsroom/2020/temporary-rule-change-to-allow-some-stock-water-trade
- 7 Feb - https://www.waternsw.com.au/about/newsroom/2020/temporary-pump-restriction-on-floodplain-harvesting
- 10 Feb - https://www.waternsw.com.au/about/newsroom/2020/approval-to-take-under-temporary-water-restrictions-information
- 11 Feb - https://www.waternsw.com.au/about/newsroom/2020/approval-to-take-under-temporary-water-restrictions-11-february
- 11 Feb - https://www.waternsw.com.au/about/newsroom/2020/324-orders-on-floodplain-harvesting-in-the-northern-basin

Media releases

- 12 Feb - https://www.waternsw.com.au/about/newsroom/2020/amendment-to-temporary-pump-restriction-on-floodplain-harvesting
- 12 Feb - https://www.waternsw.com.au/about/newsroom/2020/temporary-water-restriction-northern-nsw-murray-darling-basin-yarraman-creek-12-february-2020
- 13 Feb - https://www.waternsw.com.au/about/newsroom/2020/temporary-water-restrictions-on-river-and-overland-flows-in-the-northern-basin
- 14 Feb - https://www.waternsw.com.au/about/newsroom/2020/324-pump-restrictions-extended-for-northern-valleys2
- 21 Feb - https://www.waternsw.com.au/about/newsroom/2020/barwon-darling-flows-a-blessing-for-towns,-farmers
- 25 Feb - https://www.waternsw.com.au/about/newsroom/2020/324-pump-restrictions-lifted-in-namoi,-border-rivers

Supplementary Access 19/20

5 Events

Event 1: 9 Feb to 26 Feb 2020 (access restricted by Embargo)

50% Consumptive share (info only)	**25400**
Volume Announced	**7200**
Total Supplementary extracted	**7199**
Over Pumping debited to other accounts	0
Total Pumping	7199
Percentage announced	14.17%
Percentage of total volume extracted	**14.17%**

Event 2: 27 Feb to 4 March (Gwydir)

50% Consumptive share	**889**
Volume Announced	**858**
Total Supplementary extracted	**858**
Over Pumping debited to other accounts	0
Total Pumping	858
Percentage announced	48.28%
Percentage of total volume extracted	**48.28%**

Supplementary Access 19/20

5 Events

Event 3: 27 Feb to 2 March (Moomin)

50% Consumptive share	**856**
Volume Announced	**826**
Total Supplementary extracted	**826**
Over Pumping debited to other accounts	0
Total Pumping	826
Percentage announced	48.28%
Percentage of total volume extracted	**48.25%**

Event 4: 6 March to 17 March 2020

50% Consumptive share	**6757**
Volume Announced	**6754**
Total Supplementary extracted	**6754**
Over Pumping debited to other accounts	0
Total Pumping	6754
Percentage announced	49.98%
Percentage of total volume extracted	**49.98%**

Supplementary Access 19/20

5 Events

Event 5: 6 April to 20 April 2020

50% Consumptive share	**4216**
Volume Announced	**4025**
Total Supplementary extracted	**3922**
Over Pumping debited to other accounts	0
Total Pumping	3922
Percentage announced	47.74%
Percentage of total volume extracted	**46.52%**

3 year rolling average

As at	16/07/2020				
Stream	Reach	3-Year Total	2020/2021	2019/2020	2018/2019
Gwydir	Copeton Dam to Tareelaroi Weir	16%		16%	
	Tareelaroi Weir to Boolooroo	16%		16%	
	Gwydir River Boolooroo Weir to Tyreel Weir	20%		20%	
	Tyrell Weir to Brageen Gauge	20%		20%	
	Brageen Gauge to Allambie Gauge	20%		20%	
	Alambie Gauge To past Millewa Gauge	20%		20%	
Mehi	Tareelaroi Weir to Combadello Weir	17%		17%	
	Mehi River Combadello Weir to Gundare Weir	5%		5%	
	Mehi River Gundare Weir to Ballinboora Gauge	0%		0%	
	Mehi River Ballinborra Gauge to Myambla Property	0%		0%	
Moomin	Moomin Creek Combadello Weir to Glendallo Gauge	10%		10%	
	Moomin Creek Glendallo Gauge to Clarendon Bridge Gauge	8%		8%	
	Moomin Creek Clarendon Bridge Gauge to Alma Gauge	8%		8%	
	Moomin Creek Alma Gauge to Iffley Weir	8%		8%	
	Iffley Weir to Inglewood Property	8%		8%	
Carole Gil-Gil	Carole Creek Boolooroo Weir to Midkin Gauge	7%		7%	
	Carole Creek Midkin Gauge to Garah Gauge	7%		7%	
	Garah Gauge to Medgun Property	10%		10%	
	Strathgule Property to Gil Gil Junction	10%		10%	
	Gil Gil junction to Weemelah	10%		10%	
	Weemelah to past Cleveland Property	16%		16%	

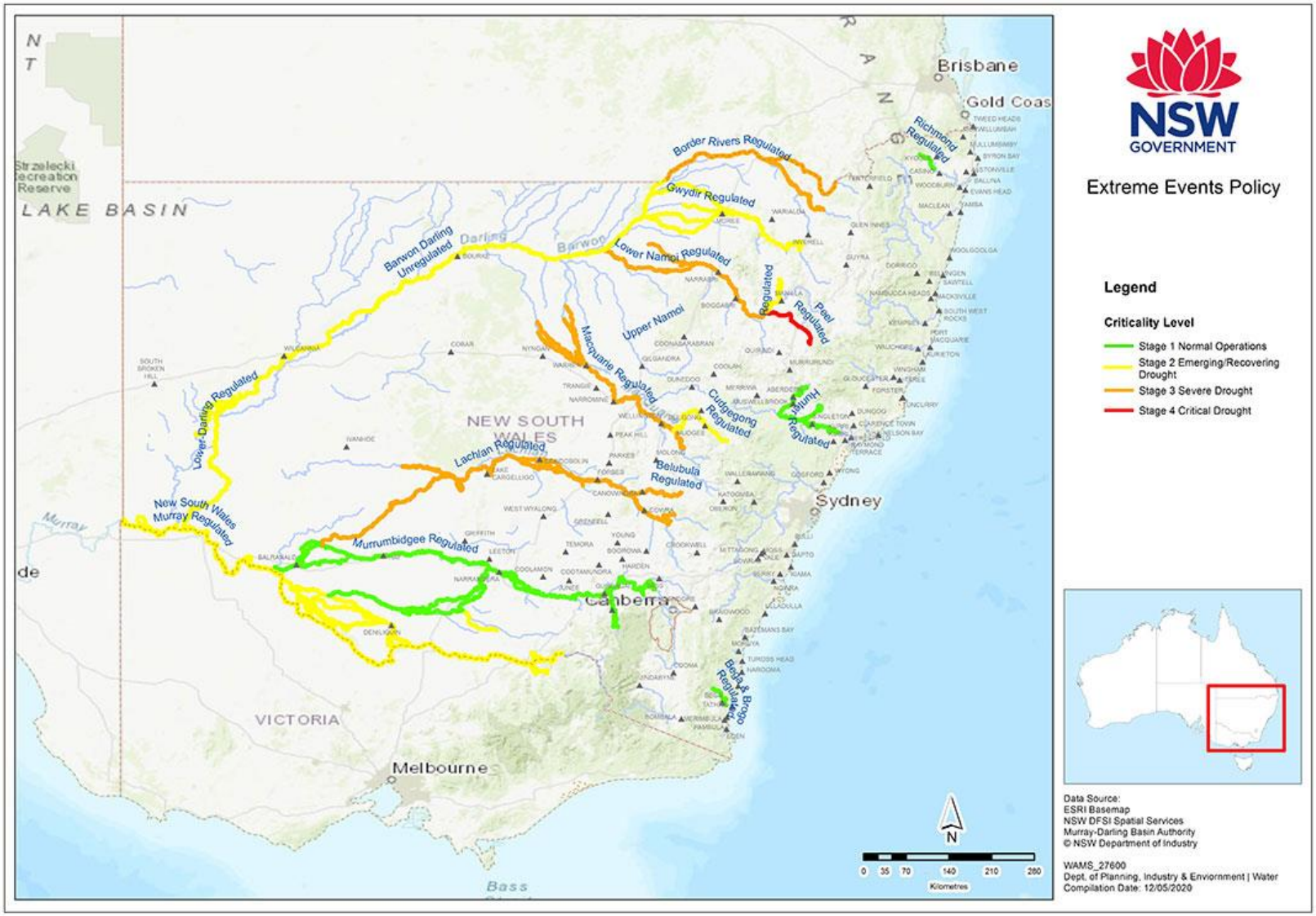
Part 2 - Current Situation

- Drought Update
- Drought Map
- Gwydir Valley Inflows
- WNSW Water Insights Portal

Table 2 Determining the stage of criticality for water quantity extreme events

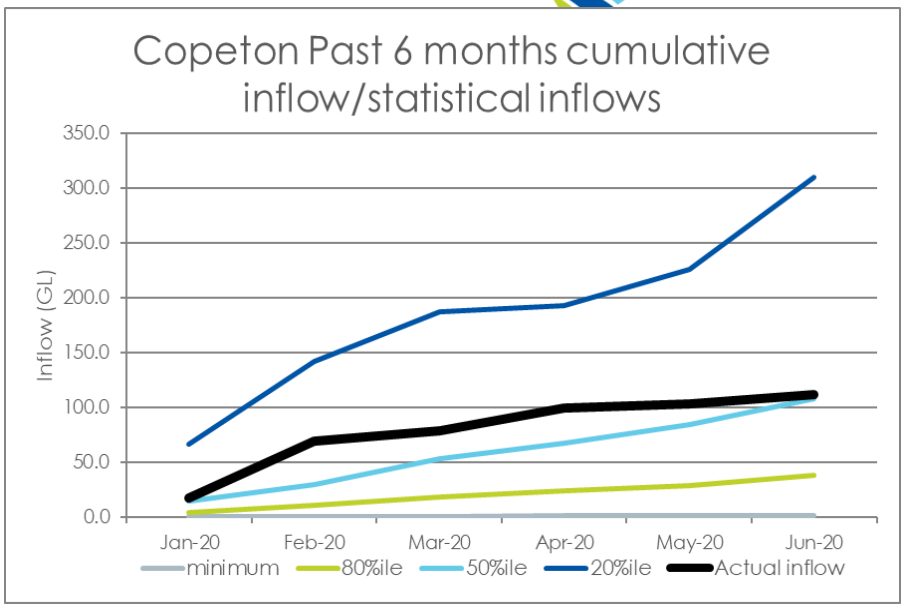
Criticality	Evidence base for surface water	Evidence base for groundwater	Broad intent of measures
Stage 1 Normal management 	Can deliver all account water under normal river operations practices.	Groundwater levels remain within acceptable ranges, with annual recovery as expected given rainfall/recharge events	Provide certainty for water use planning. Long term water security and emergency/drought contingency planning
Stage 2 Emerging drought/water shortage 	Unable to deliver 100% of high priority account water **and** maximum expected use of general security under normal river operations practices.	Unacceptable groundwater level and or pressure declines potentially or actually impacting on groundwater availability to high priority GDEs, BLRs and/or LWUs Drawdown to levels that could lead to aquifer subsidence	Operational measures in the current water year to reduce transmission losses and prevent potential future failure to supply water in accounts (surface water). Limit potential impacts in local areas via dealings restrictions and potential local area access restrictions (groundwater) Drought response readiness (LWUs)
Stage 3 Severe drought/water shortage 	Only able to deliver restricted high priority demands **and** restricted remaining general security account water.	Continuing unacceptable groundwater level or pressure declines Unacceptable drawdown impacts on 'efficiently constructed' BLR bores (i.e. levels below the pump or deeper than the bore) Evidence of aquifer compaction	Restricting access to account water, restricting trade, and suspending some WSP rules in addition to increased operational measures to prevent potential future failure to supply water in accounts (surface water). Restrict access from bores in all affected areas. Drought management/restrictions (LWUs).
Stage 4 Critical drought/water shortage 	Only able to deliver restricted town water supply, stock and domestic and other restricted high priority demands.	Water level declines pose a risk to long term availability of the groundwater resources - subsidence, and/or mobilisation and induced flow of poorer water quality Access by 'efficiently constructed' BLR bores significantly impacted	Suspension of some WSP rules. Severe restrictions required to prioritise remaining supplies for critical human water needs (surface water and groundwater). Avoidance of permanent damage to aquifers (compaction or salinization) Emergency drought management measures/restrictions (LWUs).

Regional drought map

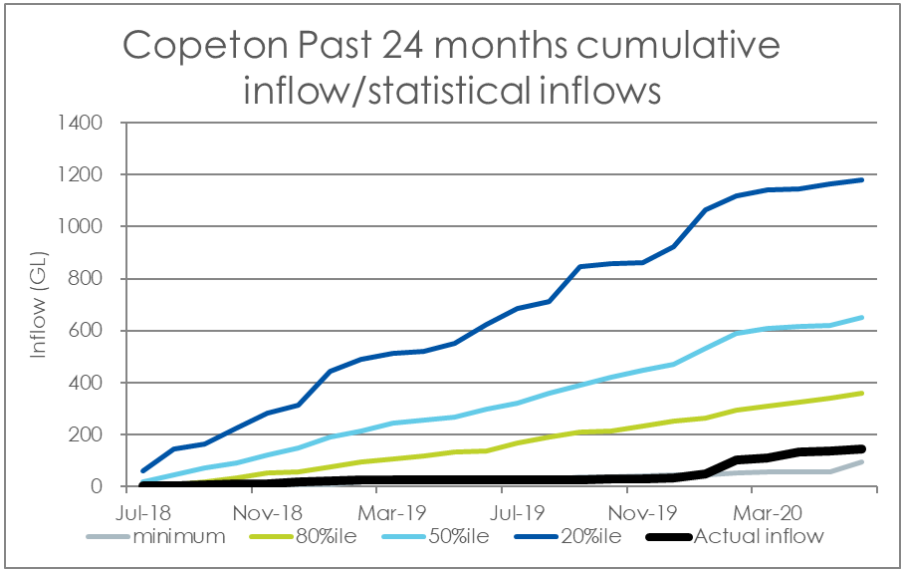


Gwydir Valley Inflows

- Copeton Dam inflows since Jan 2020 to end June 2020 have been 112GL
- Just above 50th%ile of 108GL
- Downstream tributary flows for this period have been approximately 90GL

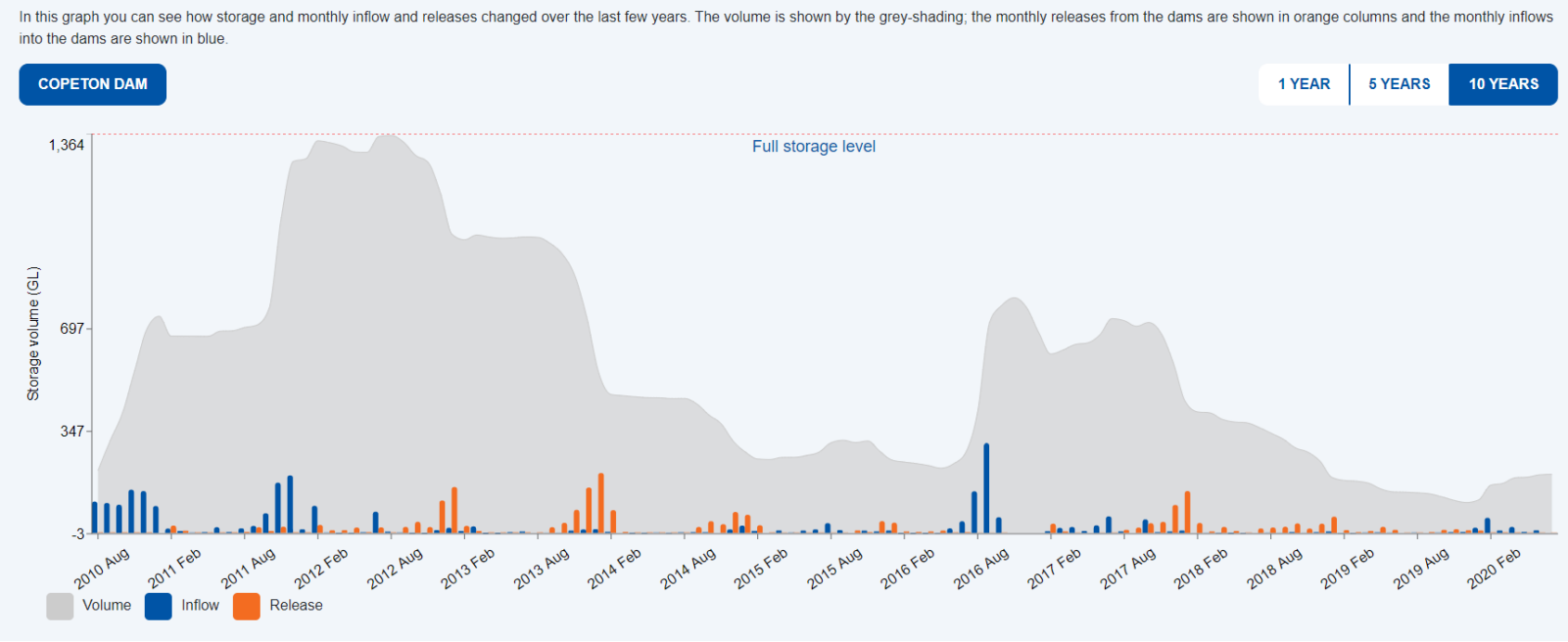


- Copeton Dam inflows since July 2018 to end June 2020 have been 145GL just above minimum of 97GL (95th%ile is 215GL)
- Downstream tributary flow for the 24 months period has been approximately 92GL (note 90GL was in the past 6 months alone!)

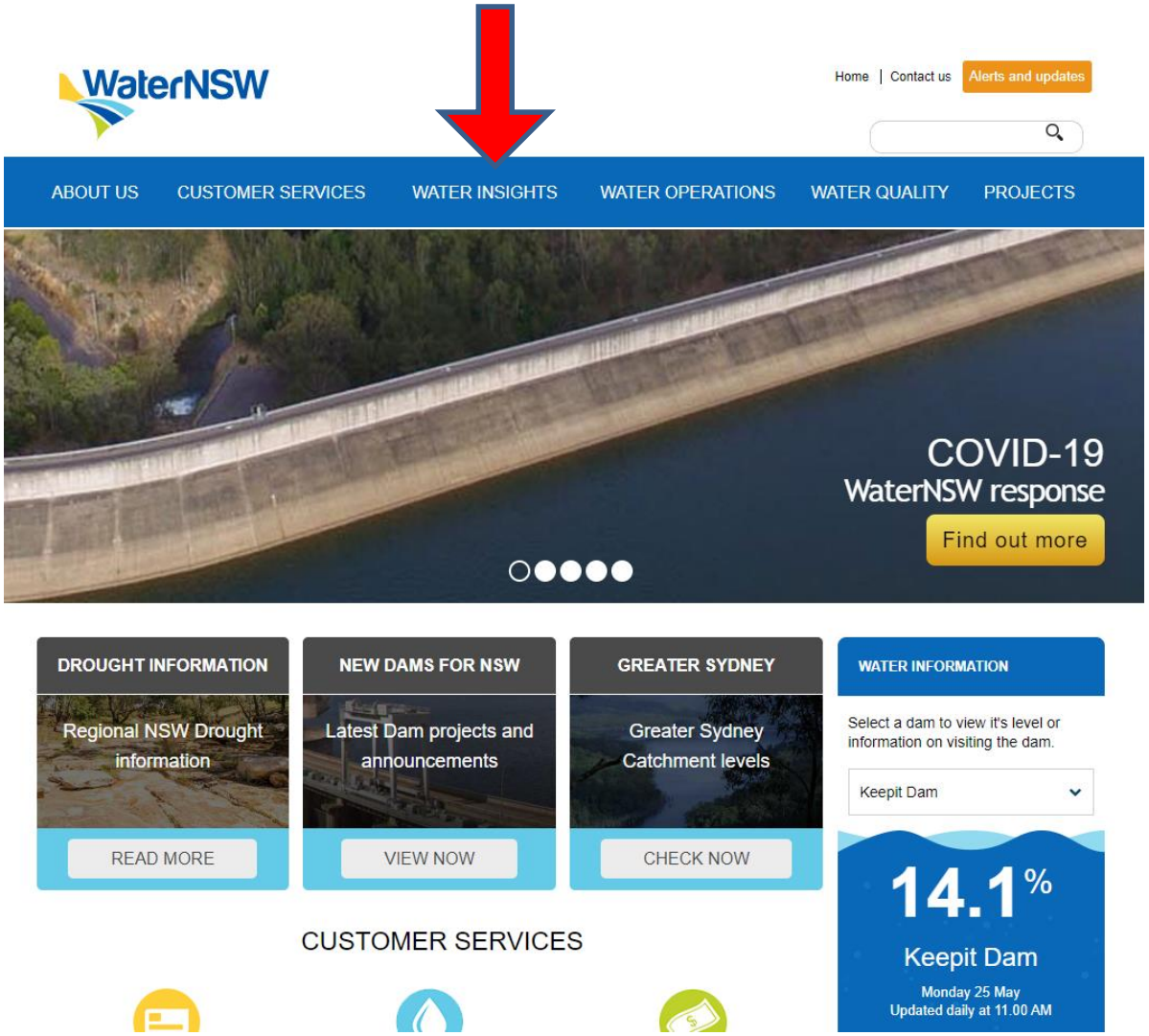


Copeton Dam

https://waterinsights.waternsw.com.au/11985-gwydir-regulated-river/updates



Water Insights

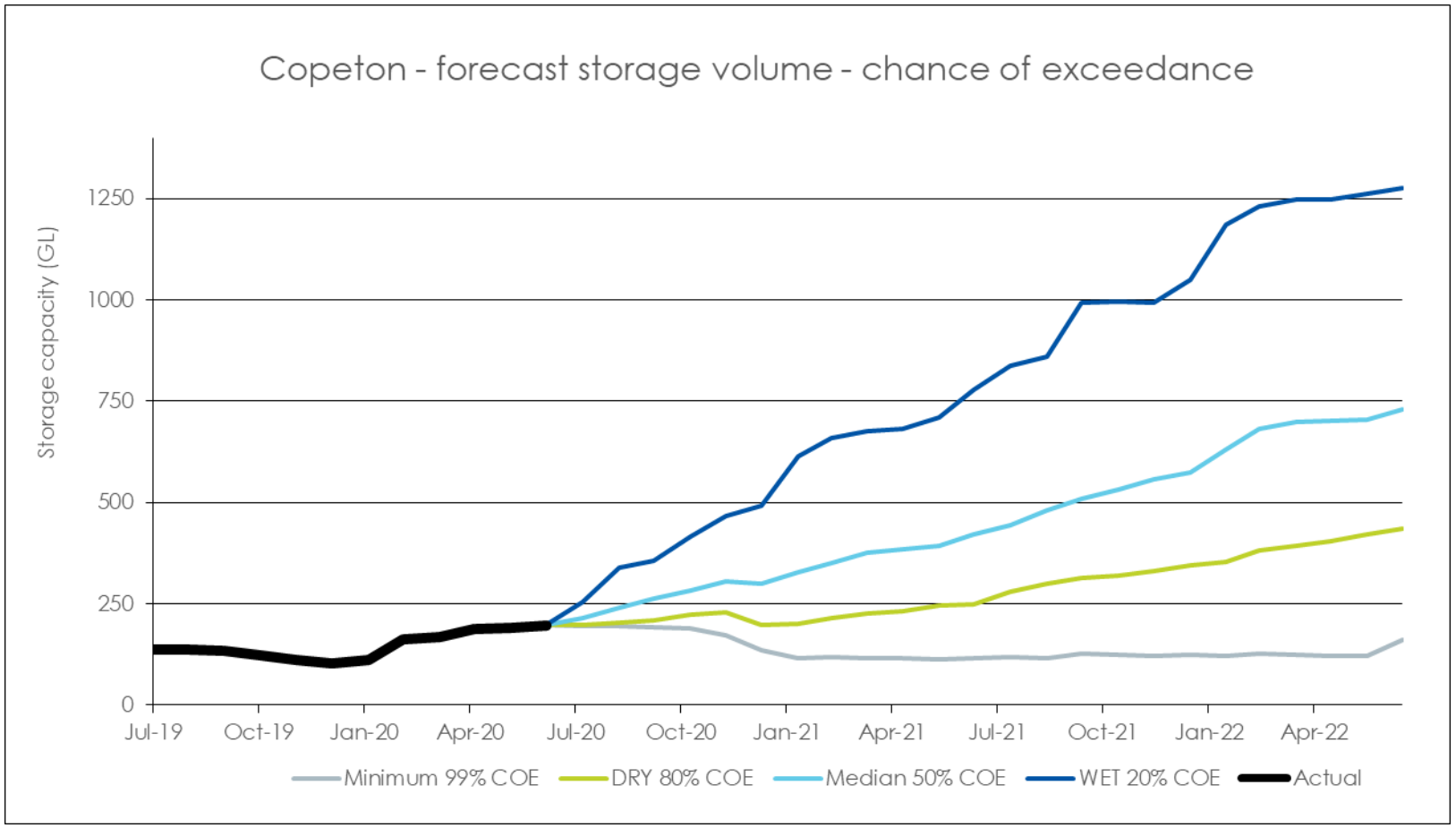


- Storage levels
- Inflows
- Releases
- Compare multiple years
- Allocations
- Outlook
- more

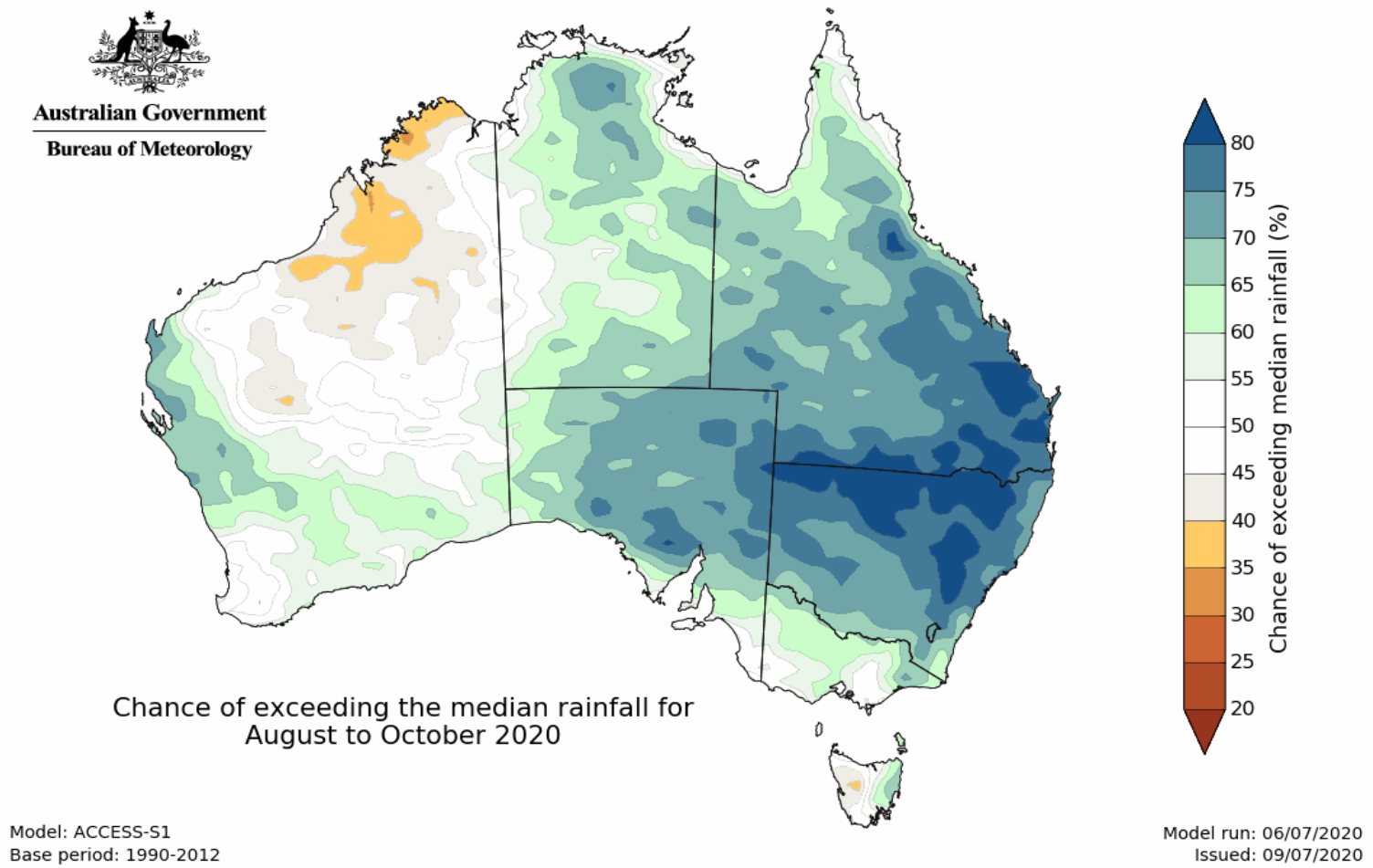
Part 3 – Outlook for 2020/2021

- Forecast Storage Volumes
- Climate outlook
- Allocations
  - Expect further small AWD's as inflows continue to trickle into Copeton
- Operations
- Projects

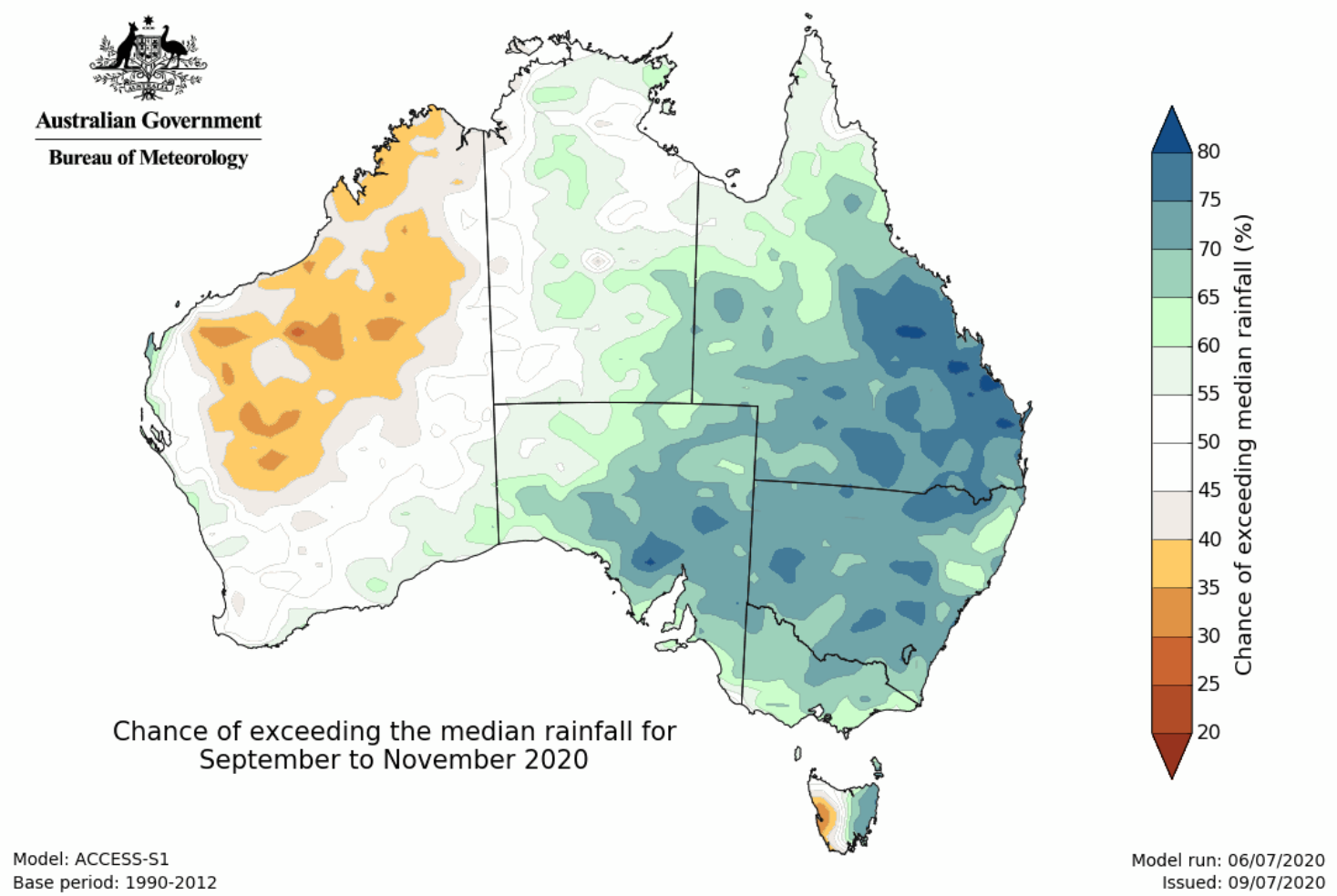
Forecast Storage Volumes



Rainfall outlook
August to October



Rainfall outlook September to November



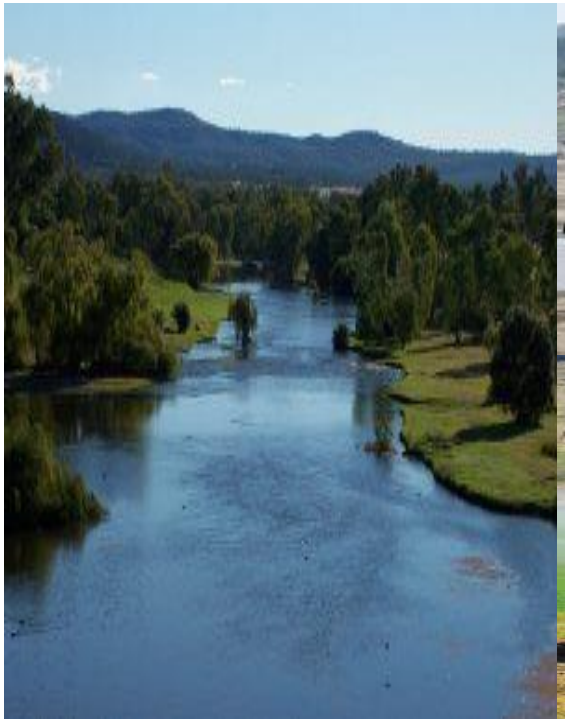
Operations 2020/2021

River section	Licence category	Type of restriction	Period of applicability	Method of placing water order
Gwydir Regulated River System	High Security Stock & Domestic Local Water Utility	Releases from Copeton will be grouped together where possible (block releases) however delivery to all river sections is not guaranteed. Access will be made available from tributary inflows where e possible. A water order is still required to be placed and needs to be approved by WaterNSW.	Until further notice	via iWAS or customer help desk. Confirmation of water order from WaterNSW is required.
Gwydir Regulated River System	General Security (carry over allocations)	Any releases from Copeton Dam for General Security licences will be grouped together and likely remain under dam-wall-debit arrangements until conditions improve. A water order is still required to be placed and needs to be approved by WaterNSW.	Until further notice	via iWAS or customer help desk. Confirmation of water order from WaterNSW is required.
Thalaba Creek Replenishment Flow	(Replenishment Flow)	The next Thalaba Creek Replenishment Flow will be supplied by tributary inflows where possible. If sufficient tributary inflows do not provide for the Replenishment Flow, releases from Copeton may be made under a block release strategy.	Until further notice	via iWAS or customer help desk. Confirmation of water order from WaterNSW is required.

Part 4 – Groundwater (a snapshot)

GROUNDWATER RESOURCE STATUS INFORMATION

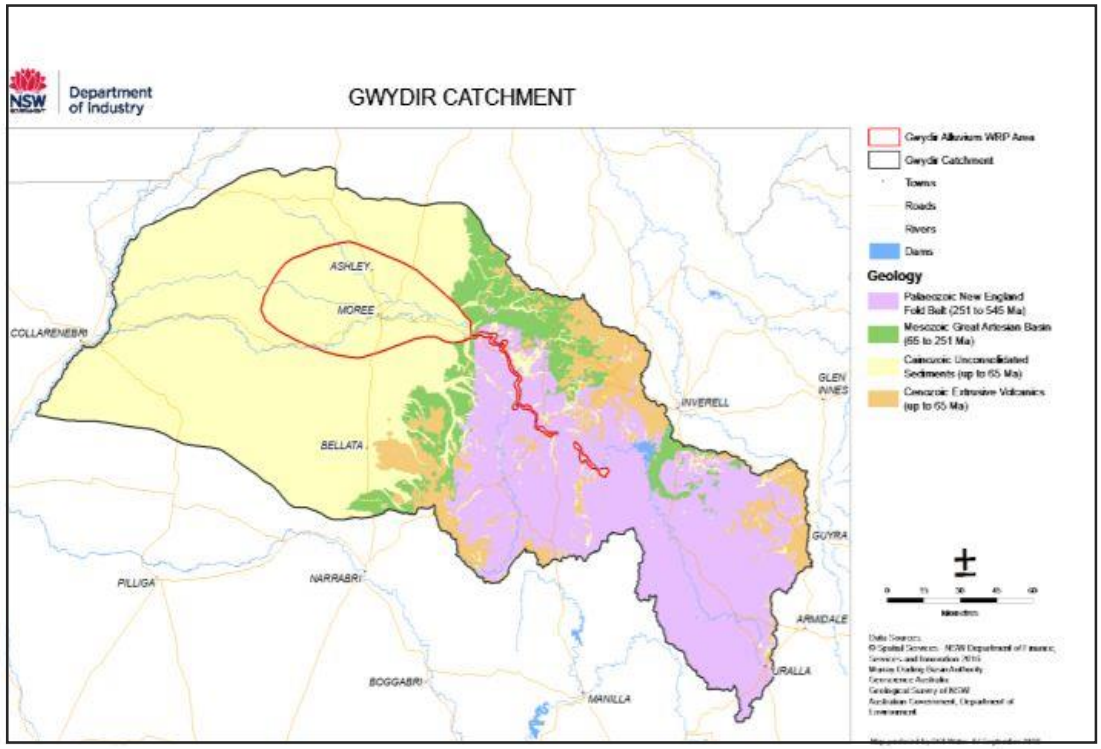
- Gwydir Alluvium Groundwater Sources



- This presentation is an initiative by WaterNSW to gather groundwater resource status information for various groundwater sources in NSW

Geology

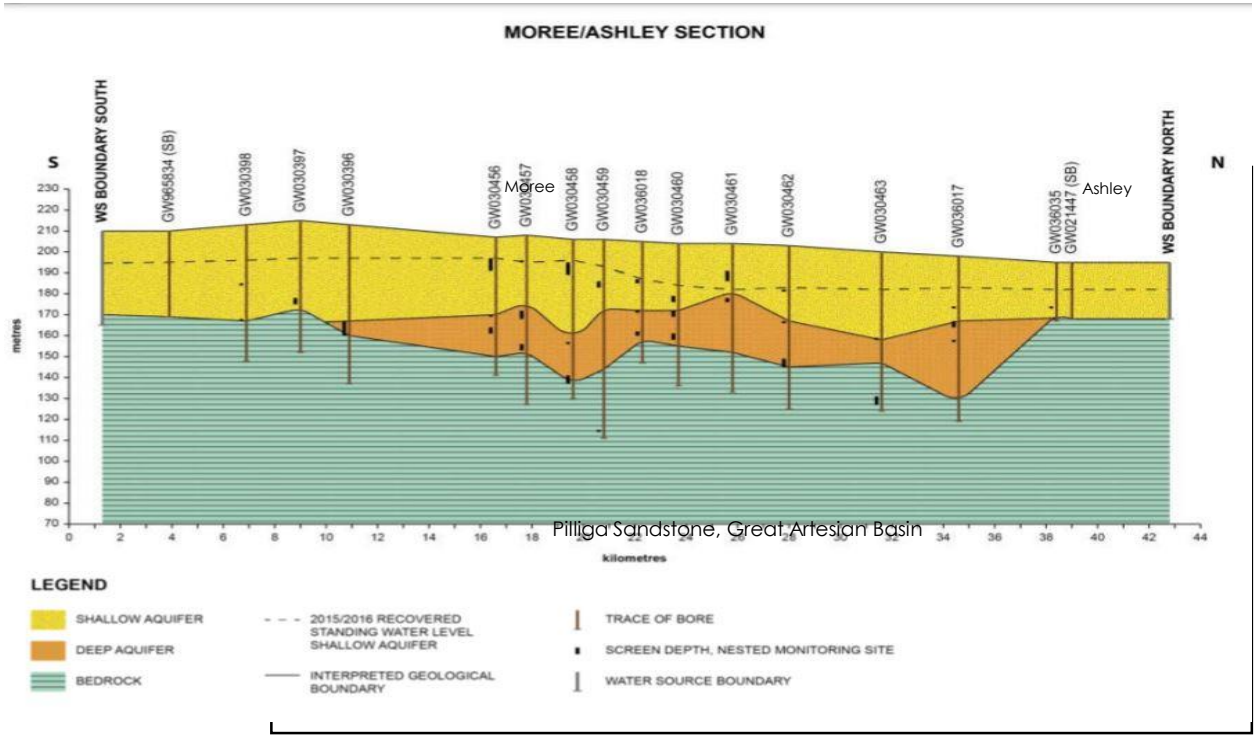
- The surface geology of the Gwydir catchment is made up of four main geological sequences:
  - The Palaeozoic New England Fold Belt
  - The Mesozoic Great Artesian Basin (GAB)
  - The Cenozoic unconsolidated sediments and
  - The Cenozoic extrusive volcanics



Cross Section Lower Gwydir Alluvium

The Upper Gwydir Alluvium sits over the fractured rock of the New England Fold Belt

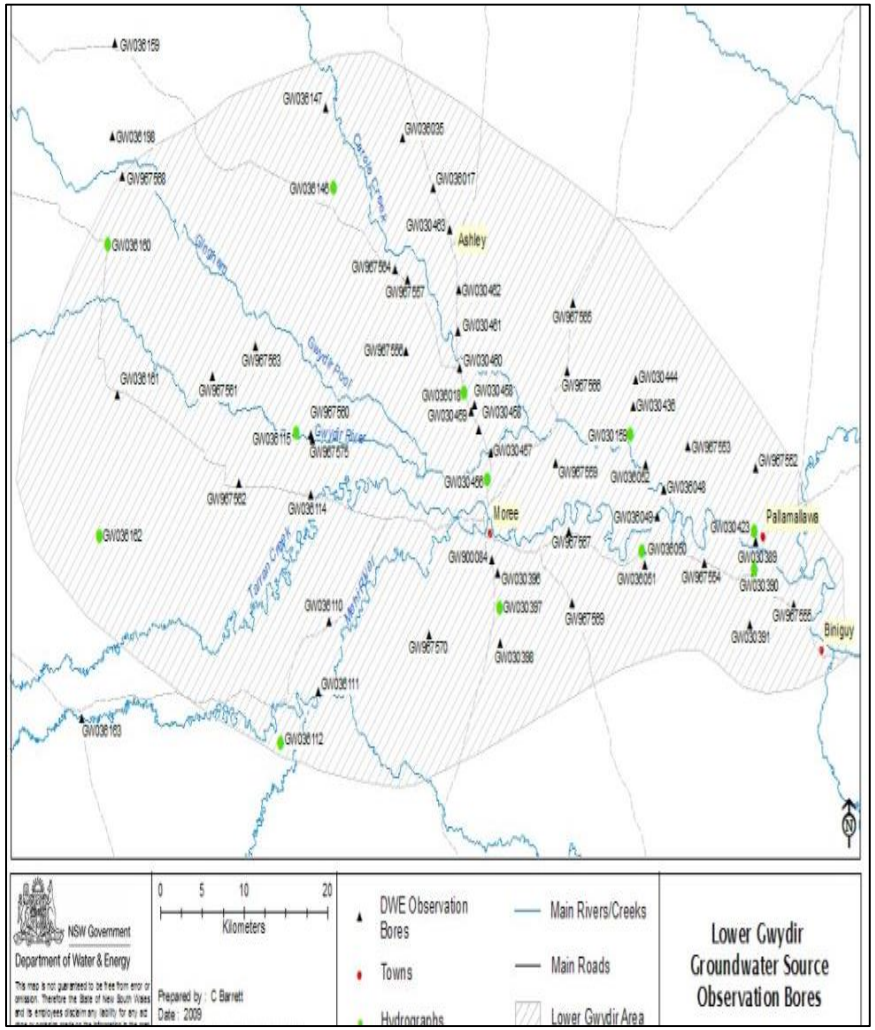
The Lower Gwydir overlies the sediments of the GAB



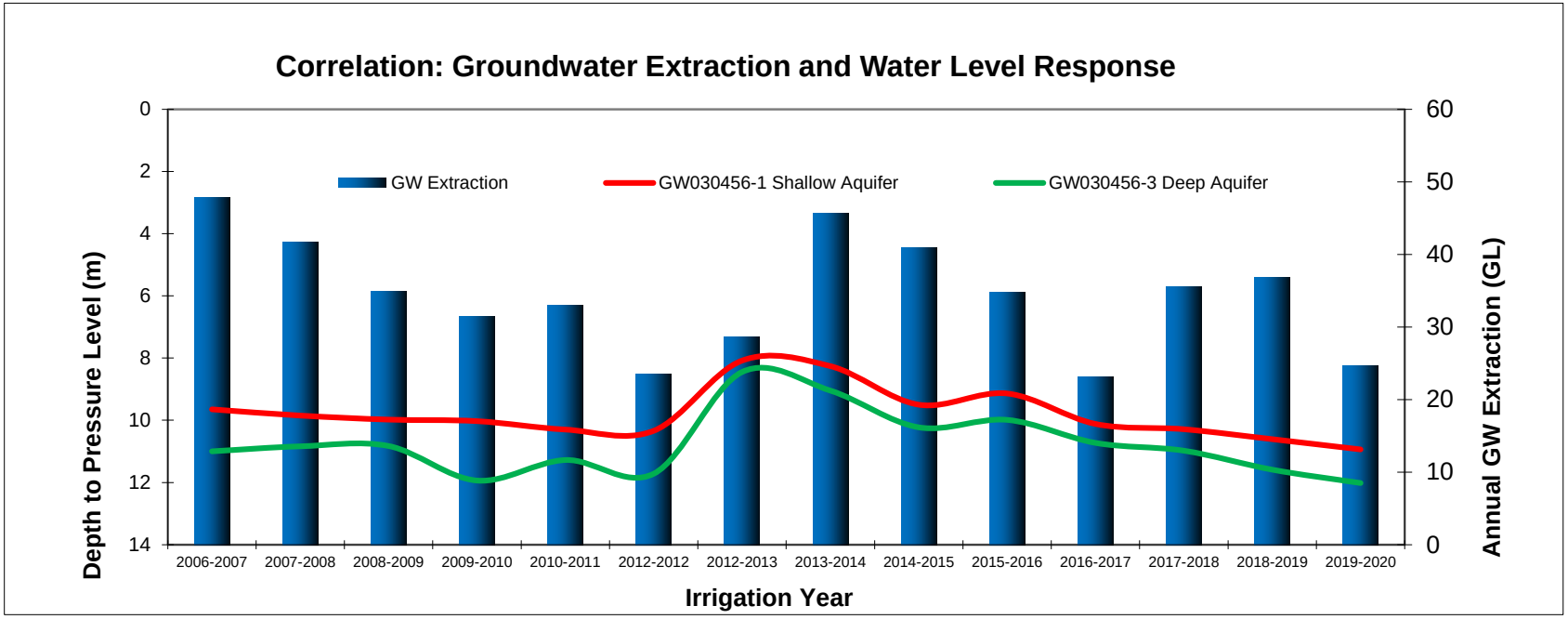
Groundwater Monitoring

Bore Location Map

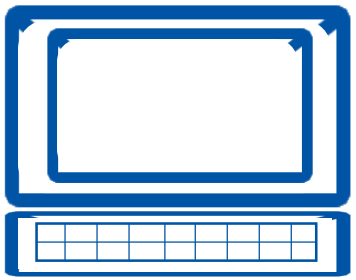
- Groundwater Monitoring
  - Commenced since 1976
  - 56 monitoring bore sites
  - Four manual readings per year for each bore
  - There are bores with Loggers and telemetry for continuous monitoring



Groundwater Extraction and Water Level Response



To keep updated



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waternsw.com.au/drought

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End of Presentation