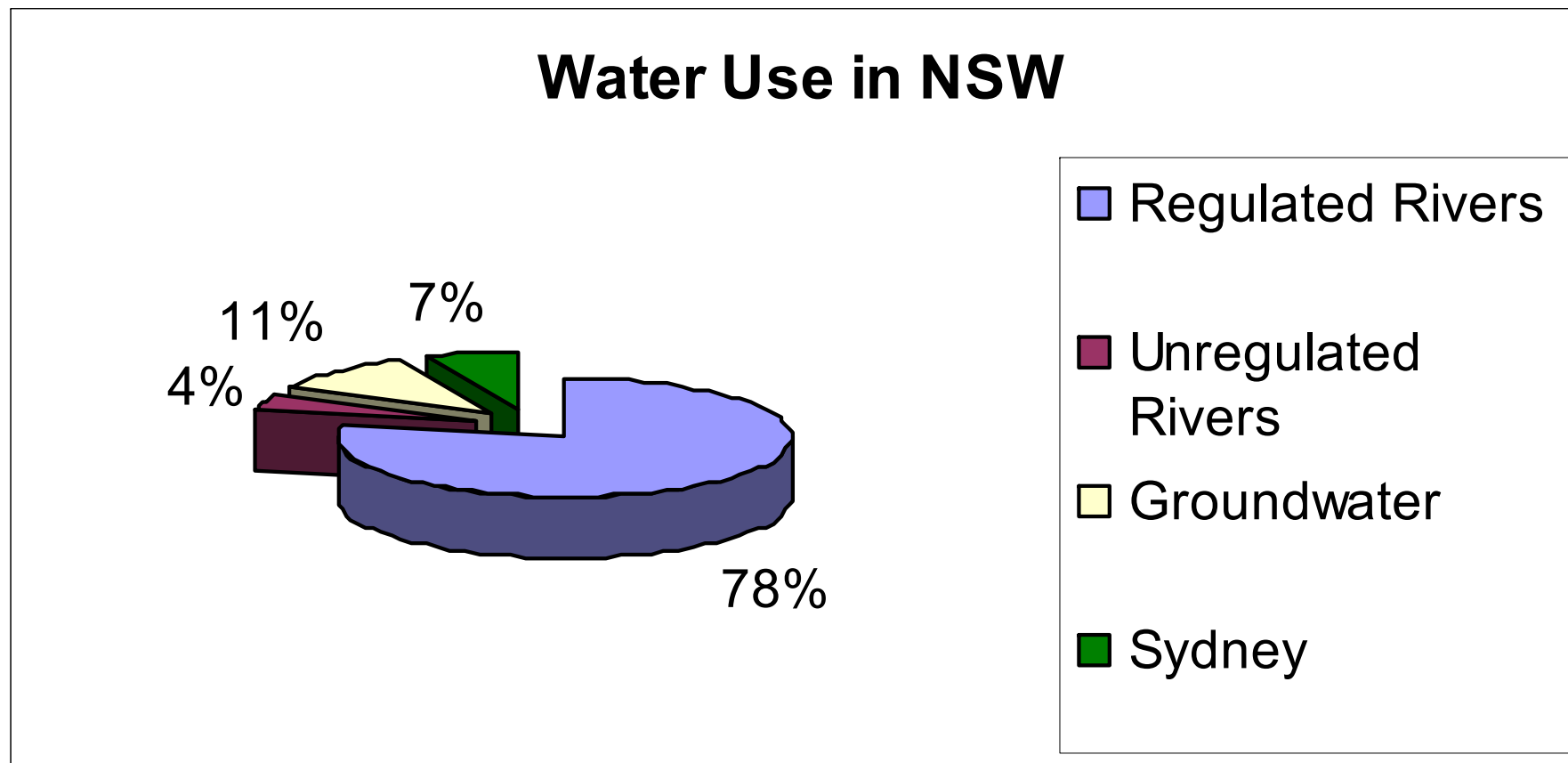




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Resource Assessment and Allocations Process

Water Use in NSW

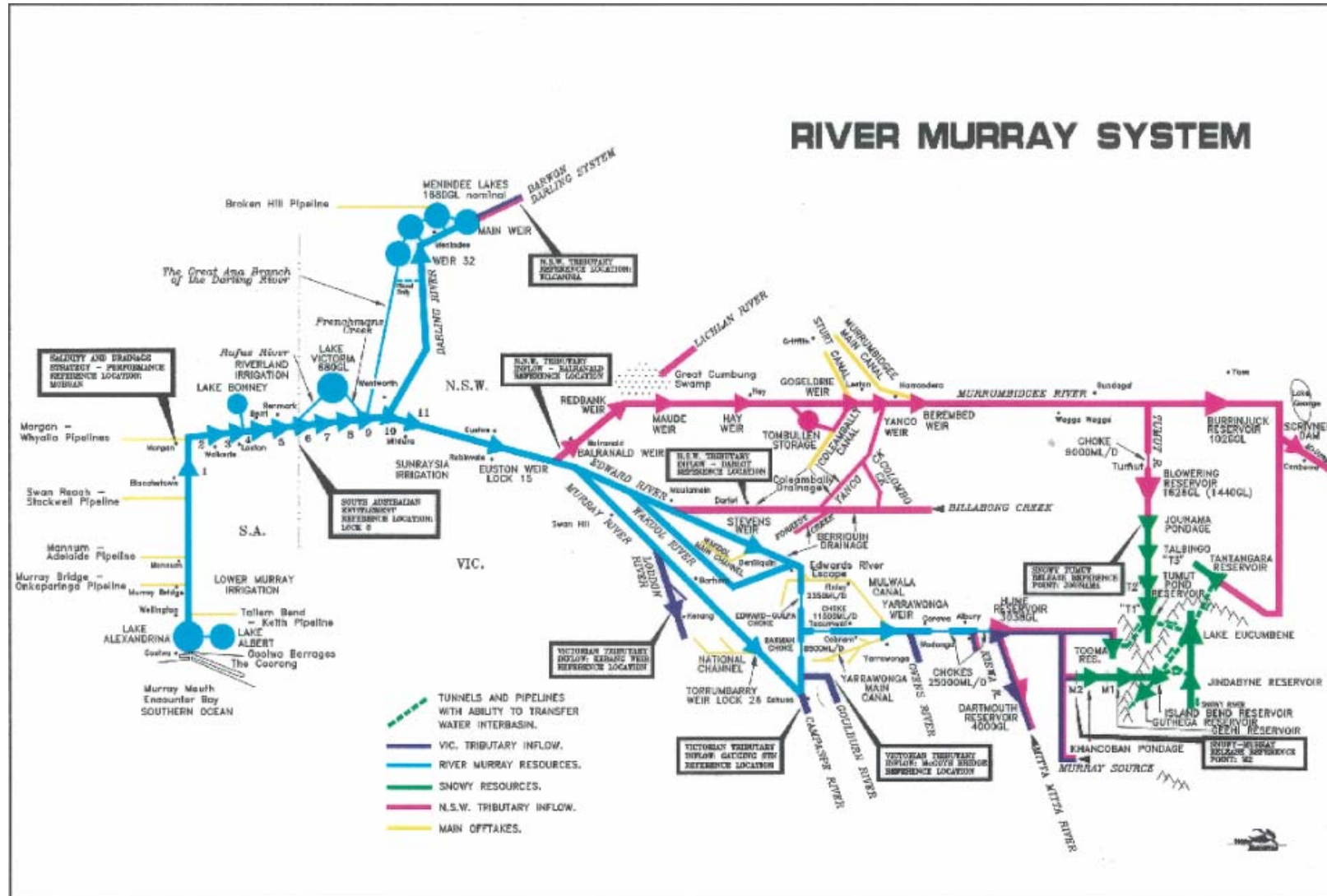


Murray – Shared Resource

- *NSW and Victoria share storage airspace (50:50)*
- *NSW shares storage inflows (plus Kiewa River) (50:50)*
- *NSW and Victoria have own tributary inflows*
- *NSW and Victoria must meet equally meet SA share*
- *River managed by MDBA – States advised of shares*



Murray – Shared Resource



Legislative Framework

- *Commonwealth Water Act 2007* (Basin Plan)
- *Water Management Act 2000* (Water Sharing Plans)
 - *Water Sharing Plan for the NSW Murray and Lower Darling Regulated River Water Sources*
 - *Water Sharing Plan for the Lower Murray Groundwater Source*

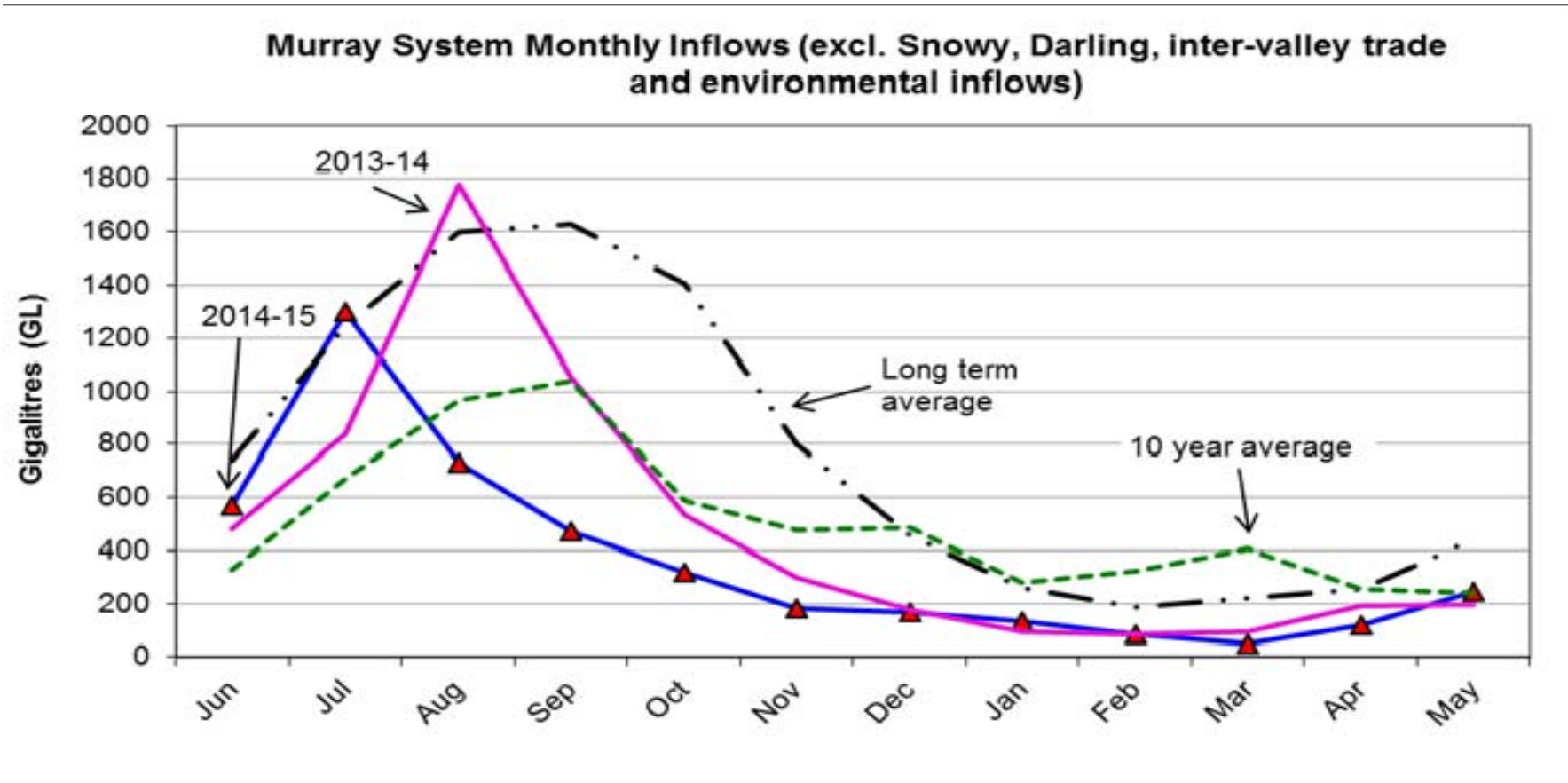


Current Entitlements

- *NSW Murray Regulated River*
 - *towns* 36.6 GL
 - *domestic and stock* 17 GL
 - *conveyance* 330 GL
 - *high security* 187 GL
 - *general security* 1,673 GL
 - *supplementary* 252 GL



Murray Inflows (excluding Snowy)



Graph courtesy of MDBA



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Resource Assessments

- Resource assessment determines:
 - The volume of water available for sharing
 - How much is for the environment and how much for other users
 - The priority of sharing between water users (licence categories)
 - Announcement of the Available Water Determination (AWD)



Water Sharing Priorities

- Consumptive water is **shared** across:

- BLR, Domestic and stock

- Local water utility

- High security

- Conveyance

- General security

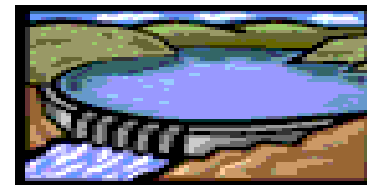
WSP expects these to be fully allocated on 1 July

Then available water is incrementally allocated here



NSW Murray water availability

- NSW share of active volume in Dartmouth, Hume, Menindee and Lake Victoria
- Usable volume in downstream en-route storages
- Useful current flow-in-transit (excludes supplementary access (off-allocation) diversions, surplus flows)



Murray future resources

- Assured storage inflow: Snowy Required Annual Releases (nominally 1062 GL). Timing uncertain.
- Current storage & downstream inflow recession from any recent rainfall
- Minimum storage inflows



Total Resources Available

$$\boxed{\text{Net Resources Available for GS}} = \boxed{\text{Total Resources Available}} - \boxed{\text{Total Supply Requirements}}$$

- The amount of water available for General Security is:
 - All water currently available (in storage/in transit)
 - plus conservative estimate of future resources
 - less water subject to WSP rules and already committed
 - less water for system operation (losses)

Water for System Operations

- Water must be set aside to operate the regulated system
 - ✓ Evaporation and transmission losses
 - ✓ System losses (rain rejections, operator experience)
 - ✓ Reserves



NSW Murray Resource Distribution

(as at mid July 2015)

<u>NSW Share</u>	830 GL ⁽¹⁾
Carryover	500 GL ⁽²⁾ (Credits in accounts 1 July)
Environmental	235 GL ⁽³⁾ ⁽⁴⁾ (B-M, Wakool, ECA, AEA)
Towns, Stock, Domestic	54 GL (100% allocation)
Conveyance	80 GL ⁽⁵⁾ (for <97% HS allocation)
High Security	150 GL ⁽⁶⁾ (80% allocation)
General Security	0 GL (0% allocation)



NSW Murray Outlook

(as at mid May 2015)

Chances of Improvement

The chances of improved general security allocation based on different inflow conditions are as follows:

Forecast General Security Allocation # (percent)			
Potential Inflow Conditions ##	1 July 2015	1 Sept 2015	1 Nov 2015
99 chances in 100 (drought) (99%)	0	0	0
9 chances in 10 (very dry) (90%) <i>We are currently tracking here</i>	0	0	0
3 chances in 4 (dry) (75%)	0	0	14
1 chance in 2 (average) (50%)	0	1	35
1 chance in 4 (wet) (25%)	0	18	71

Assumes an average Carryover of 30 %, ## Multi-history modelling using all years



NSW Murray Allocation Assignments

Temporary Trade – 1 July 2014 - 31 May 2015

NSW Murray sold about 287 GL

145 GL to South Australia, 65 GL to Murrumbidgee and 77 GL to Victoria

NSW Murray purchased about 127 GL

92 GL from Murrumbidgee, 27 GL from Victoria and 8 GL from South Australia

About 311 GL traded within the NSW Murray

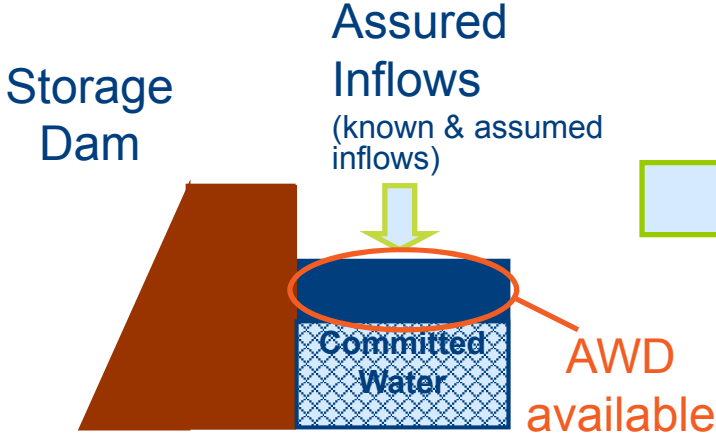


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Recap: Resource Assessment Schematic

1. Determine the supply

2. Determine existing commitments



Water committed at beginning of water year

Private Carryover Of Unused Account Water

Essential Commitments

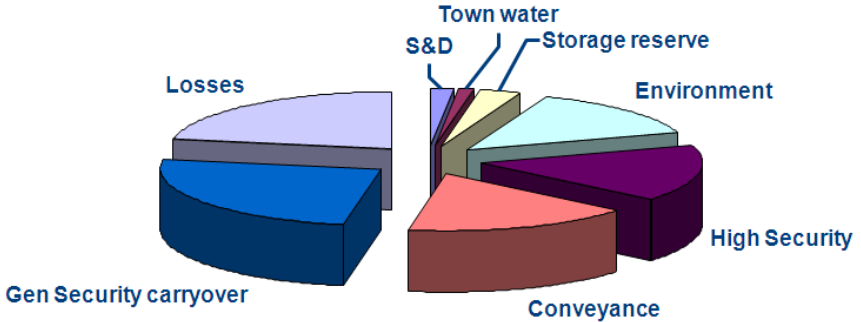
There are Carryover Limits

S&D, Towns, HS, Env, Losses, Conveyance

3. Determine if any additional resources are available

3.1 Assess deliverability

4. Announce AWD




Key messages

- Consistency
- Conservatism
- Confidence



Ground Water Resources

- “Lower Murray Groundwater Source Summary Report 2006-2014”
- Key Contact:
- Prem Kumar (Wagga)
(02) 6932 9117
Prem.Kumar@dpi.nsw.gov.au

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Lower Murrumbidgee Groundwater Sources Summary Report 2006-2014

Water sharing plan

The Lower Murrumbidgee groundwater sources have been managed under the *Water Management Act 2000 (WMA2000)* since the commencement of the Water Sharing Plan for the Lower Murrumbidgee Groundwater Sources 2003 (hereafter referred to as the Plan) on 1st October 2008. The Plan sets the framework for managing these groundwater sources until the end of June 2017.

A copy of the Plan can be viewed and downloaded from the NSW legislation website or from the following link:

<http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Plans-commenced/Water-source/Lower-Murrumbidgee-Groundwater-Sources>

Location and description of water sources

The Lower Murrumbidgee groundwater sources includes all water contained in the Shepparton Formation, Calivil Formation and Renmark Group unconsolidated alluvial aquifers within the areas shown on **Figure 1**.

The two groundwater sources referred to in the Plan are described below.

- **Lower Murrumbidgee Shallow Groundwater Source** (hereafter the Shallow groundwater source). The groundwater source extends to a depth of 40 metres, or the bottom of the Shepparton Formation, whichever is the deeper. The Shepparton Formation, which is generally yellow and brown poorly sorted sand and clay sediments, extends to a depth of between 50 and 70 metres below the ground surface.
- **Lower Murrumbidgee Deep Groundwater Source** (hereafter the Deep groundwater source). This groundwater source extends from the base of the Shallow groundwater source down to the bedrock. This is generally represented by the Calivil Formation and the Renmark Group, which are characterised by pale grey to white quartz sand layers with lenses of grey to white clay. It has a typical thickness of 100 to 300 metres.


Access licences

Four categories of groundwater access licenses are held in the Lower Murrumbidgee groundwater sources. These are:

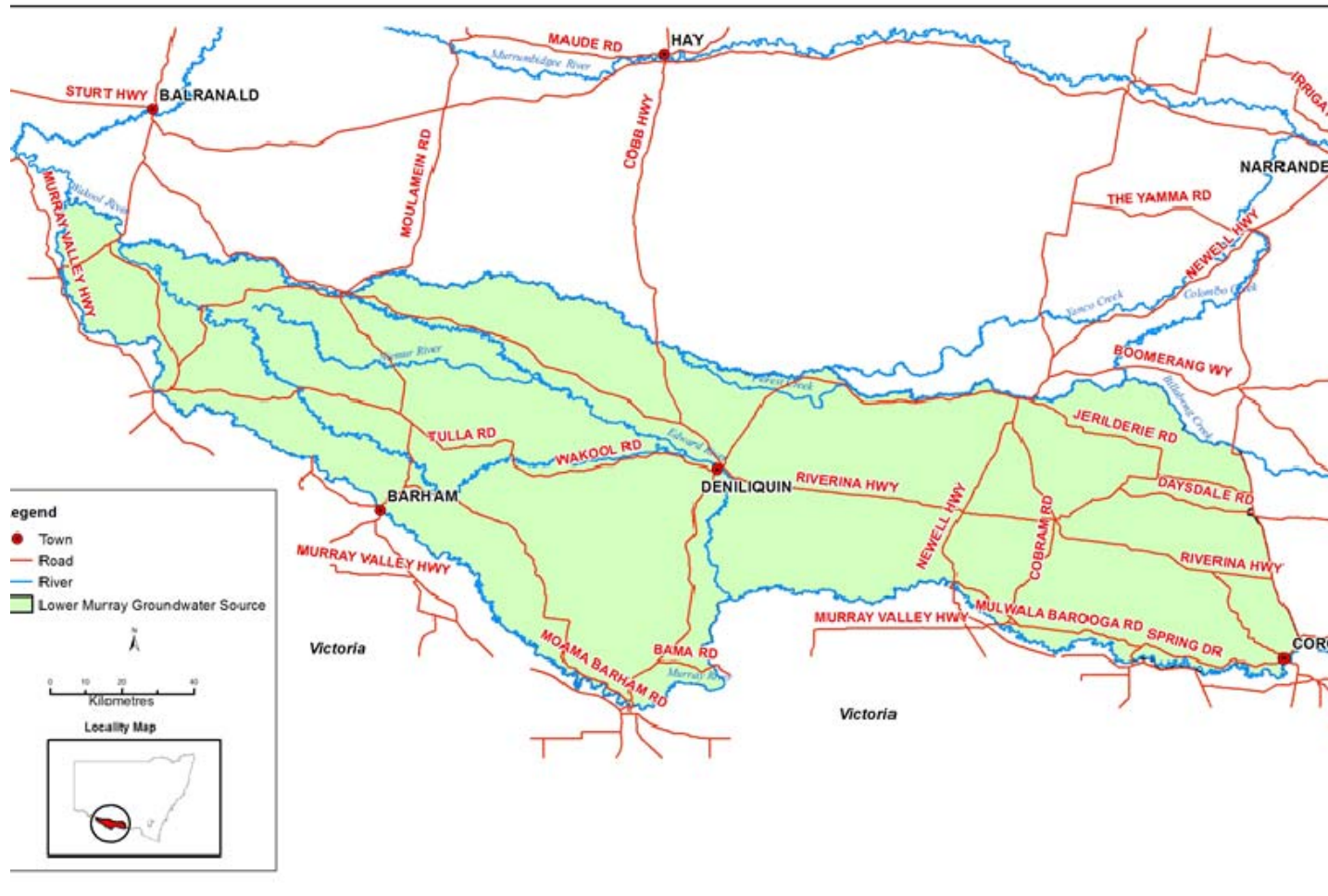
- local water utility access licences,
- domestic and stock (sub category 'stock') access licences,
- aquifer (sub category 'town water supply') access licences,
- aquifer (sub category 'community and education') access licences,
- aquifer access licences, and
- supplementary water access licences.

The Local Water Utility Licences are held by local governments for town water supply purposes. The share component of these and domestic and stock licences is for a specified volume of groundwater. The share components of aquifer access licences and supplementary water access licences are issued for a specified number of unit shares. These are summarised in **Table 1**.

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Lower Murray Groundwater Source



Groundwater Resources

- Unconsolidated alluvial aquifers to 350m, including:
 - the Shepparton Formation
 - the Calivil Formation
 - the Renmark Group
- 378 production bores
- All bores are metered (2 – 4 readings recorded/year)
- LTAAEL 83,700 ML/year
 - * 84,388 shares (Aquifer Access Licences)
 - * 67 shares (Aquifer Access Licences) [town water supply]
 - * 47,782 shares (Supplementary Access Licence)



Ground Dealings (Trades)

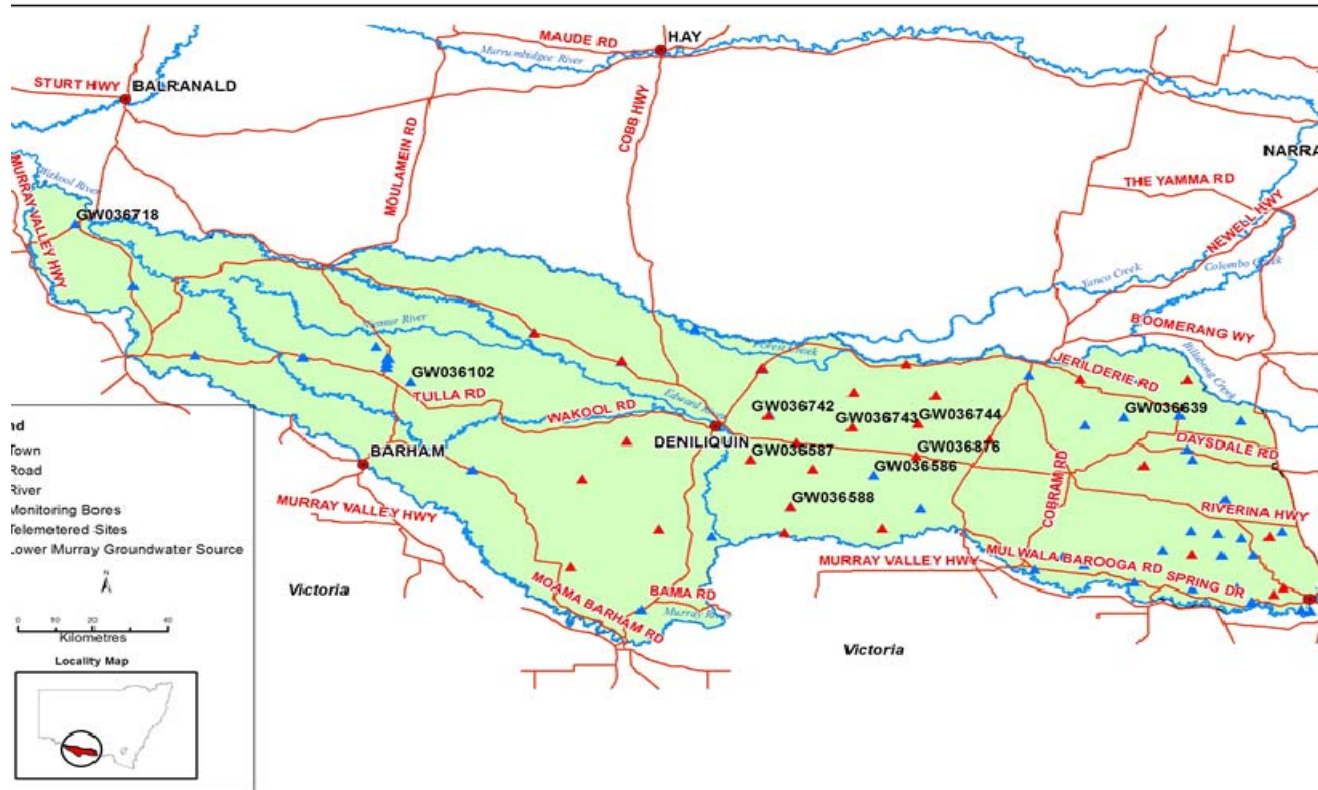
- Permanent (71Q) and Temporary (71T) transfers permitted
- All dealings require a hydrogeological assessment
 - to determine potential impacts / local interference
- Limits on additional local drawdown caused by trades

Trade Volume in 2013-14

- 13,187 ML (71T) and 1,250 shares (71Q)

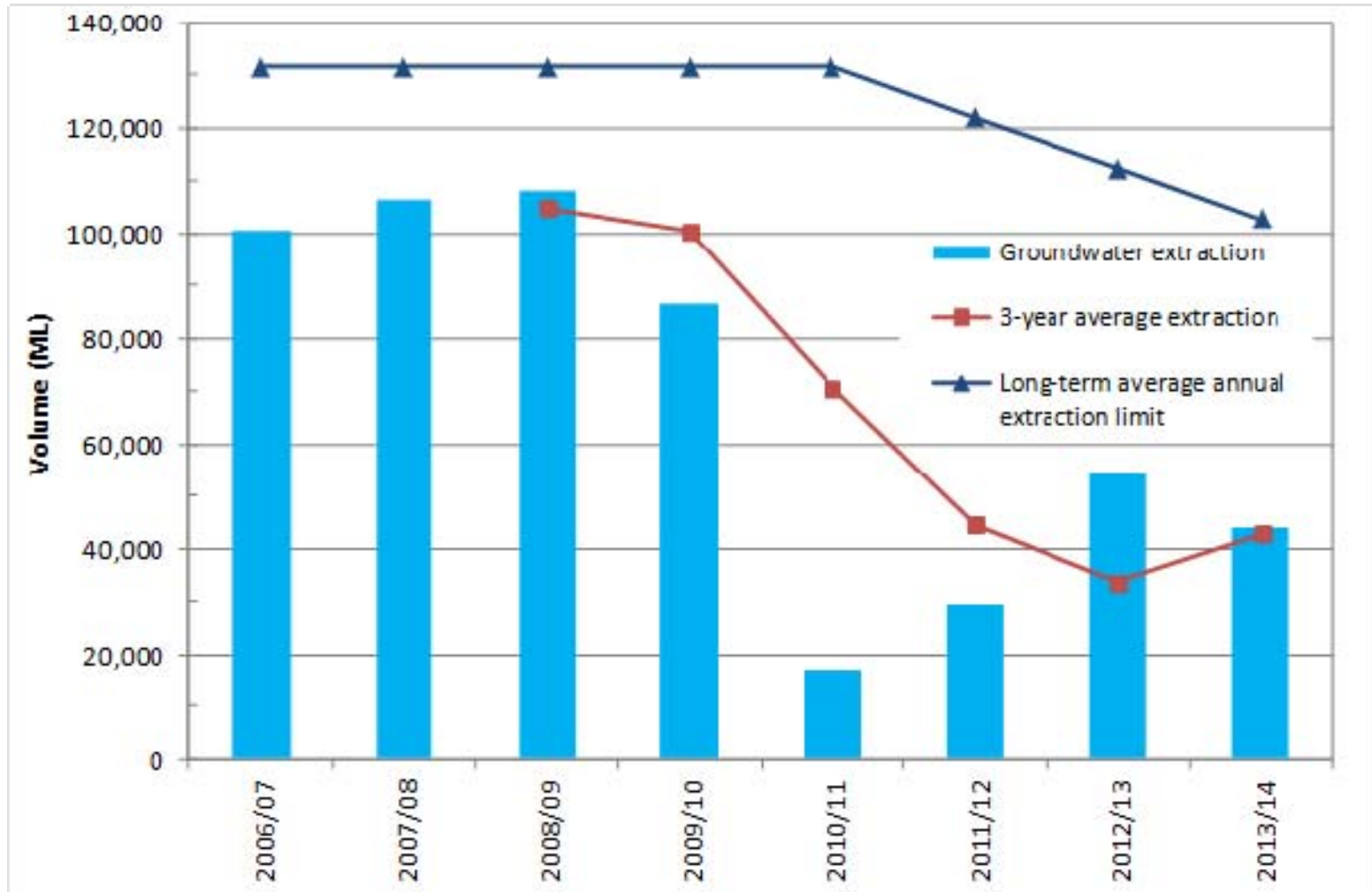


Lower Murray Groundwater Monitoring



- DPI Water uses 189 bores at 81 sites
- 46 sites have data loggers, 33 are telemetered

Lower Murray Groundwater Extraction



Questions



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