

Water entitlement market prices

Murray–Darling Basin

(November 2017)

Prepared for Australian Government Department of Agriculture and Water Resources

MARSDEN JACOB ASSOCIATES

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Introduction

This November 2017 monthly water entitlement market prices report has been prepared by Marsden Jacob Associates (Marsden Jacob) for the Australian Government Department of Agriculture and Water Resources.

A water access entitlement is a perpetual or ongoing entitlement to exclusive access to a share of water from a specified consumptive pool, as defined in the relevant water plan.

The report includes:

- southern Murray–Darling Basin (MDB) market activity and price information, by region and entitlement type
- northern MDB market activity and price information, by region and entitlement type
- a list of catchments and water sources
- a list of data outliers removed from the trade data

Regions, entitlements and key statistics

The entitlement price report is broadly split into the southern and the northern MDB, as detailed in Table 1 and Table 2. Interactive maps showing the location of these trading regions are available on the Murray–Darling Basin Authority's website.

The water sources included in each of the regions are listed in Appendix A.

Table 1: Regions and entitlement types, southern MDB

Region	Entitlement type
SA Murray	Class 3a
Vic. Murray above Barmah Choke	High reliability
Vic. Murray above Barmah Choke	Low reliability
Vic. Murray below Barmah Choke	High reliability
Vic. Murray below Barmah Choke	Low reliability
Goulburn	High reliability
Goulburn	Low reliability
Campaspe	High reliability
Loddon	High reliability
NSW Murray	General security
NSW Murray	High security
NSW Murray Irrigation Limited	General security
Murrumbidgee	General security
Murrumbidgee	High security
Lower Darling	General security
Lower Darling	High security

Table 2: Regions and entitlement types, northern MDB

Region	Entitlement type
Macquarie	General security
Namoi	General security
Gwydir	General security
NSW Border Rivers	General security
Barwon–Darling	Unregulated
Lachlan	General security
Condamine–Balonne (St George)	Supplemented
Condamine–Balonne (Upper Condamine and Lower Balonne)	Unsupplemented
Central Condamine Alluvium Groundwater (1, 2, 3 and 4)	Groundwater (sub areas 1, 2, 3 and 4)
Upper Condamine Alluvium Groundwater (Dalrymple Creek)	Groundwater
Upper Condamine Alluvium Groundwater (Oakey Creek)	Groundwater
Qld Border Rivers	Supplemented
Qld Border Rivers	Unsupplemented
Lower Balonne	Overland flow

As requested by the department, for each of the regions and water entitlement categories Marsden Jacob reports a range of measures, subject to data availability and the number of trades:

- volume weighted average price (VWAP)
- median price
- mean price
- mode price
- 25th and 75th percentile prices
- price quintiles
- trade volume
- number of trades
- water trading exchange prices.

Data sources

The data sources for this report are:

- National Water Market Register data, up to 31 December 2013
- state government water registers and websites

- water exchange and broker noticeboard prices.

Notes

Entitlement prices in the state government water registers can lag the exchange date of contracts or water sale agreements by periods of days to several months. This means the entitlement prices shown in the monthly and quarterly VWAPs may not reflect all exchanges during the month.

Entitlement prices that do not appear to reflect arm's-length transactions have been excluded in the data cleaning process (see Appendix B).

Removing these values reduces price distortions in the reporting. This means prices in this report may differ from prices shown in registers where these transactions have not been removed.

Marsden Jacob uses a two-stage process to clean the data:

1. Removing prices that may not be genuine; for example, removing transactions where the price was reported to be null (\$0 per ML)
2. Reviewing and potentially removing transactions outside two standard deviations from the average price of water entitlements by region (or trading zone) and by water product.

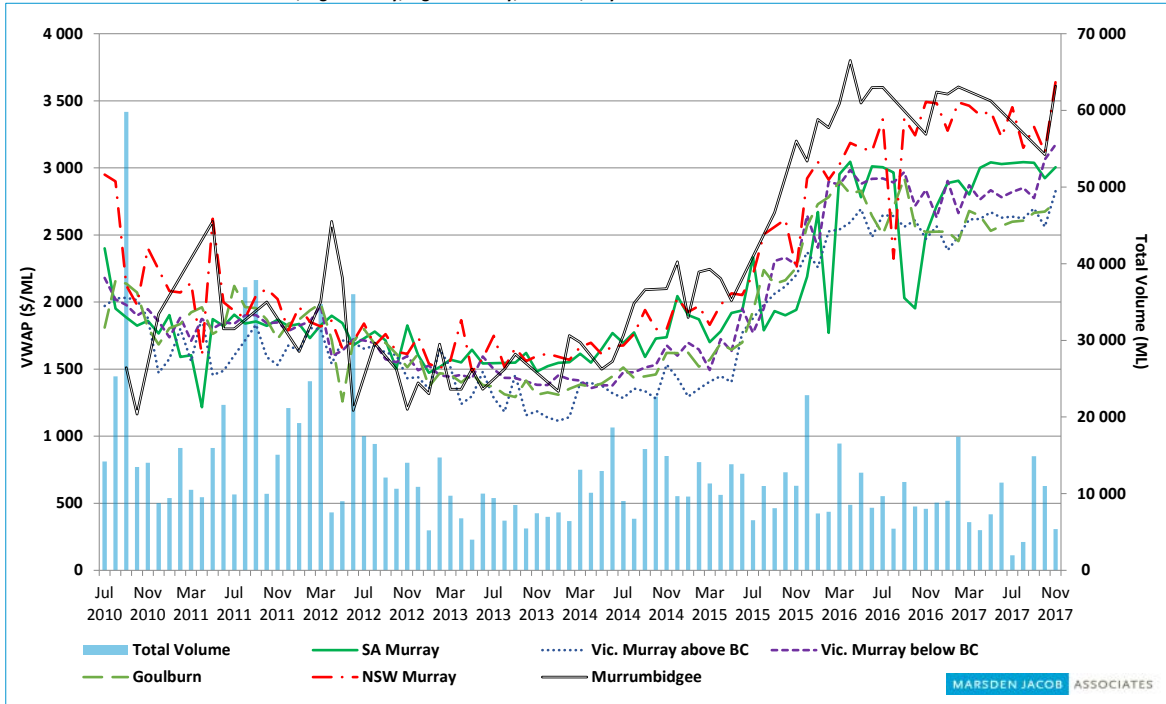
Marsden Jacob does not necessarily remove all trades that fall outside two standard deviations, as some of them reflect arm's-length trades. If trades that fall outside two standard deviations are retained in the regional dataset, this is noted in the region and entitlement-specific reports. Also, trades that fall within two standard deviations but are removed because they are not considered representative on the basis of recent data trends are also noted in the region and entitlement-specific reports as well as Appendix B.

Water entitlement market prices Murray–Darling Basin (November 2017)

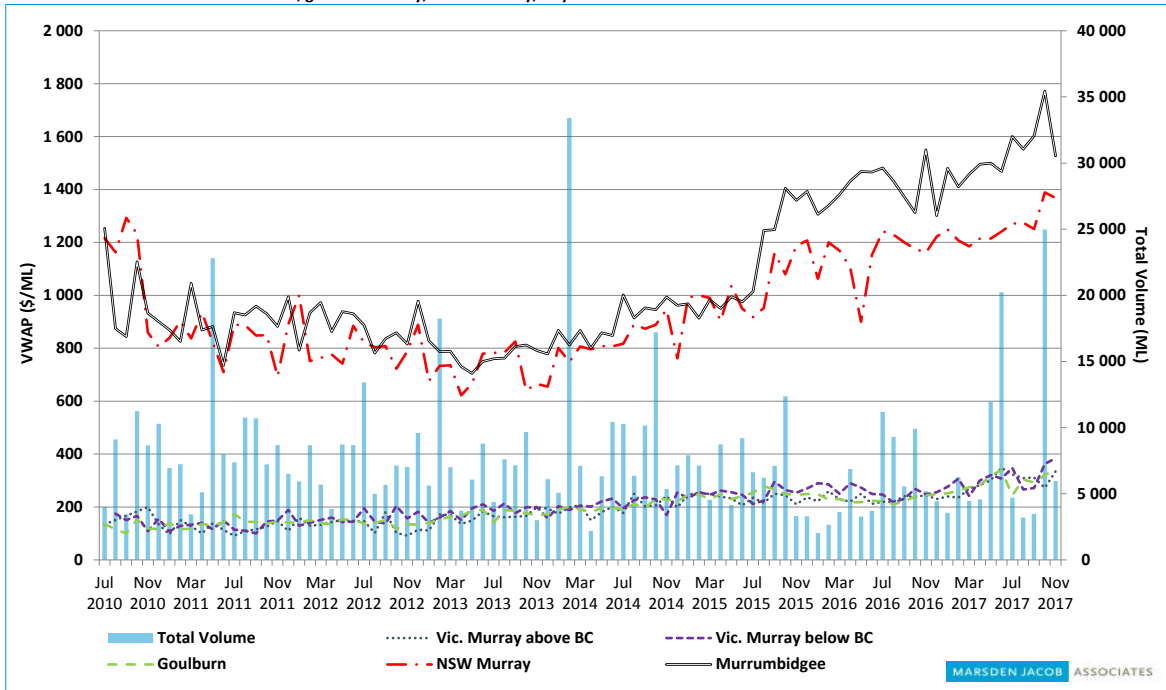
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Southern Murray–Darling Basin

Price correlations in the southern MDB, high security, high reliability, Class 3a, July 2010 to November 2017



Price correlations in the southern MDB, general security, low reliability, July 2010 to November 2017

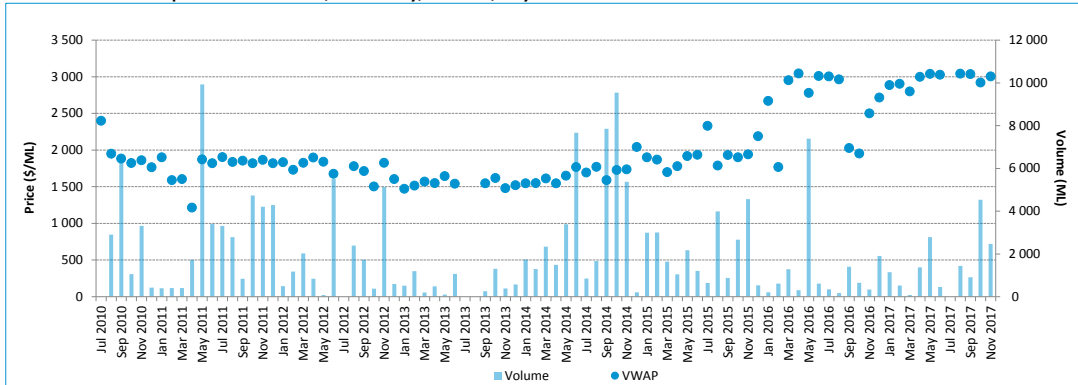


Source: Marsden Jacob analysis, 2017.

Water entitlement market prices Murray–Darling Basin (November 2017)

Southern Australian Murray: Class 3a

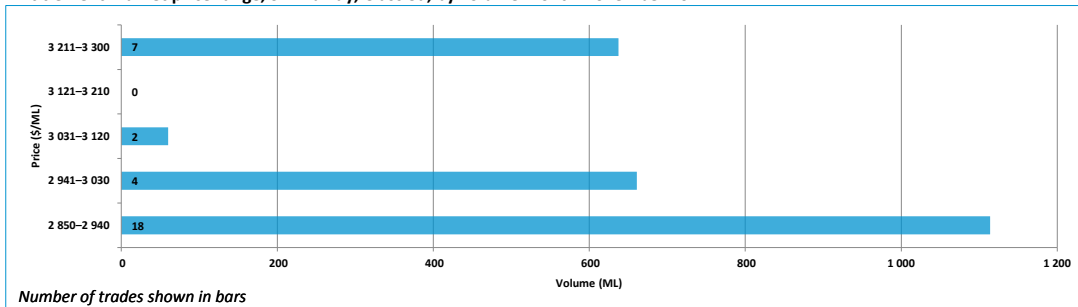
Entitlement market prices and volumes, SA Murray, Class 3a, July 2010 to November 2017



Entitlement market prices and volumes, SA Murray, Class 3a

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
3 005	2 961	2 952	2 850	3 075	2 850	2 980	2 850	2 472	31 3 000 - 3 500	

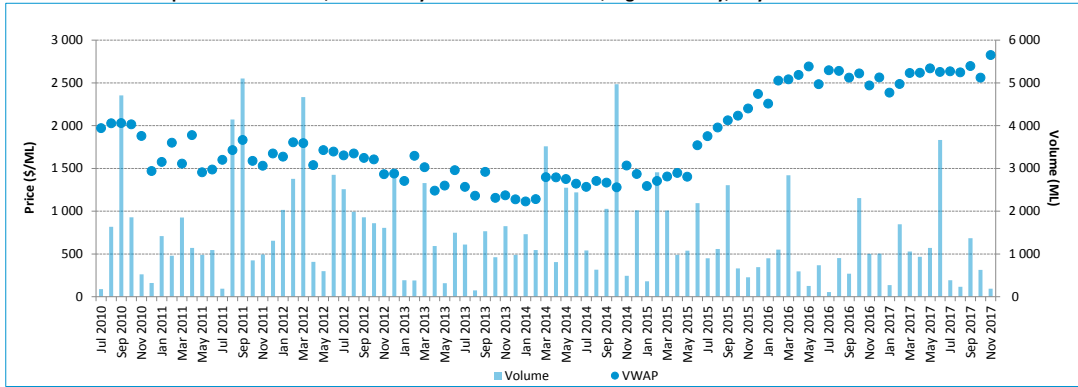
Entitlement market price range, SA Murray, Class 3a, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Victorian Murray above Barmah Choke: high reliability

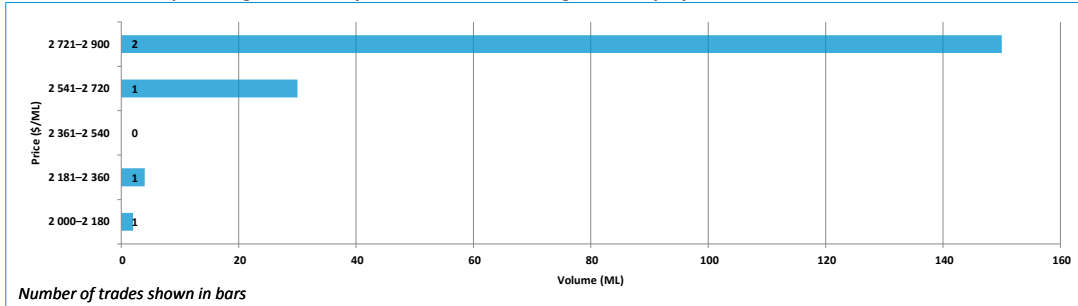
Entitlement market prices and volumes, Vic. Murray above Barmah Choke, high reliability, July 2010 to November 2017



Entitlement market prices and volumes, Vic. Murray above Barmah Choke, high reliability

Volume weighted average price (\$/ML)				November 2017 (in \$/ML)				November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
2 827	2 670	2 609	2 200	2 900	2 600	2 520	2 900	186	5	2 400 - 2 950

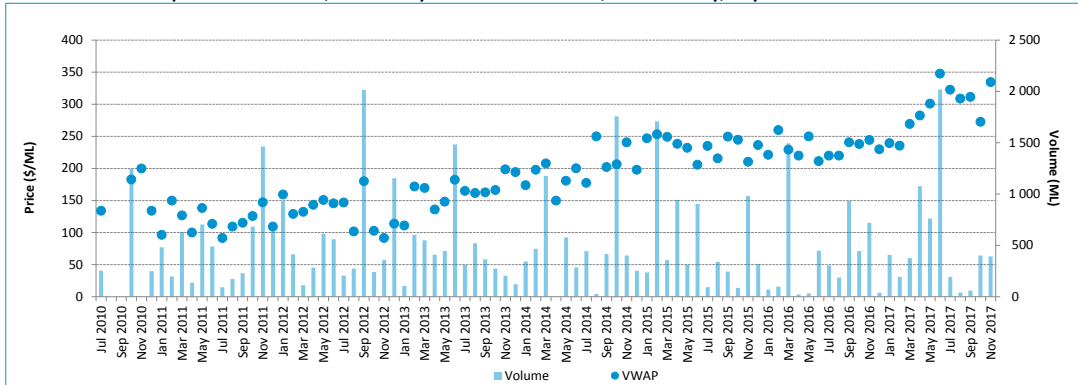
Entitlement market price range, Vic. Murray above Barmah Choke, high reliability, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Victorian Murray above Barmah Choke: low reliability

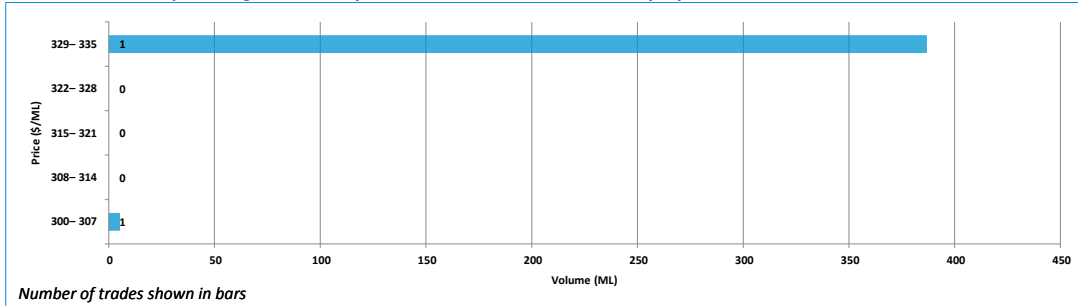
Entitlement market prices and volumes, Vic. Murray above Barmah Choke, low reliability, July 2010 to November 2017



Entitlement market prices and volumes, Vic. Murray above Barmah Choke, low reliability

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
335	304	306	309	326	318	318	0	392	2	260 - 360

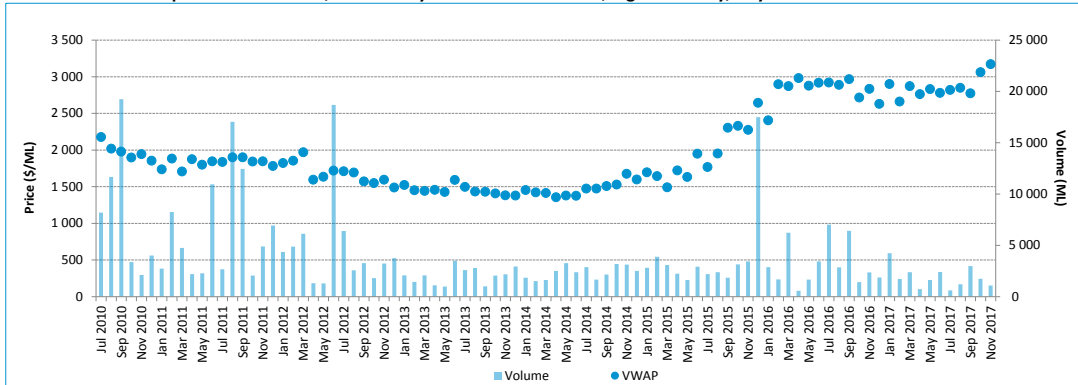
Entitlement market price range, Vic. Murray above Barmah Choke, low reliability, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Victorian Murray below Barmah Choke: high reliability

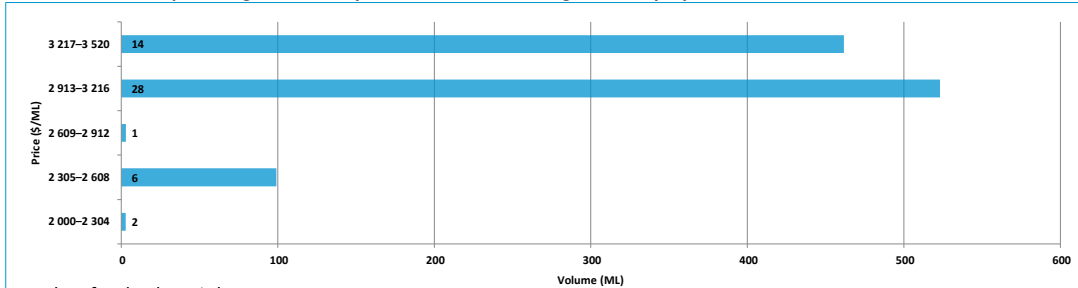
Entitlement market prices and volumes, Vic. Murray below Barmah Choke, high reliability, July 2010 to November 2017



Entitlement market prices and volumes, Vic. Murray below Barmah Choke, high reliability

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
3 173	2 935	2 839	3 000	3 250	3 100	3 059	3 200	1 090	51	2 650 - 4 000

Entitlement market price range, Vic. Murray below Barmah Choke, high reliability, by volume month November 2017



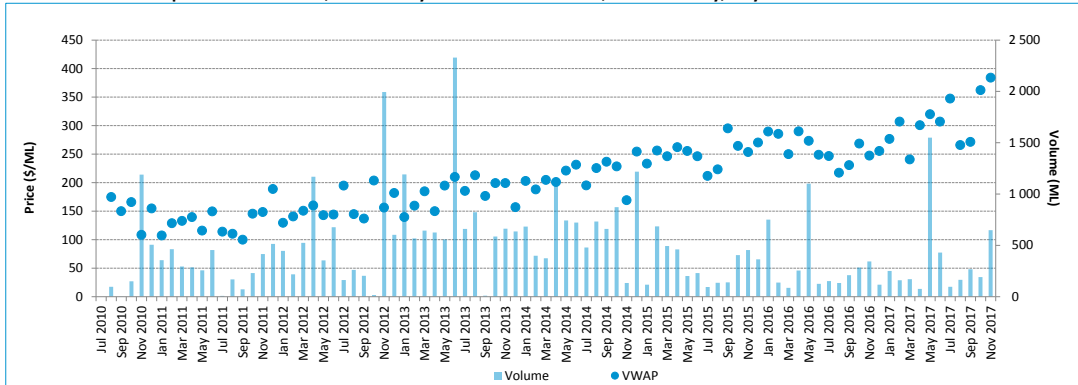
Number of trades shown in bars

Water entitlement market prices Murray-Darling Basin (November 2017)

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Victorian Murray below Barmah Choke: low reliability

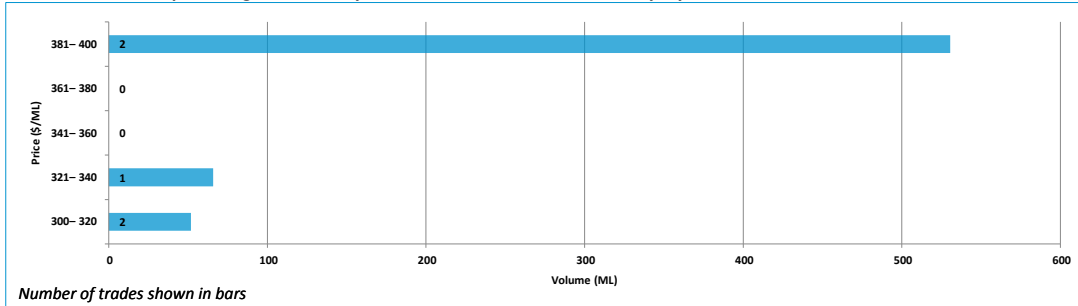
Entitlement market prices and volumes, Vic. Murray below Barmah Choke, low reliability, July 2010 to November 2017



Entitlement market prices and volumes, Vic. Murray below Barmah Choke, low reliability

Volume weighted average price (\$/ML)		November 2017 (in \$/ML)						November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
384	353	318	300	400	325	345	300	648	5	300 - 400

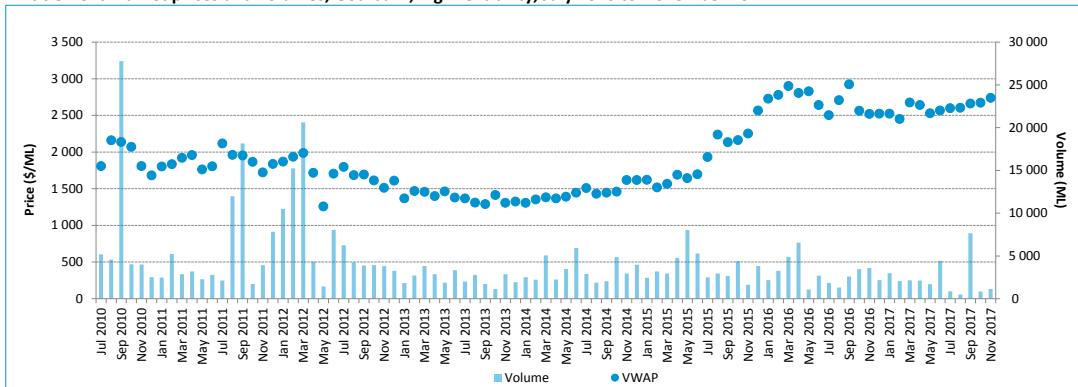
Entitlement market price range, Vic. Murray below Barmah Choke, low reliability, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Goulburn: high reliability

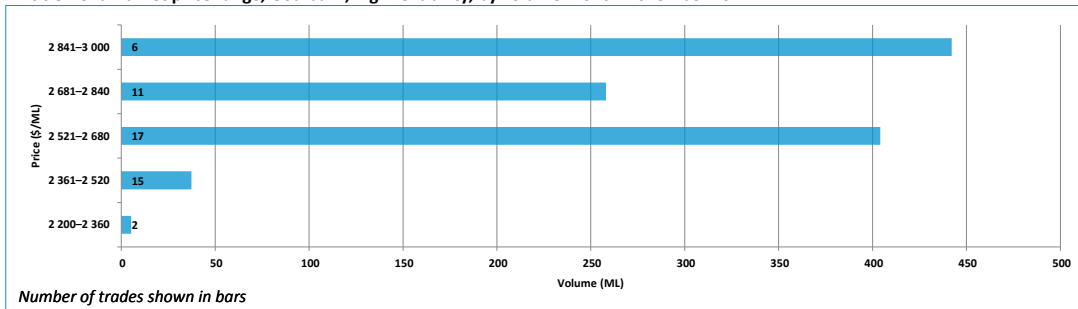
Entitlement market prices and volumes, Goulburn, high reliability, July 2010 to November 2017



Entitlement market prices and volumes, Goulburn, high reliability

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
2 742	2 674	2 601	2 500	2 747	2 600	2 628	2 500	1 147	51	2 350 - 3 100

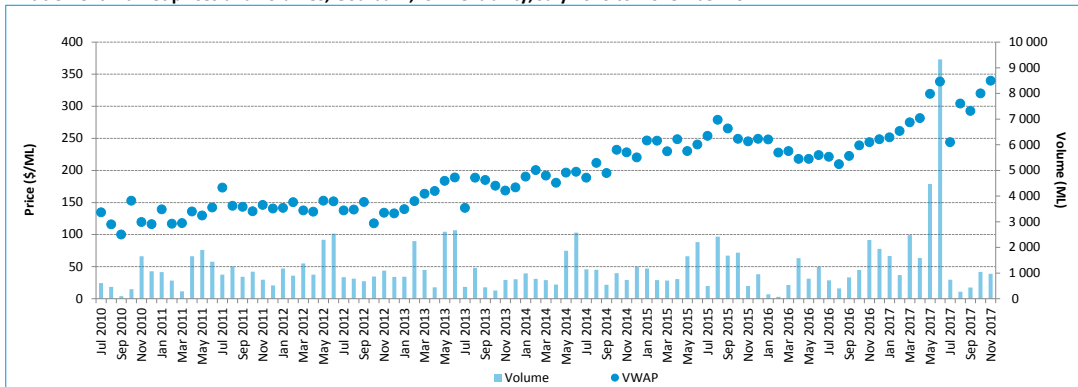
Entitlement market price range, Goulburn, high reliability, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Goulburn: low reliability

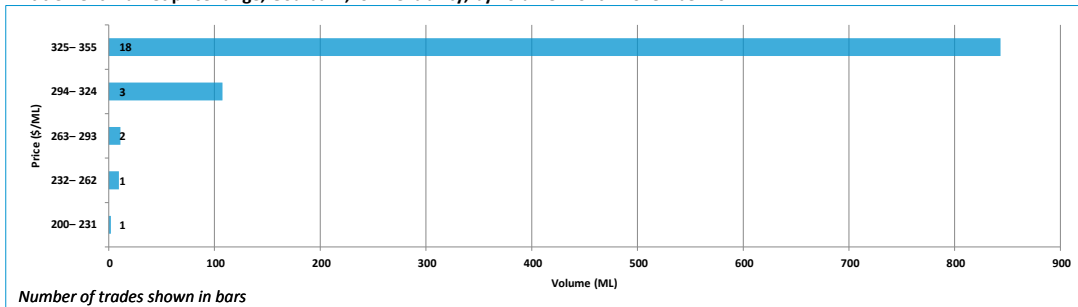
Entitlement market prices and volumes, Goulburn, low reliability, July 2010 to November 2017



Entitlement market prices and volumes, Goulburn, low reliability

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
340	323	306	300	350	350	326	350	973	25	250 - 400

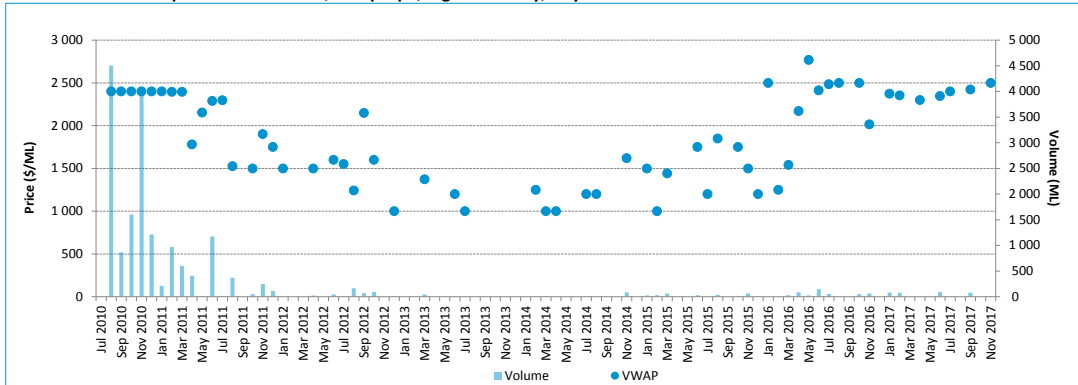
Entitlement market price range, Goulburn, low reliability, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Campaspe: high reliability

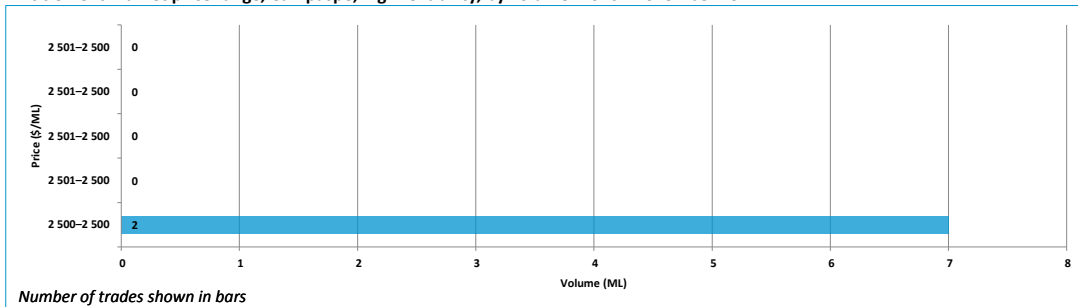
Entitlement market prices and volumes, Campaspe, high reliability, July 2010 to November 2017



Entitlement market prices and volumes, Campaspe, high reliability

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
2 500	2 429	2 375	2 500	2 500	2 500	2 500	2 500	7	2	No listings

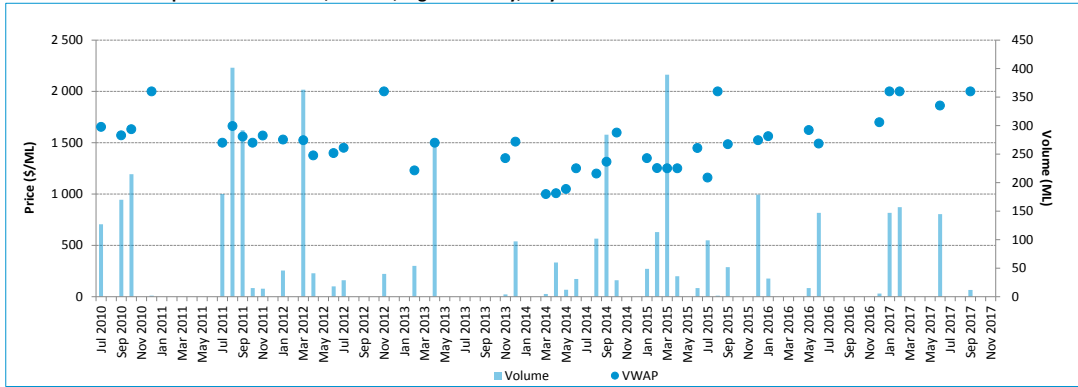
Entitlement market price range, Campaspe, high reliability, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Loddon: high reliability

Entitlement market prices and volumes, Loddon, high reliability, July 2010 to November 2017



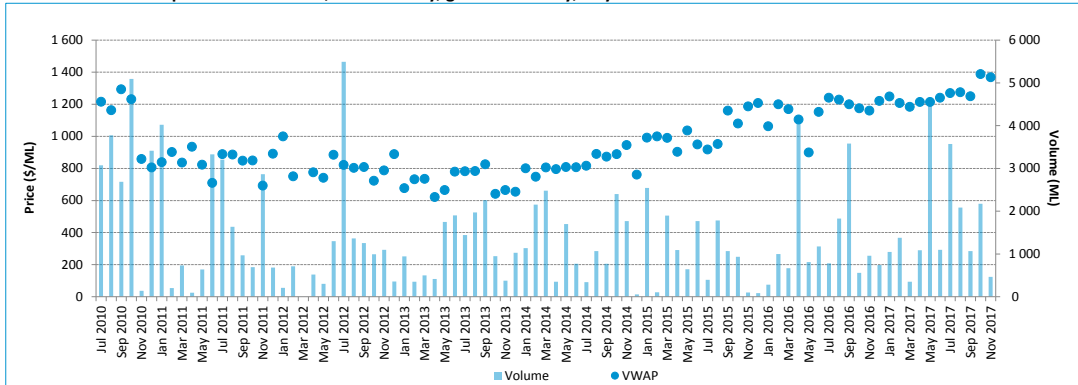
Entitlement market prices and volumes, Loddon, high reliability

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
-	2 000	1 953	-	-	-	-	-	-	-	2 100

Water entitlement market prices Murray–Darling Basin (November 2017)

New South Wales Murray: general security

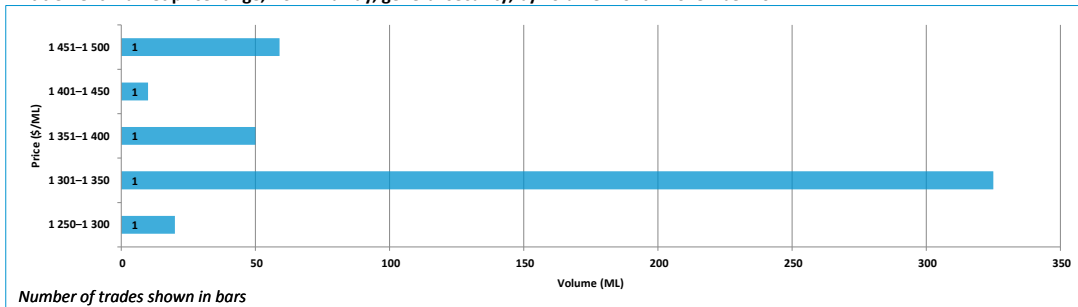
Entitlement market prices and volumes, NSW Murray, general security, July 2010 to November 2017



Entitlement market prices and volumes, NSW Murray, general security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
1 368	1 347	1 259	1 350	1 405	1 370	1 375	0	464	5 1 350 - 1 525	

Entitlement market price range, NSW Murray, general security, by volume month November 2017

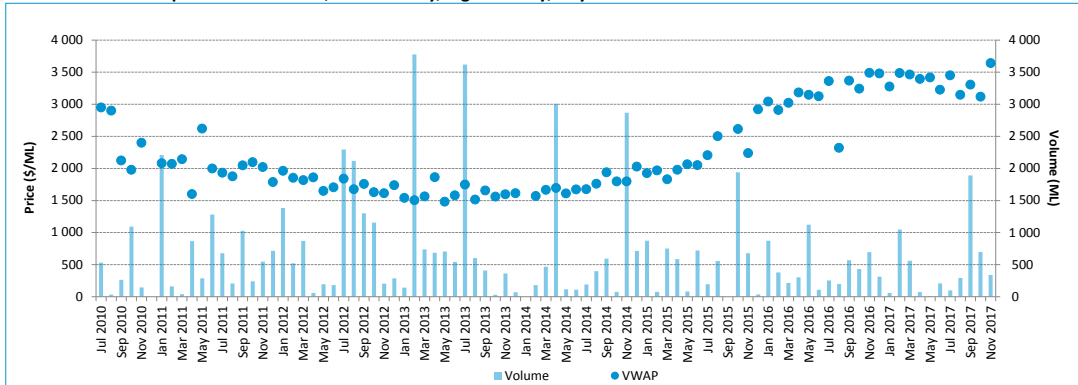


Number of trades shown in bars

Water entitlement market prices Murray-Darling Basin (November 2017)

New South Wales Murray: high security

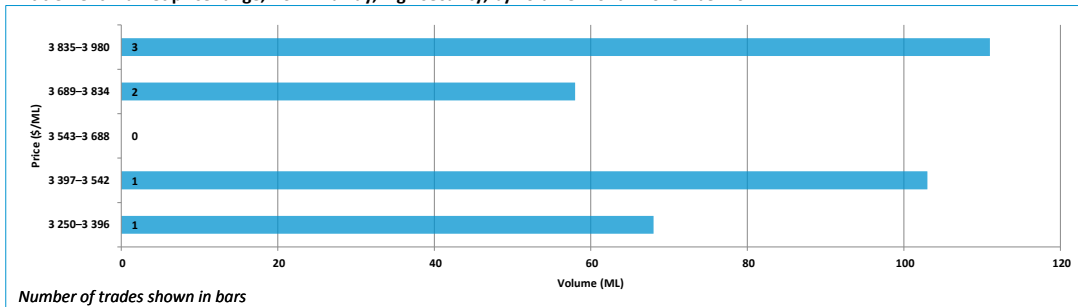
Entitlement market prices and volumes, NSW Murray, high security, July 2010 to November 2017



Entitlement market prices and volumes, NSW Murray, high security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
3 643	3 300	3 355	3 600	3 885	3 750	3 707	0	340	7 3 500 - 4 100	

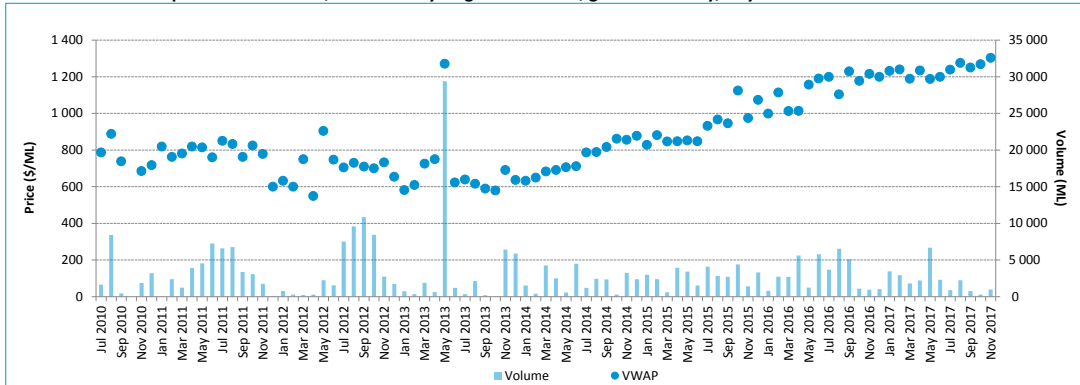
Entitlement market price range, NSW Murray, high security, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

New South Wales Murray Irrigation Limited

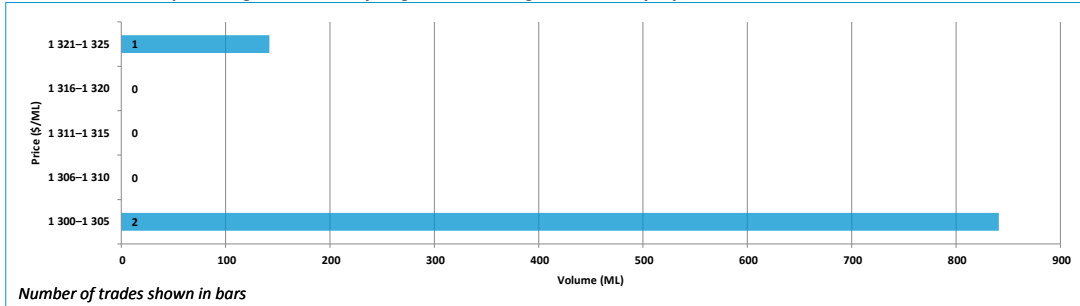
Entitlement market prices and volumes, NSW Murray Irrigation Limited, general security, July 2010 to November 2017



Entitlement market prices and volumes, NSW Murray Irrigation Limited, general security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
1 304	1 279	1 222	1 300	1 313	1 300	1 308	1 300	983	3 1 250 - 1 500	

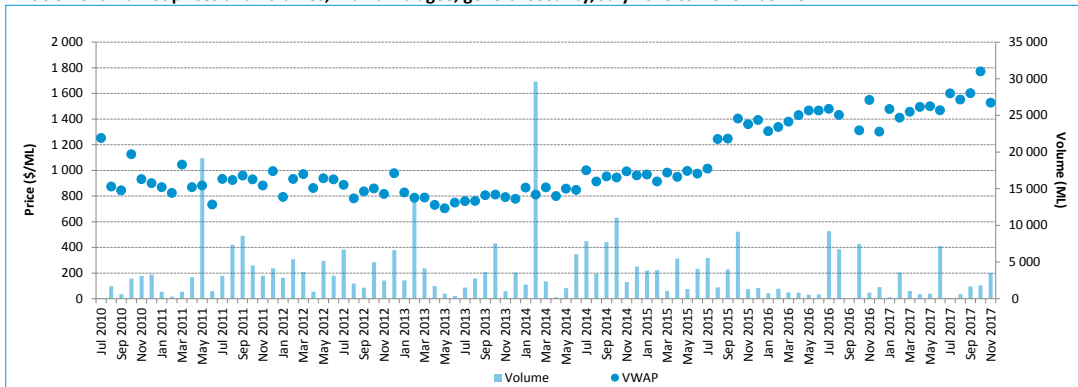
Entitlement market price range, NSW Murray Irrigation Limited, general security, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Murrumbidgee: general security

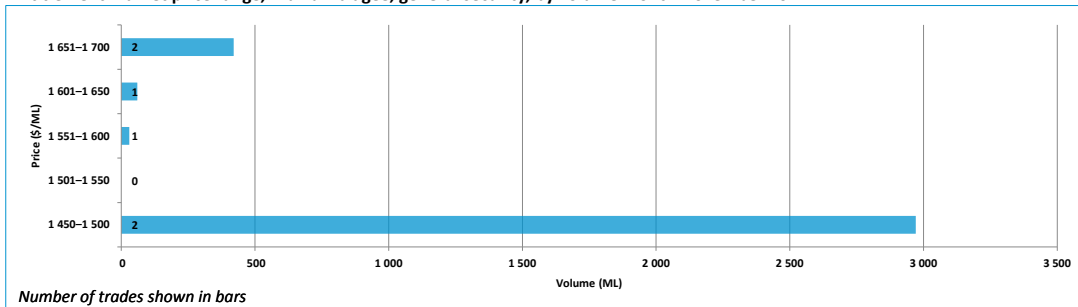
Entitlement market prices and volumes, Murrumbidgee, general security, July 2010 to November 2017



Entitlement market prices and volumes, Murrumbidgee, general security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
1 527	1 609	1 495	1 525	1 688	1 625	1 600	1 700	3 481	6	1 500 - 2 250

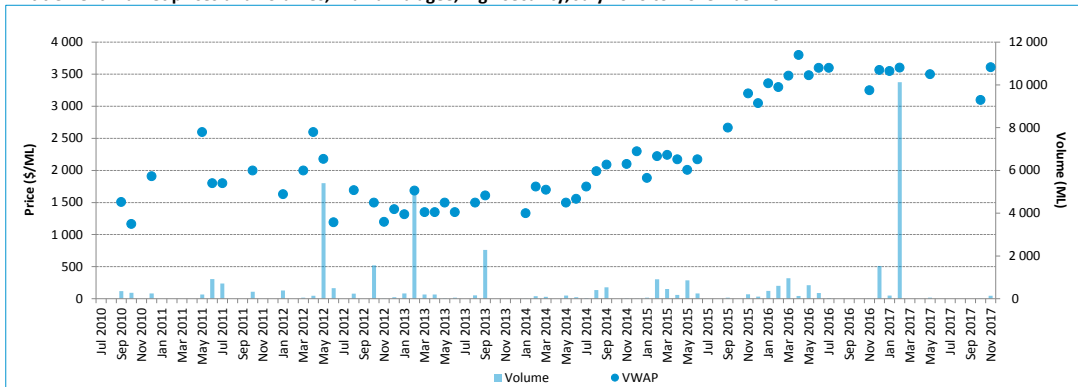
Entitlement market price range, Murrumbidgee, general security, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Murrumbidgee: high security

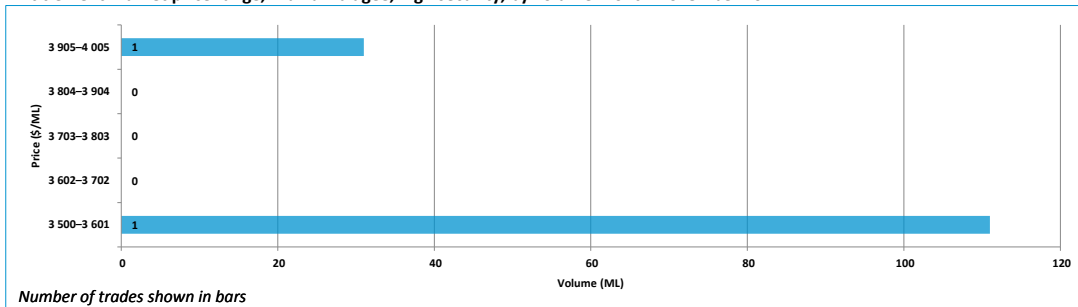
Entitlement market prices and volumes, Murrumbidgee, high security, July 2010 to November 2017



Entitlement market prices and volumes, Murrumbidgee, high security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
3 610	3 600	3 597	3 626	3 879	3 753	3 753	0	142	2	3 500 - 4 120

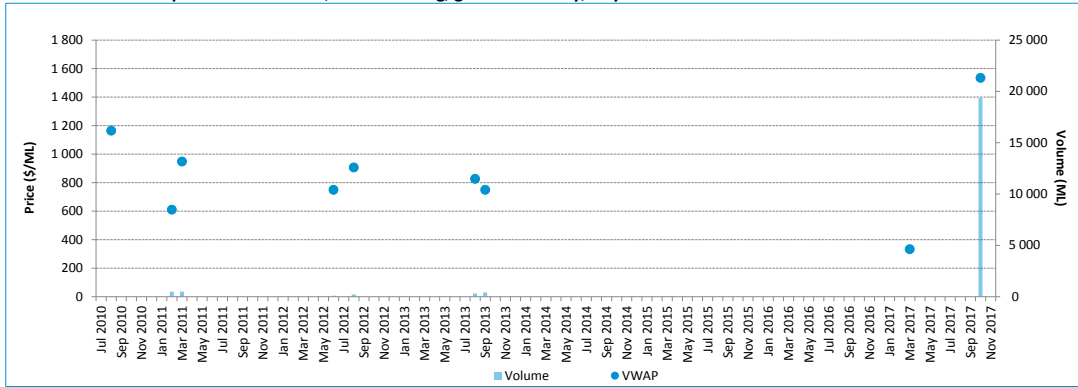
Entitlement market price range, Murrumbidgee, high security, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Lower Darling: general security

Entitlement market prices and volumes, Lower Darling, general security, July 2010 to November 2017



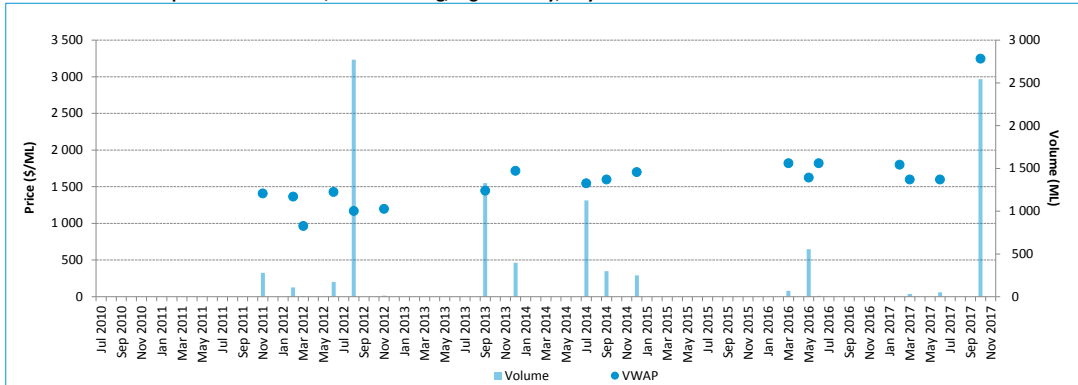
Entitlement market prices and volumes, Lower Darling, general security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017	November 2017	Broker buy/sell
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode	2017 Volume	# of trades	range (\$/ML)
-	1 536	1 536	-	-	-	-	-	-	-	No listings

Water entitlement market prices Murray–Darling Basin (November 2017)

Lower Darling: high security

Entitlement market prices and volumes, Lower Darling, high security, July 2010 to November 2017



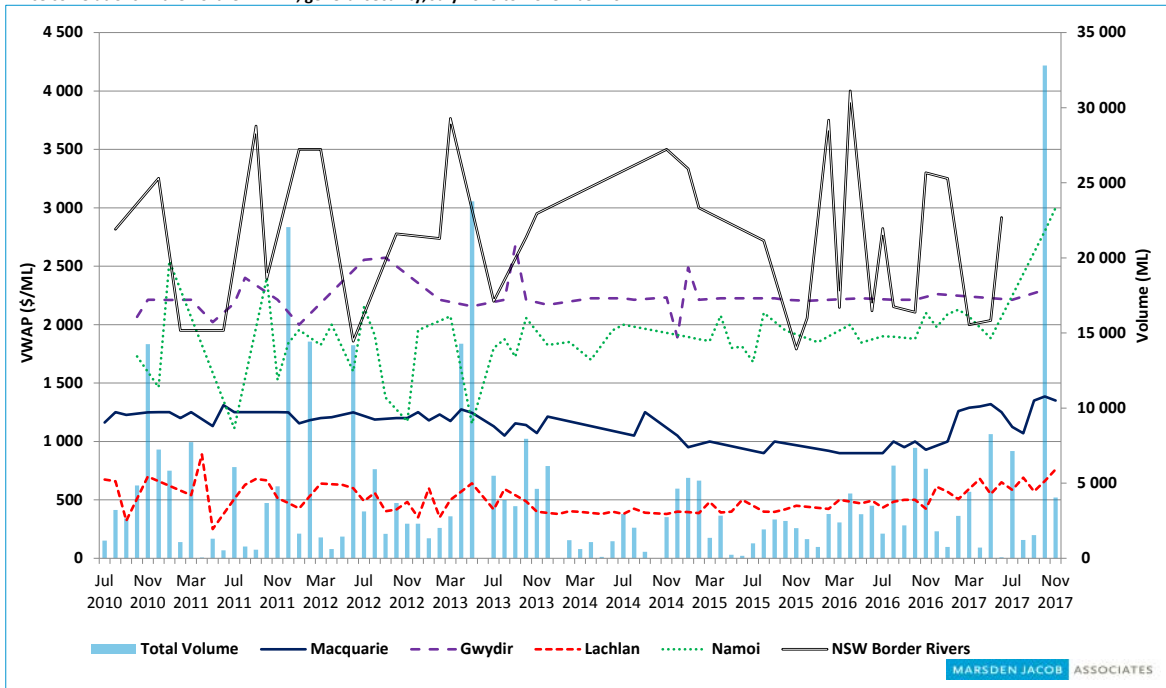
Entitlement market prices and volumes, Lower Darling, high security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
-	3 249	3 195	-	-	-	-	-	-	-	No listings

Water entitlement market prices Murray–Darling Basin (November 2017)

Northern Murray–Darling Basin

Price correlations in the northern MDB, general security, July 2010 to November 2017



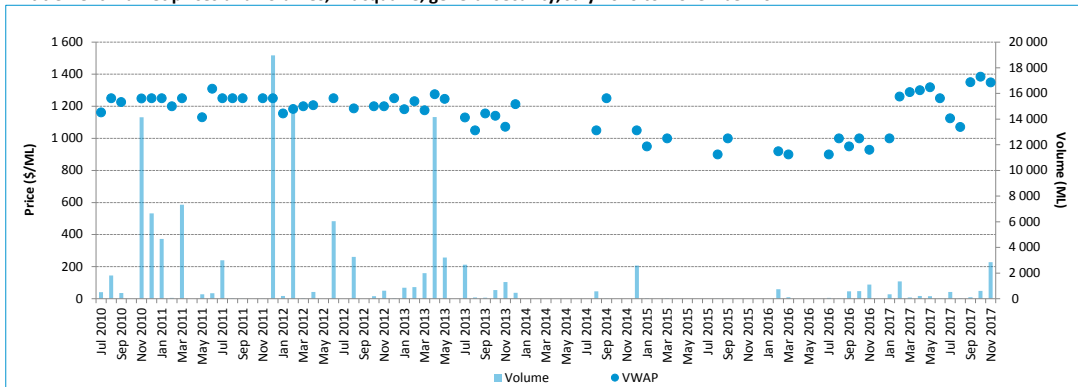
Source: Marsden Jacob analysis, 2017.

Water entitlement market prices Murray–Darling Basin (November 2017)

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Macquarie: general security

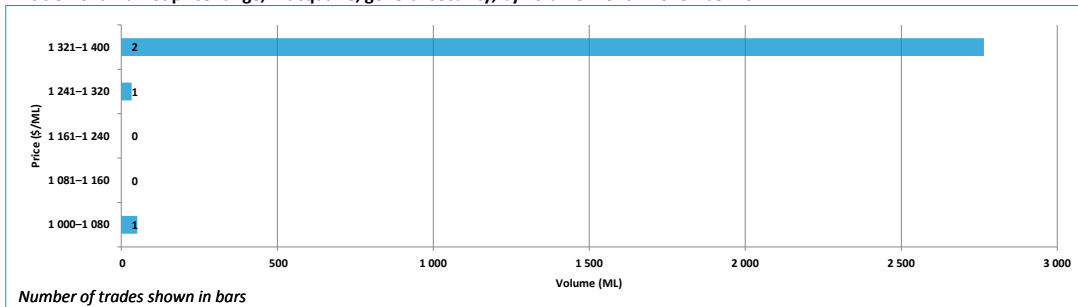
Entitlement market prices and volumes, Macquarie, general security, July 2010 to November 2017



Entitlement market prices and volumes, Macquarie, general security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
1 349	1 356	1 292	1 236	1 363	1 333	1 266	0	2 849	4	1 100 - 1 500

Entitlement market price range, Macquarie, general security, by volume month November 2017

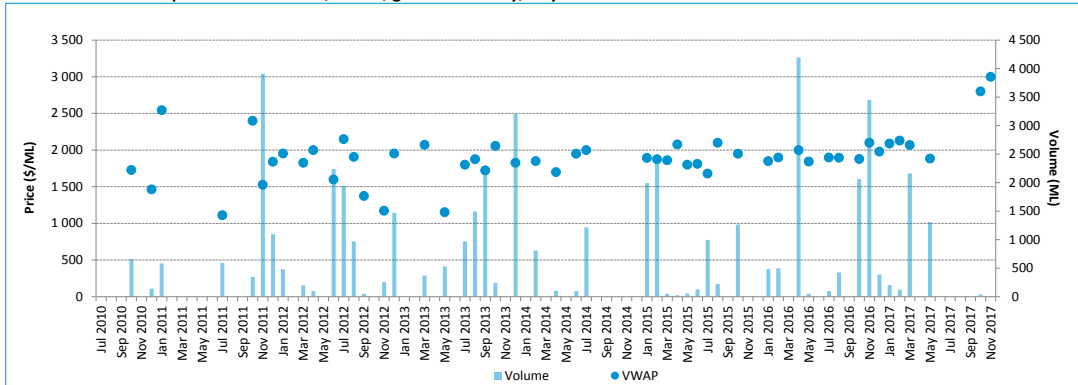


Number of trades shown in bars

Water entitlement market prices Murray-Darling Basin (November 2017)

Namoi: general security

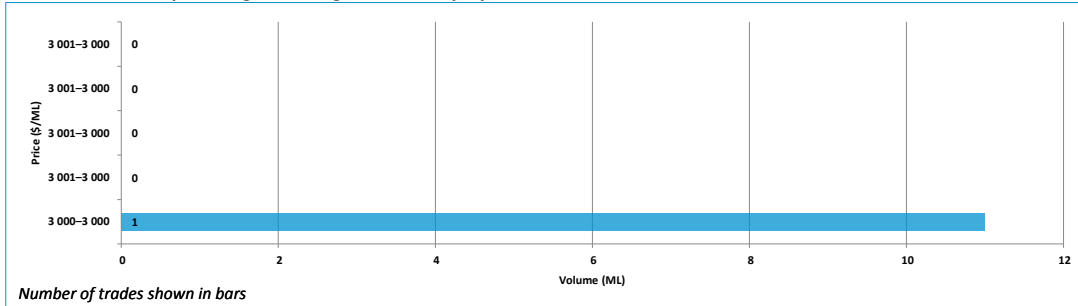
Entitlement market prices and volumes, Namoi, general security, July 2010 to November 2017



Entitlement market prices and volumes, Namoi, general security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
3 000	2 843	2 015	3 000	3 000	3 000	3 000	0	11	1 1850 - 2 500	

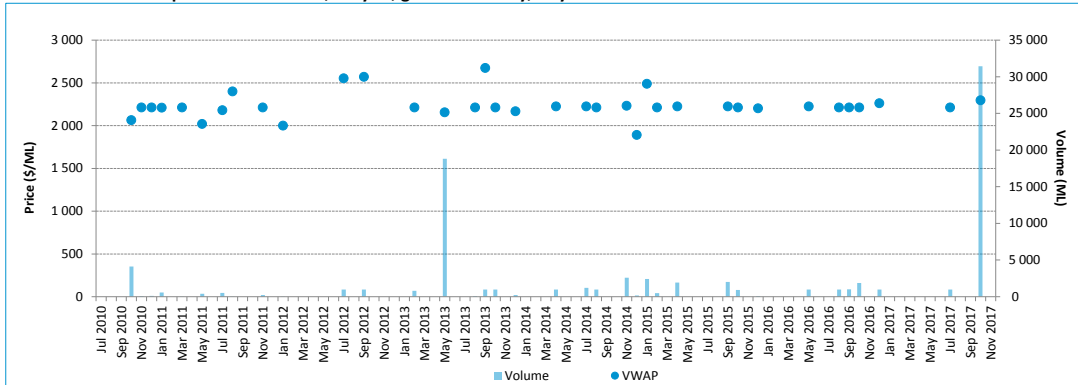
Entitlement market price range, Namoi, general security, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Gwydir: general security

Entitlement market prices and volumes, Gwydir, general security, July 2010 to November 2017



Entitlement market prices and volumes, Gwydir, general security

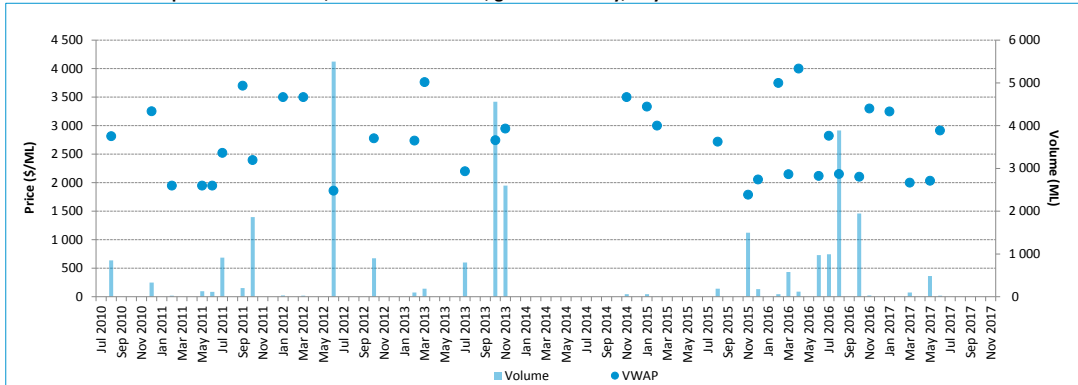
Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017	November 2017	Broker buy/sell
Month of	November	past 12	25th percentile	75th percentile	Median	Mean	Mode	2017	# of trades	range (\$/ML)
November 2017	2017 Quarter	months						2017		
-	2 298	2 294	-	-	-	-	-	-	-	No listings

Water entitlement market prices Murray–Darling Basin (November 2017)

MARSDEN JACOB ASSOCIATES

New South Wales Border Rivers: general security

Entitlement market prices and volumes, NSW Border Rivers, general security, July 2010 to November 2017



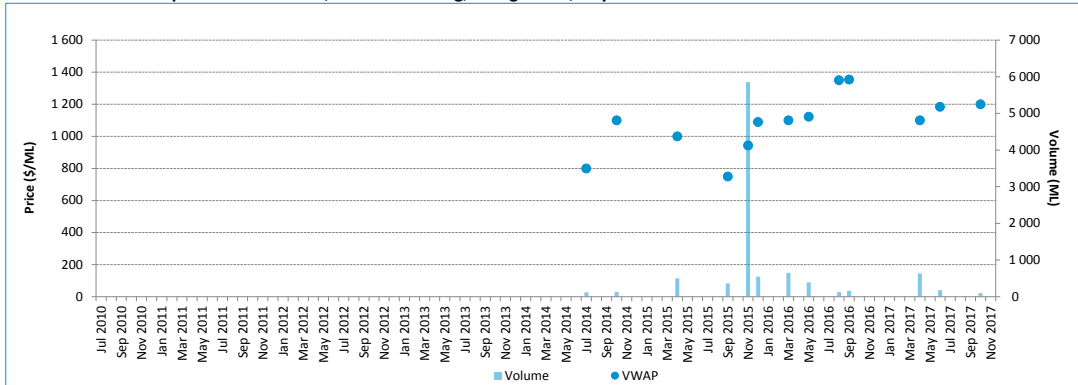
Entitlement market prices and volumes, NSW Border Rivers, general security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
-	-	2 083	-	-	-	-	-	-	3 700	

Water entitlement market prices Murray–Darling Basin (November 2017)

Barwon–Darling: unregulated

Entitlement market prices and volumes, Barwon–Darling, unregulated, July 2010 to November 2017



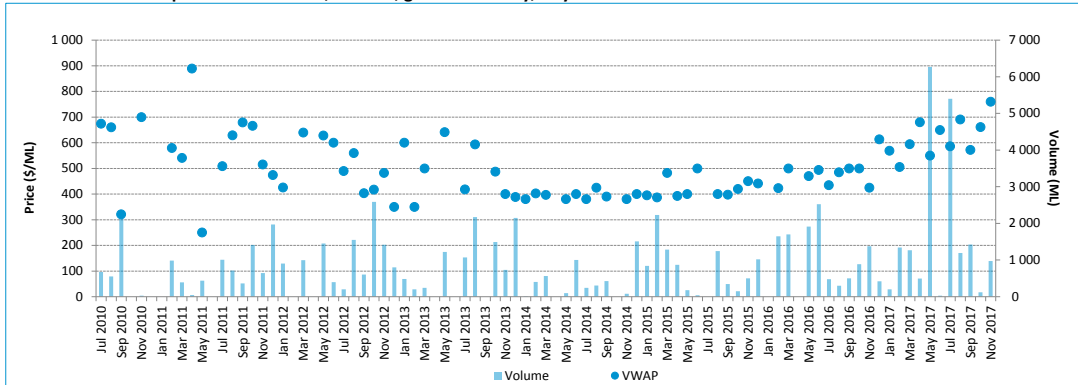
Entitlement market prices and volumes, Barwon–Darling, unregulated

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
-	1 200	1 127	-	-	-	-	-	-	-	No listings

Water entitlement market prices Murray–Darling Basin (November 2017)

Lachlan: General security

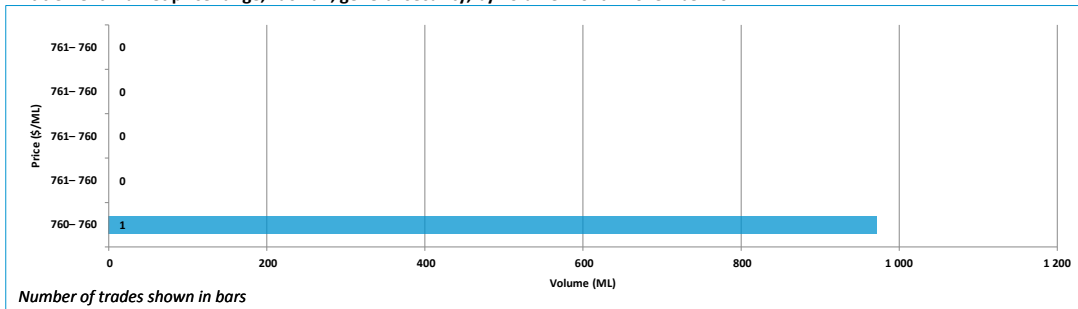
Entitlement market prices and volumes, Lachlan, general security, July 2010 to November 2017



Entitlement market prices and volumes, Lachlan, general security

Volume weighted average price (\$/ML)			November 2017 (in \$/ML)					November 2017 Volume	November 2017 # of trades	Broker buy/sell range (\$/ML)
Month of November 2017	November 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
760	649	587	760	760	760	760	0	972	1	600 - 800

Entitlement market price range, Lachlan, general security, by volume month November 2017



Water entitlement market prices Murray-Darling Basin (November 2017)

Queensland: Trade Summary

Entitlement market prices and volumes, Queensland

Resource Operation Plan	Water Supply Scheme / Water Management Area	Type of Entitlement	Volume weighted average price (\$/ML)			October 2017 (in \$/ML)					October 2017 Volume	October 2017 # of trades	Broker buy/sell range (\$/ML)
			Month of October 2017	October 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
QLD Border Rivers	Border Rivers/ Macintyre Brook	Supplemented	2 000	2 000	1 509	2 000	2 000	2 000	2 000	0	7	1	2 200
QLD Border Rivers	Border Rivers	Unsupplemented	-	2 500	1 929	-	-	-	-	-	-	-	No listings
Condamine-Balonne	St. George / Upper Condamine	Supplemented	-	-	2 838	-	-	-	-	-	-	-	1 800 - 2 000
Condamine-Balonne	Condamine Balonne / Lower Balonne / Upper Condamine	Unsupplemented	1 430	1 492	2 117	1 150	1 450	1 300	1 300	0	335	2	700
Condamine-Balonne	Upper Condamine	Alluvium Groundwater	-	-	1 979	-	-	-	-	-	-	-	No listings
Condamine-Balonne	Lower Balonne	Overland Flow	-	-	-	-	-	-	-	-	-	-	No listings

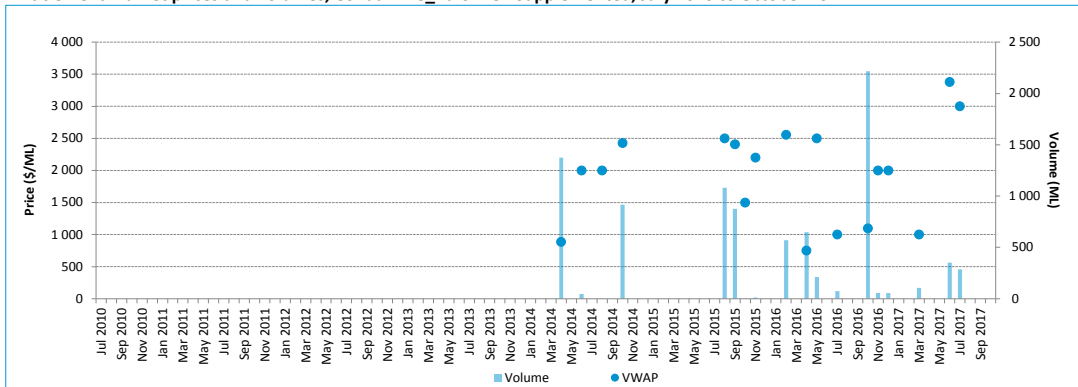
Note: No trades have been reported for Queensland in November 2017. Tables show the monthly trade figures until the end of October.

Water entitlement market prices Murray-Darling Basin (November 2017)

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Condamine Balonne: Supplemented

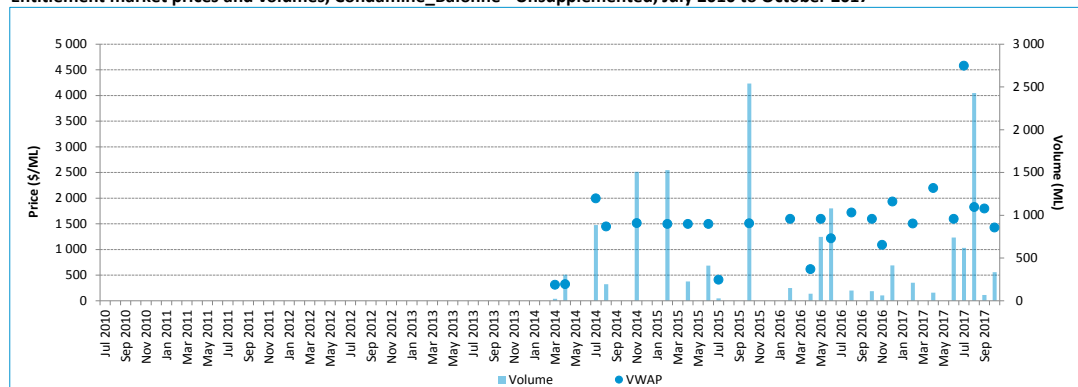
Entitlement market prices and volumes, Condamine_Balonne - Supplemented, July 2010 to October 2017



Note: No trades have been reported for Queensland in November 2017. Charts show the monthly trade volume and value until the end of October.

Condamine Balonne: Unsupplemented

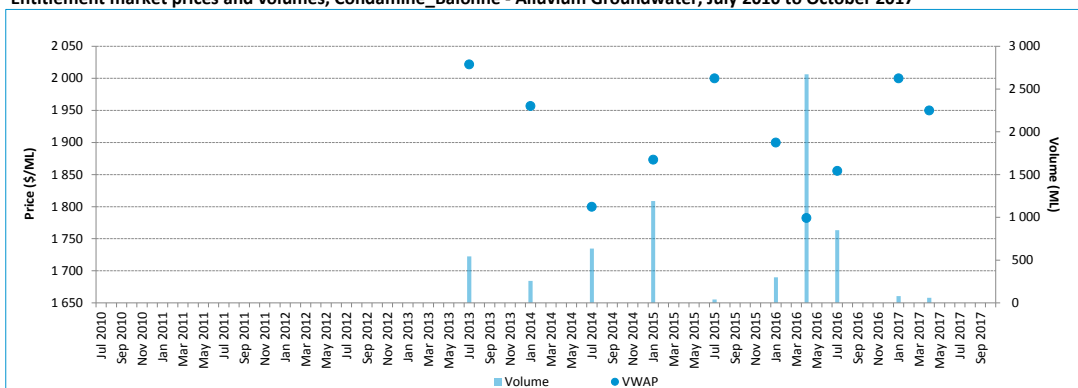
Entitlement market prices and volumes, Condamine_Balonne - Unsupplemented, July 2010 to October 2017



Note: No trades have been reported for Queensland in November 2017. Charts show the monthly trade volume and value until the end of October.

Condamine Balonne: Alluvium Groundwater

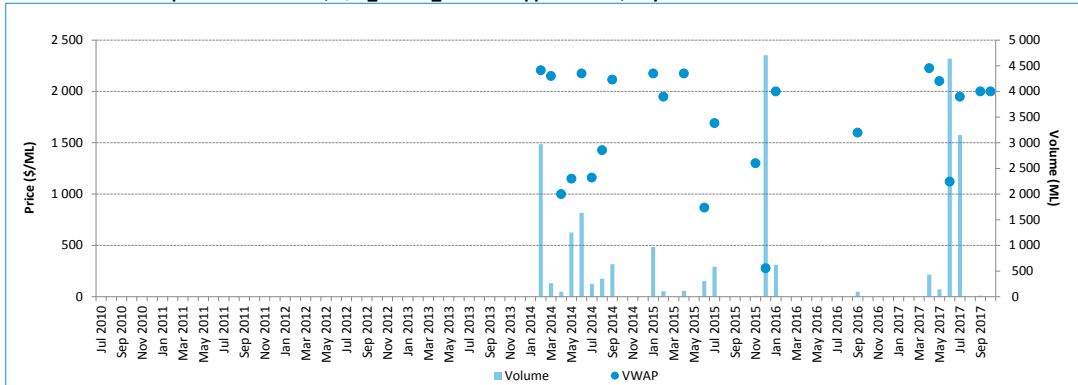
Entitlement market prices and volumes, Condamine_Balonne - Alluvium Groundwater, July 2010 to October 2017



Note: No trades have been reported for Queensland since October 2017. Charts show the monthly trade volume and value until the end of September

QLD Border Rivers: Supplemented

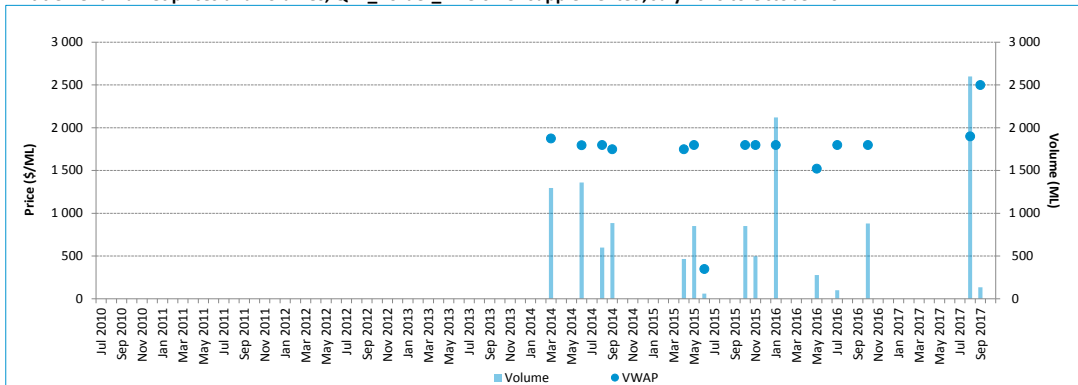
Entitlement market prices and volumes, QLD_Border_Rivers - Supplemented, July 2010 to October 2017



Note: No trades have been reported for Queensland in November 2017. Charts show the monthly trade volume and value until the end of October.

QLD Border Rivers: Unsupplemented

Entitlement market prices and volumes, QLD_Border_Rivers - Unsupplemented, July 2010 to October 2017



Note: No trades have been reported for Queensland in November 2017. Charts show the monthly trade volume and value until the end of October.

Water entitlement market prices Murray–Darling Basin (November 2017)

Appendix A: Regions and water sources

Table A1 Water sources (southern MDB)

Region	Water source
SA Murray	River Murray Prescribed Water Course (Class 3a)
Vic. Murray above Barmah Choke	6 Vic. Murray Dart to Barmah
Vic. Murray below Barmah Choke	7 Vic. Murray Barmah to SA 6B Lower Broken Creek
Goulburn	1A Greater Goulburn 1B Boort 3 Lower Goulburn
Campaspe	4A Campaspe Eppalock to WWC 4C Lower Campaspe
Loddon	5A Loddon–Coliban Channel to Lower Weir Pool (now SA Loddon – CC/Tull to LWP) 5B Bullarook
NSW Murray	New South Wales Murray Regulated River Water Source
Murrumbidgee	Murrumbidgee Regulated River Water Source
Lower Darling	Lower Darling Regulated River Water Source

Table A2 Water sources (northern MDB)

Region	Water source
Macquarie	Macquarie and Cudgegong Regulated Rivers Water Source
Namoi	Lower Namoi Regulated River Water Source Upper Namoi Regulated River Water Source
Gwydir	Gwydir Regulated River Water Source
NSW Border Rivers	Border Rivers Regulated River Water Source
Barwon–Darling	Barwon–Darling Unregulated River Water Source
Lachlan	Lachlan Regulated River Water Source

Appendix B: Trades Excluded

Table B1 shows trades that have been excluded from the November 2017 analysis.

Table B1 Outliers removed from trade data

Date	Catchment	Product name	Volume (ML)	Price (\$)	Price per ML (\$/ML)
2/11/2017	Goulburn	High Reliability	3	\$ 6 800	\$2 000
20/11/2017	Goulburn	High Reliability	1	\$ 1 500	\$1 500
21/11/2017	Goulburn	High Reliability	30	\$ 60 800	\$2 000
28/11/2017	Goulburn	High Reliability	2	\$ 3 600	\$1 800
21/11/2017	Goulburn	Low Reliability	13	\$ 2 010	\$ 150
24/11/2017	Goulburn	Low Reliability	1	\$ 50	\$ 100
24/11/2017	Goulburn	Low Reliability	3	\$ 435	\$ 150
27/11/2017	Loddon	High Reliability	2	\$ 2 000	\$1 000
8/11/2017	Murrumbidgee	General Security	-	\$ 0	\$ 1
1/11/2017	NSW_Murray	General Security	2	\$ 1	\$ 1
13/11/2017	NSW_Murray	General Security	511	\$5 666 050	\$11 088
30/11/2017	NSW_Murray	General Security	365	\$ 219 000	\$ 600
13/11/2017	NSW_Murray	High Security	557	\$5 666 049	\$10 172
13/11/2017	NSW_Murray	High Security	289	\$5 666 050	\$19 606
13/11/2017	NSW_Murray	High Security	284	\$5 666 050	\$19 951
13/11/2017	NSW_Murray	High Security	209	\$5 666 051	\$27 110
13/11/2017	NSW_Murray	High Security	200	\$5 666 050	\$28 330
1/11/2017	SA_Murray	Class 3a	50	\$ 172 500	\$3 450
10/11/2017	Vic_Murray_BelowBC	High Reliability	5	\$ 3 000	\$ 600
22/11/2017	Vic_Murray_BelowBC	High Reliability	2	\$ 2 900	\$1 450