

Water entitlement market prices

Murray–Darling Basin

(April 2017)

Prepared for Australian Government Department of Agriculture and Water Resources



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Introduction

This April 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 (Oskey 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.

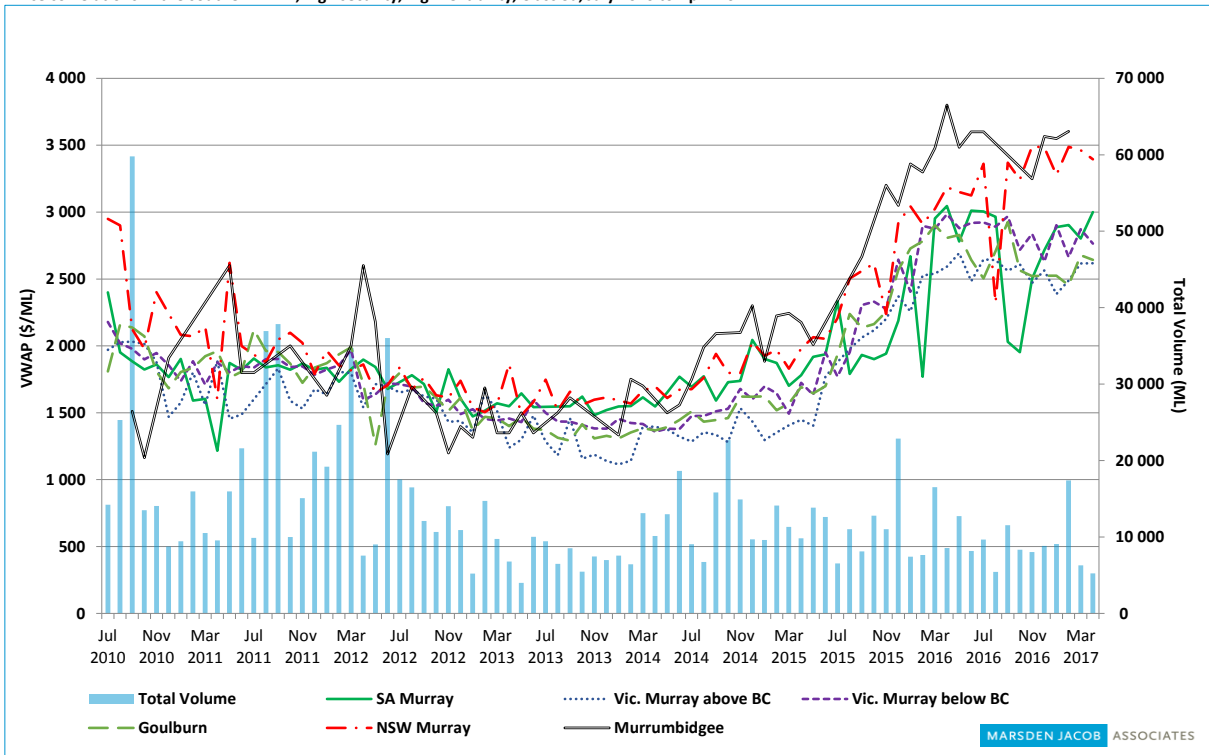
Marsden Jacob does not necessarily remove all trades that fall outside two standard deviations, as some of them reflect arm's-length trades. If trades that fall outside two standard deviations are retained in the regional dataset, this is noted in the region and entitlement-specific reports. Also, trades 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 (April 2017)

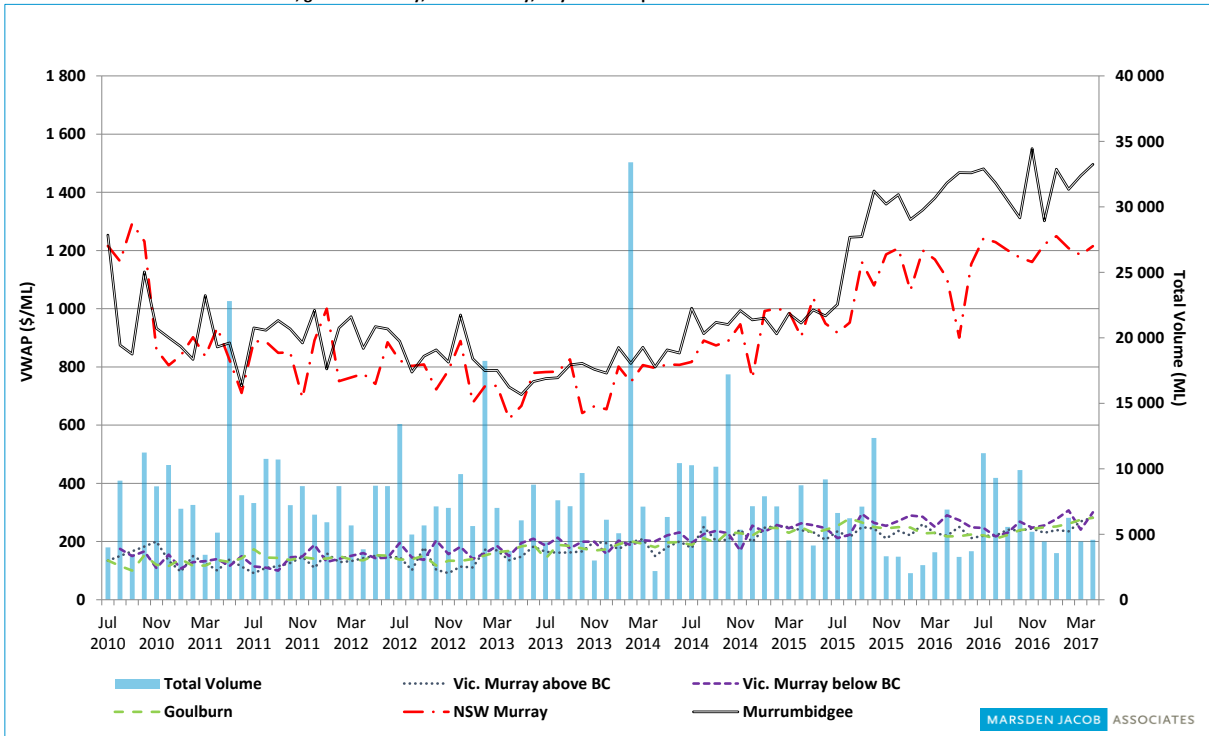
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Southern Murray–Darling Basin

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



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



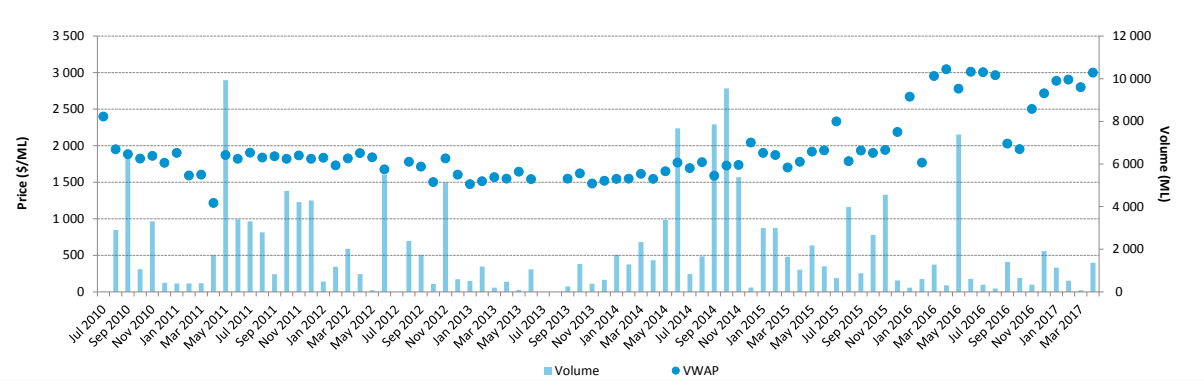
Source: Marsden Jacob analysis, 2017.

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

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Southern Australian Murray: Class 3a

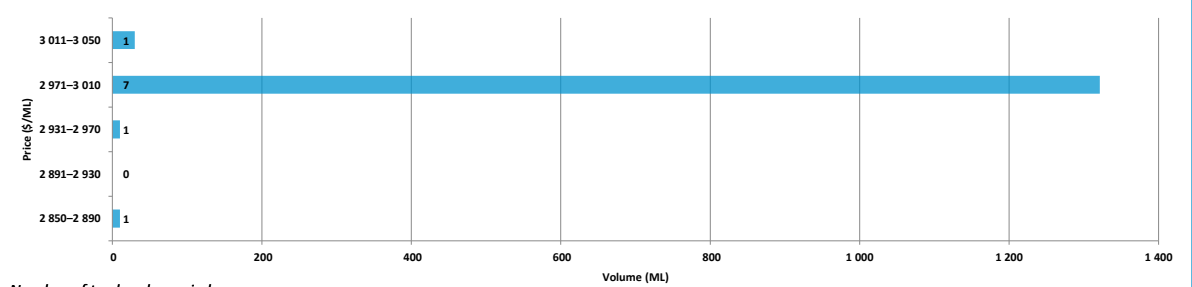
Entitlement market prices and volumes, SA Murray, Class 3a, July 2010 to April 2017



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

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)						April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
3 000	2 966	2 713	3 000	3 000	3 000	2 986	3 000	1 371	10	2 700 - 3 000

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

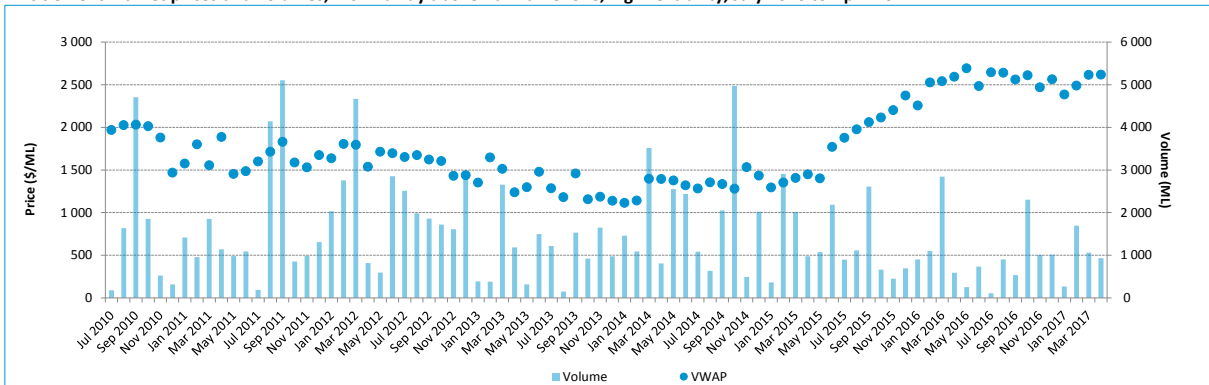


Number of trades shown in bars

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

Victorian Murray above Barmah Choke: high reliability

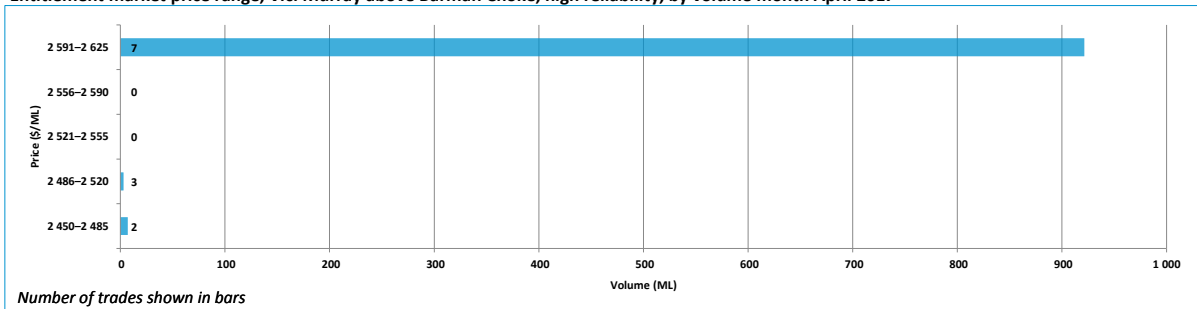
Entitlement market prices and volumes, Vic. Murray above Barmah Choke, high reliability, July 2010 to April 2017



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

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)						April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
2 618	2 558	2 563	2 500	2 625	2 605	2 560	2 625	931	12	2 450 - 2 700

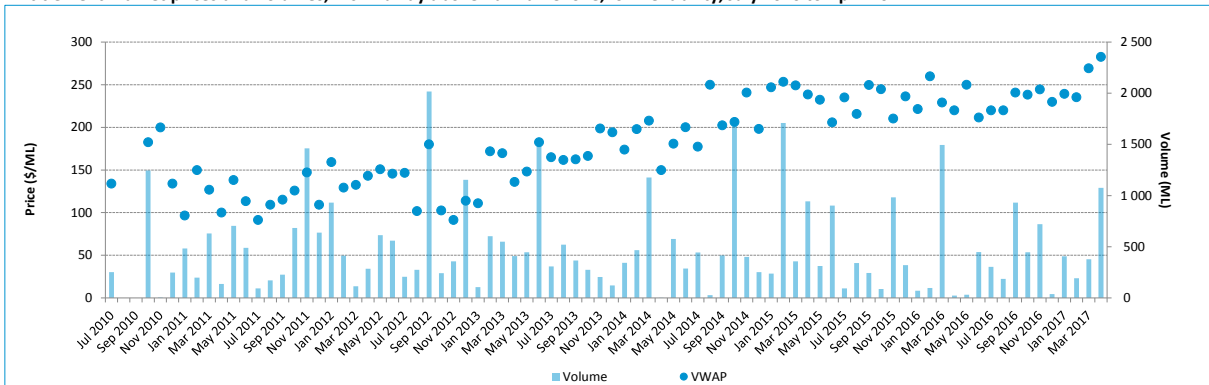
Entitlement market price range, Vic. Murray above Barmah Choke, high reliability, by volume month April 2017



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

Victorian Murray above Barmah Choke: low reliability

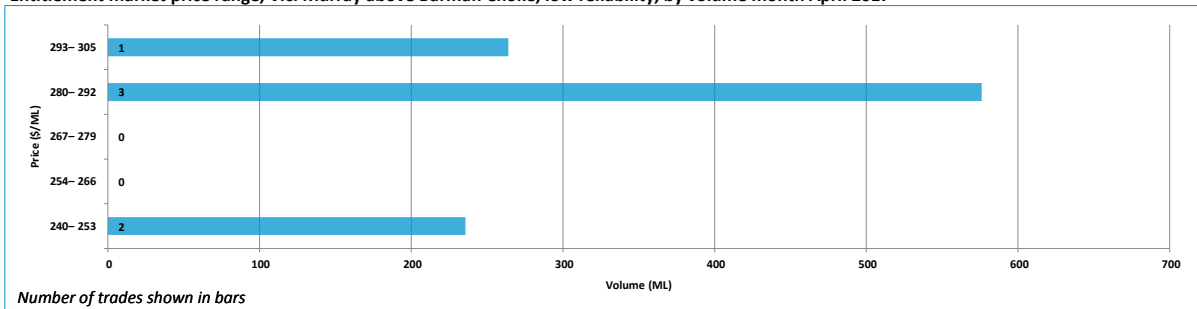
Entitlement market prices and volumes, Vic. Murray above Barmah Choke, low reliability, July 2010 to April 2017



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

Volume weighted average price (\$/ML)				April 2017 (in \$/ML)				April 2017	April 2017 # of	Broker buy/sell
Month of April	April 2017	YTD	25th percentile	75th percentile	Median	Mean	Mode	Volume	trades	range (\$/ML)
2017	Quarter									
283	274	247	253	290	290	276	290	1 076	6	290 - 310

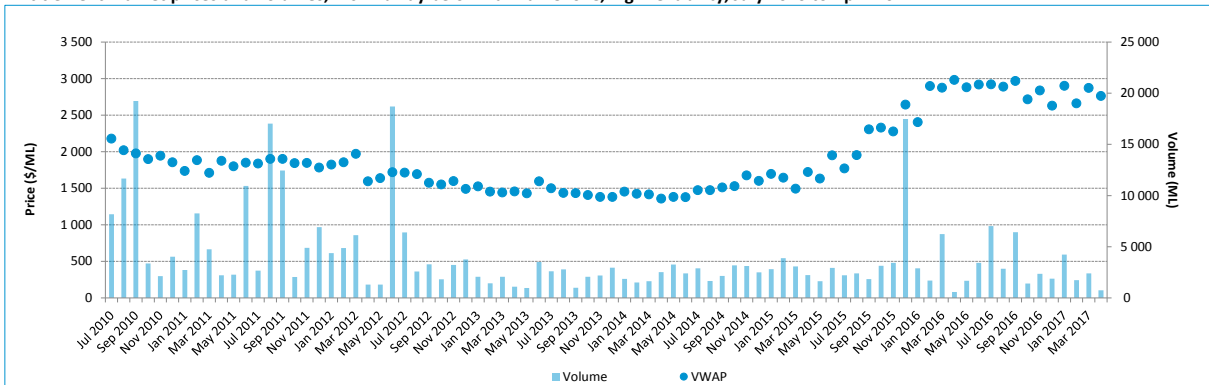
Entitlement market price range, Vic. Murray above Barmah Choke, low reliability, by volume month April 2017



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

Victorian Murray below Barmah Choke: high reliability

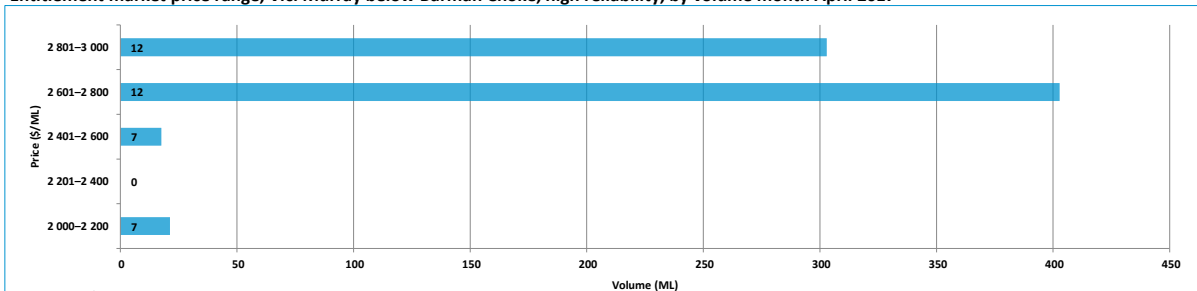
Entitlement market prices and volumes, Vic. Murray below Barmah Choke, high reliability, July 2010 to April 2017



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

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)						April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
2 764	2 781	2 876	2 500	2 850	2 750	2 619	2 500	745	38	2 700 - 2 900

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

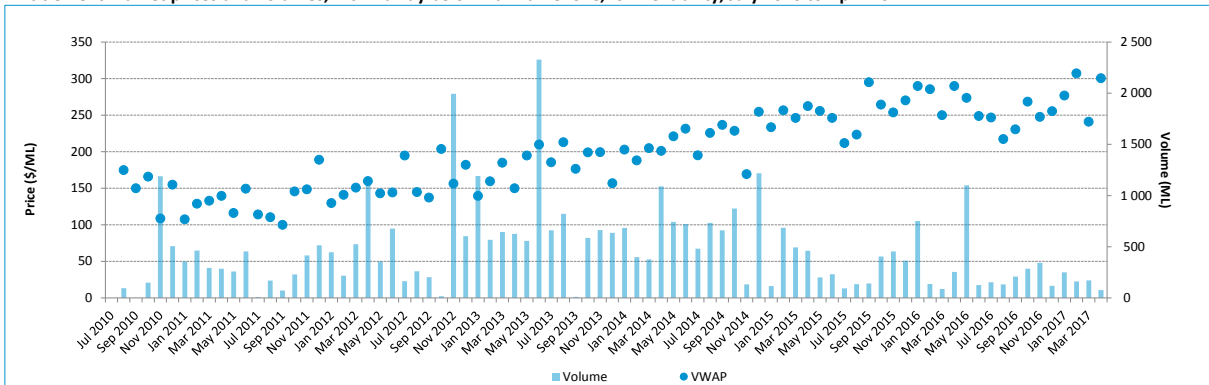


Number of trades shown in bars

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

Victorian Murray below Barmah Choke: low reliability

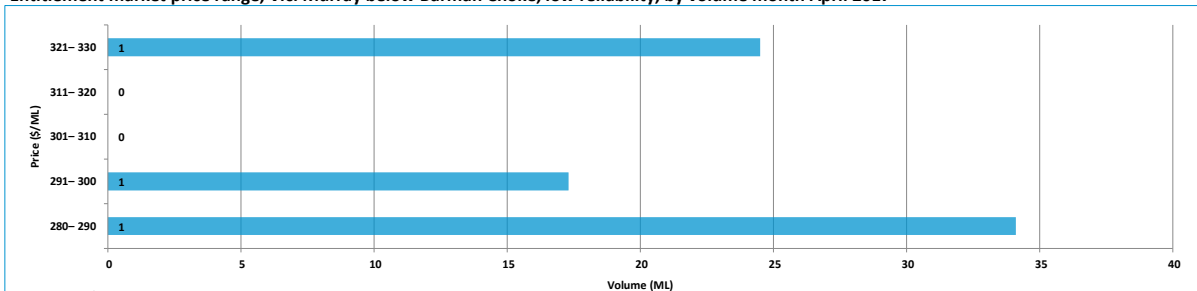
Entitlement market prices and volumes, Vic. Murray below Barmah Choke, low reliability, July 2010 to April 2017



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

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)						April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
301	278	263	290	315	300	303	-	76	3	300 - 340

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

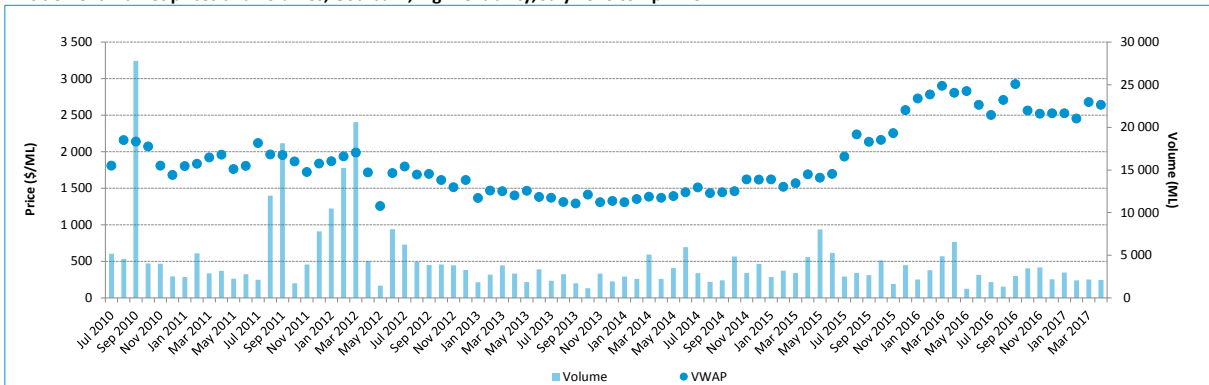


Number of trades shown in bars

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

Goulburn: high reliability

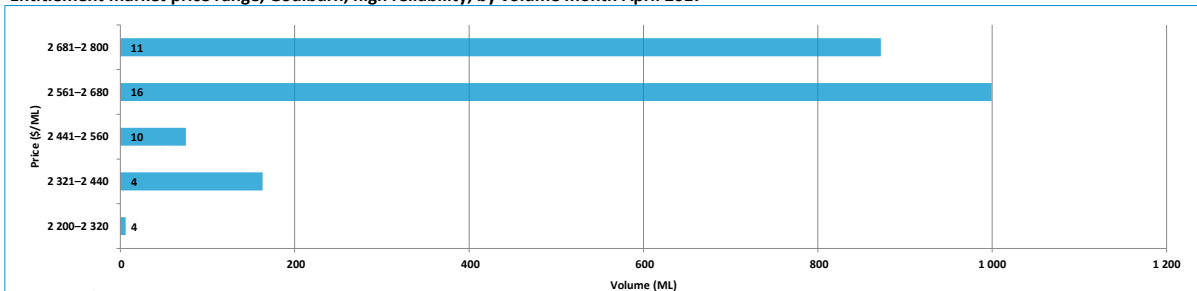
Entitlement market prices and volumes, Goulburn, high reliability, July 2010 to April 2017



Entitlement market prices and volumes, Goulburn, high reliability

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)							April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode				
2 643	2 593	2 612	2 500	2 675	2 650	2 574	2 650	2 116	45		2 500 - 2 650

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

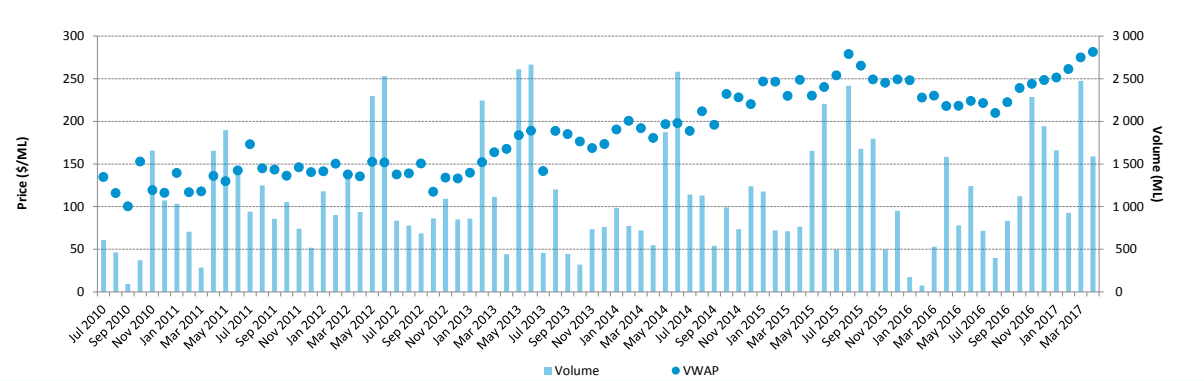


Number of trades shown in bars

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

Goulburn: low reliability

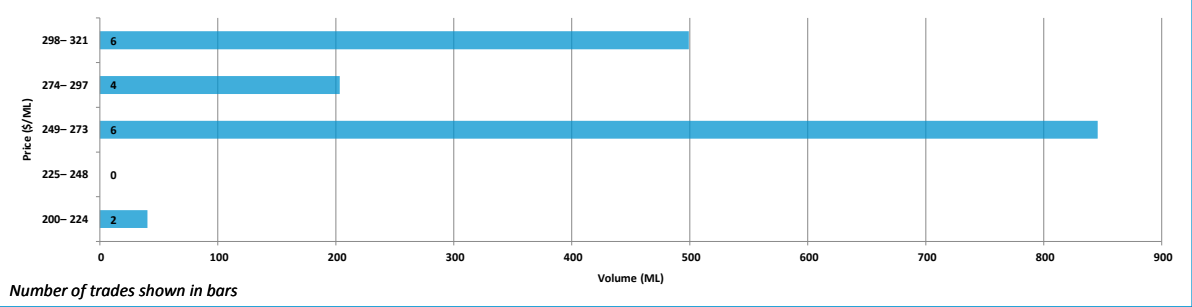
Entitlement market prices and volumes, Goulburn, low reliability, July 2010 to April 2017



Entitlement market prices and volumes, Goulburn, low reliability

Volume weighted average price (\$/ML)				April 2017 (in \$/ML)				April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
281	275	249	267	304	285	277	270	1 588	18	290 - 340

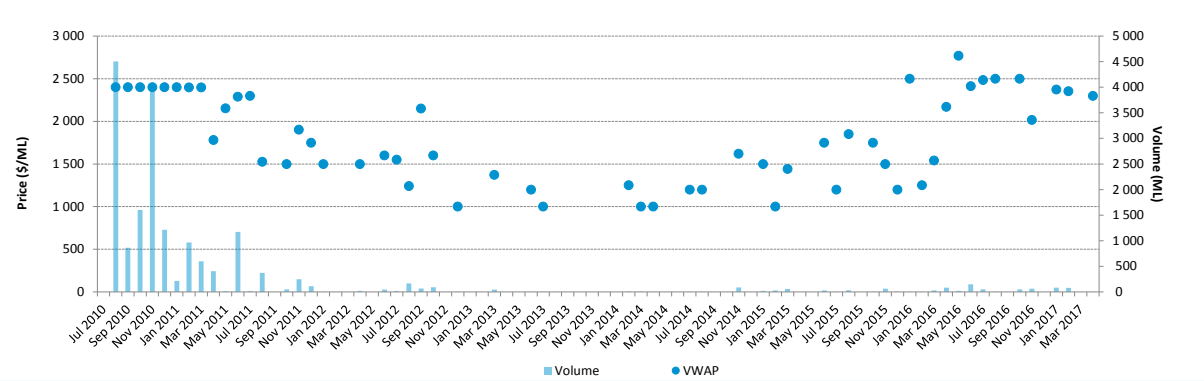
Entitlement market price range, Goulburn, low reliability, by volume month April 2017



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

Campaspe: high reliability

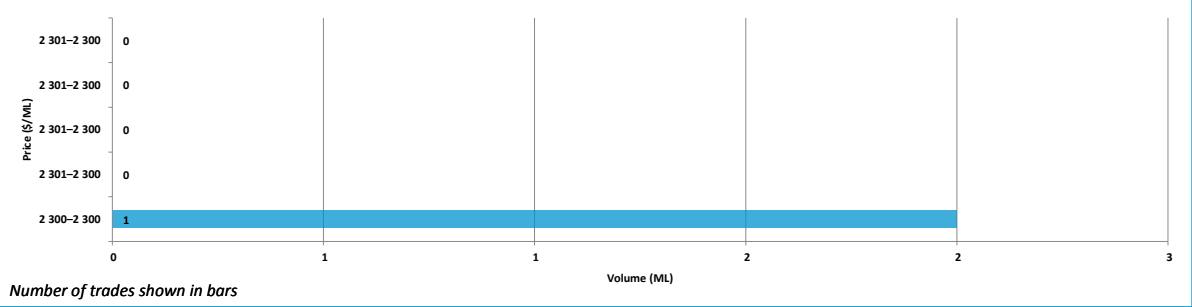
Entitlement market prices and volumes, Campaspe, high reliability, July 2010 to April 2017



Entitlement market prices and volumes, Campaspe, high reliability

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)						April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
2 300	2 353	2 382	2 300	2 300	2 300	2 300	-	2	1	2 250 - 2 450

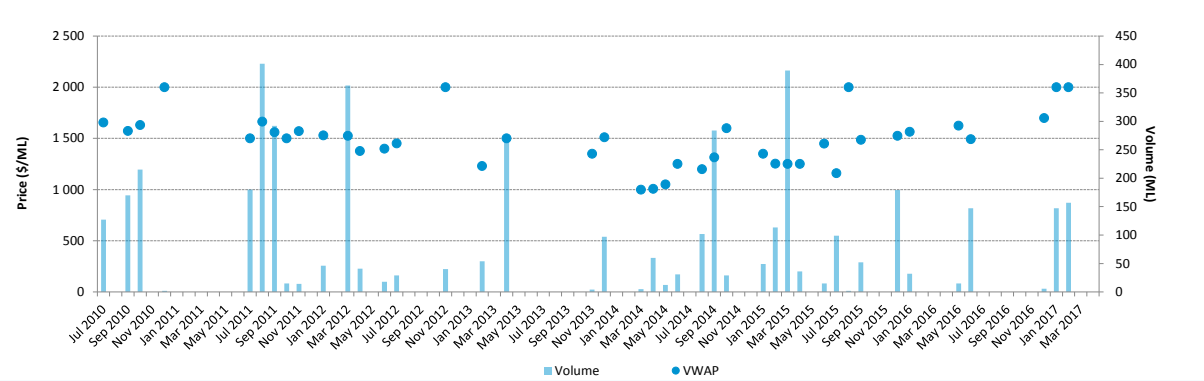
Entitlement market price range, Campaspe, high reliability, by volume month April 2017



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

Loddon: high reliability

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



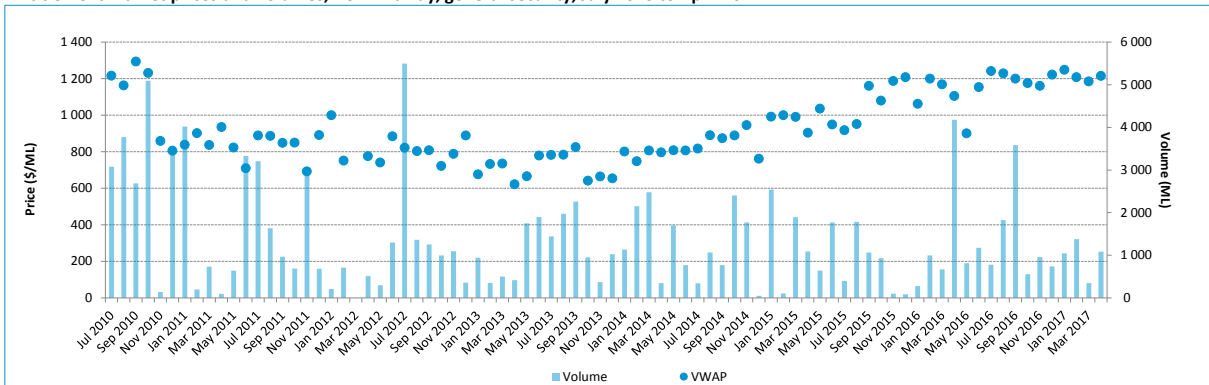
Entitlement market prices and volumes, Loddon, high reliability

Volume weighted average price (\$/ML)			April 2017 (in \$/ML)					April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
-	2 000	1 826	-	-	-	-	-	-	-	No listings

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

New South Wales Murray: general security

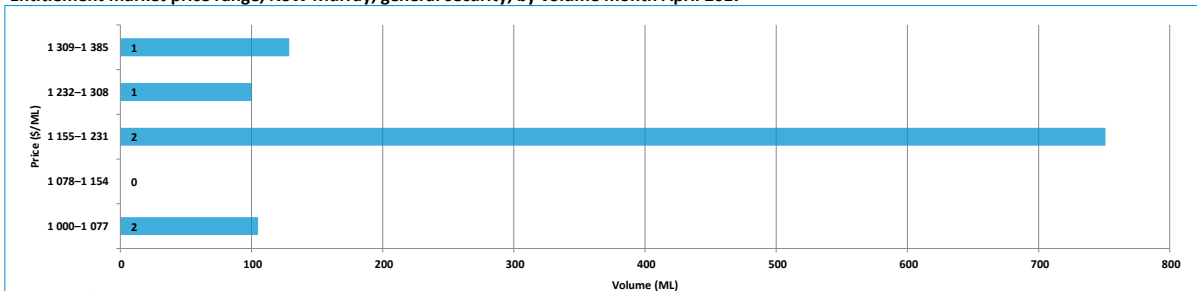
Entitlement market prices and volumes, NSW Murray, general security, July 2010 to April 2017



Entitlement market prices and volumes, NSW Murray, general security

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)							April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode	April 2017 Volume		
1 215	1 208	1 188	1 050	1 278	1 205	1 183	1 000	1 085	6	1 200 - 1 350

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

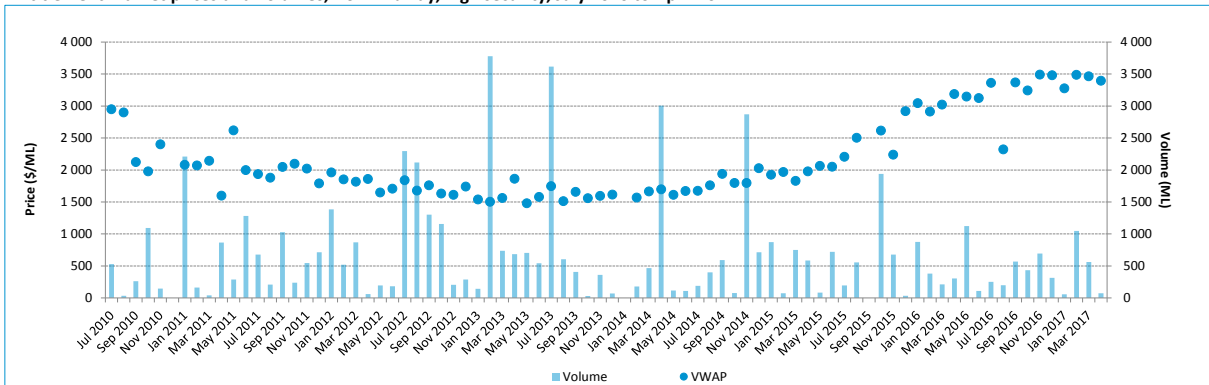


Number of trades shown in bars

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

New South Wales Murray: high security

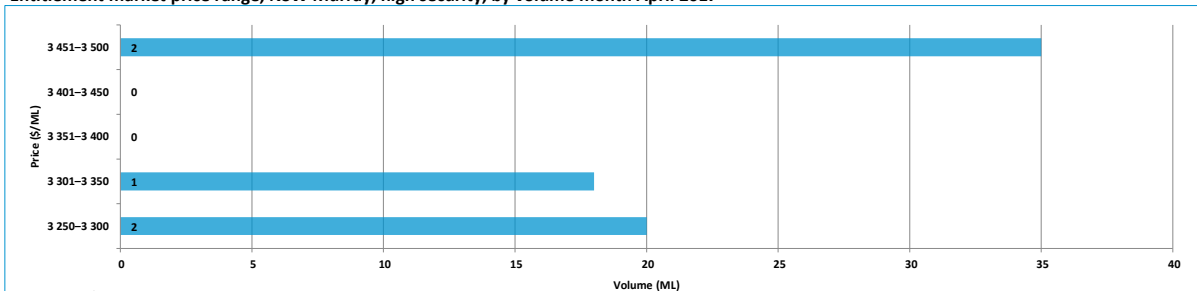
Entitlement market prices and volumes, NSW Murray, high security, July 2010 to April 2017



Entitlement market prices and volumes, NSW Murray, high security

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)						April 2017 Volume	April 2017 # of Broker buy/sell trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
3 395	3 476	3 324	3 250	3 500	3 350	3 370	3 250	73	5	3 350 - 3 400

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

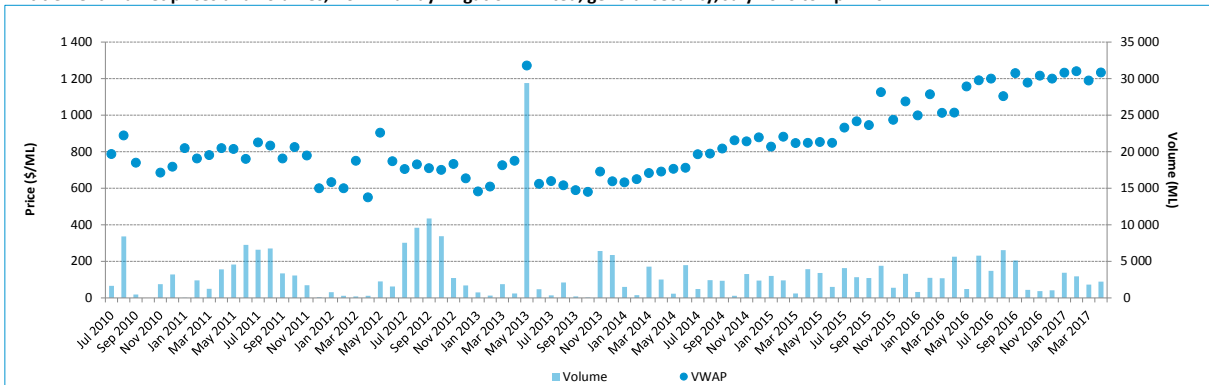


Number of trades shown in bars

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

New South Wales Murray Irrigation Limited

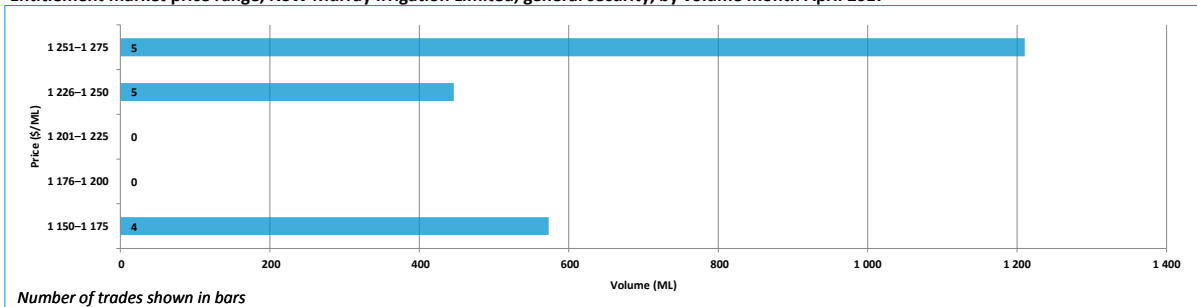
Entitlement market prices and volumes, NSW Murray Irrigation Limited, general security, July 2010 to April 2017



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

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)							April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode				
1 234	1 225	1 191	1 194	1 260	1 250	1 230	1 250	2 229	14		1 200 - 1 275

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

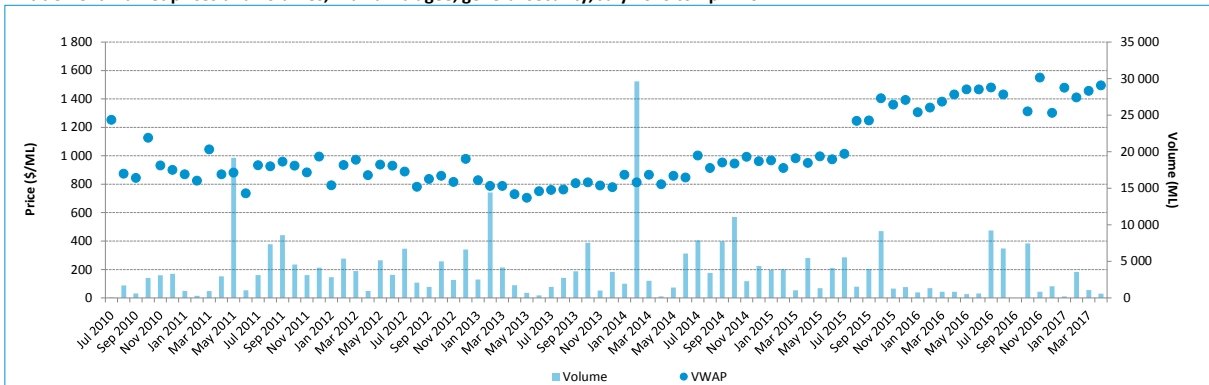


Number of trades shown in bars

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

Murrumbidgee: general security

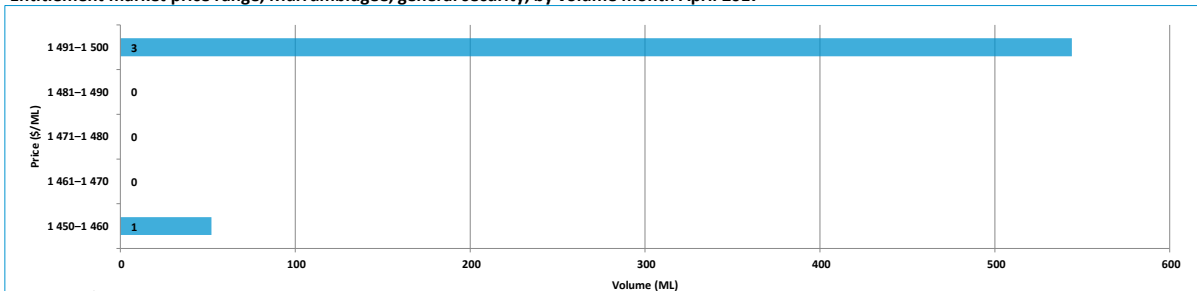
Entitlement market prices and volumes, Murrumbidgee, general security, July 2010 to April 2017



Entitlement market prices and volumes, Murrumbidgee, general security

Volume weighted average price (\$/ML)			April 2017 (in \$/ML)					April 2017	April 2017 # of	Broker buy/sell
Month of April	April 2017	YTD	25th percentile	75th percentile	Median	Mean	Mode	Volume	trades	range (\$/ML)
2017	Quarter									
1 496	1 430	1 416	1 488	1 500	1 500	1 488	1 500	596	4	1 450 - 1 550

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

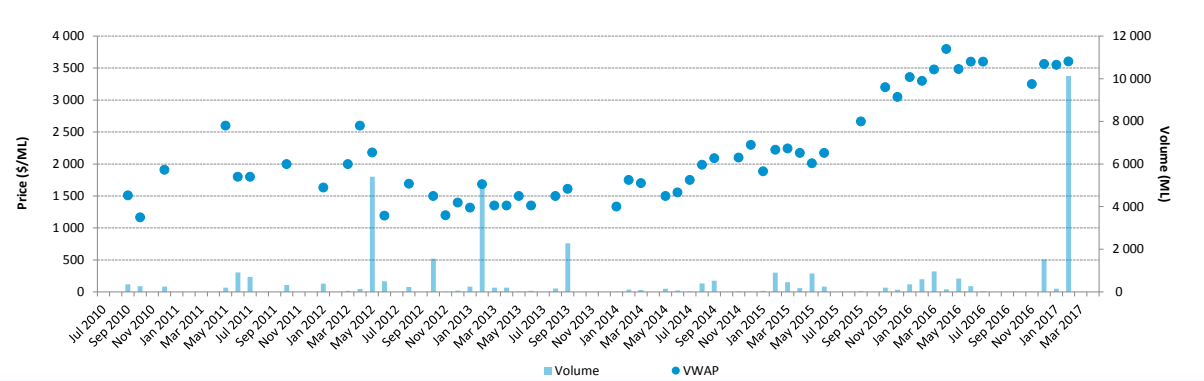


Number of trades shown in bars

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

Murrumbidgee: high security

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



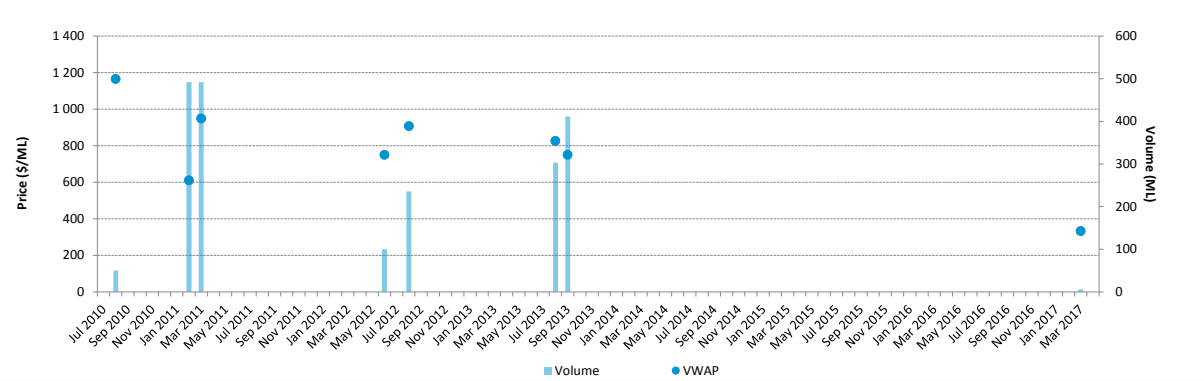
Entitlement market prices and volumes, Murrumbidgee, high security

Volume weighted average price (\$/ML)			April 2017 (in \$/ML)					April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
-	3 603	3 592	-	-	-	-	-	-	-	3 400 - 3 500

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

Lower Darling: general security

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



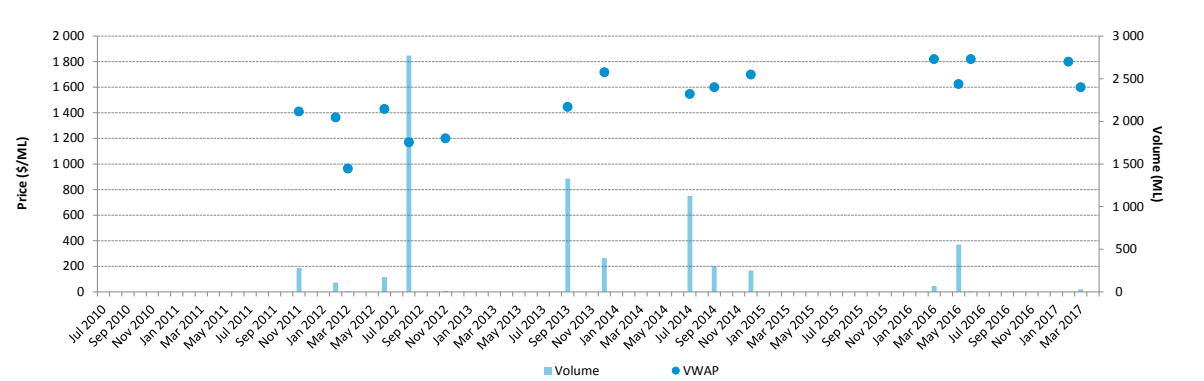
Entitlement market prices and volumes, Lower Darling, general security

Volume weighted average price (\$/ML)				April 2017 (in \$/ML)				April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
-	333	333	-	-	-	-	-	-	-	No listings

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

Lower Darling: high security

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



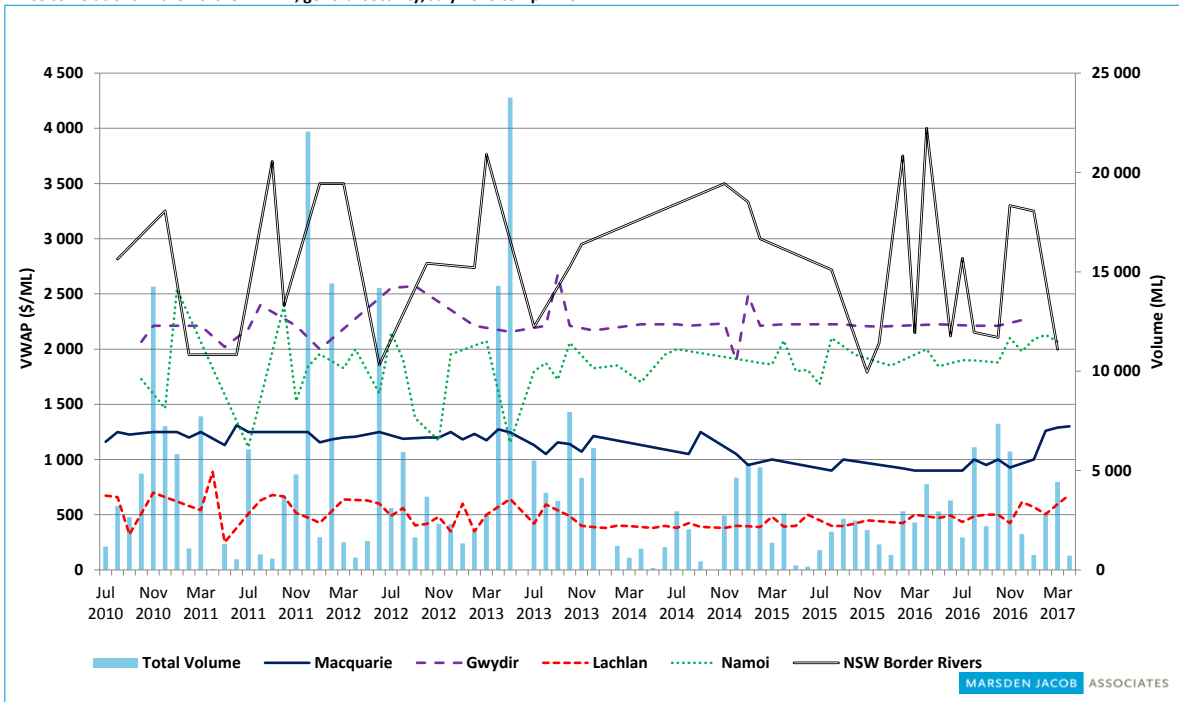
Entitlement market prices and volumes, Lower Darling, high security

Volume weighted average price (\$/ML)			April 2017 (in \$/ML)					April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
-	1 612	1 628	-	-	-	-	-	-	-	No listings

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

Northern Murray–Darling Basin

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



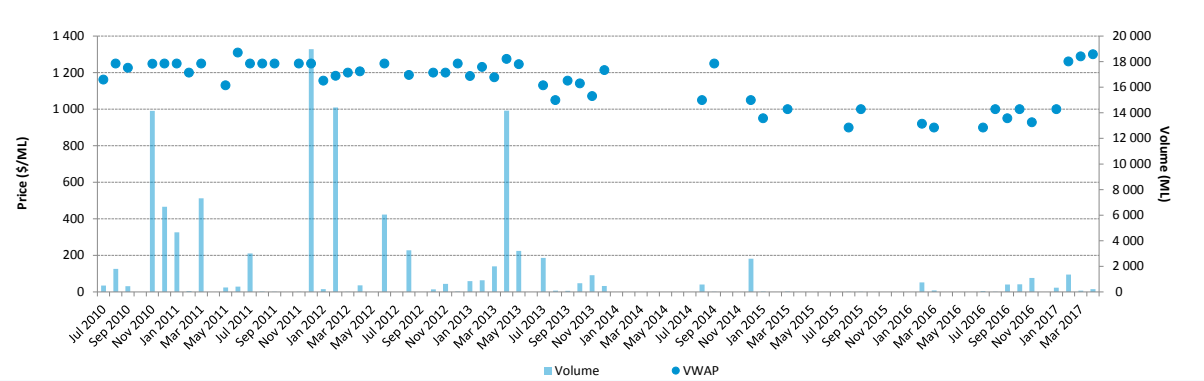
Source: Marsden Jacob analysis, 2017.

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

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Macquarie: general security

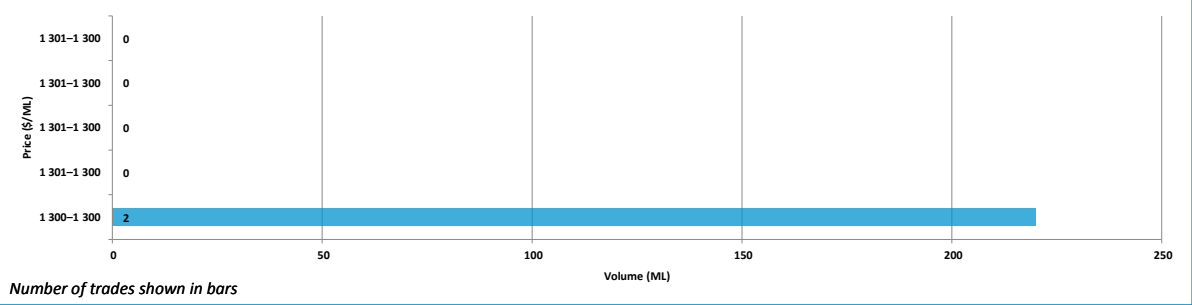
Entitlement market prices and volumes, Macquarie, general security, July 2010 to April 2017



Entitlement market prices and volumes, Macquarie, general security

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)						April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
1 300	1 268	1 077	1 300	1 300	1 300	1 300	1 300	220	2	1 250 - 1 300

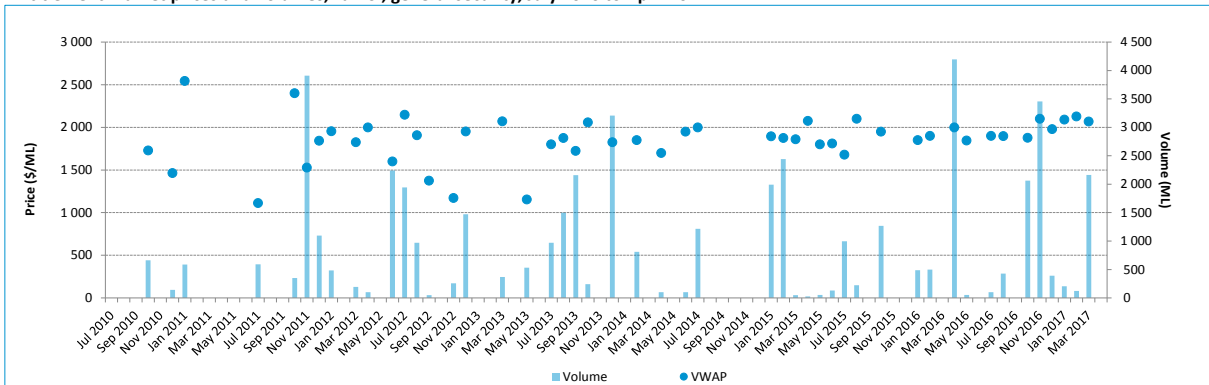
Entitlement market price range, Macquarie, general security, by volume month April 2017



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

Namoi: general security

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



Entitlement market prices and volumes, Namoi, general security

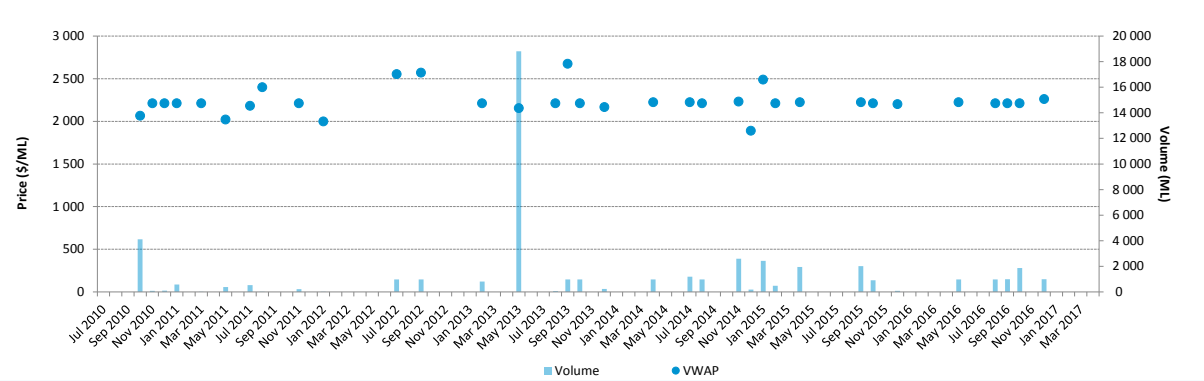
Volume weighted average price (\$/ML)		April 2017 (in \$/ML)						April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
-	2 072	2 023	-	-	-	-	-	-	-	1 950 - 2 000

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

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Gwydir: general security

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



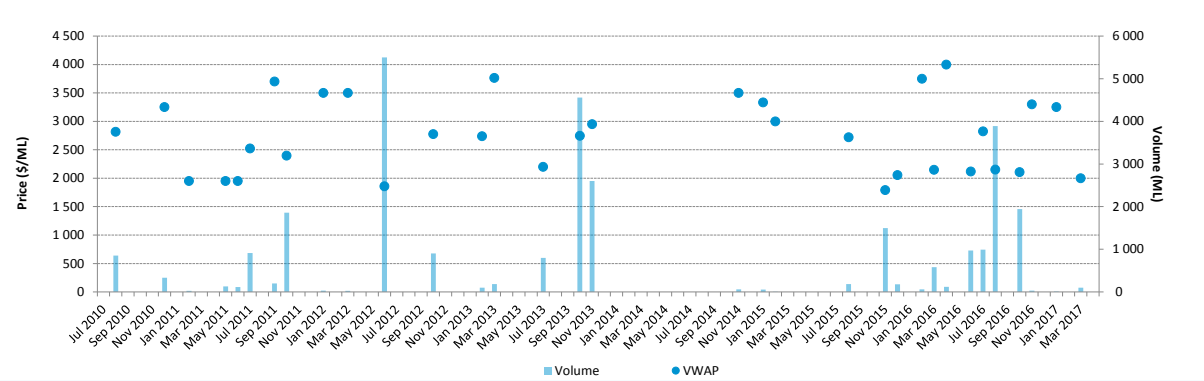
Entitlement market prices and volumes, Gwydir, general security

Volume weighted average price (\$/ML)			April 2017 (in \$/ML)					April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
-	-	2 223	-	-	-	-	-	-	-	2 200 - 2 300

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

New South Wales Border Rivers: general security

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



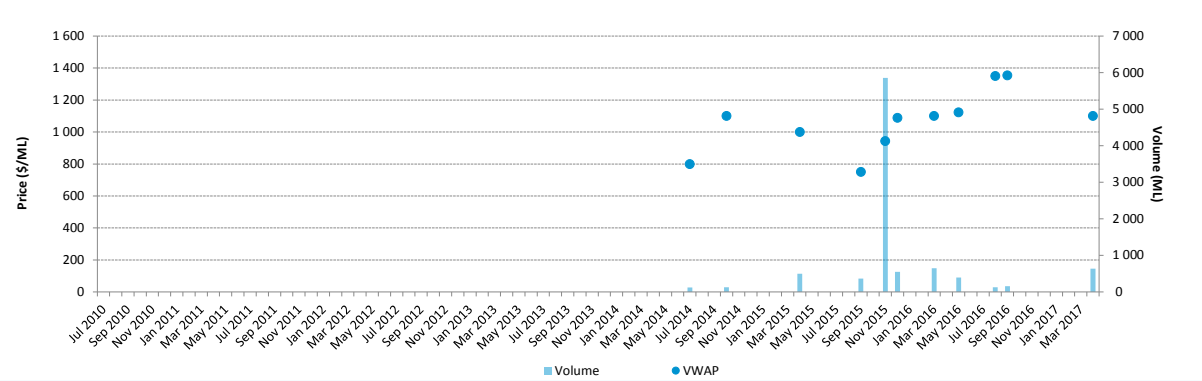
Entitlement market prices and volumes, NSW Border Rivers, general security

Volume weighted average price (\$/ML)				April 2017 (in \$/ML)				April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
-	2 000	2 225	-	-	-	-	-	-	-	2 000 - 3 300

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

Barwon–Darling: unregulated

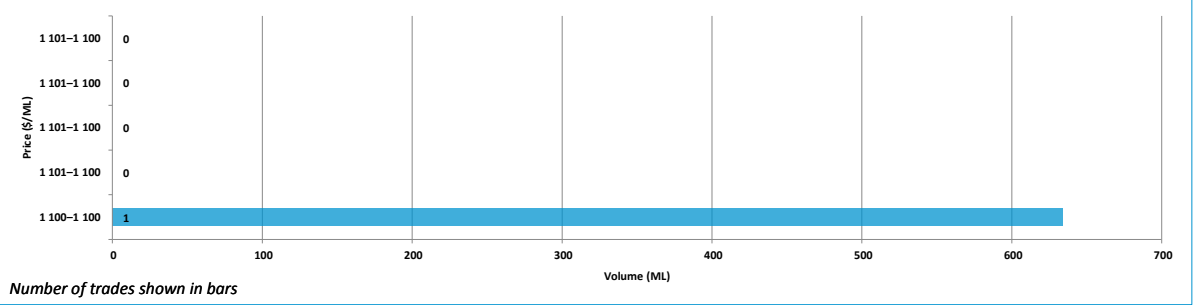
Entitlement market prices and volumes, Barwon–Darling, unregulated, July 2010 to April 2017



Entitlement market prices and volumes, Barwon–Darling, unregulated

Volume weighted average price (\$/ML)		April 2017 (in \$/ML)					April 2017 Volume	April 2017 # of trades	Broker buy/sell range (\$/ML)
Month of April 2017	April 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean			
1 100	1 100	1 162	1 100	1 100	1 100	1 100	-	634	1 100 - 1 400

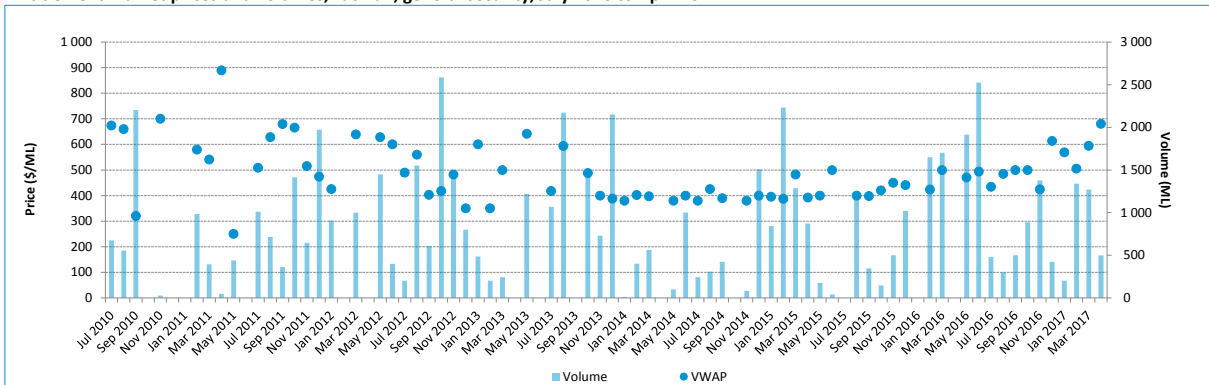
Entitlement market price range, Barwon–Darling, unregulated, by volume month April 2017



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

Lachlan: General security

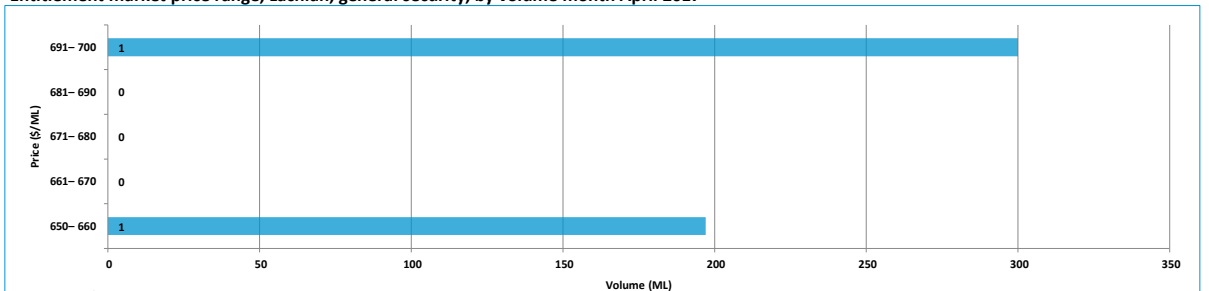
Entitlement market prices and volumes, Lachlan, general security, July 2010 to April 2017



Entitlement market prices and volumes, Lachlan, general security

Volume weighted average price (\$/ML)			April 2017 (in \$/ML)					April 2017	April 2017 # of	Broker buy/sell
Month of April	April 2017	YTD	25th percentile	75th percentile	Median	Mean	Mode	Volume	trades	range (\$/ML)
2017	Quarter									
680	570	506	663	688	675	675	-	497	2	550 - 675

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



Number of trades shown in bars

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

MARSDEN JACOB ASSOCIATES

Queensland: Trade Summary

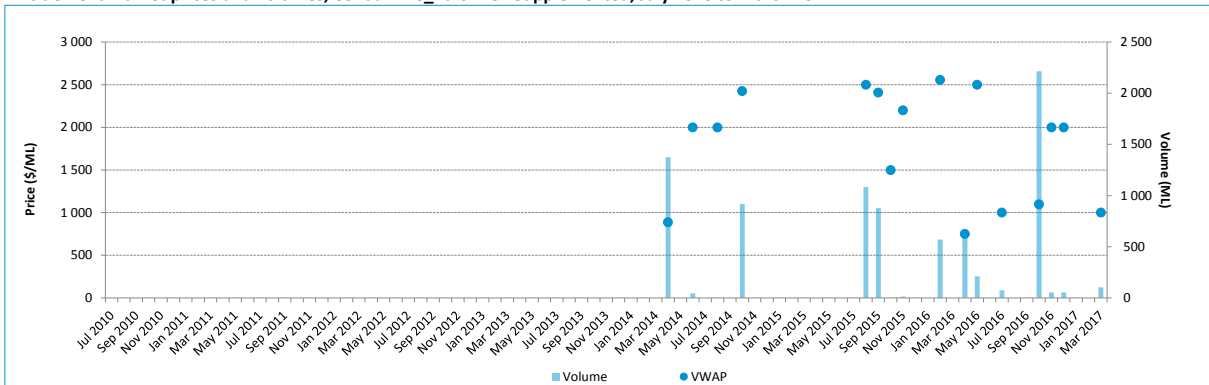
Entitlement market prices and volumes, Queensland													
Resource Operation Plan	Water Supply Scheme / Water Management Area	Type of Entitlement	Volume weighted average price (\$/ML)			March 2017 (in \$/ML)					March 2017 Volume	March 2017 # of trades	Broker buy/sell range (\$/ML)
			Month of March 2017	March 2017 Quarter	YTD	25th percentile	75th percentile	Median	Mean	Mode			
QLD Border Rivers	Border Rivers/ Macintyre Brook	Supplemented	-	-	1 600	-	-	-	-	-	-	-	No listings
QLD Border Rivers	Border Rivers	Unsupplemented	-	-	1 739	-	-	-	-	-	-	-	No listings
Condamine-Balonne	St. George / Upper Condamine	Supplemented	1 000	1 000	1 236	1 000	1 000	1 000	1 000	-	104	1	No listings
Condamine-Balonne	Condamine Balonne / Lower Balonne / Upper Condamine	Unsupplemented	-	1 509	1 489	-	-	-	-	-	-	-	No listings
Condamine-Balonne	Upper Condamine	Alluvium Ground-water	-	-	-	-	-	-	-	-	-	-	No listings
Condamine-Balonne	Lower Balonne	Overland Flow	-	-	-	-	-	-	-	-	-	-	No listings

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

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

Condamine Balonne: Supplemented

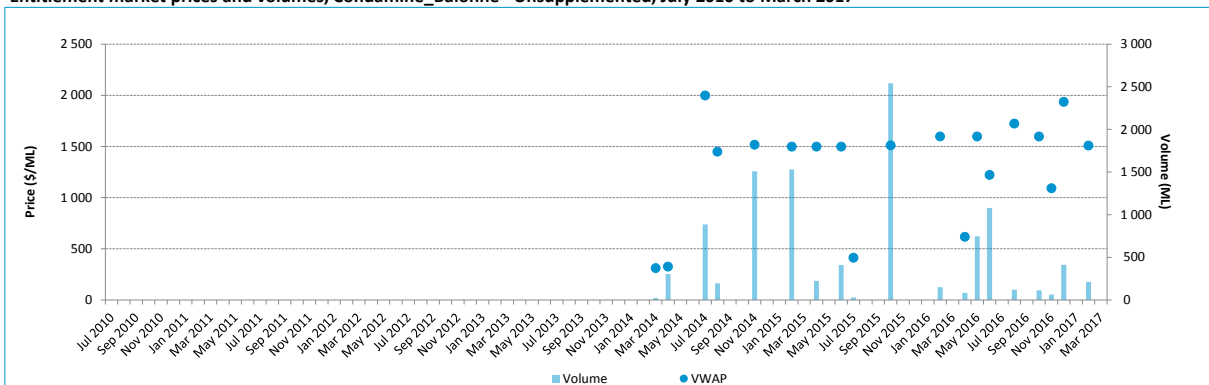
Entitlement market prices and volumes, Condamine_Balonne - Supplemented, July 2010 to March 2017



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

Condamine Balonne: Unsupplemented

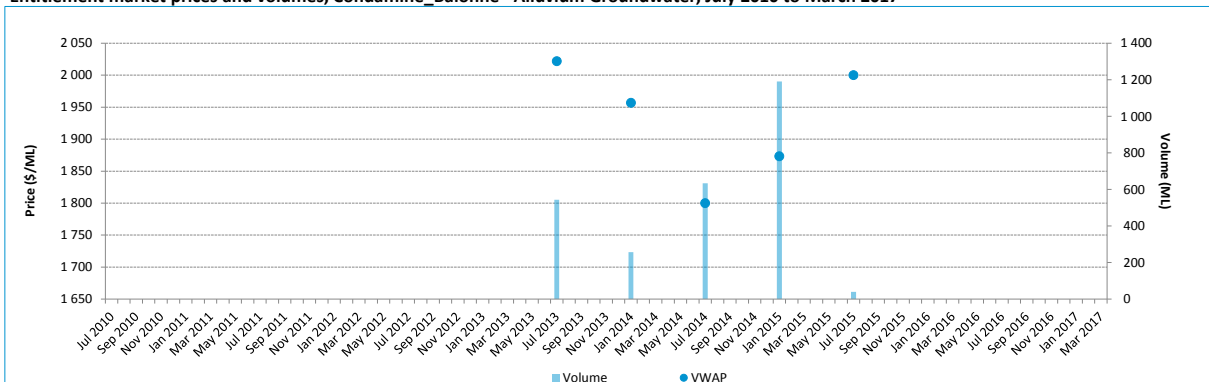
Entitlement market prices and volumes, Condamine_Balonne - Unsupplemented, July 2010 to March 2017



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

Condamine Balonne: Alluvium Groundwater

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

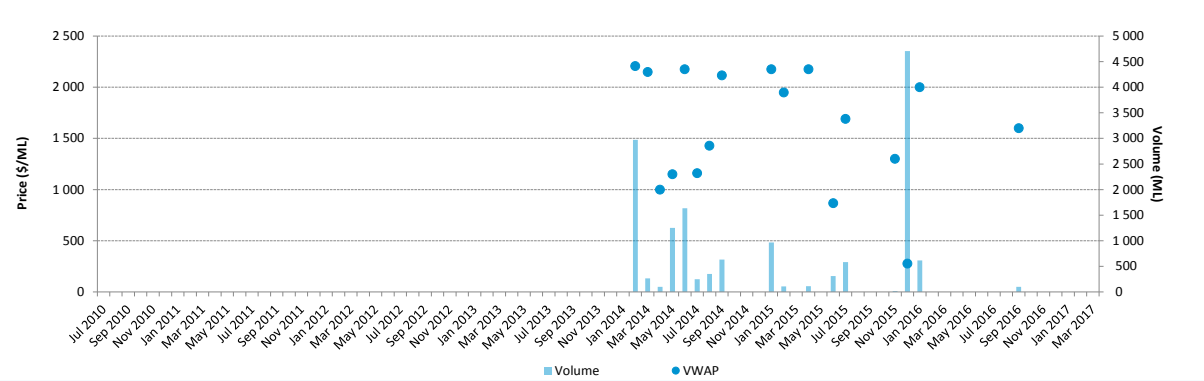


Note: No trades have been reported for Queensland in April 2017. Charts show the monthly trade volume and value until the end of March.

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

QLD Border Rivers: Supplemented

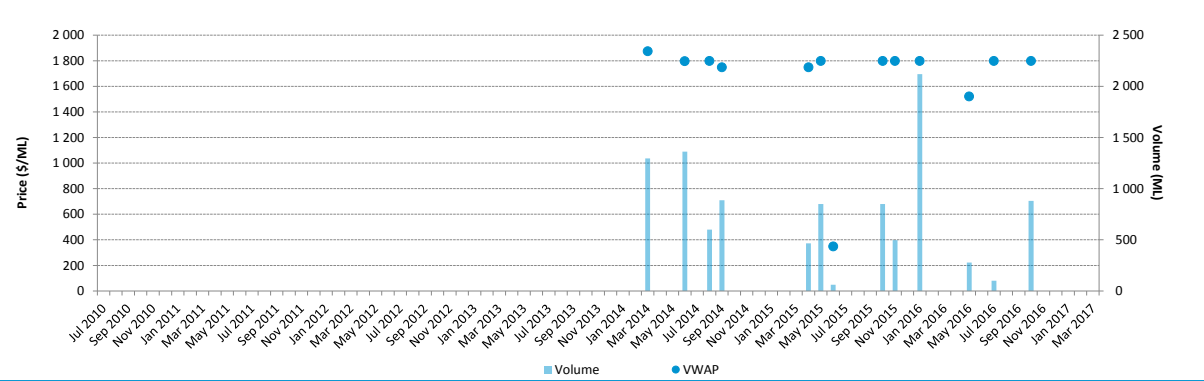
Entitlement market prices and volumes, QLD_Border_Rivers - Supplemented, July 2010 to March 2017



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

QLD Border Rivers: Unsupplemented

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



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

Water entitlement market prices Murray–Darling Basin (April 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 April 2017 analysis.

Table B1 Outliers removed from trade data

Date	Catchment	Product name	Volume (ML)	Price (\$)	Price per ML (\$/ML)
21/04/2017	Broken	High Reliability	50	\$150 000	\$3 000
21/04/2017	Broken	Low Reliability	11	\$5 250	\$ 500
5/04/2017	Goulburn	High Reliability	2	\$3 000	\$1 500
28/04/2017	Goulburn	High Reliability	17	\$3 400	\$ 200
3/04/2017	Goulburn	Low Reliability	1	\$ 700	\$ 500
13/04/2017	Goulburn	Low Reliability	22	\$3 240	\$ 150
3/04/2017	NSW_Murray	General Security	-	\$ 0	\$ 1
3/04/2017	NSW_Murray	General Security	2 140	\$266503 702	\$124 534
3/04/2017	NSW_Murray	NOT_ALLOC	-	\$ 0	\$ 1
6/04/2017	NSW_Murray	NOT_ALLOC	3	\$ 1	\$ 0
26/04/2017	NSW_Murray_Irrigation	General Security	-	\$ 0	\$ 50
3/04/2017	Ovens	High Reliability	2	\$4 000	\$2 000
28/04/2017	SA_Murray	Class 3a	65	\$305 480	\$4 680
26/04/2017	SA_Murray	NOT_ALLOC	1	\$2 500	\$5 000
28/04/2017	SA_Murray	NOT_ALLOC	15	\$75 000	\$5 000
28/04/2017	SA_Murray	NOT_ALLOC	11	\$305 480	\$27 733
28/04/2017	SA_Murray	NOT_ALLOC	1	\$305 480	\$305 480
28/04/2017	SA_Murray	NOT_ALLOC	5	\$305 480	\$66 164
28/04/2017	SA_Murray	NOT_ALLOC	14	\$305 480	\$21 820
12/04/2017	Vic_Murray_AboveBC	Low Reliability	2 133	\$805 359	\$ 378
12/04/2017	Vic_Murray_AboveBC	Low Reliability	73	\$27 520	\$ 378
13/04/2017	Vic_Murray_BelowBC	High Reliability	110	\$137 000	\$1 250
3/04/2017	Vic_Murray_BelowBC	Low Reliability	6	\$ 915	\$ 150

* - Trades are within the bounds of two standard deviations for the catchment, but have been excluded