

Water entitlement market prices

Murray–Darling Basin

(March 2018)

Prepared for Australian Government Department of Agriculture and Water Resources



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Introduction

This March 2018 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.

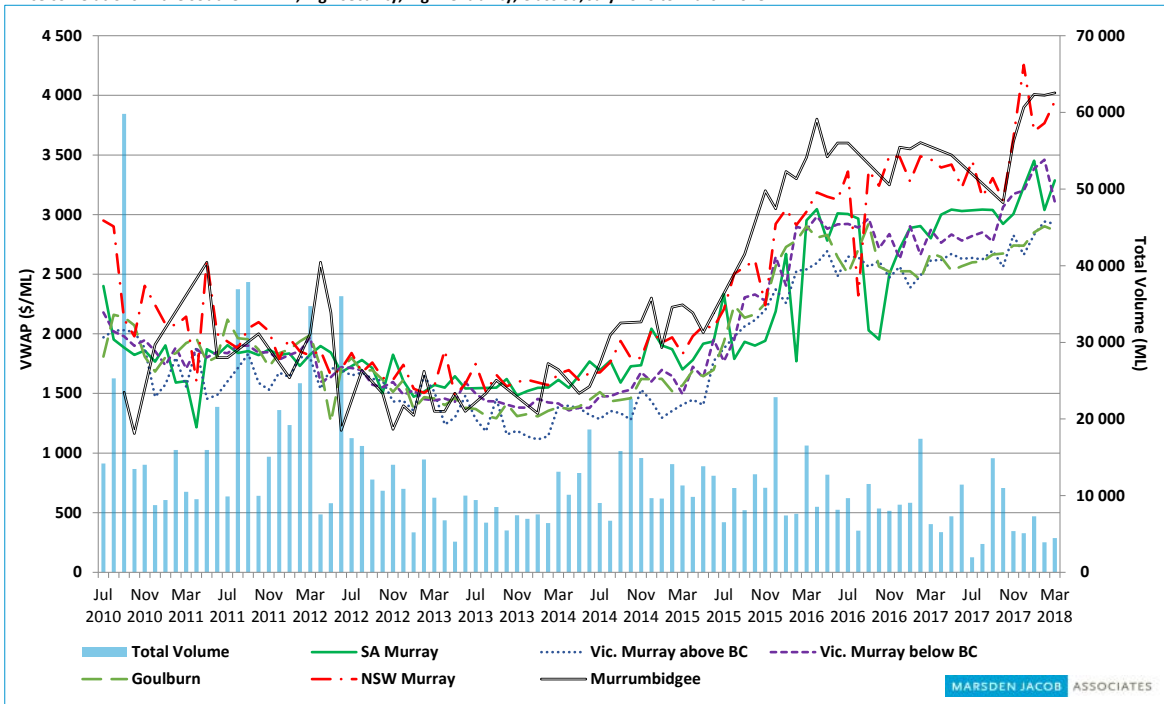
Marsden Jacob does not necessarily remove all trades that fall outside two standard deviations, as some of them reflect arm's-length trades. If trades that fall outside two standard deviations are retained in the regional dataset, this is noted in the region and entitlement-specific reports. Also, trades 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 (March 2018)

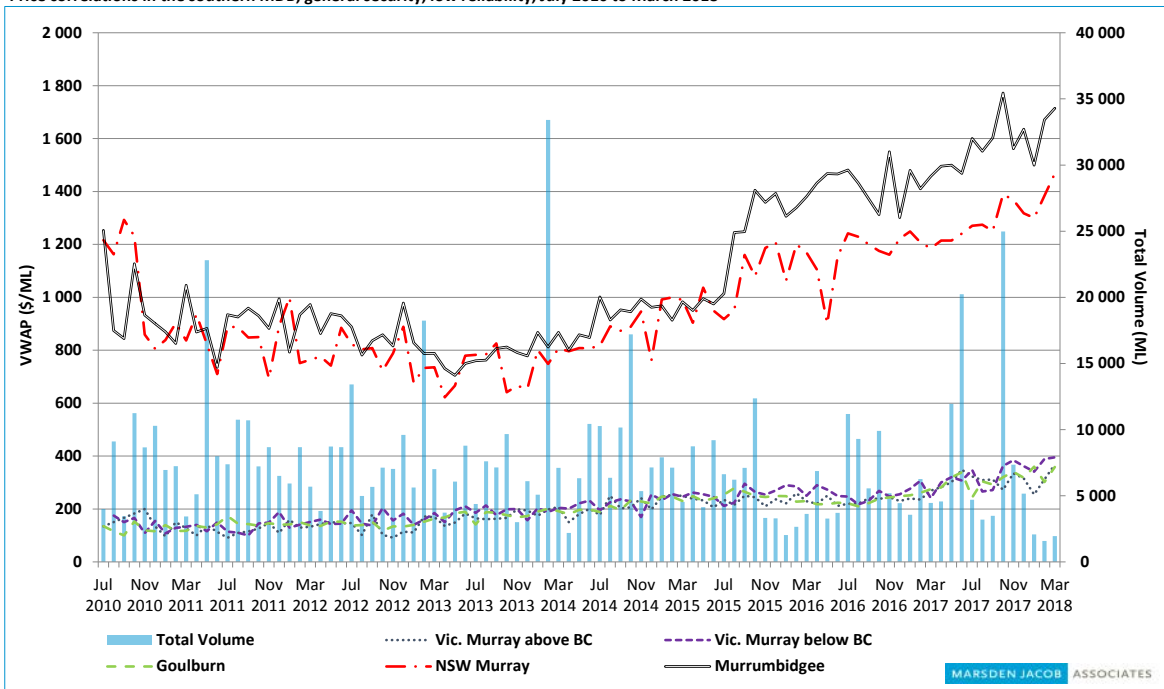
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Southern Murray–Darling Basin

Price correlations in the southern MDB, high security, high reliability, Class 3a, July 2010 to March 2018



Price correlations in the southern MDB, general security, low reliability, July 2010 to March 2018



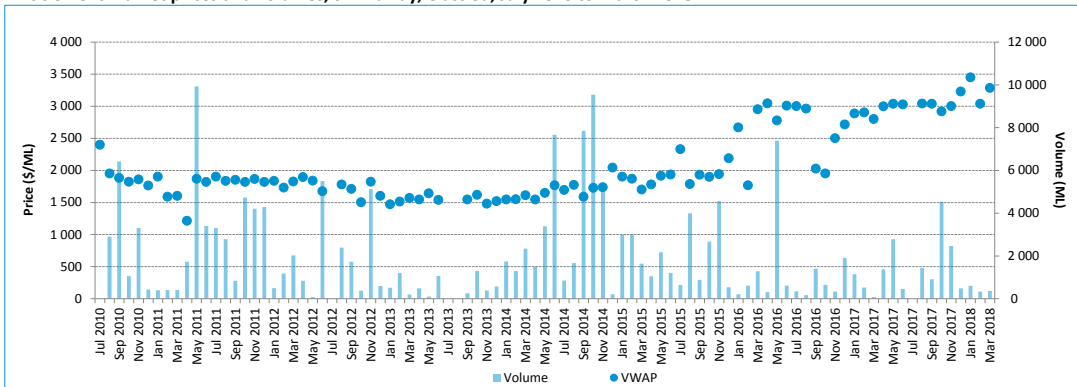
Source: Marsden Jacob analysis, 2018.

Water entitlement market prices Murray–Darling Basin (March 2018)

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Southern Australian Murray: Class 3a

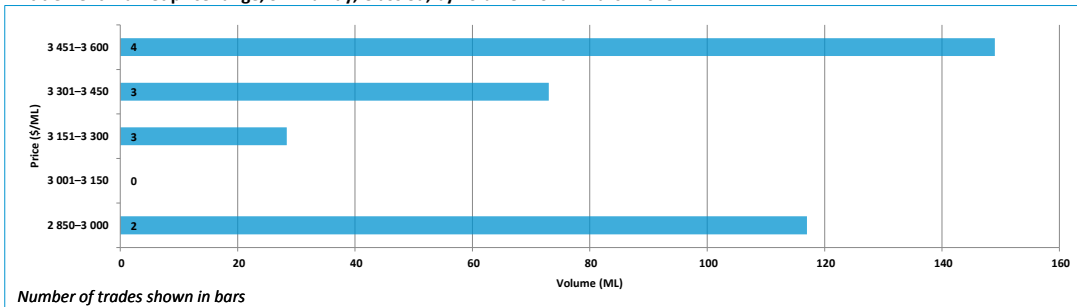
Entitlement market prices and volumes, SA Murray, Class 3a, July 2010 to March 2018



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

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
3 287	3 299	3 025	3 260	3 514	3 385	3 329	3 400	367	12	3 000 - 3 600

Entitlement market price range, SA Murray, Class 3a, by volume month March 2018

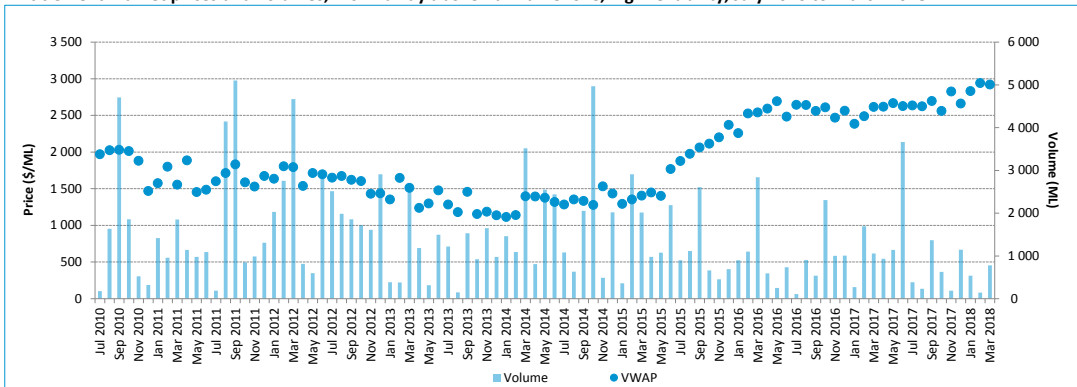


Water entitlement market prices Murray-Darling Basin (March 2018)

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Victorian Murray above Barmah Choke: high reliability

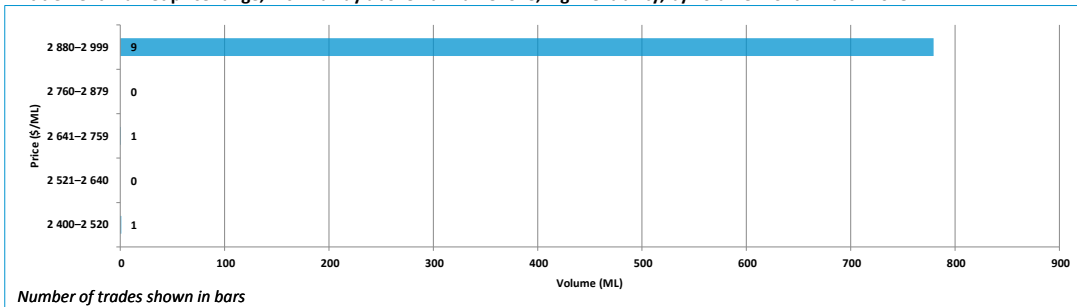
Entitlement market prices and volumes, Vic. Murray above Barmah Choke, high reliability, July 2010 to March 2018



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

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
2 922	2 891	2 678	2 905	2 953	2 910	2 870	2 910	781	11	2 400 - 3 260

Entitlement market price range, Vic. Murray above Barmah Choke, high reliability, by volume month March 2018

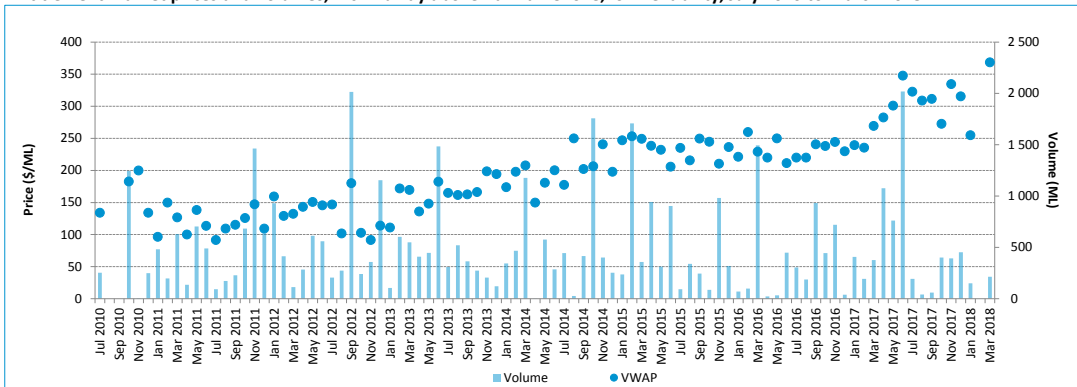


Water entitlement market prices Murray–Darling Basin (March 2018)

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Victorian Murray above Barmah Choke: low reliability

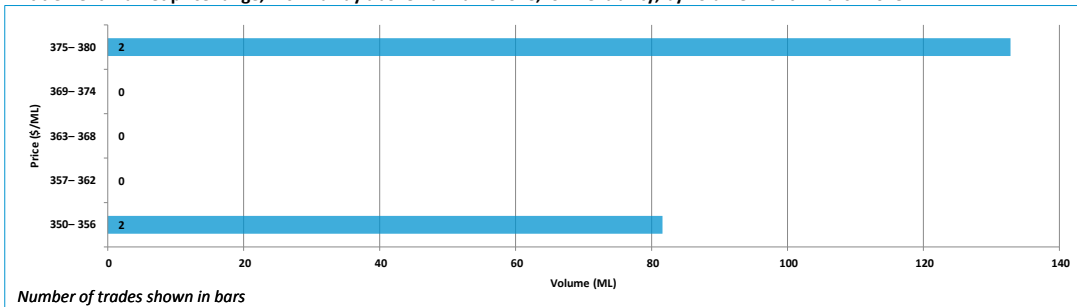
Entitlement market prices and volumes, Vic. Murray above Barmah Choke, low reliability, July 2010 to March 2018



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

Volume weighted average price (\$/ML)			March 2018 (in \$/ML)					March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
369	322	318	350	380	365	365	350	214	4	260 - 450

Entitlement market price range, Vic. Murray above Barmah Choke, low reliability, by volume month March 2018

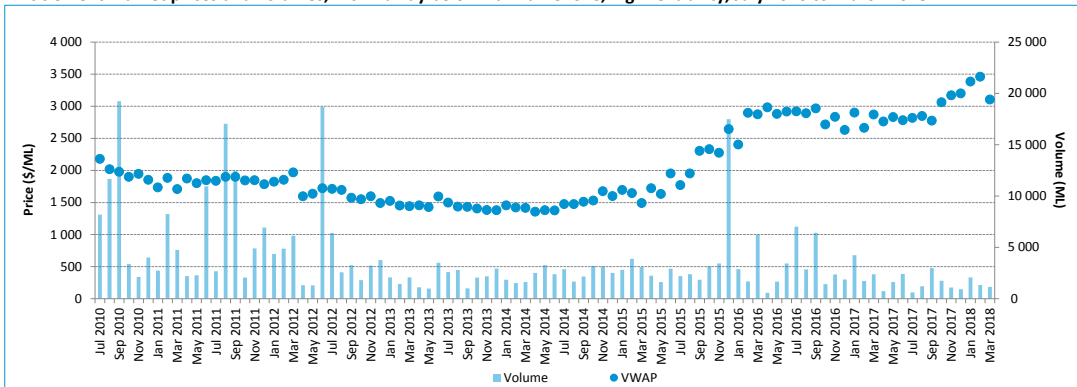


Water entitlement market prices Murray–Darling Basin (March 2018)

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Victorian Murray below Barmah Choke: high reliability

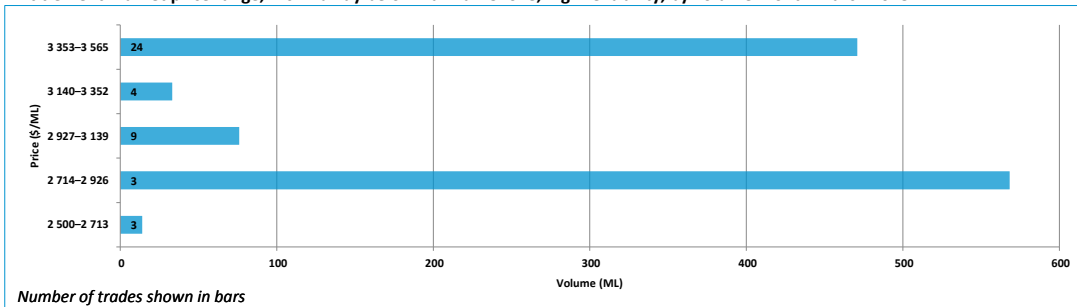
Entitlement market prices and volumes, Vic. Murray below Barmah Choke, high reliability, July 2010 to March 2018



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

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
3 106	3 336	3 005	3 000	3 488	3 400	3 240	3 000	1 162	43	2 600 - 3 900

Entitlement market price range, Vic. Murray below Barmah Choke, high reliability, by volume month March 2018



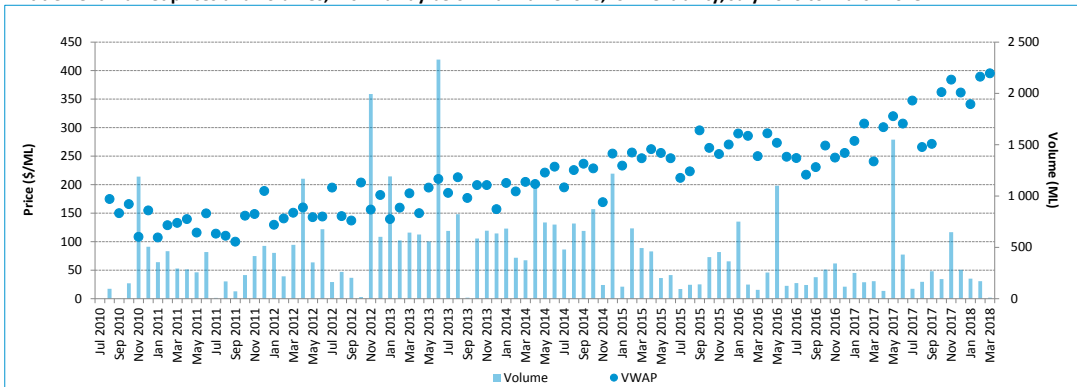
Number of trades shown in bars

Water entitlement market prices Murray–Darling Basin (March 2018)

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Victorian Murray below Barmah Choke: low reliability

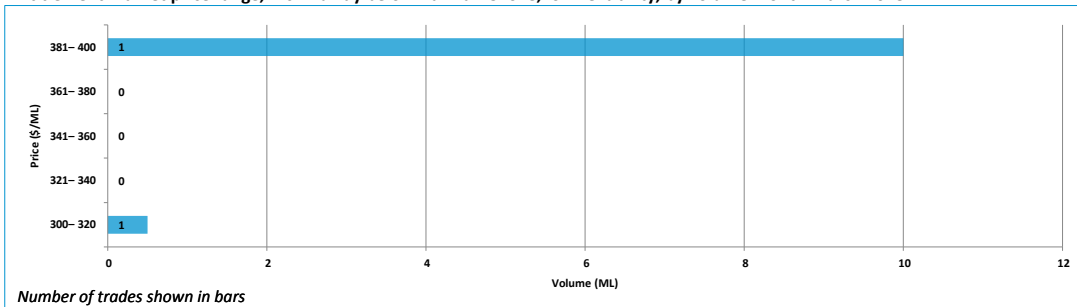
Entitlement market prices and volumes, Vic. Murray below Barmah Choke, low reliability, July 2010 to March 2018



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

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
395	365	333	325	375	350	350	0	11	2	300 - 540

Entitlement market price range, Vic. Murray below Barmah Choke, low reliability, by volume month March 2018

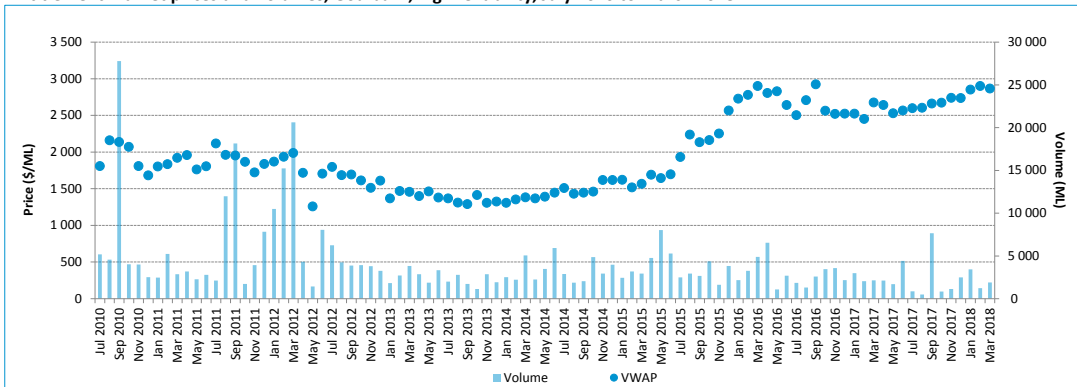


Water entitlement market prices Murray–Darling Basin (March 2018)

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Goulburn: high reliability

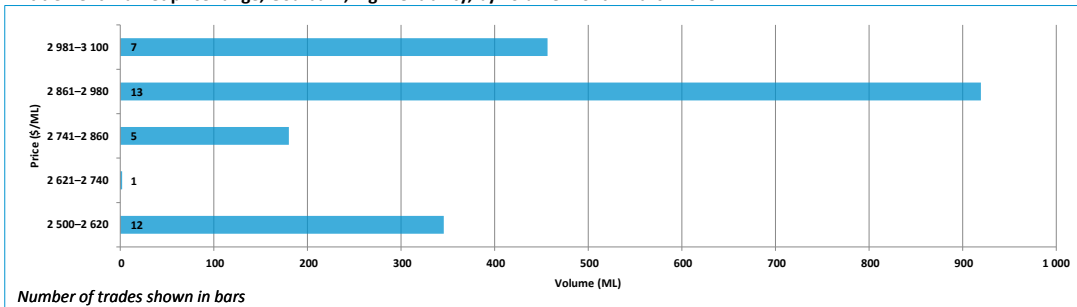
Entitlement market prices and volumes, Goulburn, high reliability, July 2010 to March 2018



Entitlement market prices and volumes, Goulburn, high reliability

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
2 866	2 865	2 693	2 600	2 950	2 870	2 799	2 500	1 904	38	2 350 - 4 000

Entitlement market price range, Goulburn, high reliability, by volume month March 2018

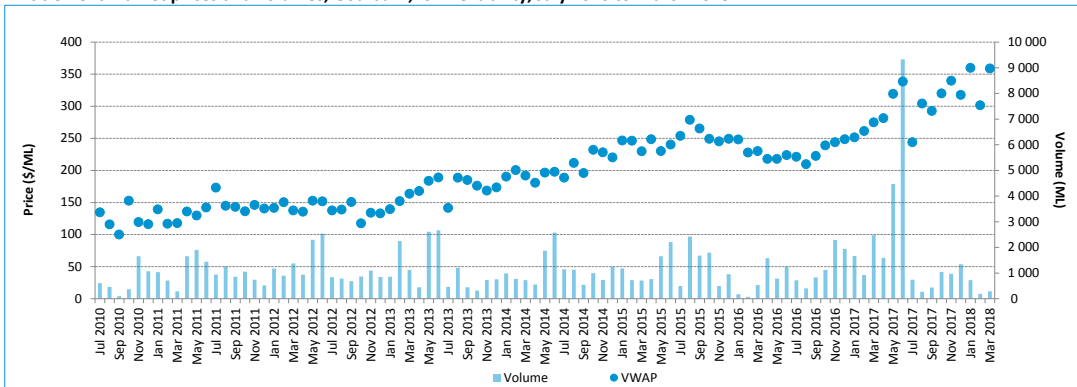


Water entitlement market prices Murray–Darling Basin (March 2018)

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Goulburn: low reliability

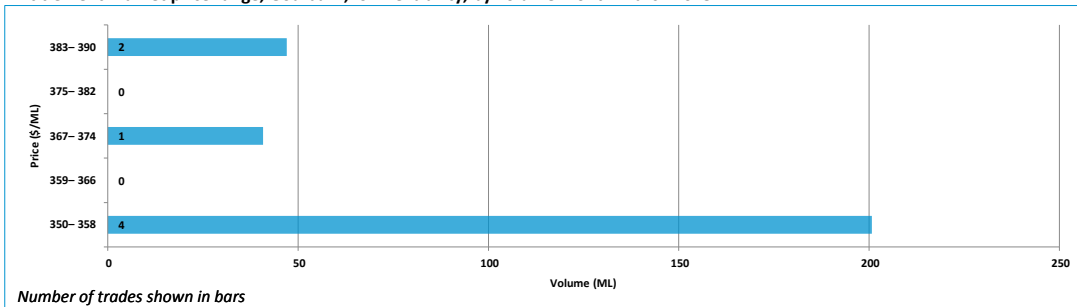
Entitlement market prices and volumes, Goulburn, low reliability, July 2010 to March 2018



Entitlement market prices and volumes, Goulburn, low reliability

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
359	351	324	350	378	350	364	350	289	7	250 - 436

Entitlement market price range, Goulburn, low reliability, by volume month March 2018



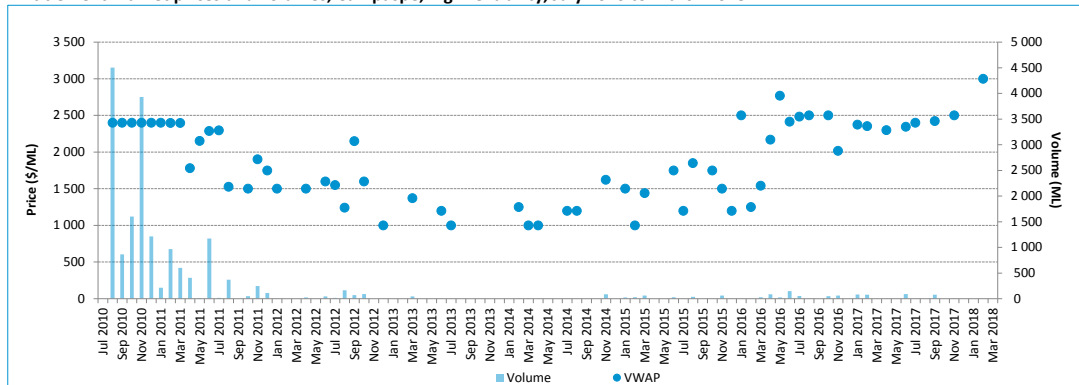
Number of trades shown in bars

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Campaspe: high reliability

Entitlement market prices and volumes, Campaspe, high reliability, July 2010 to March 2018



Entitlement market prices and volumes, Campaspe, high reliability

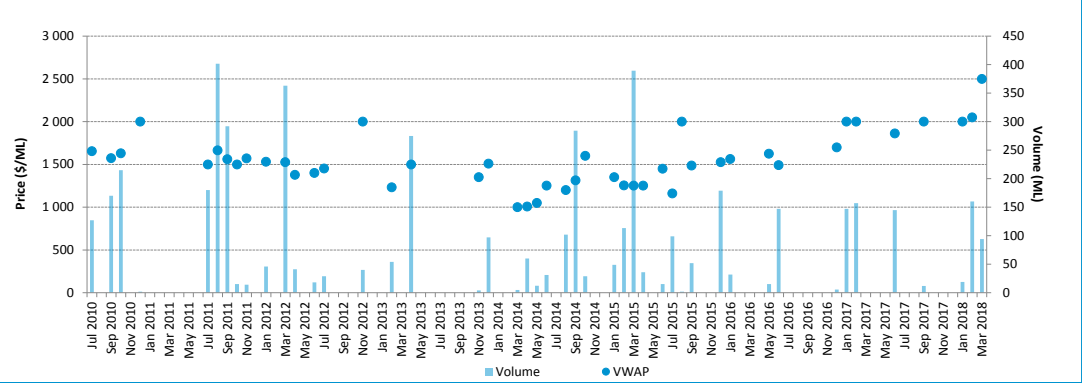
Volume weighted average price (\$/ML)			March 2018 (in \$/ML)					March 2018	March 2018	Broker buy/sell
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode	Volume	# of trades	range (\$/ML)
-	3 000	2 398	-	-	-	-	-	-	-	No listings

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Loddon: high reliability

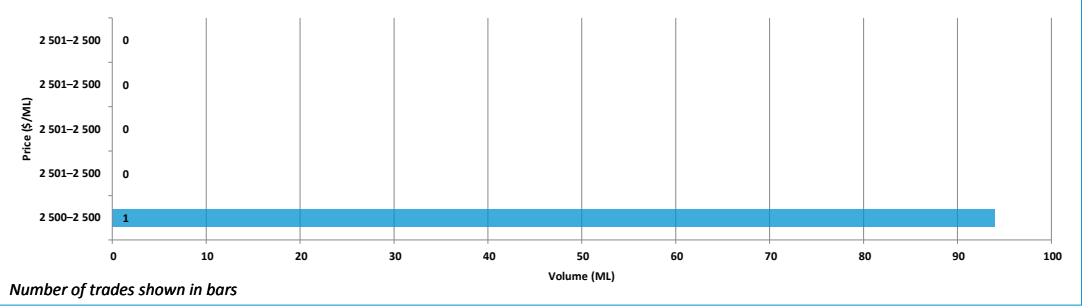
Entitlement market prices and volumes, Loddon, high reliability, July 2010 to March 2018



Entitlement market prices and volumes, Loddon, high reliability

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
2 500	2 201	2 081	2 500	2 500	2 500	2 500	-	94	1	No listings

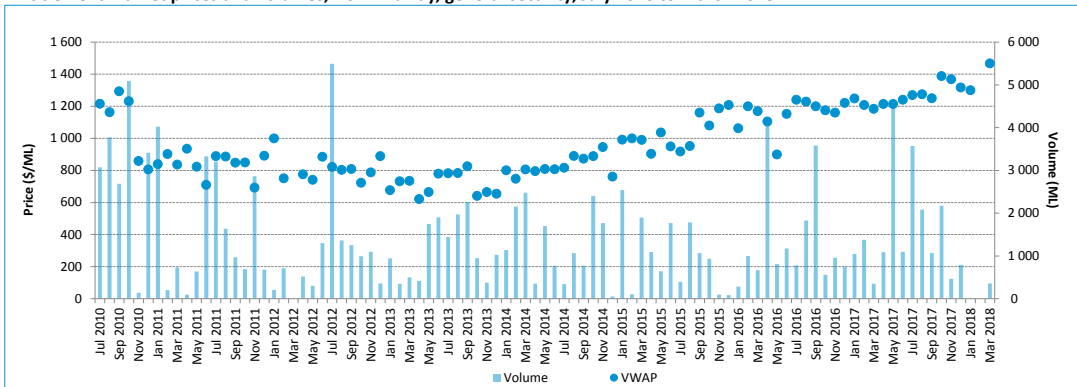
Entitlement market price range, Loddon, high reliability, by volume month March 2018



Water entitlement market prices Murray–Darling Basin (March 2018)

New South Wales Murray: general security

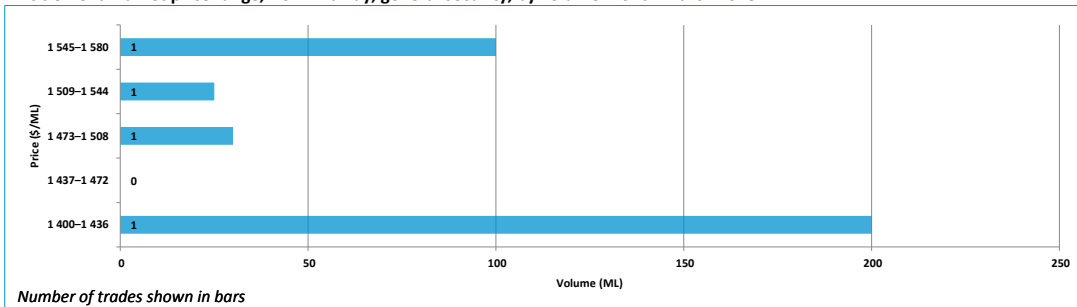
Entitlement market prices and volumes, NSW Murray, general security, July 2010 to March 2018



Entitlement market prices and volumes, NSW Murray, general security

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
1 468	1 465	1 274	1 480	1 535	1 513	1 502	-	355	4	1 300 - 1 557

Entitlement market price range, NSW Murray, general security, by volume month March 2018

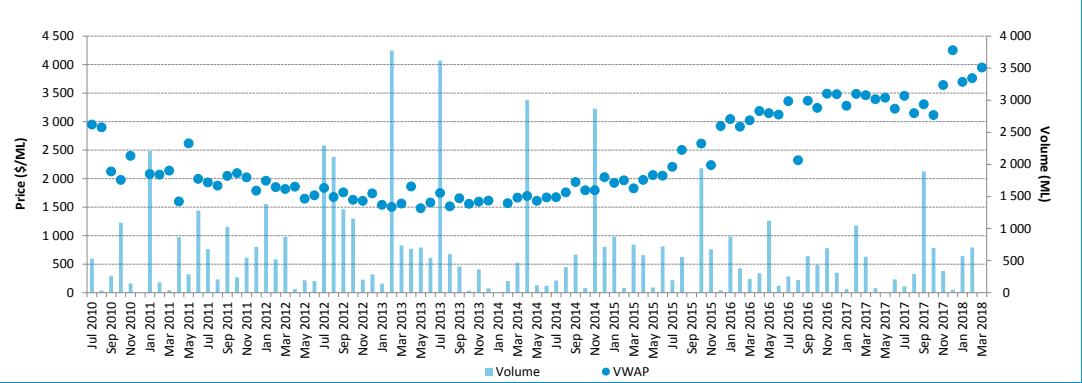


Water entitlement market prices Murray–Darling Basin (March 2018)

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New South Wales Murray: high security

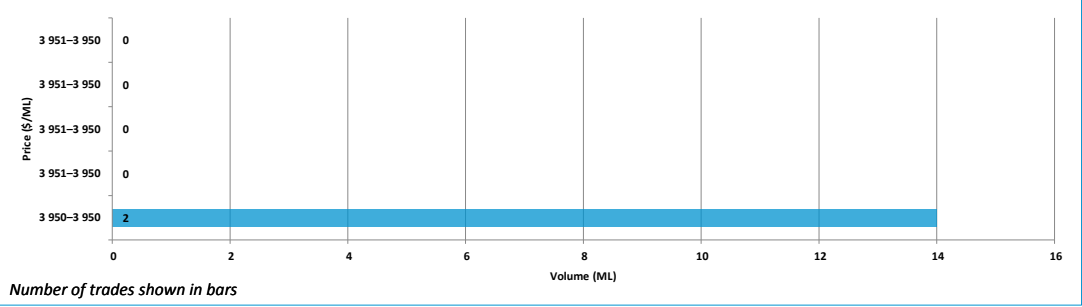
Entitlement market prices and volumes, NSW Murray, high security, July 2010 to March 2018



Entitlement market prices and volumes, NSW Murray, high security

Volume weighted average price (\$/ML)			March 2018 (in \$/ML)					March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
3 950	3 738	3 416	3 950	3 950	3 950	3 950	3 950	14	2	3 500 - 4 300

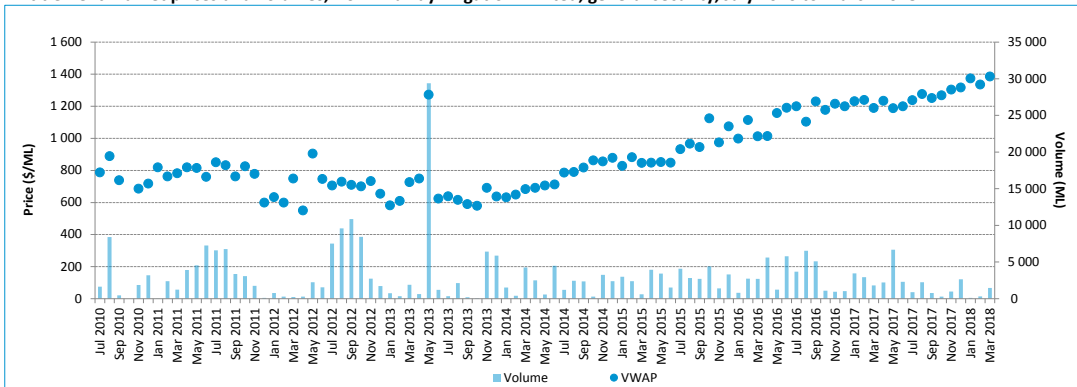
Entitlement market price range, NSW Murray, high security, by volume month March 2018



Water entitlement market prices Murray–Darling Basin (March 2018)

New South Wales Murray Irrigation Limited

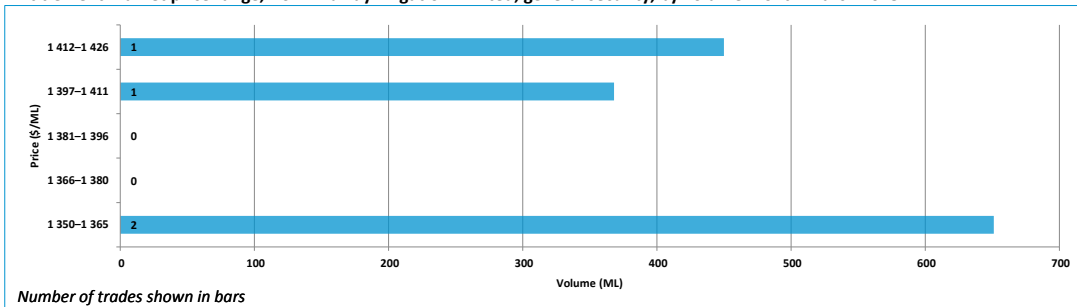
Entitlement market prices and volumes, NSW Murray Irrigation Limited, general security, July 2010 to March 2018



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

Volume weighted average price (\$/ML)			March 2018 (in \$/ML)					March 2018	March 2018	Broker buy/sell
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode	Volume	# of trades	range (\$/ML)
1 386	1 377	1 248	1 358	1 407	1 380	1 384	0	1 469	4	1 250 - 1 500

Entitlement market price range, NSW Murray Irrigation Limited, general security, by volume month March 2018



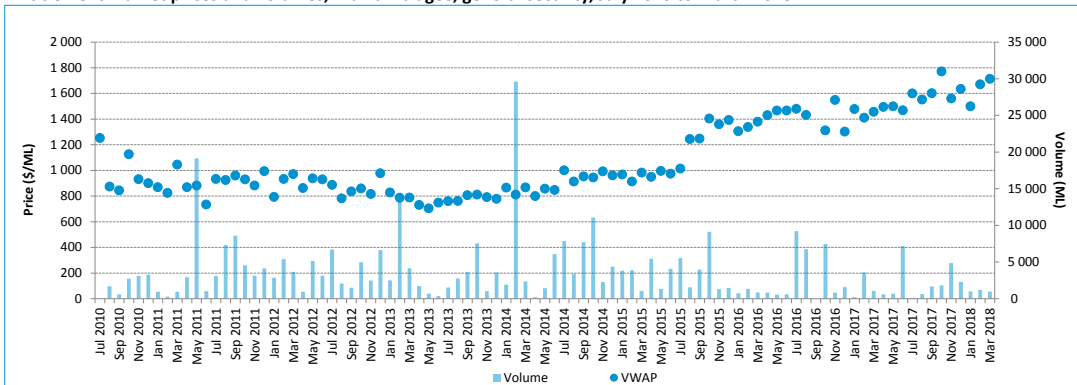
Number of trades shown in bars

Water entitlement market prices Murray–Darling Basin (March 2018)

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Murrumbidgee: general security

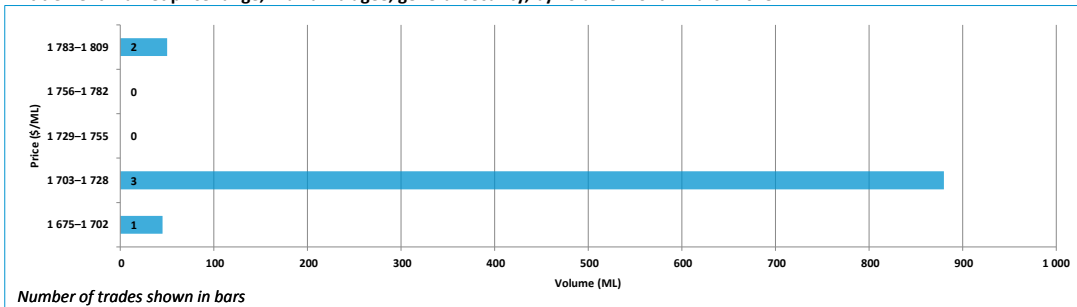
Entitlement market prices and volumes, Murrumbidgee, general security, July 2010 to March 2018



Entitlement market prices and volumes, Murrumbidgee, general security

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
1 715	1 631	1 565	1 710	1 781	1 718	1 738	1 710	975	6	1 550 - 2 250

Entitlement market price range, Murrumbidgee, general security, by volume month March 2018

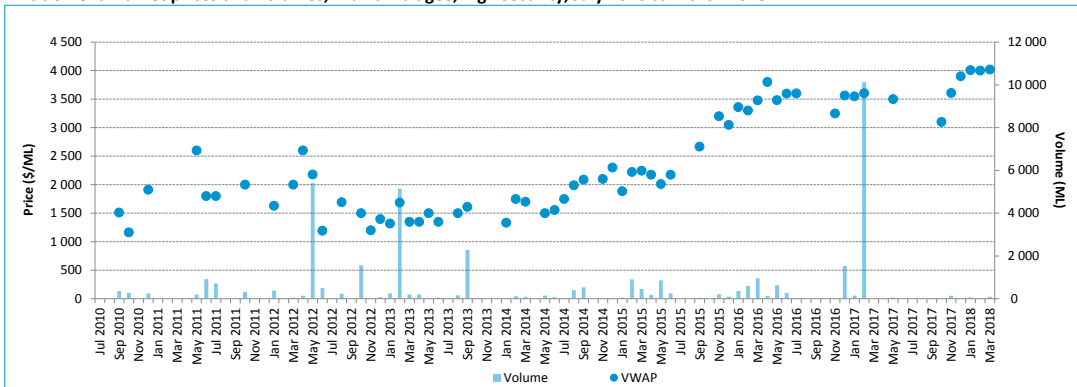


Water entitlement market prices Murray-Darling Basin (March 2018)

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Murrumbidgee: high security

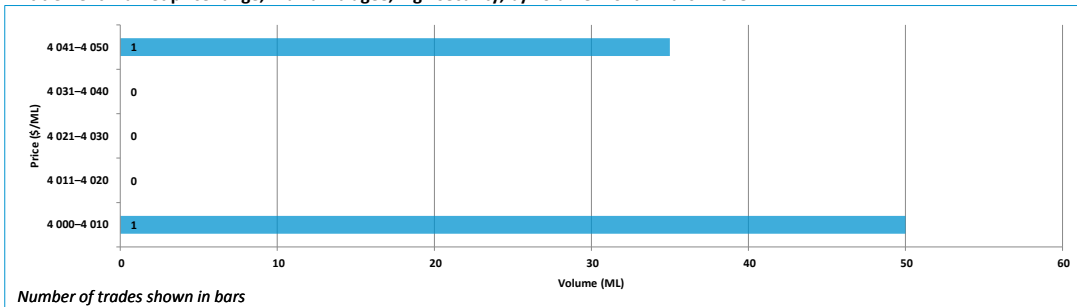
Entitlement market prices and volumes, Murrumbidgee, high security, July 2010 to March 2018



Entitlement market prices and volumes, Murrumbidgee, high security

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
4 021	4 014	3 775	4 013	4 038	4 025	4 025	0	85	2	3 600 - 5 000

Entitlement market price range, Murrumbidgee, high security, by volume month March 2018



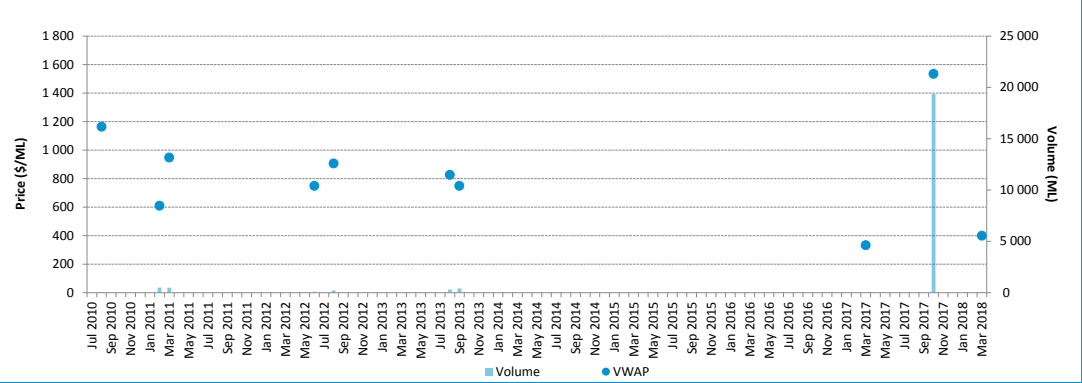
Number of trades shown in bars

Water entitlement market prices Murray-Darling Basin (March 2018)

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Lower Darling: general security

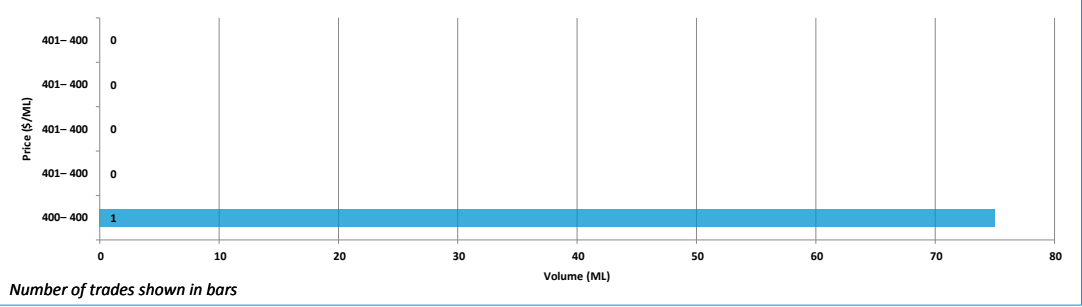
Entitlement market prices and volumes, Lower Darling, general security, July 2010 to March 2018



Entitlement market prices and volumes, Lower Darling, general security

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)					March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode				
400	400	1 532	400	400	400	400	0		75	1	No listings

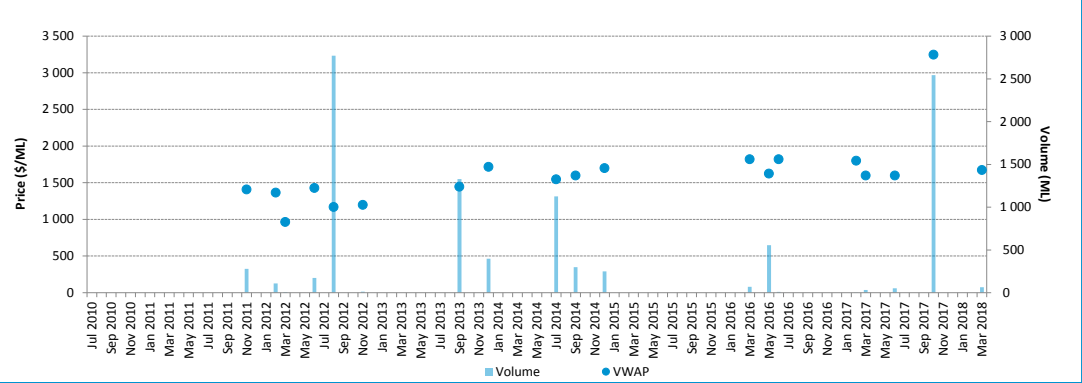
Entitlement market price range, Lower Darling, general security, by volume month March 2018



Water entitlement market prices Murray–Darling Basin (March 2018)

Lower Darling: high security

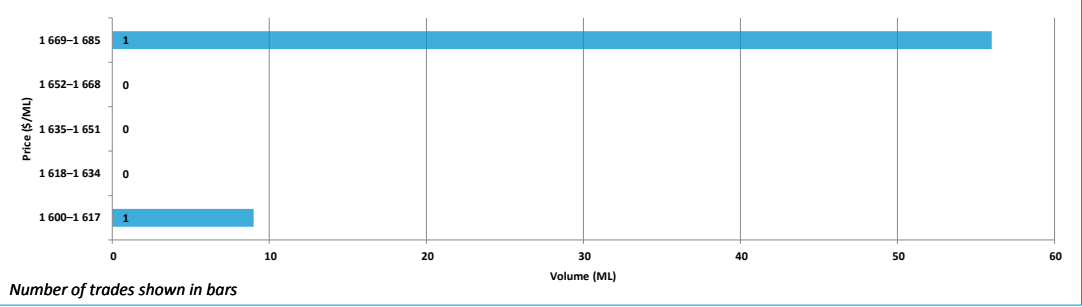
Entitlement market prices and volumes, Lower Darling, high security, July 2010 to March 2018



Entitlement market prices and volumes, Lower Darling, high security

Volume weighted average price (\$/ML)			March 2018 (in \$/ML)						March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode				
1 673	1 673	3 178	1 621	1 664	1 643	1 643	0	65	2	No listings	

Entitlement market price range, Lower Darling, high security, by volume month March 2018

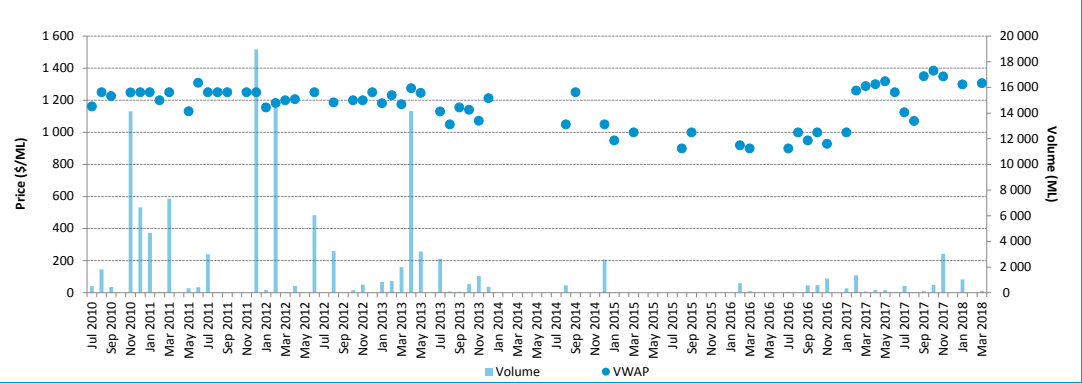


Water entitlement market prices Murray–Darling Basin (March 2018)

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Macquarie: general security

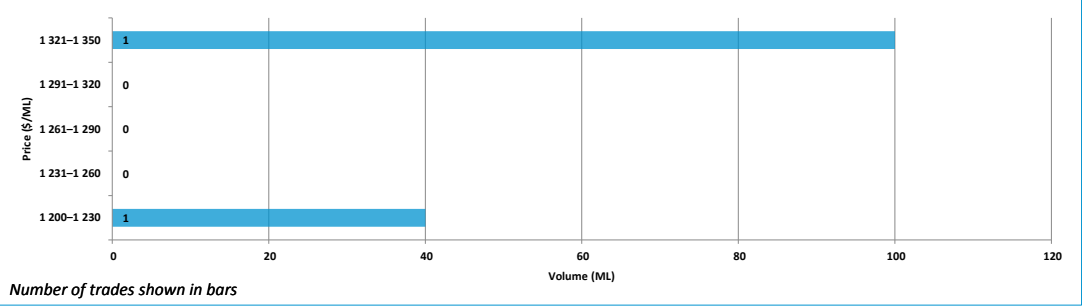
Entitlement market prices and volumes, Macquarie, general security, July 2010 to March 2018



Entitlement market prices and volumes, Macquarie, general security

Volume weighted average price (\$/ML)			March 2018 (in \$/ML)					March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
1 307	1 300	1 319	1 238	1 313	1 275	1 275	0	140	2	1 100 - 1 400

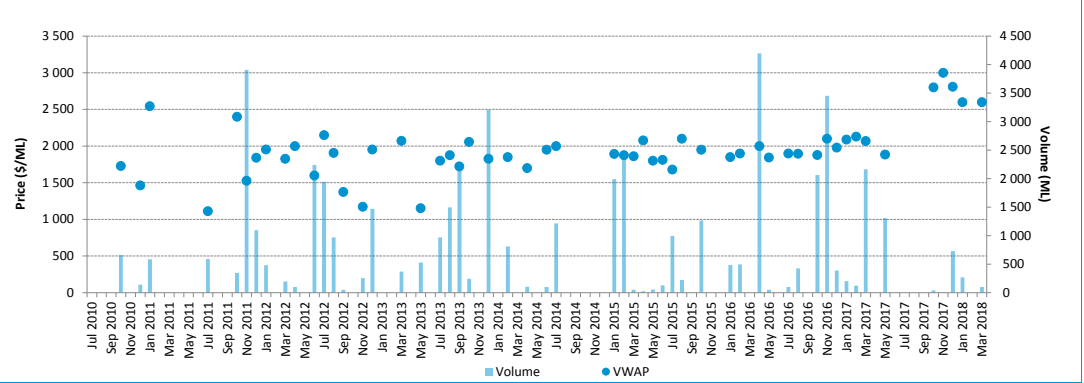
Entitlement market price range, Macquarie, general security, by volume month March 2018



Water entitlement market prices Murray–Darling Basin (March 2018)

Namoi: general security

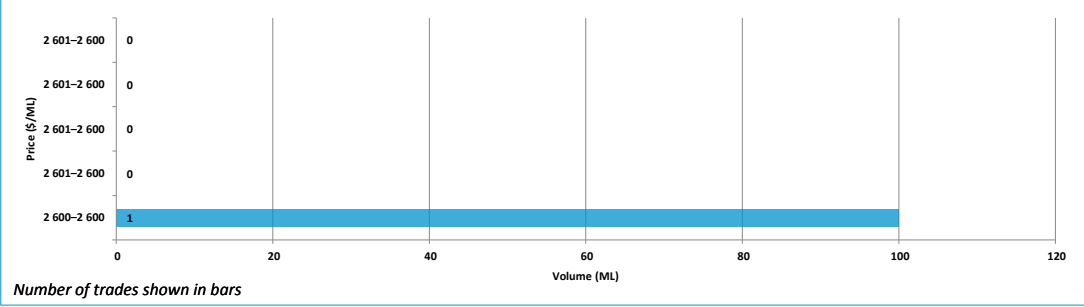
Entitlement market prices and volumes,Namoi, general security, July 2010 to March 2018



Entitlement market prices and volumes, Namoi, general security

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
2 600	2 599	2 285	2 600	2 600	2 600	2 600	0	100	1	1 850 - 2 600

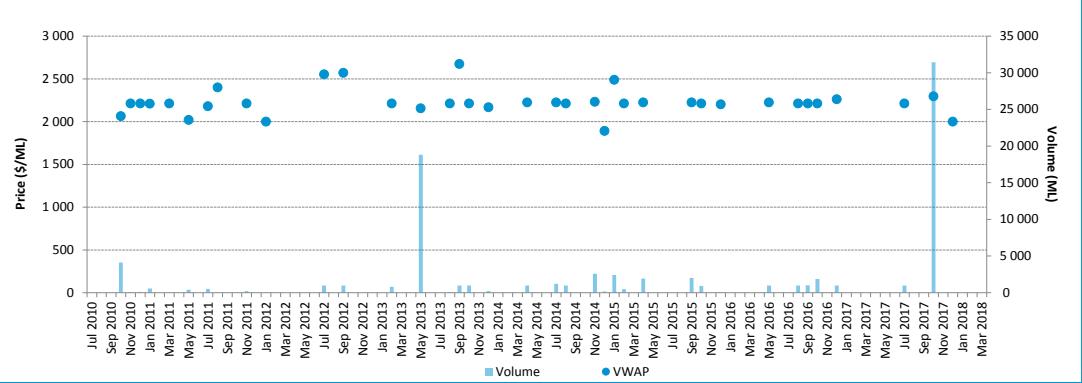
Entitlement market price range, Namoi, general security, by volume month March 2018



Water entitlement market prices Murray–Darling Basin (March 2018)

Gwydir: general security

Entitlement market prices and volumes, Gwydir, general security, July 2010 to March 2018



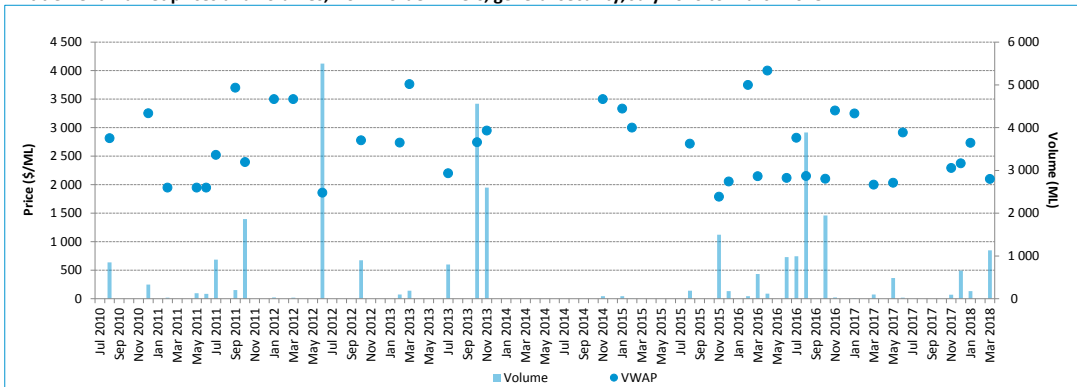
Entitlement market prices and volumes, Gwydir, general security

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
-	-	2 295	-	-	-	-	-	-	-	No listings

Water entitlement market prices Murray–Darling Basin (March 2018)

New South Wales Border Rivers: general security

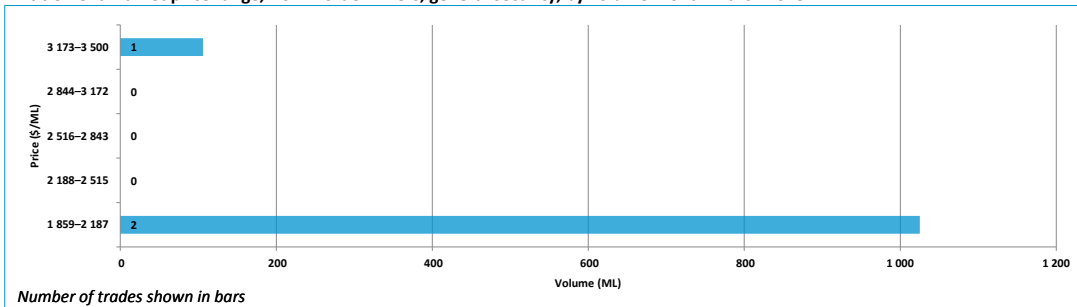
Entitlement market prices and volumes, NSW Border Rivers, general security, July 2010 to March 2018



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

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
2 100	2 187	2 217	1 929	2 750	2 000	2 453	0	1 131	3	3 700

Entitlement market price range, NSW Border Rivers, general security, by volume month March 2018

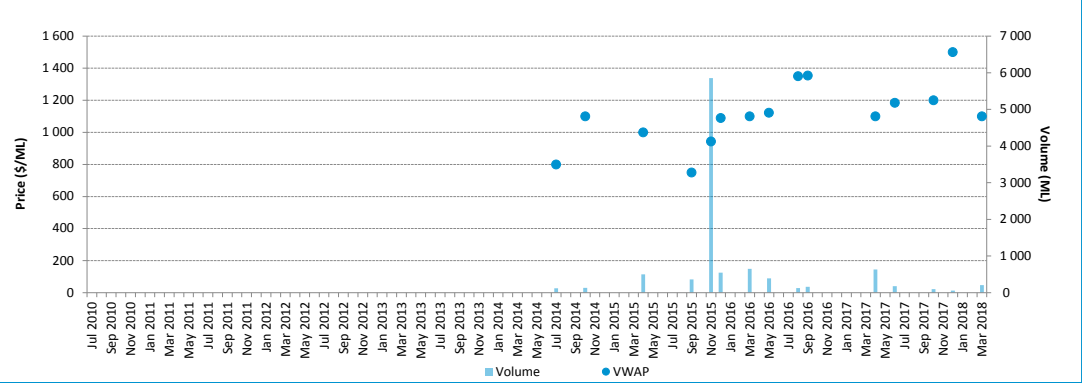


Water entitlement market prices Murray–Darling Basin (March 2018)

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Barwon–Darling: unregulated

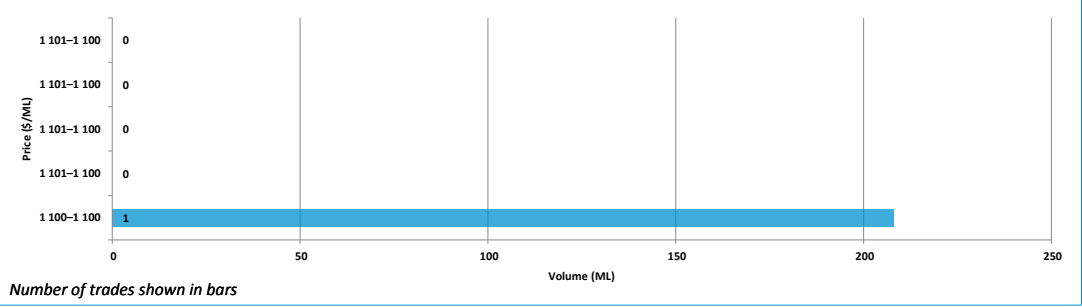
Entitlement market prices and volumes, Barwon–Darling, unregulated, July 2010 to March 2018



Entitlement market prices and volumes, Barwon–Darling, unregulated

Volume weighted average price (\$/ML)				March 2018 (in \$/ML)				March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
1 100	1 100	1 140	1 100	1 100	1 100	1 100	0	208	1	No listings

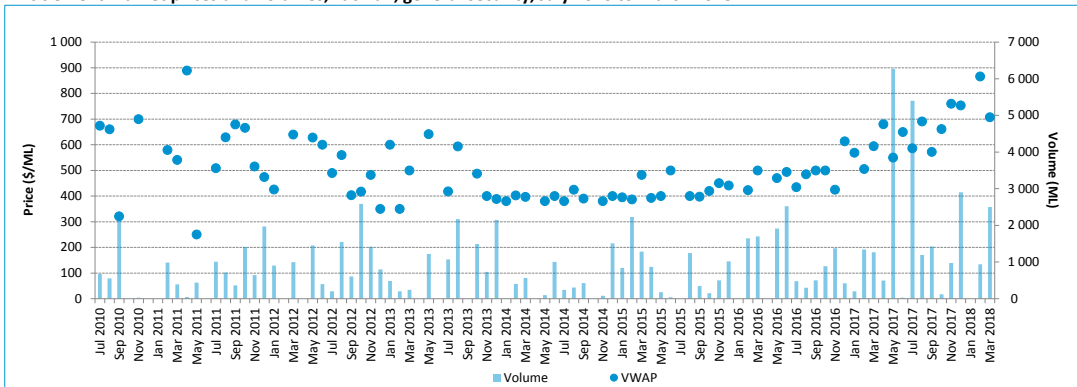
Entitlement market price range, Barwon–Darling, unregulated, by volume month March 2018



Water entitlement market prices Murray–Darling Basin (March 2018)

Lachlan: General security

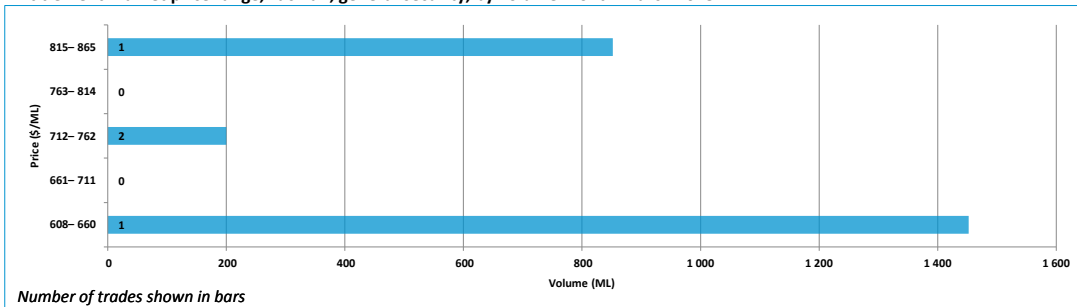
Entitlement market prices and volumes, Lachlan, general security, July 2010 to March 2018



Entitlement market prices and volumes, Lachlan, general security

Volume weighted average price (\$/ML)			March 2018 (in \$/ML)					March 2018 Volume	March 2018 # of trades	Broker buy/sell range (\$/ML)
Month of March 2018	March 2018 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
707	750	638	715	779	750	743	750	2 504	4	600 - 950

Entitlement market price range, Lachlan, general security, by volume month March 2018



Water entitlement market prices Murray-Darling Basin (March 2018)

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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)			February 2017 (in \$/ML)					February 2017 Volume	February 2017 # of trades	Broker buy/sell range (\$/ML)
			Month of February 2017	February 2017 Quarter	past 12 months	25th percentile	75th percentile	Median	Mean	Mode			
QLD Border Rivers	Border Rivers/ Macintyre Brook	Supplemented	-	-	1 535	-	-	-	-	-	-	-	2 200
QLD Border Rivers	Border Rivers	Unsupplemented	900	900	1 178	900	900	900	900	-	8 611	3	No listings
Condamine-Balonne	St. George / Upper Condamine	Supplemented	-	-	3 171	-	-	-	-	-	-	-	1 800 - 2 000
Condamine-Balonne	Condamine Balonne / Lower Balonne / Upper Condamine	Unsupplemented	-	-	2 144	-	-	-	-	-	-	-	700
Condamine-Balonne	Upper Condamine	Alluvium Groundwater	-	-	1 950	-	-	-	-	-	-	-	2 000
Condamine-Balonne	Lower Balonne	Overland Flow	-	-	-	-	-	-	-	-	-	-	No listings

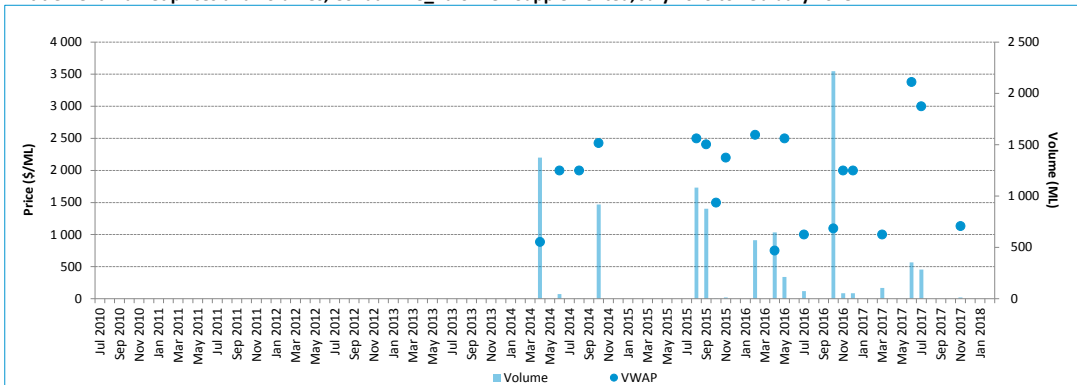
Note: No trades have been reported for Queensland in March 2018. Tables show the monthly trade figures until the end of February 2018.

Water entitlement market prices Murray–Darling Basin (March 2018)

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Condamine Balonne: Supplemented

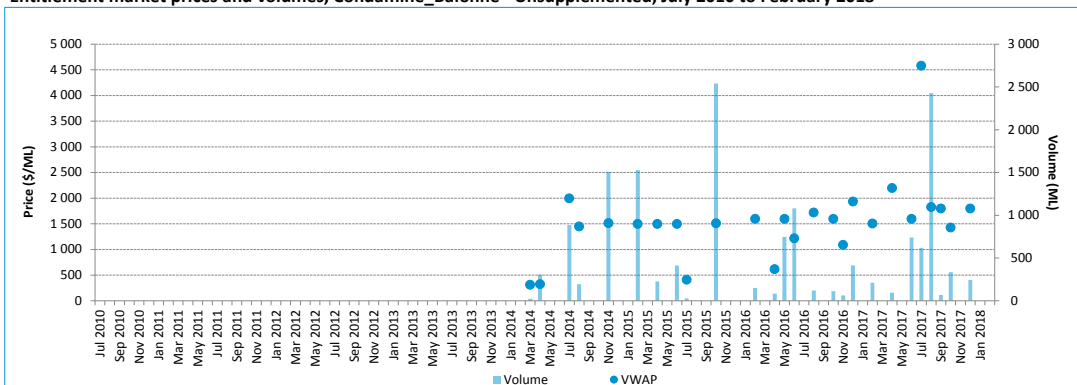
Entitlement market prices and volumes, Condamine_Balonne - Supplemented, July 2010 to February 2018



Note: No trades have been reported for Queensland in March 2018. Charts show the monthly trade volume and value until the end of February 2018.

Condamine Balonne: Unsupplemented

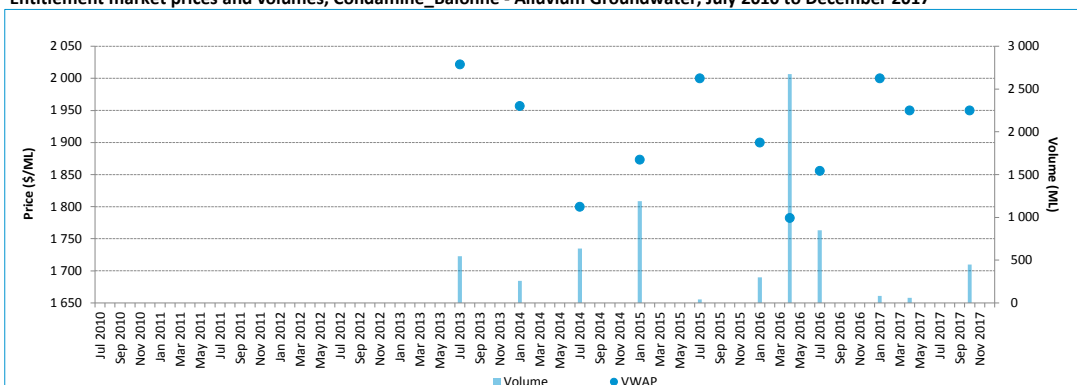
Entitlement market prices and volumes, Condamine_Balonne - Unsupplemented, July 2010 to February 2018



Note: No trades have been reported for Queensland in March 2018. Charts show the monthly trade volume and value until the end of February 2018.

Condamine Balonne: Alluvium Groundwater

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



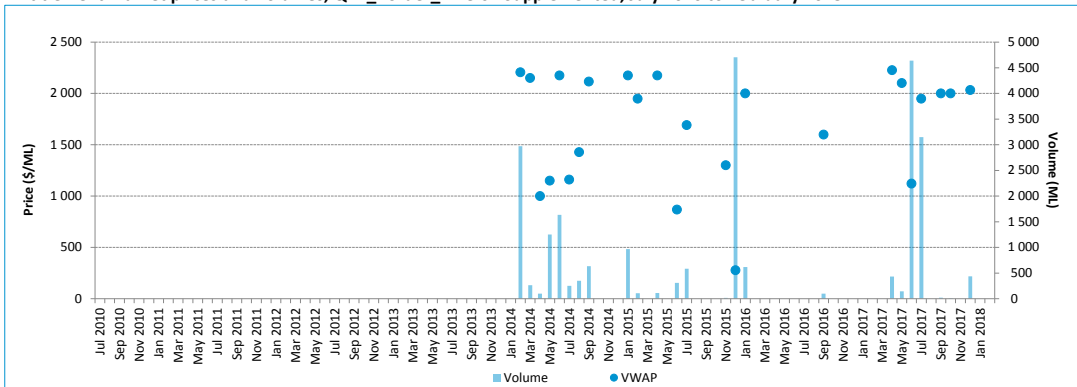
Note: No trades have been reported for Queensland since January 2018. Charts show the monthly trade volume and value until the end of December.

Water entitlement market prices Murray-Darling Basin (March 2018)

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QLD Border Rivers: Supplemented

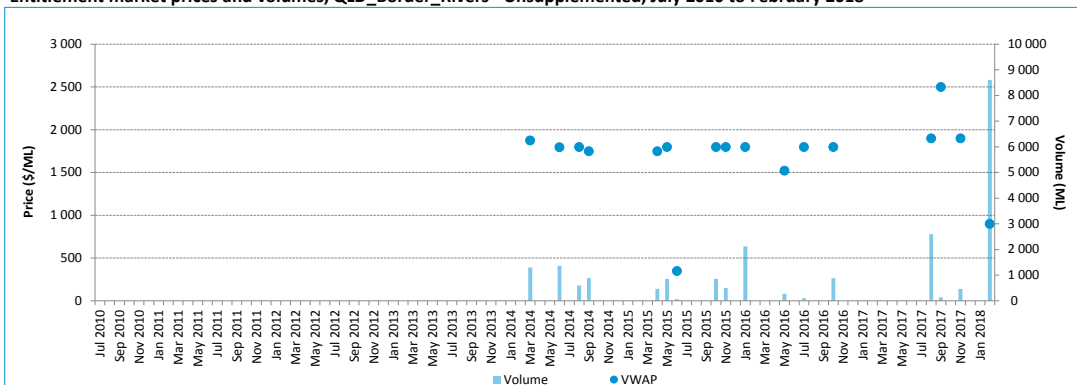
Entitlement market prices and volumes, QLD_Border_Rivers - Supplemented, July 2010 to February 2018



Note: No trades have been reported for Queensland in March 2018. Charts show the monthly trade volume and value until the end of February 2018.

QLD Border Rivers: Unsupplemented

Entitlement market prices and volumes, QLD_Border_Rivers - Unsupplemented, July 2010 to February 2018



Note: No trades have been reported for Queensland in March 2018. Charts show the monthly trade volume and value until the end of February 2018.

Water entitlement market prices Murray–Darling Basin (March 2018)

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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 March 2018 analysis.

Table B1 Outliers removed from trade data

Date	Catchment	Product name	Volume (ML)	Price (\$)	Price per ML (\$/ML)
9/03/2018	Goulburn	Low Reliability	19	\$ 3 840	\$ 200
8/03/2018	Loddon	High Reliability	75	\$ 100 000	\$1 333
2/03/2018	Murrumbidgee	General Security	10	\$ 7 500	\$ 750
26/03/2018	SA_Murray	Class 3a	1	\$ 1	\$ 1
26/03/2018	SA_Murray	Class 3a	10	\$ 1	\$ 0
15/03/2018	Vic_Murray_AboveBC	High Reliability	152	\$ 242 864	\$1 595
15/03/2018	Vic_Murray_AboveBC	High Reliability	75	\$ 118 363	\$1 574
15/03/2018	Vic_Murray_AboveBC	High Reliability	30	\$ 47 219	\$1 574
15/03/2018	Vic_Murray_AboveBC	High Reliability	549	\$ 863 480	\$1 574
15/03/2018	Vic_Murray_AboveBC	Low Reliability	14	\$ 2 172	\$ 157
15/03/2018	Vic_Murray_AboveBC	Low Reliability	70	\$ 11 018	\$ 157
15/03/2018	Vic_Murray_AboveBC	Low Reliability	253	\$ 39 822	\$ 157
1/03/2018	Vic_Murray_BelowBC	High Reliability	3	\$ 6 000	\$2 000
7/03/2018	Vic_Murray_BelowBC	High Reliability	2	\$ 376	\$ 188
15/03/2018	Vic_Murray_BelowBC	High Reliability	12	\$ 24 000	\$2 000
16/03/2018	Vic_Murray_BelowBC	High Reliability	10	\$ 20 000	\$2 000
16/03/2018	Vic_Murray_BelowBC	High Reliability	1	\$ 29	\$ 29
1/03/2018	Vic_Murray_BelowBC	Low Reliability	309	\$ 77 275	\$ 250