Water entitlement market price report – August 2018

Murray-Darling Basin

A Final Report prepared for the Department of Agriculture and Water Resources

Friday 5 October 2018
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Introduction

This water entitlement market price report has been prepared by Aither on behalf of the Australian Government Department of Agriculture and Water Resources.

This report includes details regarding Murray-Darling Basin water entitlement prices and trade activity. The entitlement types included within this report are detailed below:

Southern Murray-Darling Basin Entitlements

SA Murray 3A, Vic 6 Murray HRWS, Vic 6 Murray LRWS, Vic 7 Murray HRWS, Vic 7 Murray LRWS, Vic 6B Lower Broken Creek HRWS, Vic 6B Lower Broken Creek LRWS, Vic 1A Greater Goulburn HRWS, Vic 1A Greater Goulburn LRWS, Vic 1B Boort HRWS, Vic 1B Boort LRWS, Vic 3 Lower Goulburn HRWS, Vic 3 Lower Goulburn LRWS, Vic 4C Lower Campaspe HRWS, Vic 4A Campaspe (Eppalock to WWC) HRWS, Vic 4A Campaspe (Eppalock to WWC) LRWS, Vic 5A Loddon HRWS, Vic 5A Loddon LRWS, Vic 5B Bullarook HRWS, Vic 5B Bullarook LRWS, NSW Murray HS, NSW Murray GS, NSW Murray Irrigation Limited GS, NSW Murrumbidgee HS, NSW Murrumbidgee GS, NSW Lower Darling HS, NSW Lower Darling GS.

Northern Murray-Darling Basin Entitlement types


A brief summary of Aither’s calculation methodology has been provided below:

1. Collate entitlement trade data from State Registers
2. Removal of trades reported at a price below $10 per ML
3. Removal of unrealistically high trades reported outside upper bound price cut off limits
4. Calculation of median price and standard deviation statistics from remaining pool of trades
5. Filter remaining trade data within one standard deviation of the median
6. VWAP calculated based on final pool of trades
Entitlement market overview, August 2018

<table>
<thead>
<tr>
<th>Entitlement type</th>
<th>August 2018 VWAP ($/ML)</th>
<th>August 2018 Maximum Price ($/ML)</th>
<th>August 2018 Number of Transfers</th>
<th>August 2018 Volume of Transfers (ML)</th>
<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA Murray 3A</td>
<td>$3,887</td>
<td>$4,265</td>
<td>21</td>
<td>1,848.95</td>
<td>88.05</td>
<td>$3,050 - $4,300</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the SA Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019


Market price range, August 2018


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
## Vic 6 Murray

### Entitlement market overview, August 2018

<table>
<thead>
<tr>
<th>Entitlement type</th>
<th>August 2018 VWAP ($/ML)</th>
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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic 6 Murray HRWS</td>
<td>$3,182</td>
<td>$4,959</td>
<td>24</td>
<td>1,025.90</td>
<td>42.75</td>
<td>$3,500 - $3,700</td>
</tr>
<tr>
<td>Vic 6 Murray LRWS</td>
<td>$423</td>
<td>$500</td>
<td>12</td>
<td>625.50</td>
<td>52.13</td>
<td>$500 - $600</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

### Market prices and volumes, July 2016 to June 2019

![Graph showing market prices and volumes for Vic 6 Murray HRWS and LRWS from July 2016 to June 2019.](image)


### Market price range, August 2018

#### Vic 6 Murray HRWS

![Bar chart showing the price range for Vic 6 Murray HRWS in August 2018.](image)


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
## Entitlement Market Overview, August 2018

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<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic 7 Murray HRWS</td>
<td>$3,888</td>
<td>$4,200</td>
<td>77</td>
<td>1,993.40</td>
<td>25.89</td>
<td>$3,900 - $4,300</td>
</tr>
<tr>
<td>Vic 7 Murray LRWS</td>
<td>$512</td>
<td>$570</td>
<td>6</td>
<td>111.40</td>
<td>18.57</td>
<td>$550 - $600</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

## Market Prices and Volumes, July 2016 to June 2019


## Market Price Range, August 2018


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.

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AITHER
Vic 6B Lower Broken Creek

Entitlement market overview, August 2018

<table>
<thead>
<tr>
<th>Entitlement type</th>
<th>August 2018 VWAP ($/ML)</th>
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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic 6B Lower Broken Creek HRWS</td>
<td>$3,785</td>
<td>$3,785</td>
<td>4</td>
<td>57.60</td>
<td>14.40</td>
<td>-</td>
</tr>
<tr>
<td>Vic 6B Lower Broken Creek LRWS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019

Market price range, August 2018

Vic 6B Lower Broken Creek HRWS


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
Vic 1A Greater Goulburn

Entitlement market overview, August 2018

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Vic 1A Greater Goulburn HRWS</td>
<td>$3,273</td>
<td>$3,505</td>
<td>63</td>
<td>2,844.80</td>
<td>45.16</td>
<td>$3,450 - $3,600</td>
</tr>
<tr>
<td>Vic 1A Greater Goulburn LRWS</td>
<td>$574</td>
<td>$600</td>
<td>27</td>
<td>2,502.10</td>
<td>92.67</td>
<td>$400 - $550</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019


Market price range, August 2018

Vic 1A Greater Goulburn HRWS


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
Vic 1B Boort

Entitlement market overview, August 2018

<table>
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<tr>
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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic 1B Boort HRWS</td>
<td>$3,154</td>
<td>$3,300</td>
<td>2</td>
<td>111.40</td>
<td>55.70</td>
<td>$3,150 - $3,150</td>
</tr>
<tr>
<td>Vic 1B Boort LRWS</td>
<td>$475</td>
<td>$475</td>
<td>1</td>
<td>50.90</td>
<td>50.90</td>
<td>$475 - $475</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019

![Graph showing volume traded and VWAP over time]


Market price range, August 2018

**Vic 1B Boort HRWS**

- Prices ($/ML): $0 - $1,500
- Volume traded (ML): 0 - 160
- Number of trades: 2

**Vic 1B Boort LRWS**

- Prices ($/ML): $0 - $150
- Volume traded (ML): 0 - 75
- Number of trades: 1


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
Vic 3 Lower Goulburn

Entitlement market overview, August 2018

<table>
<thead>
<tr>
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<th>August 2018 Volume of Transfers (ML)</th>
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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic 3 Lower Goulburn HRWS</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2.00</td>
<td>2.00</td>
<td>-</td>
</tr>
<tr>
<td>Vic 3 Lower Goulburn LRWS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019


Market price range, August 2018

Vic 3 Lower Goulburn HRWS


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
Vic 4C Lower Campaspe

Entitlement market overview, August 2018

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<tr>
<th>Entitlement type</th>
<th>August 2018 VWAP ($/ML)</th>
<th>August 2018 Maximum Price ($/ML)</th>
<th>August 2018 Number of Transfers</th>
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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic 4C Lower Campaspe HRWS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
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Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019


Market price range, August 2018


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
Vic 4A Campaspe (Eppalock to WWC)

Entitlement market overview, August 2018

<table>
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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic 4A Campaspe (Eppalock to WWC) HRWS</td>
<td>$2,000</td>
<td>$2,000</td>
<td>2</td>
<td>6.00</td>
<td>3.00</td>
<td>$3,150 - $3,150</td>
</tr>
<tr>
<td>Vic 4A Campaspe (Eppalock to WWC) LRWS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019

Market price range, August 2018
Vic 4A Campaspe (Eppalock to WWC) HRWS                                   Vic 4A Campaspe (Eppalock to WWC) LRWS


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
Vic 5A Loddon

Entitlement market overview, August 2018

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Vic 5A Loddon HRWS</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>13.90</td>
<td>6.95</td>
<td>$3,330 - $3,300</td>
</tr>
<tr>
<td>Vic 5A Loddon LRWS</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>3.90</td>
<td>3.90</td>
<td>$475 - $475</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019


Market price range, August 2018

Vic 5A Loddon HRWS

Vic 5A Loddon LRWS


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
### Vic 5B Bullarook

#### Entitlement market overview, August 2018

<table>
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<tr>
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<th>August 2018 VWAP ($/ML)</th>
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<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic 5B Bullarook HRWS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vic 5B Bullarook LRWS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the VIC Water Register and quotes sourced from water brokers.

#### Market prices and volumes, July 2016 to June 2019

![Graph showing market prices and volumes, July 2016 to June 2019](image)


### Market price range, August 2018

#### Vic 5B Bullarook HRWS

![Graph showing market price range for Vic 5B Bullarook HRWS](image)


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper-bound price of the interval.

#### Vic 5B Bullarook LRWS

![Graph showing market price range for Vic 5B Bullarook LRWS](image)


Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper-bound price of the interval.
**NSW Murray**

**Entitlement market overview, August 2018**

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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Murray HS</td>
<td>$4,800</td>
<td>$4,800</td>
<td>1</td>
<td>10.00</td>
<td>10.00</td>
<td>$4,900 - $5,400</td>
</tr>
<tr>
<td>NSW Murray GS</td>
<td>$1,710</td>
<td>$1,850</td>
<td>4</td>
<td>849.00</td>
<td>212.25</td>
<td>$1,750 - $2,015</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register, and quotes sourced from water brokers.

**Market prices and volumes, July 2016 to June 2019**

![Graph showing market prices and volumes](image)

Source: Aither, 2018. Based on the NSW Water Registers.

**Market price range, August 2018**

**NSW Murray HS**

![Graph showing market price range for NSW Murray HS](image)

Source: Aither, 2018. Based on the NSW Water Registers.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
Entitlement market overview, August 2018

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<thead>
<tr>
<th>Entitlement type</th>
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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Murray Irrigation Limited GS</td>
<td>$1,710</td>
<td>$1,850</td>
<td>34</td>
<td>9,106</td>
<td>267.82</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

Note: As trade prices within NSW Murray Irrigation GS are not reported Aither has presented NSW Murray GS on river prices instead given the common characteristics that these entitlements share.

Market prices and volumes, July 2016 to June 2019

Source: Aither, 2018. Based on the NSW Water Register.
# NSW Murrumbidgee

## Entitlement market overview, August 2018

<table>
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<tr>
<th>Entitlement type</th>
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<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Murrumbidgee HS</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>698</td>
<td>698.00</td>
<td>$5,100 - $5,250</td>
</tr>
<tr>
<td>NSW Murrumbidgee GS</td>
<td>$2,100</td>
<td>$2,150</td>
<td>4</td>
<td>1,668</td>
<td>417.00</td>
<td>$2,050 - $2,100</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

## Market prices and volumes, July 2016 to June 2019

![Graph showing market prices and volumes](image)

Source: Aither, 2018. Based on the NSW Water Register.

## Market price range, August 2018

**NSW Murrumbidgee HS**

![Chart showing price range](chart)

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
**NSW Lower Darling**

**Entitlement market overview, August 2018**

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<tbody>
<tr>
<td>NSW Lower Darling HS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NSW Lower Darling GS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

**Market prices and volumes, July 2016 to June 2019**

![Graph showing market prices and volumes]

Source: Aither, 2018. Based on the NSW Water Register.

**Market price range, August 2018**

**NSW Lower Darling HS**

- $6,000 +
- $4,500 - $6,000
- $3,000 - $4,500
- $1,500 - $3,000
- $0 - $1,500

**NSW Lower Darling GS**

- $2,000 +
- $1,500 - $2,000
- $1,000 - $1,500
- $500 - $1,000
- $0 - $500

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
NSW Macquarie

Entitlement market overview, August 2018

<table>
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<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Macquarie GS</td>
<td>$1,382</td>
<td>$1,400</td>
<td>2</td>
<td>24</td>
<td>12.00</td>
<td>$1,250 - $1,630</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019

Source: Aither, 2018. Based on the NSW Water Register.

Market price range, August 2018

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
NSW Lower Namoi

Entitlement market overview, August 2018

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<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Lower Namoi GS</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2,523</td>
<td>1,261.50</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019

Source: Aither, 2018. Based on the NSW Water Registers.

Market price range, August 2018

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
## NSW Upper Namoi

### Entitlement market overview, August 2018

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<th>August 2018 Volume of Transfers (ML)</th>
<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Upper Namoi GS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

### Market prices and volumes, July 2016 to June 2019

Source: Aither, 2018. Based on the NSW Water Register.

### Market price range, August 2018

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
NSW Gwydir

Entitlement market overview, August 2018

<table>
<thead>
<tr>
<th>Entitlement type</th>
<th>August 2018 VWAP ($/ML)</th>
<th>August 2018 Maximum Price ($/ML)</th>
<th>August 2018 Number of Transfers</th>
<th>August 2018 Volume of Transfers (ML)</th>
<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Gwydir GS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019

![Volume traded (ML) vs. VWAP ($/ML) chart]

Source: Aither, 2018. Based on the NSW Water Register.

Market price range, August 2018

![Volume traded (ML) vs. Prices ($/ML) chart]

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
NSW Border Rivers

Entitlement market overview, August 2018

<table>
<thead>
<tr>
<th>Entitlement type</th>
<th>August 2018 VWAP ($/ML)</th>
<th>August 2018 Maximum Price ($/ML)</th>
<th>August 2018 Number of Transfers</th>
<th>August 2018 Volume of Transfers (ML)</th>
<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Border Rivers GS A</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NSW Border Rivers GS B</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>208</td>
<td>208</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019

Source: Aither, 2018. Based on the NSW Water Register.

Market price range, August 2018

NSW Border Rivers GS A

<table>
<thead>
<tr>
<th>Prices ($/ML)</th>
<th>Volume traded (ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$6,000 +</td>
<td></td>
</tr>
<tr>
<td>$4,500 - $6,000</td>
<td></td>
</tr>
<tr>
<td>$3,000 - $4,500</td>
<td></td>
</tr>
<tr>
<td>$1,500 - $3,000</td>
<td></td>
</tr>
<tr>
<td>$0 - $1,500</td>
<td></td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register.

NSW Border Rivers GS B

<table>
<thead>
<tr>
<th>Prices ($/ML)</th>
<th>Volume traded (ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2,000 +</td>
<td></td>
</tr>
<tr>
<td>$1,500 - $2,000</td>
<td></td>
</tr>
<tr>
<td>$1,000 - $1,500</td>
<td></td>
</tr>
<tr>
<td>$500 - $1,000</td>
<td></td>
</tr>
<tr>
<td>$0 - $500</td>
<td></td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
### NSW Barwon-Darling Unregulated

#### Entitlement market overview, August 2018

<table>
<thead>
<tr>
<th>Entitlement type</th>
<th>August 2018 VWAP ($/ML)</th>
<th>August 2018 Maximum Price ($/ML)</th>
<th>August 2018 Number of Transfers</th>
<th>August 2018 Volume of Transfers (ML)</th>
<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Barwon-Darling Unregulated A</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NSW Barwon-Darling Unregulated B</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NSW Barwon-Darling Unregulated C</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

#### Market prices and volumes, July 2016 to June 2019

Source: Aither, 2018. Based on the NSW Water Register.

#### Market price range, August 2018

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
Entitlement market overview, August 2018

<table>
<thead>
<tr>
<th>Entitlement type</th>
<th>August 2018 VWAP ($/ML)</th>
<th>August 2018 Maximum Price ($/ML)</th>
<th>August 2018 Number of Transfers</th>
<th>August 2018 Volume of Transfers (ML)</th>
<th>August 2018 Average Parcel Size (ML)</th>
<th>Broker Spread (Buy/Sell) ($/ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Lachlan GS</td>
<td>$1,000</td>
<td>$1,000</td>
<td>3</td>
<td>491</td>
<td>163.67</td>
<td>$900 - $1,000</td>
</tr>
</tbody>
</table>

Source: Aither, 2018. Based on the NSW Water Register and quotes sourced from water brokers.

Market prices and volumes, July 2016 to June 2019

Market price range, August 2018

Source: Aither, 2018. Based on the NSW Water Register.

Note: Data labels are indicative of number of trades in each price bracket. Price bracket intervals do not include the upper bound price of the interval.
# Queensland Entitlements

## Entitlement market overview, July 2018

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>QLD Condamine-Balonne (St George) Supplemented</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>6,701</td>
<td>3,351</td>
<td>-</td>
</tr>
<tr>
<td>QLD Condamine-Balonne (Lower Balonne) Unsupplemented</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>QLD Condamine-Balonne (Upper Condamine) Unsupplemented</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>156</td>
<td>52</td>
<td>-</td>
</tr>
<tr>
<td>QLD Central Condamine Alluvium Groundwater (1, 2, 3 and 4)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>QLD Upper Condamine Alluvium Groundwater (Dalrymple Creek) Groundwater</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>QLD Upper Condamine Alluvium Groundwater (Oakey Creek) Groundwater</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>QLD Border Rivers Supplemented (Macintyre Brook)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>QLD Border Rivers Unsupplemented</td>
<td>$1,850</td>
<td>$1,850</td>
<td>1</td>
<td>251</td>
<td>251</td>
<td>-</td>
</tr>
<tr>
<td>QLD Condamine-Balone Lower Balonne Overland flow</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: Disaggregated entitlement trade data in QLD is not publicly available therefore Aither has been unable to provide data in the same format as SA, Vic and NSW entitlement types. QLD groundwater trade data relates to trade in April 2018 as more recent trade data was unavailable at the time of publication. Trade related to QLD Border rivers unsupplemented trade reflects year to date trade as monthly trade data was unavailable. In instances where there has been more than one trade for a given month it has not been possible to determine a maximum price due to the nature of the data made available.

Source: Aither, 2018. Based on the QLD Water Register. Quotes sourced from water brokers.
Notes

VWAPs are based on estimates of commercial trades as outlined in Aither’s methodology excluding $0 values. Aither’s methodology is available on request.

Only trades reported in August 2018 are included in the monthly Volume Weight Average Price (VWAP) and Maximum Monthly Price ($/ML) reported in the entitlement summary tables.

The ‘Number of Transfers and ‘Volume of Transfers’ (ML) are calculated based on all trades from state water market registers, including $0 value trades. This is in line with Aither’s calculation methodology which is available on request.

The average parcel size reported in the entitlement summary tables has been determined by taking the total monthly volume of transfers and dividing by the total number of transfers of the given entitlement during the month in question.

As trade prices for NSW Murray GS within Murray Irrigation are not reported, Aither has used NSW Murray GS on river prices as a substitute given the common characteristics that these entitlements share.

Aither’s analysis was conducted on the 13th September 2018 and only includes trades recorded as of this date.
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