



Department of  
Primary Industries  
Water

# General Purpose Water Accounting Report 2015–2016

Gwydir catchment



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## Abbreviations

| Acronym   | Description  |
|-----------|--|
| ARCGIS    | Mapping and spatial analysis platform for designing and managing solutions through the application of geographic knowledge |
| AWAS 1    | Australian Water Accounting Standard 1   |
| AWD       | Available Water Determination  |
| BoM       | Bureau of Meteorology  |
| CAIRO     | Computer Aided Improvements to River Operations  |
| Ck        | Creek  |
| D/S       | Downstream   |
| DPI Water | New South Wales Department of Primary Industries Water   |
| EWA       | Environmental Water Allowance  |
| GIS       | Geographic Information System  |
| GL        | Gigalitres (1,000,000,000 litres)  |
| GMA       | Groundwater Management Area  |
| GMU       | Groundwater Management Unit  |
| GPWAR     | General Purpose Water Accounting Report  |
| IQQM      | Integrated Quantity and Quality Model  |
| LAS       | Licencing Administration System  |
| MDBA      | Murray-Darling Basin Authority   |
| MIL       | Murray Irrigation Limited  |
| ML        | Megalitres (1,000,000 litres)  |
| ML/d      | Megalitres per day   |
| ML/yr     | Megalitres per year  |
| MODFLOW   | Modular Three Dimensional Finite-Difference Groundwater Flow Model   |
| NSW       | New South Wales  |
| OEH       | NSW Office of Environment and Heritage   |
| QLD       | Queensland   |
| SILO      | Climatic data provision system run by Queensland government for the provision of both measured and modeled data.           |
| U/S       | Upstream   |
| WAS       | Water Accounting System (Water Management Act 2000)  |
| WASB      | Water Accounting Standards Board   |
| WSP       | Water Sharing Plan   |

## Glossary

| Term  | Definition  |
|---|---|
| Allocation  | The specific volume of water allocated to water allocation accounts in a given season, defined according to rules established in the relevant water plan.   |
| Allocation assignments                                  | The transfer of water between licence holder allocation accounts as a result of a trade agreement. The assignment becomes part of the receiver's current year allocation account water.   |
| Allocation Account                                      | Water account attached to an access licence used to track the balance of account water.   |
| Aquifer   | Soil or rock below the land surface that is saturated with water. A confined aquifer has layers of impermeable material above and below it and is under pressure. When the aquifer is penetrated by a well, the water rises above the top of the aquifer. In an unconfined aquifer, the upper water surface (water table) is at atmospheric pressure and thus is able to rise and fall. |
| Available Water Determination (AWD)                     | The process by which water is made available for use and shared amongst water users who hold a water access licence. It determines the volume of water that is to be added to an individual's licence allocation account.   |
| Australian Water Accounting Standard (AWAS)             | A national standard that prescribes the basis for preparing and presenting a General Purpose Water Accounting Report (GPWAR). It sets out requirements for the recognition, quantification, presentation and disclosure of items in a GPWAR.  |
| Back-calculation  | A calculation approach using a mass balance to determine an unknown variable (used to calculate storage inflows based on balancing the change in storage volume where inflow is the only unknown).  |
| Basic rights  | The non-licensed right to extract water to meet basic requirements for household purposes (non-commercial uses in and around the house and garden) and for watering of stock. It is available for anyone who has access to river frontage on their property.  |
| Computer Aided Improvements to River Operations (CAIRO) | A spreadsheet-based water balance model used for optimising river operations (orders and releases)  |
| Carryover   | The volume or share component that may be reserved by a licence holder for use in the preceding year.   |
| Catchment   | The areas of land which collect rainfall and contribute to surface water (streams, rivers, wetlands) or to ground-water. A catchment is a natural drainage area, bounded by sloping ground, hills or mountains, from which water flows to a low point.  |
| Conveyance licence                                      | Defined licence category that provides an allowance for losses in the delivery of water.  |
| Dead storage  | The volume in storage that is generally considered unavailable for use (e.g water level below release valves) due to access and often poor water quality.   |
| Dealings  | A water dealing refers to a change that can be made to a licence, in particular, those arising from trading including the sale of all or part of an access licence or account water. May also include a change in location, licence category or consolidation/subdivision of licences.  |
| Double entry accounting                                 | Double-entry accounting is a method of record-keeping that records both where money (or in this case water) comes from and where it goes. Using double-entry means that water is never gained or lost - it is always transferred from somewhere (a source account) to somewhere else (a destination account).   |
| Effective storage                                       | The total volume of storage minus the dead storage component – the volume generally considered as useable.  |
| Effluent  | Flow leaving a place or process. Sewage effluent refers to the flow leaving a sewage treatment plant. An effluent stream is one which leaves the main river and does not return.  |
| Entity  | A defined geographical area or zone within the accounting region. Transactions and reports are produced for each entity.  |
| End of system   | The last defined point in a catchment where water information can be measured and/or reported.  |



| Term  | Definition   |
|---|--|
| Environmental water                             | Water allocated to support environmental outcomes and other public benefits. Environmental water provisions recognise the environmental water requirements and are based on environmental, social and economic considerations, including existing user rights.   |
| Equity  | Total assets minus total liabilities   |
| Evaporation                                     | The process by which water or another liquid becomes a gas. Water from land areas, bodies of water, and all other moist surfaces is absorbed into the atmosphere as a vapour.  |
| Evapotranspiration                              | The process by which water is transmitted as a vapour to the atmosphere as the result of evaporation from any surface and transpiration from plants.   |
| Extraction                                      | The pumping or diverting of water from a river or aquifer by licensed users for a specific purpose (irrigation, stock, domestic, towns, etc). The volume is measured at the point of extraction or diversion (river pump, diversion works etc).  |
| General Purpose Water Accounting Report (GPWAR) | A report prepared according to the Australian Water Accounting Standard. It is comprised of a number of components including a contextual statement, a Statement of Water Assets and Water Liabilities, a Statement of Change in Water Assets and Water Liabilities, a Statement of Physical Water Flows, Notes and Disclosures, and an assurance and accountability statement |
| General security licence                        | A category of water access licence implemented under the <i>Water Management Act 2000</i> . Forms the bulk of the water access licence entitlement volume in NSW and is a low priority entitlement i.e. only receives water once essential and high security entitlements are met in the available water determination process.  |
| Groundwater                                     | Water location beneath the ground in soil pore spaces and in the fractures of rock formations.   |
| High security licence                           | A category of water access licence implemented under the <i>Water Management Act 2000</i> . Receives a higher priority than general security licences but less priority than essential requirements in the available water determination process.  |
| HYDSTRA database                                | A database used by DPI Water to store continuous time series data such as river flow, river height, and water quality.   |
| Inflows   | Surface water runoff and deep drainage to groundwater (groundwater recharge) and transfers into the water system (both surface and groundwater) for a defined area.  |
| Inter-valley trade                              | Trade of licence holder allocation account water, via allocation assignment, from one catchment to another catchment (or state).   |
| Intra-valley trade                              | Trade of licence holder allocation account water, via allocation assignment, within the same catchment.  |
| Licence Administration System (LAS)             | The system used by DPI Water to manage water access licence information and transaction.   |
| Liability                                       | A legally binding obligation to settle a debt.   |
| Median  | The middle point of a distribution, separating the highest half of a sample from the lowest half.  |
| Non-physical transaction                        | An accounting transaction representing a process that is not a component of the water cycle (e.g. an available water determination).   |
| Physical transaction                            | An accounting transaction representing a process of the water cycle (e.g. a extraction)  |
| Recharge  | Groundwater recharge is a hydrologic process where water drains downward from surface water to groundwater. Groundwater is recharged naturally by rain, floods and snow melt and to a smaller extent by drainage directly from surface water (such as rivers and lakes).   |
| Regulated river                                 | A river system where flow is controlled via one or more major man-made structures e.g. dams and weirs. For the purposes of the <i>Water Management Act 2000</i> a regulated river is one that is declared by the Minister to be a regulated river. Within a regulated river system licence holders can order water against a held entitlement.                                 |
| Replenishment flows                             | Flows provided along effluent systems downstream of a water source to supply water for household, town use and stock.  |



| Term                | Definition   |
|---------------------|--|
| Return inflows      | Water that has been diverted from a river by a water user and is then returned to the river after use (e.g. can include non-consumptive uses, such as hydropower, cooling water for industry or water for aquaculture). This water is included as an inflow to the basin because the water is available to be diverted downstream or will pass the basin outlet.   |
| Share component     | An entitlement to water specified on the access licence, expressed as a unit share or in the case of specific purpose licences (eg. local water utility, major water utility and domestic and stock) a volume in megalitres. The amount of water a licence holder is allocated as a result of an available water determination and the amount they can take in any year is based on their share component. |
| Snowpack            | Volume of water stored in packed snow that upon melting will result in a system inflow.  |
| Steady State        | A condition in a physical groundwater system where the volume does not change over time, or in which any one change in volume is continually balanced by another.  |
| Storage             | A state-owned dam, weir or other structure which is used to regulate and manage river flows in the catchment and the water bodies impounded by these structures.   |
| Storage discharge   | The volume of water released from storage in a specified time frame.   |
| Storage reserve     | Proportion of water in a storage reserved in the resource assessment process for future essential or high security requirements (e.g. town water).   |
| Storage volume      | The total volume of water held in storage at a specified time.   |
| Supplementary water | Unregulated river flow available for extraction under a supplementary licence.   |
| Surface water       | All water that occurs naturally above ground including rivers, lakes, reservoirs, creeks, wetlands and estuaries.  |
| Translucent flow    | The release of an agreed percentage of an incoming flow event from a dam for environmental purposes immediately downstream of the dam.   |
| Transparent flow    | The release of all or part of an incoming flow event from a dam for environmental purposes at one or more sites downstream of the dam.   |
| Tributary           | A smaller river or stream that flows into a larger river or stream. Usually a number of smaller tributaries merge to form a river.   |
| Uncontrolled flow   | Water permitted to be extracted without debt under a general security access licence during a supplementary flow event. The extracted water may be progressively debited to the general security account if water availability exceeds predefined levels.  |
| Ungauged catchment  | A catchment without a flow gauge to accurately record stream flows. Modelled estimates must be used to approximate the contribution of ungauged catchments to the main river.  |
| Water accounting    | The systematic process of identifying, recognising, quantifying, reporting, assuring and publishing information about water, the rights or other claims to that water, and the obligations against that water  |
| Water assets        | The physical water held in storage, as well as any claims to water that are expected to increase the future water resource (e.g. external water entering the system through intervalley trading).  |
| Water liabilities   | Claims on the water assets of the water report entity including water that has been allocated to licence holder accounts or environmental accounts but yet to be taken at the end of the reporting period.   |
| Water sharing plan  | A water management plan that defines the rules for sharing of water within a region under the <i>Water Management Act 2000</i> .   |

## Introduction

This is the 6<sup>th</sup> annual release of the General Purpose Water Accounting Report (GPWAR) for the Gwydir Regulated River Water Source. It has been prepared for the accounting period 1 July 2015 to 30 June 2016, under the Australian Water Accounting Standard 1 (AWAS 1) (WASB, 2012).

The GPWAR provides stakeholders with a consolidated, comparable and publicly accessible set of water accounting information for the water source. The information presented is also used internally for a range of water planning functions and legislative reporting obligations.

Included in the GPWAR are

- A contextual statement, summarising the climatic conditions, water resources, environmental holdings, water trading market and water resource management in the water source for 2015-16.
- A physical flow diagram, illustrating changes in storage volumes and the associated inflows and outflows
- Water accounting statements presenting the opening and closing balances, and itemised changes to these balances for available water resources (water assets) and licenced allocation accounts (water liabilities).
- Disclosure notes (linked to the figures within the water accounting statements) providing detailed information of accounting components including:
  - o access licence account balances
  - o planned and held environmental water account balances
  - o available water determination detailed report
  - o temporary trading by licence category
  - o supplementary announcements and usage by river reach
  - o physical inflows and outflows to the system for the water year

While groundwater has not been directly included in this GPWAR (aside from those processes that directly affect the regulated river), annual groundwater summary reports by water source are published separately and can be accessed via the DPI Water website.

As Acting Director Water Information and Insights, DPI Water, I hereby declare:

- The information presented in these accounts as a faithful representation of the management and operation of the Gwydir Regulated River Water Source in 2015-16
- All data presented in this report is based on the best available information at the time of publication.
- DPI Water has to the best of its ability prepared this GPWAR in accordance with the Australian Water Accounting Standard 1



**Danielle Baker**

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DPI Water

## Contextual statement

The Gwydir River is part of the Murray-Darling drainage basin in northern NSW. Covering an area of 26,600 square kilometres, the catchment extends 670 km from the Great Dividing Range to the Barwon River near Collarenebri. It is separated from the Border Rivers catchment to the north by the Mastermans Range and from the Namoi Catchment to the south by the Nandewar Range.

From its headwaters near Guyra and Uralla, around 1,200 metres above sea level, the Gwydir River flows north-west through steep-sided valleys. It is joined by the Horton River, the largest tributary flowing north from the Nandewar Range, before it enters the alluvial plains near Gravesend. West of Pallamallawa, the valley widens into an almost completely flat floodplain where the elevation is generally less than 200 metres. Through this flat landscape the Gwydir flows slowly westward between low natural levee banks towards the Barwon River. Downstream of Moree is an alluvial fan covering 200 square kilometres, where extensive floodplain wetlands known as the Lower Gwydir wetlands have developed. These wetlands provide valuable habitat for waterbirds, and are listed as a site of international significance under the Ramsar Convention. The lower half of the basin is characterised by numerous anabranches and effluents, the most significant being the Mehi River and Moomin Creek to the south and the Carole-Gil Gil Creek system to the north.

The dominant land uses in the valley are livestock grazing and dryland agriculture which together cover 90 per cent of the catchment. The self-mulching black soils of the lower valley have been extensively developed for irrigated agriculture. Around 1,000 square kilometres is used to grow crops such as cotton, cereals and oilseeds. Most of the summer crops such as cotton are irrigated, whilst much of the winter demand is met by rainfall. Irrigation water, town water supplies for Bingara and Gravesend and environmental releases for the Lower Gwydir wetlands are supplied from Copeton Dam, the major storage in the valley. Most irrigation diversions occur below Pallamallawa, facilitated by a network of weirs and regulators on the Gwydir River and its effluents.

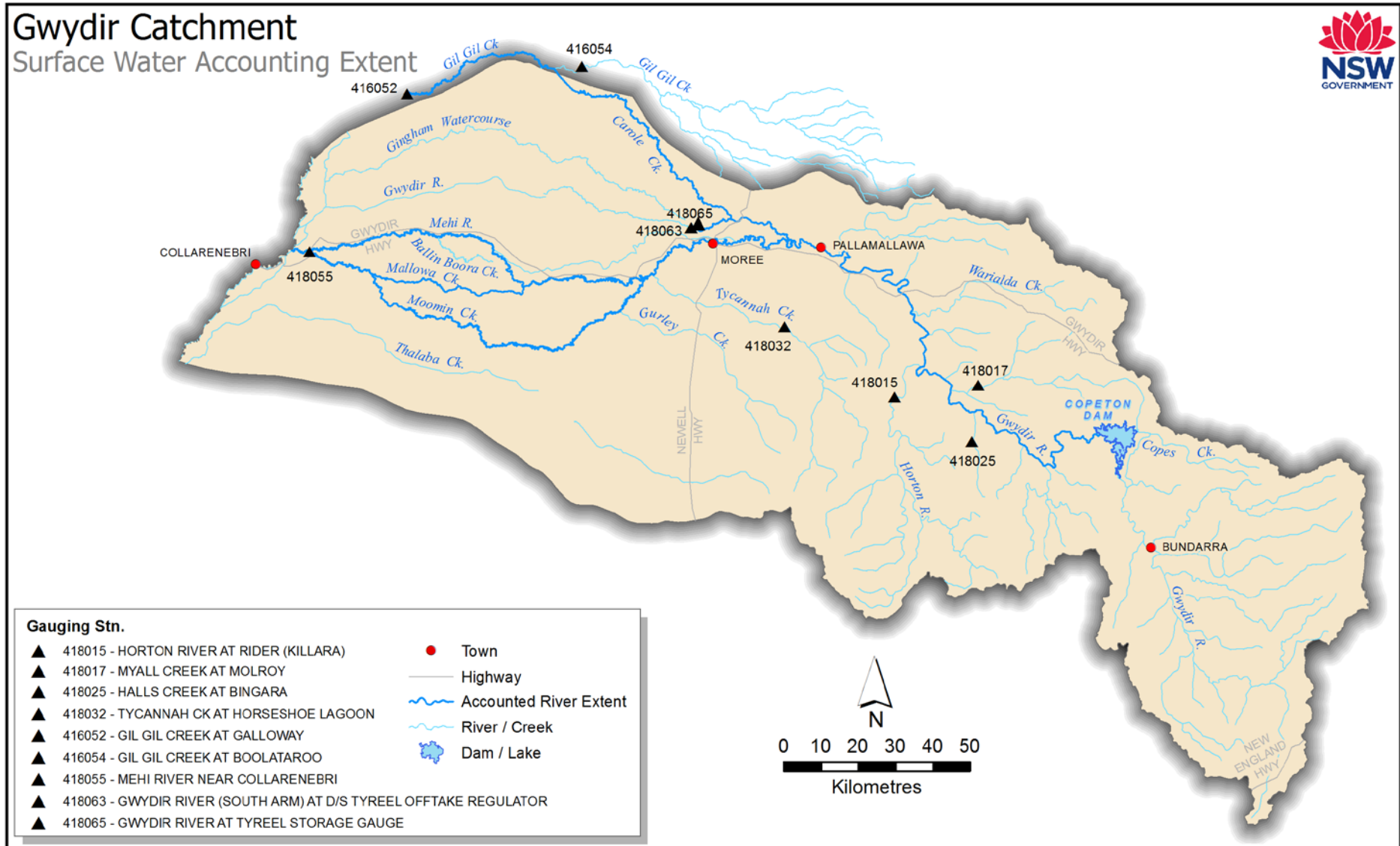
The Gwydir catchment is part of the lands originally occupied by the Kamilaroi people. There are now over 26,000 people living within the catchment. The largest town is Moree (8,000 people) which is the main commercial centre for the surrounding agricultural areas. It is also a major transport and tourism hub, being located at the junction of the Gwydir and Newell Highways. There are a number of smaller towns of 1,000–2,000 people - Uralla and Guyra in the New England tablelands, and Bingara and Warialda in the middle of the catchment. Smaller villages include Bundarra, Delungra, Pallamallawa and Tingha which have populations of 300–700 people.

## Accounting extent

The accounting extent for surface water is illustrated in Figure 1. The accounted river extent is the Gwydir River from downstream Copeton Dam to Millewa, the Mehi River from its initial effluent with the Gwydir River to near Collarenebri, Mallowa Creek, Moomin Creek, Carole Creek and Gil Gil Creek from its junction with Carole Creek to Gil Gil Creek at Galloway. It should be noted that the accounted component of Gil Gil Creek extends beyond the surface water catchment boundary of the Gwydir and into the Border Rivers catchment as orders in this section are met using resources from the Gwydir.

All licences that are managed under the water sharing plan for the Gwydir Regulated River Water Source are considered. While physical groundwater volumes that interact with the regulated river are included in GPWAR statements where possible (and any interactions not directly estimated form part of the unaccounted difference) all other groundwater flows and groundwater management are excluded from the GPWAR.

Figure 1: Surface water geographical extent of the accounts



## Climate

The Gwydir catchment experienced a variable distribution of rainfall conditions throughout 2015-16 and drier overall conditions than historical annual averages. While nine months of the season were below average rainfall, significant events in January and June 2016, provided some relief (Figure 2). In the central areas of the catchment (east of Moree at Pallamallawa), annual rainfall was 20 per cent below average for the water year, while further west at Collarenebri rainfall was closer to mean conditions, being 3 per cent below historical averages for that location (Table 1).

The 2015-16 annual rainfall distribution across the Gwydir is displayed in Figure 3, and can be referenced against the mean annual rainfall distribution in Figure 4. Here it can be seen the main contributing catchment area to Copeton Dam storage was well below average conditions, impacting storage inflow volumes.

Figure 2: Monthly rainfall data and historical deviations at Collarenebri and Pallamallawa

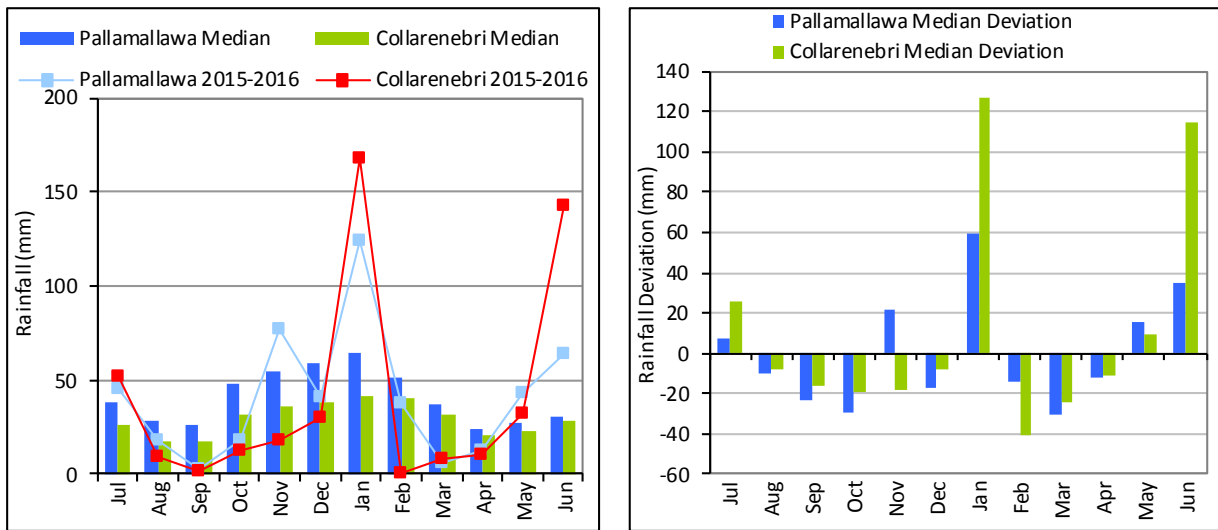


Table 1: 2015-16 monthly rainfall and historic monthly rainfall statistics at Collarenebri and Pallamallawa (mm)<sup>1</sup>

| Month                      | Jul         | Aug         | Sep        | Oct         | Nov         | Dec         | Jan          | Feb         | Mar        | Apr         | May         | Jun          | Annual           |
|----------------------------|-------------|-------------|------------|-------------|-------------|-------------|--------------|-------------|------------|-------------|-------------|--------------|------------------|
| <b>Pallamallawa</b>        |             |             |            |             |             |             |              |             |            |             |             |              |                  |
| <b>2015-16</b>             | <b>45.6</b> | <b>18.2</b> | <b>2.4</b> | <b>17.8</b> | <b>76.8</b> | <b>41.2</b> | <b>124.2</b> | <b>37.6</b> | <b>6.0</b> | <b>12.0</b> | <b>42.6</b> | <b>64.4</b>  | <b>488.8</b>     |
| <b>Historic statistics</b> |             |             |            |             |             |             |              |             |            |             |             |              |                  |
| Mean                       | 44.2        | 33.5        | 33.5       | 50.6        | 66.0        | 69.8        | 81.6         | 73.9        | 52.2       | 35.1        | 39.5        | 38.3         | <b>616.3</b>     |
| Median                     | 38.6        | 27.9        | 25.9       | 47.7        | 54.8        | 58.9        | 64.8         | 51.9        | 36.9       | 23.7        | 27.2        | 30.0         | <b>597.1</b>     |
| Lowest                     | 0.0         | 0.0         | 0.0        | 0.0         | 0.0         | 0.0         | 0.0          | 3.4         | 0.0        | 0.0         | 0.0         | 0.0          | <b>303.9</b>     |
| Highest                    | 250.8       | 159.7       | 182.2      | 210.3       | 271.0       | 256.9       | 323.9        | 320.9       | 250.4      | 203.6       | 176.8       | 203.8        | <b>1128.2</b>    |
| Highest Year               | 1950        | 1966        | 1970       | 1954        | 2011        | 1970        | 1946         | 1976        | 1982       | 1988        | 1913        | 2005         | <b>2011-2012</b> |
| Month                      | Jul         | Aug         | Sep        | Oct         | Nov         | Dec         | Jan          | Feb         | Mar        | Apr         | May         | Jun          | Annual           |
| <b>Collarenebri</b>        |             |             |            |             |             |             |              |             |            |             |             |              |                  |
| <b>2015-16</b>             | <b>52.0</b> | <b>9.2</b>  | <b>1.2</b> | <b>13.0</b> | <b>18.4</b> | <b>29.7</b> | <b>167.6</b> | <b>0.0</b>  | <b>7.6</b> | <b>10.0</b> | <b>32.0</b> | <b>143.2</b> | <b>483.9</b>     |
| <b>Historic statistics</b> |             |             |            |             |             |             |              |             |            |             |             |              |                  |
| Mean                       | 35.0        | 26.6        | 25.5       | 37.7        | 48.2        | 53.4        | 68.3         | 56.8        | 48.5       | 34.3        | 35.0        | 35.6         | <b>501.2</b>     |
| Median                     | 26.6        | 17.7        | 17.2       | 32.0        | 36.4        | 37.9        | 41.1         | 40.4        | 32.1       | 21.2        | 22.6        | 28.6         | <b>475.1</b>     |
| Lowest                     | 0.0         | 0.0         | 0.0        | 0.0         | 0.0         | 0.0         | 0.0          | 0.0         | 0.0        | 0.0         | 0.0         | 0.0          | <b>187.7</b>     |
| Highest                    | 159.7       | 135.0       | 157.3      | 167.1       | 241.2       | 216.4       | 508.4        | 351.4       | 254.2      | 356.0       | 216.2       | 148.1        | <b>1113.8</b>    |
| Highest Year               | 1950        | 1918        | 1906       | 1934        | 2000        | 1991        | 1974         | 1976        | 1894       | 1990        | 1983        | 2005         | <b>1973-1974</b> |

<sup>1</sup> Long term statistics are from the Bureau of Meteorology – climate data online, using the climatic stations ‘48031 – Collarenebri (Albert St)’ and ‘53033 – Pallamallawa Post Office’. Historical record statistics are 1913 to 2016 for Pallamallawa and 1885 to 2016 for Collarenebri.



Figure 3: Gwydir annual rainfall for 2015-16

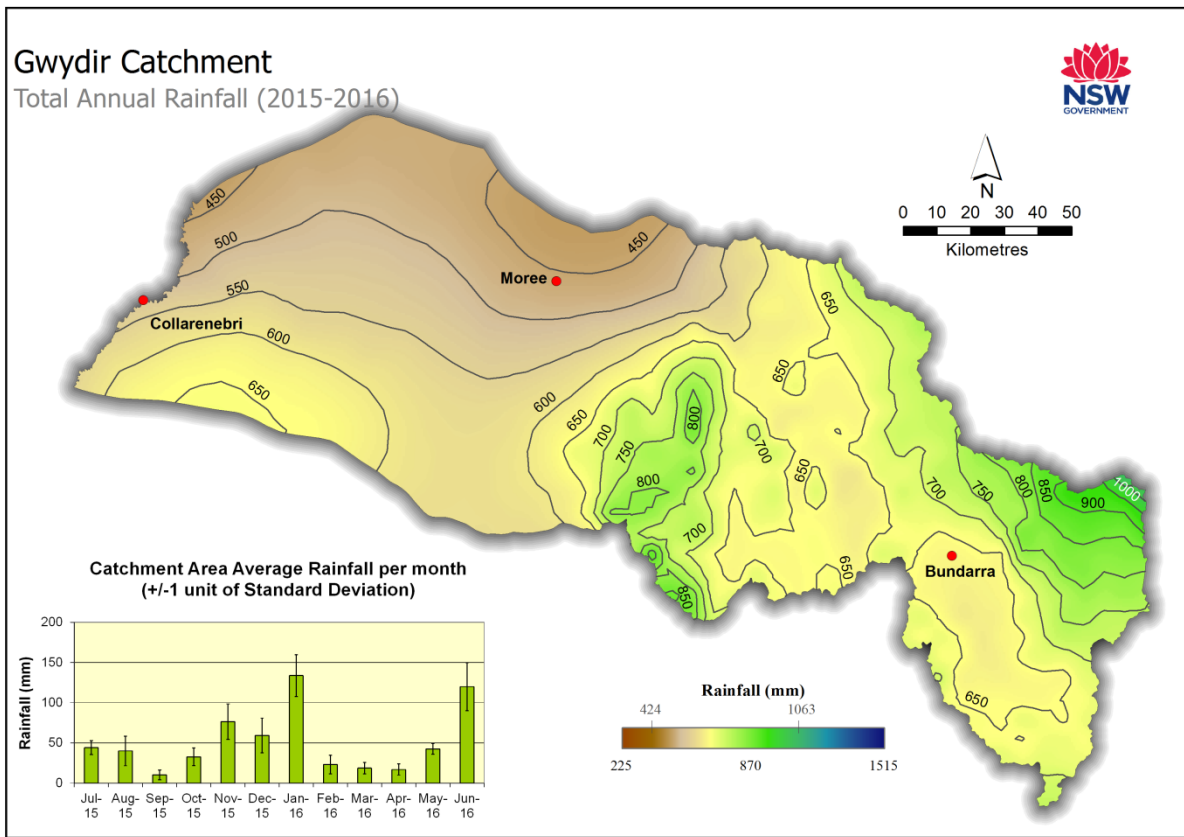
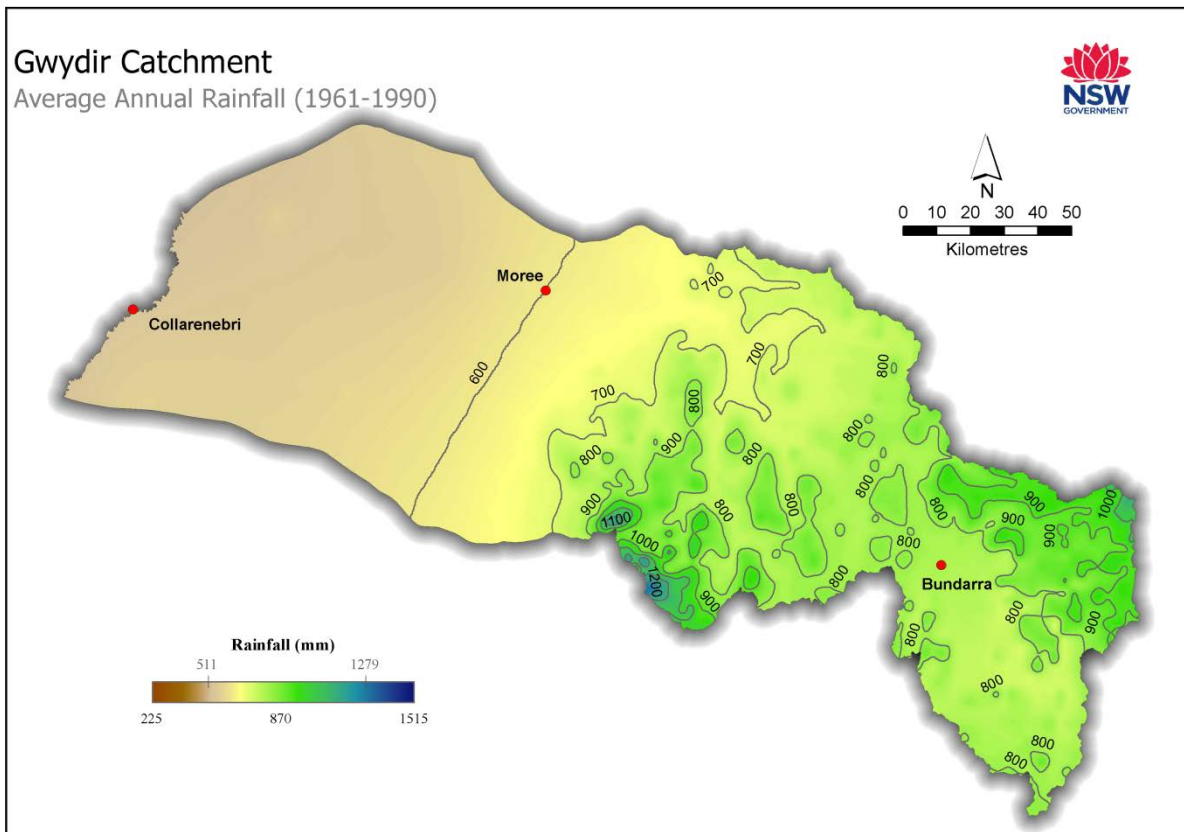


Figure 4: Average annual rainfall in the Gwydir catchment (1961-1990)



### Dam inflows and volume

With low rainfall in the contributing catchment areas and dry antecedent conditions, inflows to Copeton dam (the major regulated supply storage of the Gwydir River) were well below average, and only slightly higher than 2014-15. 2015-16 was the third consecutive year of significantly lower than average storage inflows. Copeton Dam received 93,413 megalitres of inflow, which is approximately 23 per cent of the long term average inflow of 404,751 megalitres per year. The majority of the inflow arrived from a late winter August event (Figure 5 and Figure 6), with inflow volume reaching 9,600 megalitres per day. For the remainder of the season inflow rates exceeded 1,000 megalitres per day on just three occasions.

Copeton storage held 264,448 megalitres on 1 July 2015, which equates to 19 per cent of capacity volume. The August event provided some small replenishment to resources however overall the volume receded throughout summer (period of demand) and ended 2015-16, holding 234,661 megalitres, or 17 per cent of capacity volume (Figure 7). The total storage release for the period was 106,515 megalitres.

Figure 5: Long-term inflows to Copeton Dam against mean and reporting year inflow

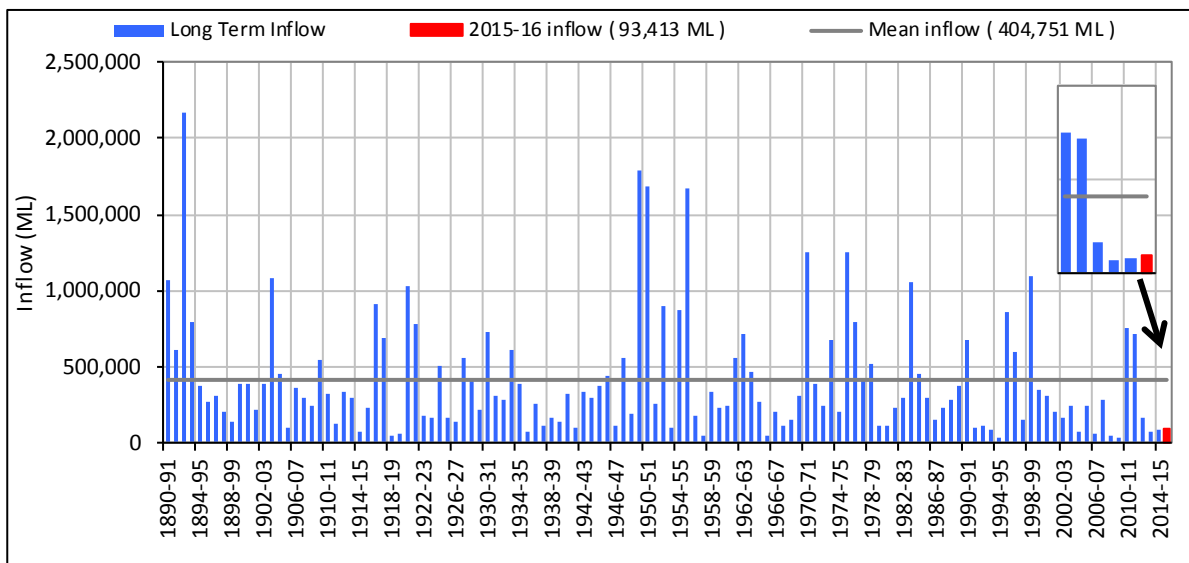


Figure 6: Daily inflows and rainfall at Copeton Dam 2015-16

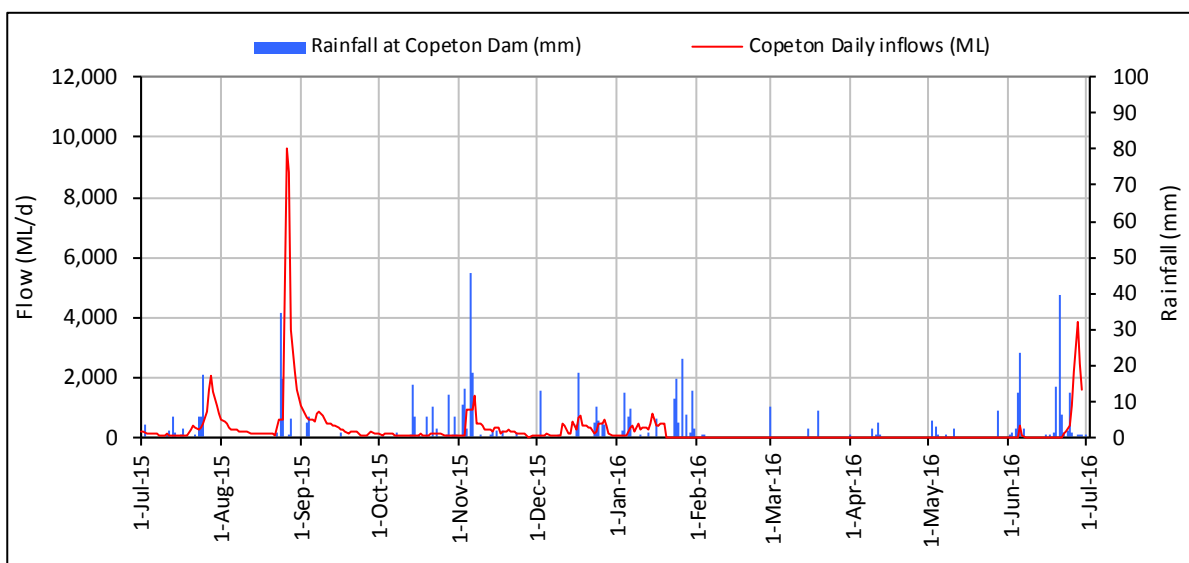
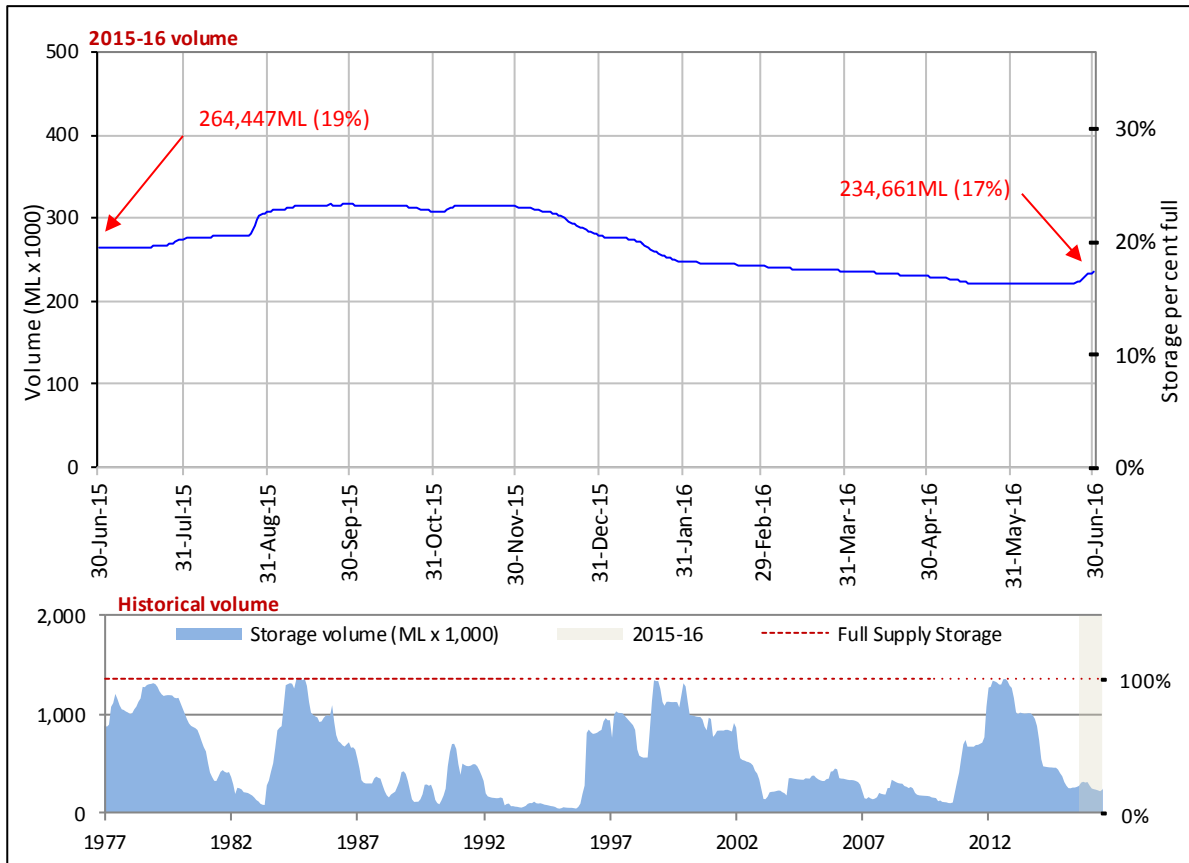




Figure 7: Copeton Dam volume and percentage of full supply volume 2015-16



### Major flow events

There were no major flood events in the Gwydir River during 2015-16. System flow consisted of some minor rainfall runoff events in winter and spring, transitioning to regulated flow throughout an otherwise dry summer (Figure 8). At Yarraman Bridge, an indicator site for flooding, river height remained below 3 meters for the entirety of the year (Figure 9).

Figure 8: Gwydir flow events 2015-16

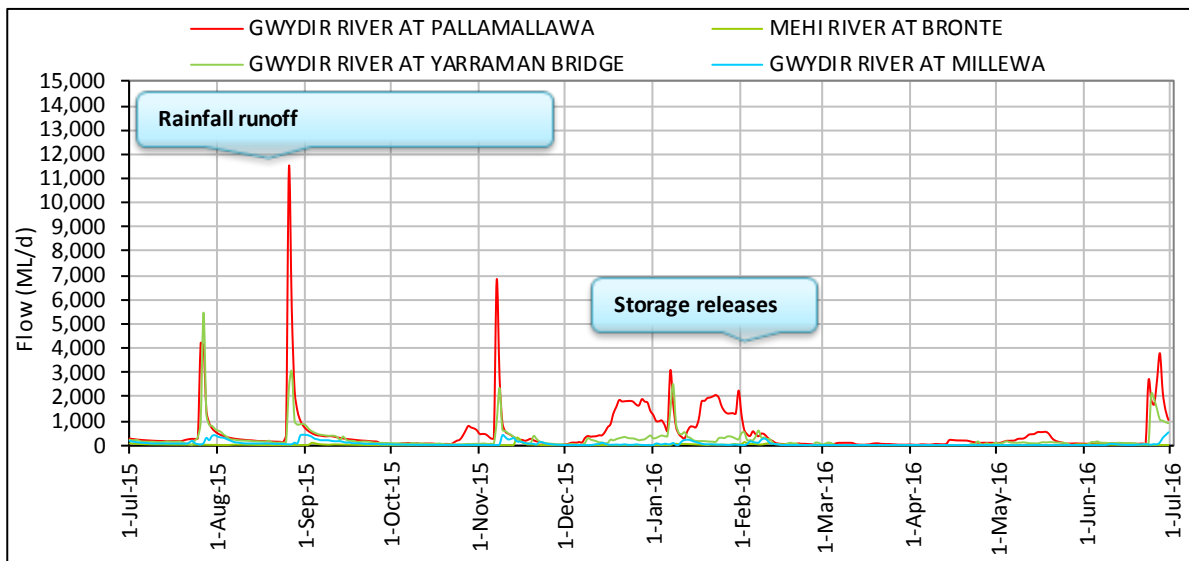
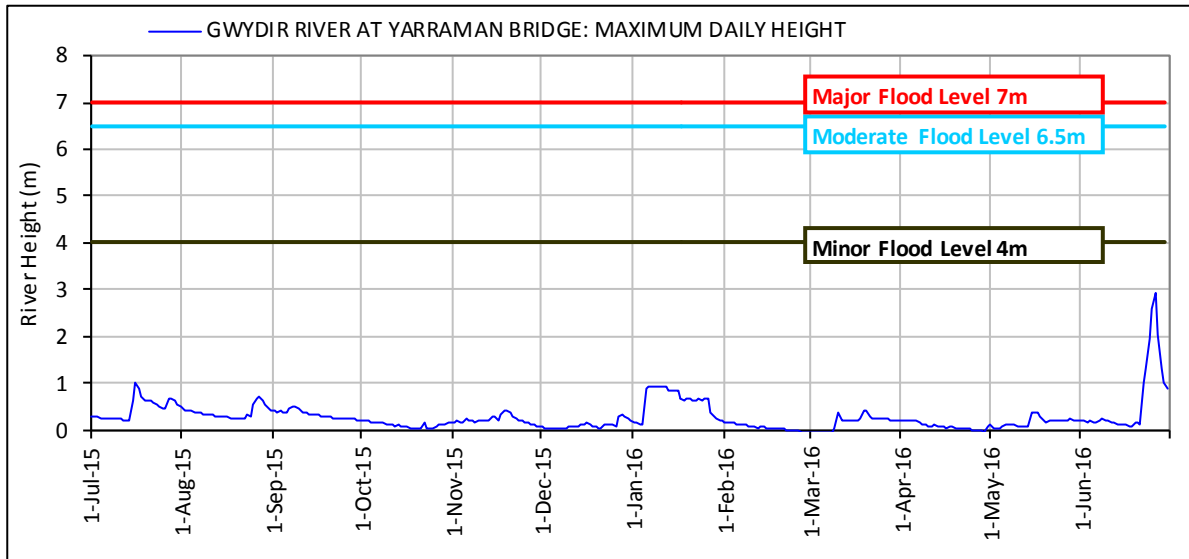


Figure 9: Gwydir River at Yarraman Bridge maximum daily river height against flood risk intervals



### Surface water resources and management

The Gwydir water source was managed under the conditions set out in the Water Sharing Plan for the Gwydir Regulated River Water Source 2002, for the entirety of 2015-16. The licence allocation accounting rules that were in place are summarised in Table 2. A continuous accounting procedure is implemented and the rules allow for general security licence holders to hold and carryover up to 1.5 megalitres per issued share. The total annual account usage plus assignments out cannot exceed more than 3 megalitres per issued share plus assignments in. Additionally the 3 year rolling usage plus allocations assignments out in those 3 years cannot exceed 3 megalitres per issued share plus the volume of assignments in.

All other categories have an account limit of 100 per cent / 1 megalitre per share and cannot carryover water between water years.

Table 2: Gwydir licenced allocation accounting rules

| Licence Category                           | Account Limit | Carryover Limit | Annual Use Limit        | 3 year Use Limit | Maximum AWD |
|--|---------------|-----------------|-------------------------|------------------|-------------|
| Domestic and Stock                         | 100%          | 0%              | N/A                     | N/A              | 100%        |
| Domestic and Stock [Domestic]              | 100%          | 0%              | N/A                     | N/A              | 100%        |
| Domestic and Stock [Stock]                 | 100%          | 0%              | N/A                     | N/A              | 100%        |
| Local Water Utility                        | 100%          | 0%              | N/A                     | N/A              | 100%        |
| Regulated River (General Security)         | 1.5 ML/Share  | 1.5 ML/Share    | 3 ML/Share <sup>2</sup> | 3 ML/Share       | N/A         |
| Regulated River (High Security)            | 1 ML/Share    | 0 ML/Share      | N/A                     | N/A              | 1 ML/Share  |
| Regulated River (High Security) (Research) | 1 ML/Share    | 0 ML/Share      | N/A                     | N/A              | 1 ML/Share  |
| Supplementary                              | N/A           | 0 ML/Share      | N/A                     | N/A              | 1 ML/Share  |

General Security carryover into 2015-16 amounted to 41,688 megalitres which is approximately 8 per cent of issued entitlement for this category of licence. A further 5 per cent from three available water determinations (Figure 10) brought the equivalent availability for general security (carryover plus available water determinations) to 13.4 per cent by 8 October 2015.

<sup>2</sup> The annual and 3 year use limit for general security is assessed including allocation assignments (temporary trading), whereby usage plus trade out are compared to the relative limit plus allocation assignments in

2015-16 was the second lowest year in terms of water availability for General Security holders since the commencement of the water sharing plan (Figure 11). All other categories of licence received an available water determination of 100 per cent (or 1 megalitre per share).

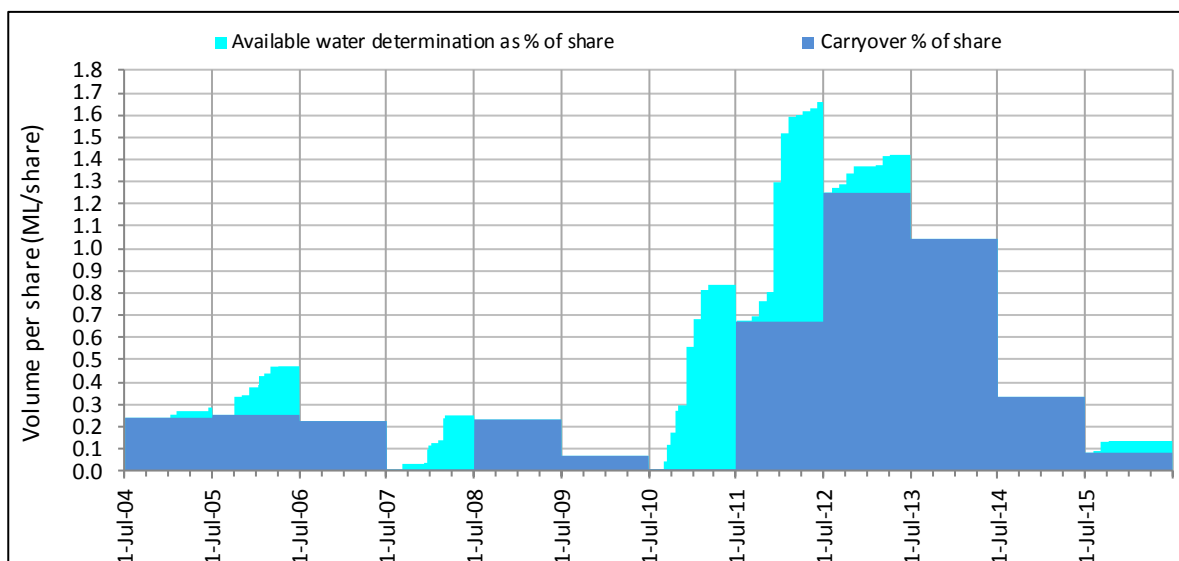
Issued share component remained relatively steady for the year, with an additional 80 shares being issued in the category Domestic and Stock [Domestic]. Total share component since the commencement of the water sharing plan (year ending) is illustrated in Figure 12.

Account usage (total for all licence categories excepting supplementary water) was 55,794 megalitres in 2015-16 and average usage since the commencement of the water sharing plan was steady at 131,899 megalitres. An additional 29,229 megalitres was sourced from supplementary flow events in 2015-16 highlighting the importance as a resource supplement in dry years. Average usage for all categories of licence since the commencement of the water sharing plan is 191,125 megalitres (Figure 13).

Total account utilisation in 2015-16 was 58 per cent, the lowest in a three year period. Inactive licences<sup>3</sup> were 9 per cent and zero per cent for General Security and High Security respectively. When considering all licence categories (including supplementary) 11 per cent of issued share was inactive in 2015-16.

A total of 3,917 megalitres was delivered as replenishment flows in 2015-16, which consisted of 4 separate deliveries to Thalaba Creek. Due to the completion of stock and domestic (basic rights) water supply schemes in the Lower Gwydir and Gingham water course, replenishment flows are no longer required to be delivered in these areas. Additional information on replenishment flows is available in Note 15.

Figure 10: General Security cumulative available water determination volumes, and carryover as a percentage of share component.



<sup>3</sup> Licences are considered inactive when no usage or trade activity is associated with the holding for the entire water year.

Figure 11: Gwydir account water availability (carryover + available water determinations)<sup>[4][5][6]</sup>

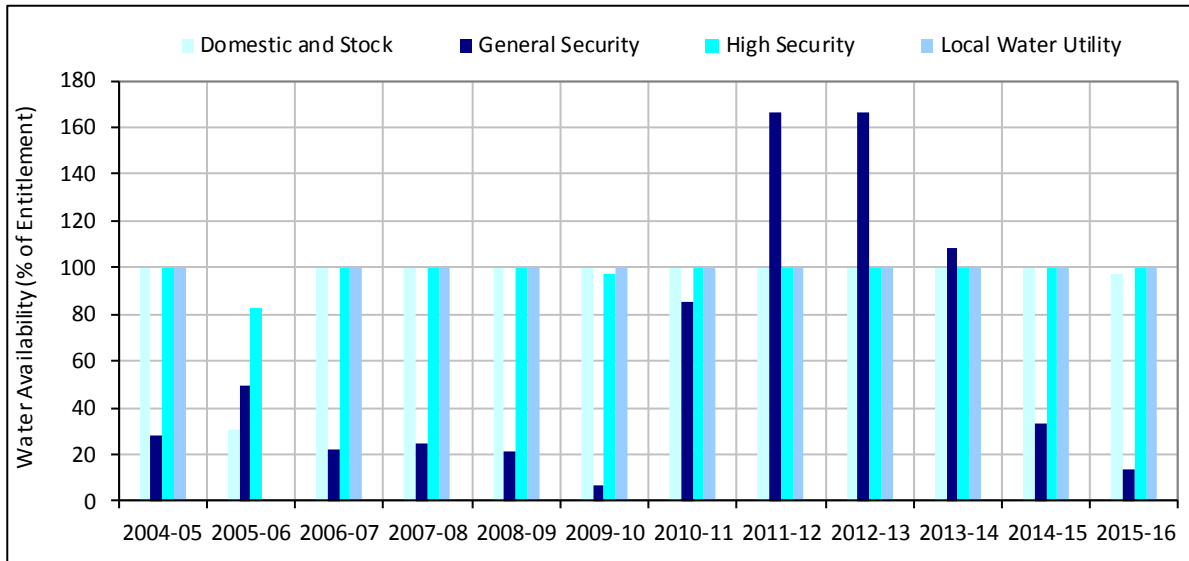
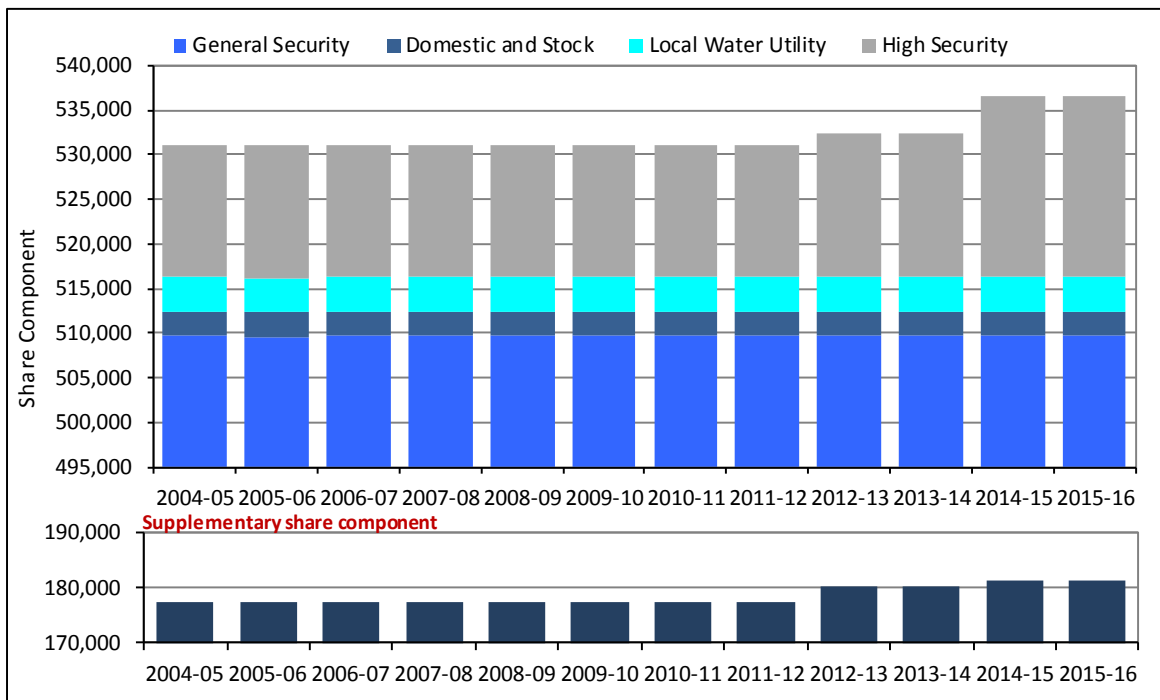


Figure 12: Total share component issued since the introduction of the water sharing plan<sup>[6]</sup>



<sup>4</sup> Supplementary licences in the Gwydir have been excluded. Each year of the plan this licence category has been granted an available water determination of 100 per cent, however access to this water is contingent on high flow events available. Actual usage information against this category of licence is available in Note 1 of this GPWAR.

<sup>5</sup> At the commencement of the water sharing plan (2004-05) water held in general security accounts was allowed to be brought forward as an opening balance.

<sup>6</sup> Includes all access licences issued under the water sharing plan and therefore held environmental water.

Figure 13: Access licence account usage

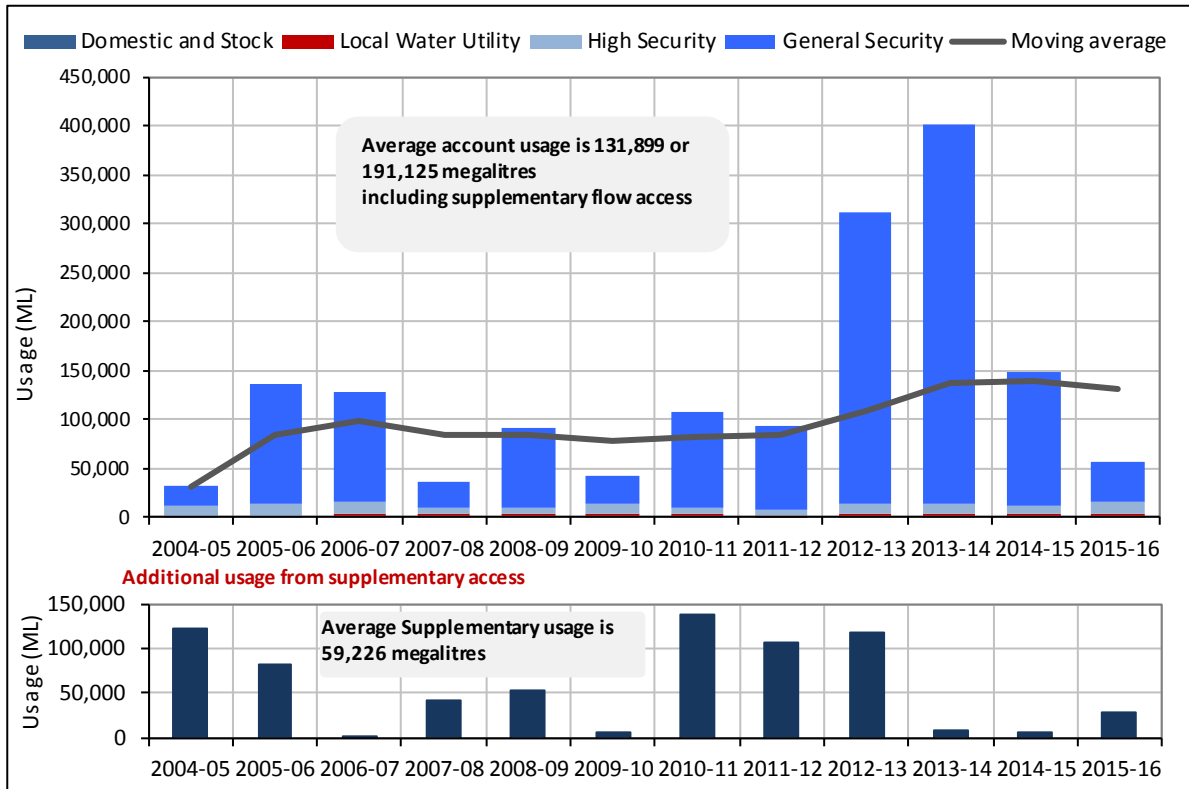
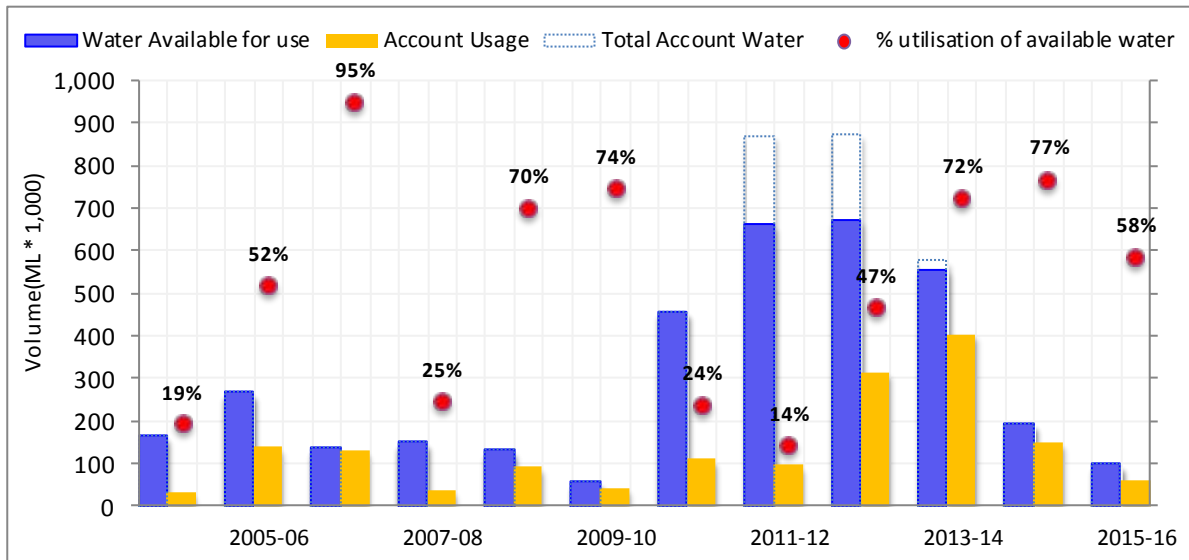


Figure 14: Gwydir account utilisation



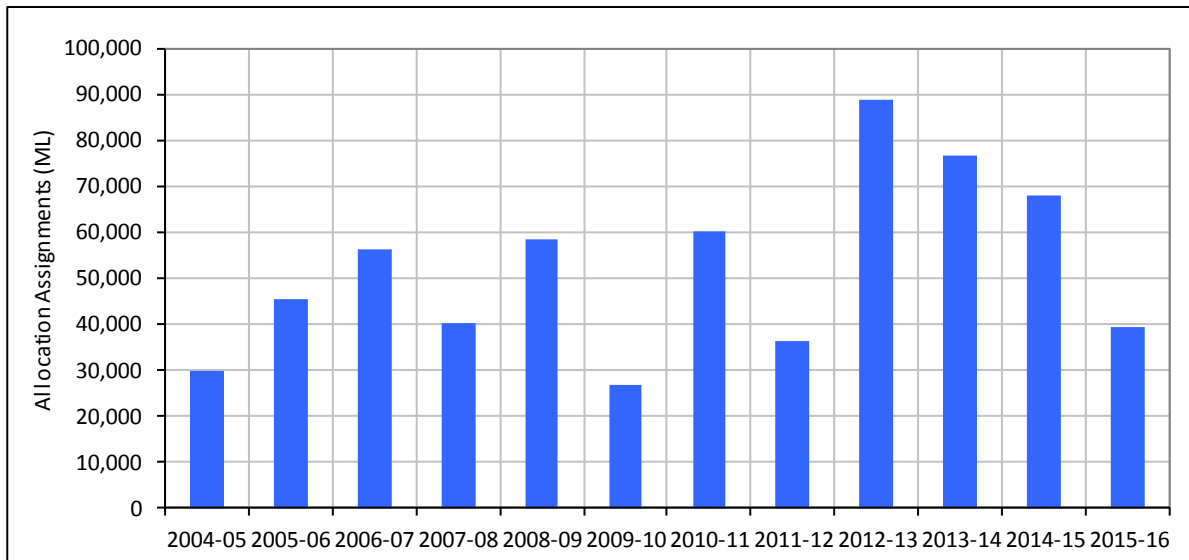
**Table 3: Gwydir inactive licence summary 2015-16**

| Licence category                           | Inactive licences (number) | Inactive share component | Inactive share % of total |
|--|----------------------------|--------------------------|---------------------------|
| Domestic and Stock                         | 35                         | 892                      | 36%                       |
| Domestic and Stock [Domestic]              | 4                          | 88                       | 100%                      |
| Domestic and Stock [Stock]                 | 16                         | 125                      | 54%                       |
| Local Water Utility                        | 0                          | 0                        | 0%                        |
| Regulated River (General Security)         | 88                         | 47,106                   | 9%                        |
| Regulated River (High Security)            | 4                          | 0                        | 0%                        |
| Regulated River (High Security) [Research] | 1                          | 60                       | 100%                      |
| Supplementary Water                        | 73                         | 30,637                   | 17%                       |
| <b>Grand Total</b>                         | <b>221</b>                 | <b>78,908</b>            | <b>11%</b>                |

**Temporary trading**

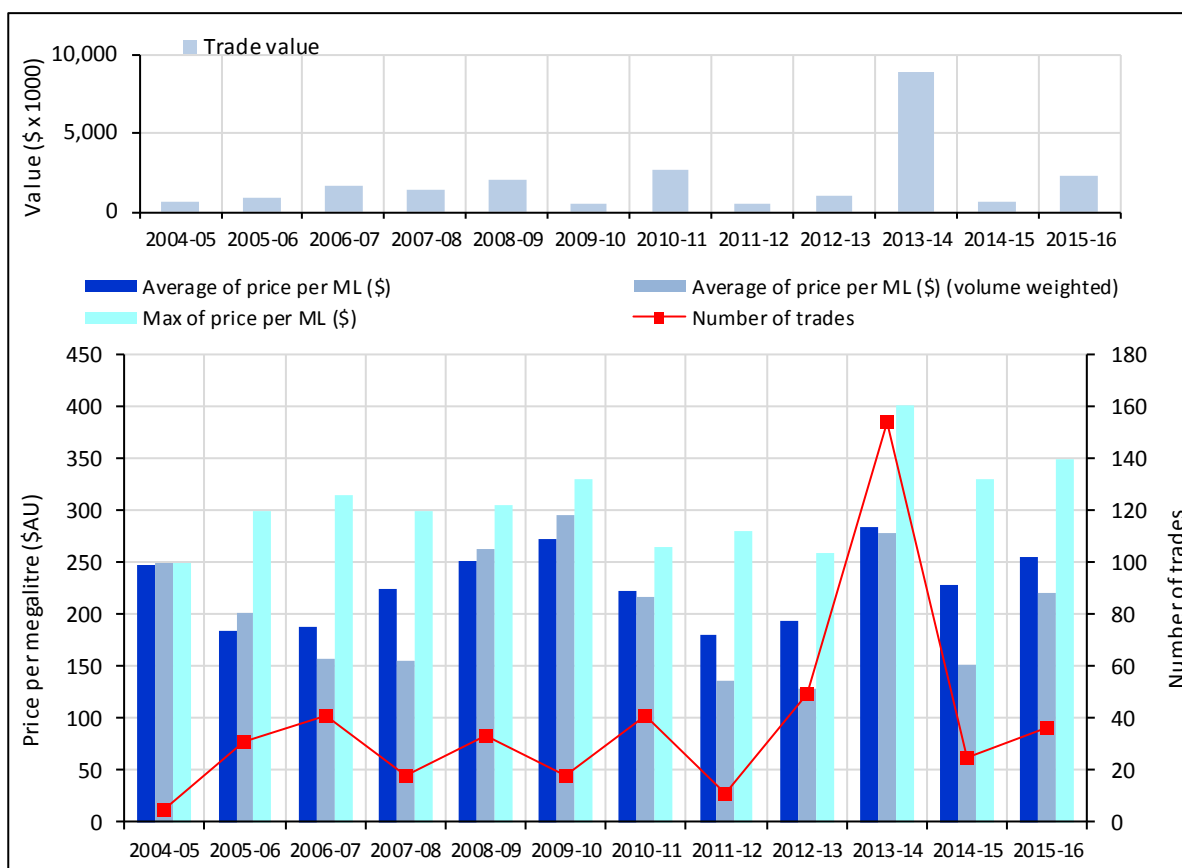
Allocations assignments (total by volume) reached a 4 year low in 2015-16 with 39,494 megalitres moved between access licences. When analysing commercial trades<sup>7</sup> the (simple) average price of water had increased slightly to \$254 per megalitre (36 trades considered) (Figure 16).

**Figure 15: Allocation assignments summary**



<sup>7</sup> Commercial trades are assumed as allocation assignments with a consideration greater than \$10 per megalitre.

Figure 16: Allocation assignment price statistics



### Permanent trading

In the Gwydir Regulated River Water Source, permanent share assignments (71Q transactions) totalled 993 share of General Security via 3 commercial<sup>8</sup> transactions. The (simple) average price paid was \$2,208 per share, which is comparable to the two years prior (Figure 17). No share assignments have been associated with High Security holdings since the commencement of the water sharing plan. Additionally in 2015-16, no trading was associated with the held environmental water portfolio (Figure 18).

In addition to share assignments 90,474 shares were exchanged for commercial purposes via change of holder (71 M) transactions. The total shares associated with this dealing type was 111,545 shares all of which associated with General Security holdings.

<sup>8</sup> Commercial trades are assumed as share assignments with a consideration greater than \$10 per share.



Figure 17: Share assignment price statistics

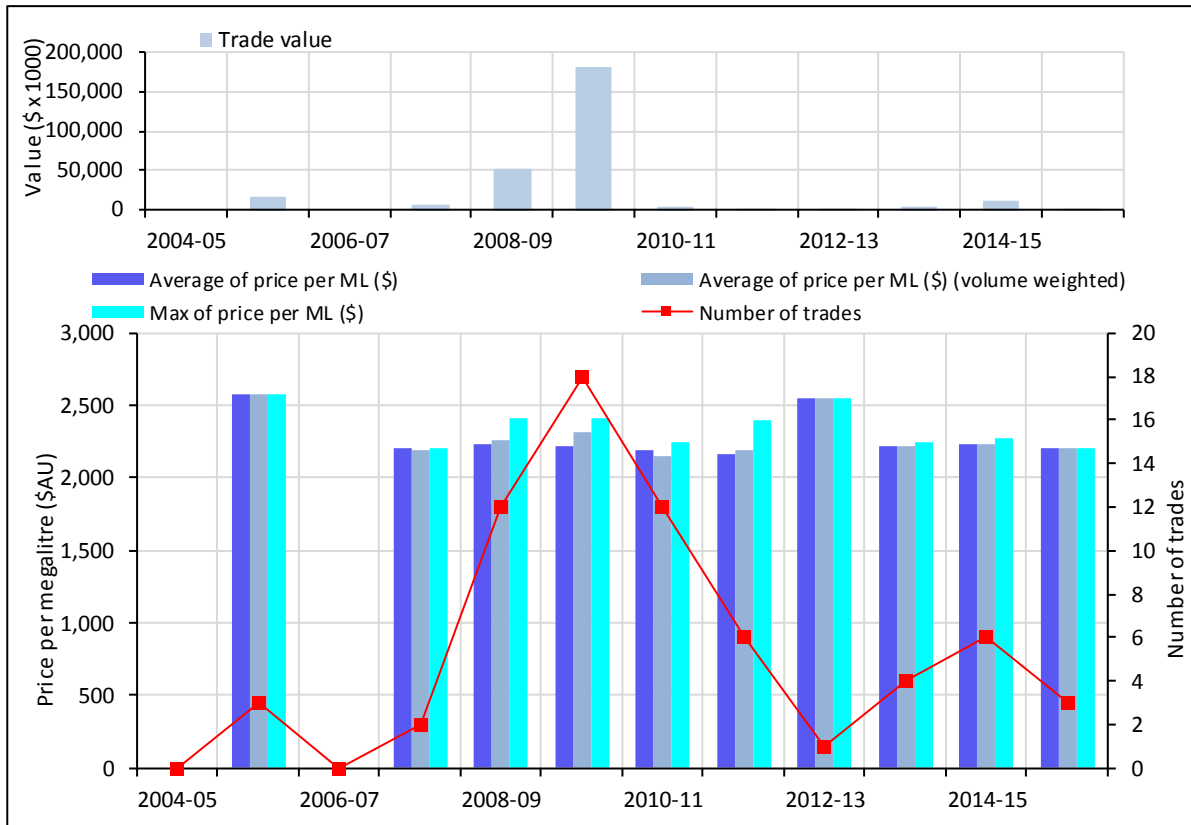


Figure 18: Share assignment trades for environmental and non-environmental licence holders.

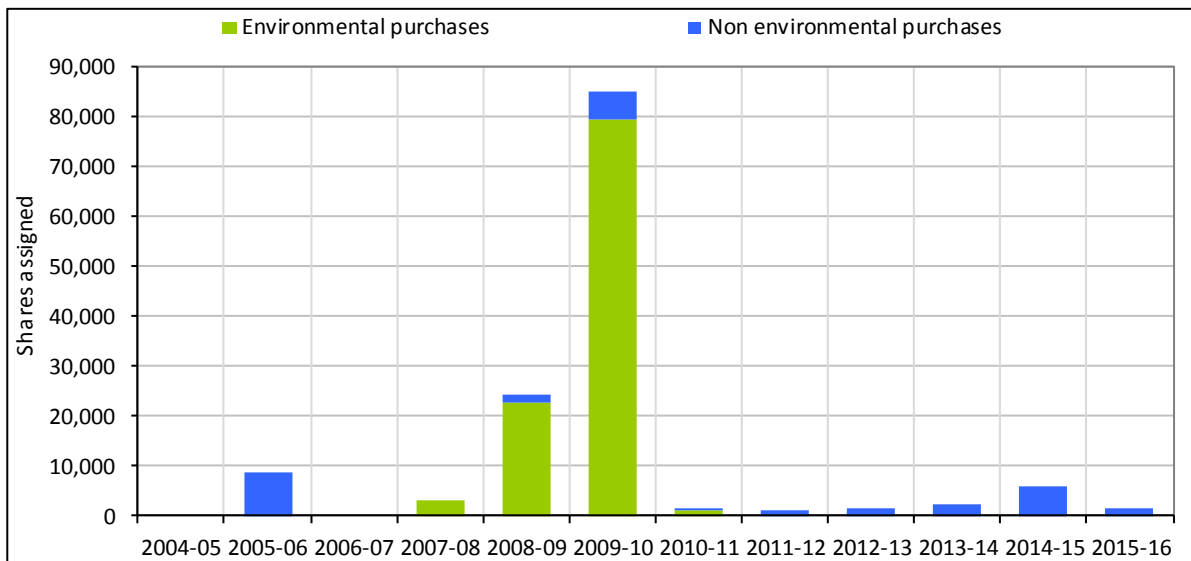
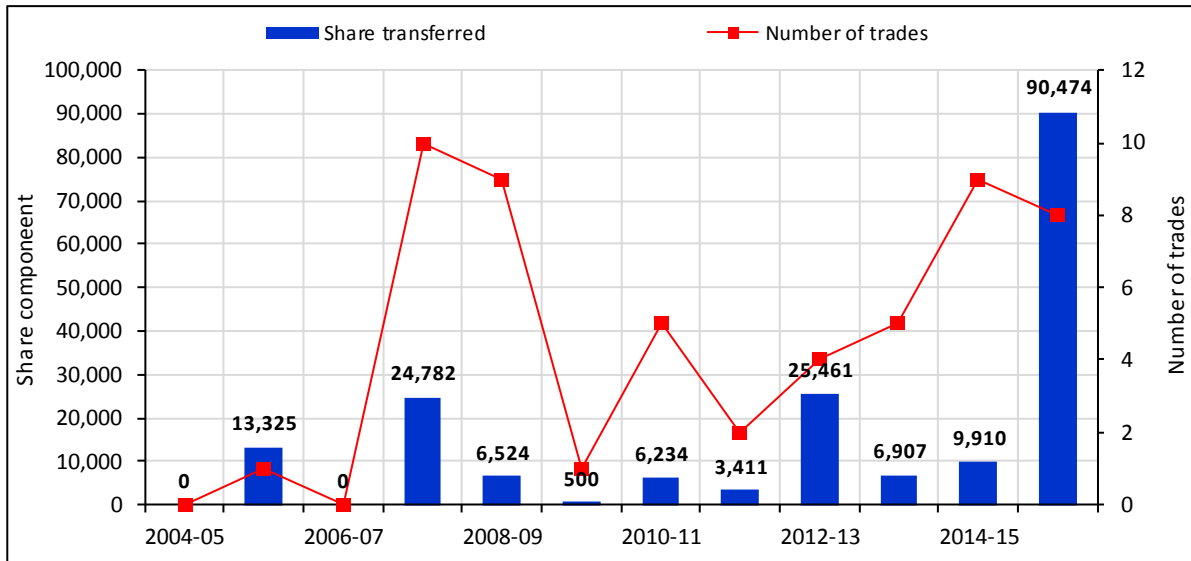


Figure 19: Access Licence holder transfer summary



### Environmental water

The Environmental Contingency Allowance (ECA) account for the Gwydir carried forward a volume of 58,370 megalitres into 2015-16 and received an additional credit of 2,400 megalitres taking the total water available to 60,770 megalitres. Of this volume, 4,750 megalitres was ordered for delivery to environmental assets (Figure 20).

Total held environmental water share component remained constant in 2015-16 with a total of 135,965 unit shares (including 22,240 units supplementary) managed to the benefit of environmental water assets (Figure 21). Held environmental usage totalled 8,400 megalitres including 1,300 megalitres accessed from supplementary flow events (Figure 22). Further details on held environmental water is available in Note 5 of this GPWAR.

All minimum flow targets were considered met throughout 2015-16. A total of 31,372 megalitres was preserved from extraction over six supplementary access events, representing 50.22 per cent of the total supplementary water volume available. More detailed information on this is available in Note 6 of this GPWAR.

Figure 20: Environmental contingency allowance summary

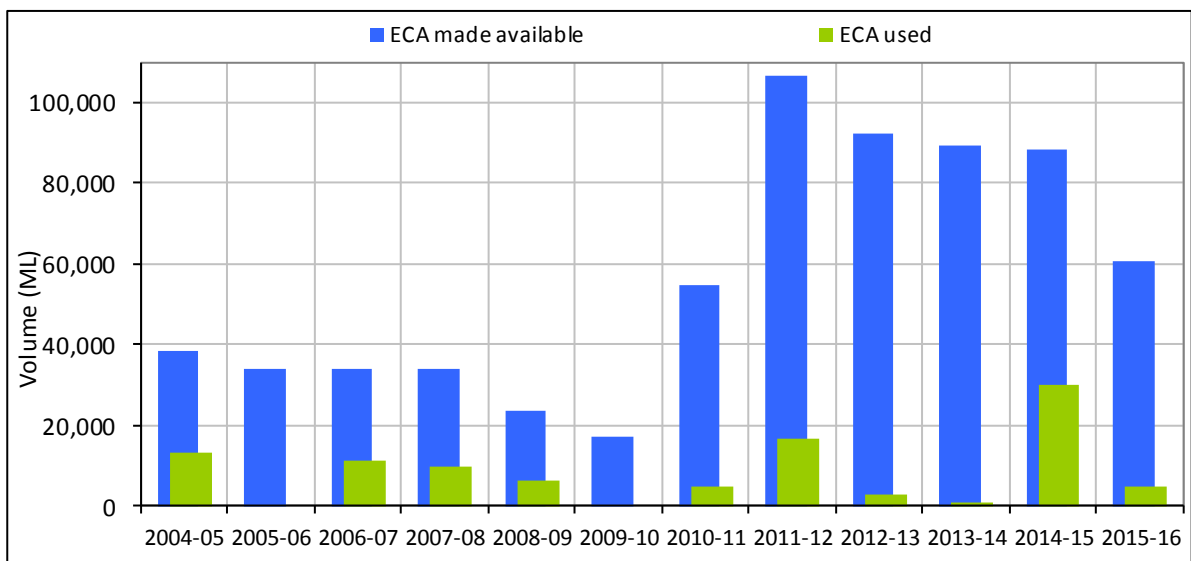


Figure 21: Held environmental water share component in the Gwydir

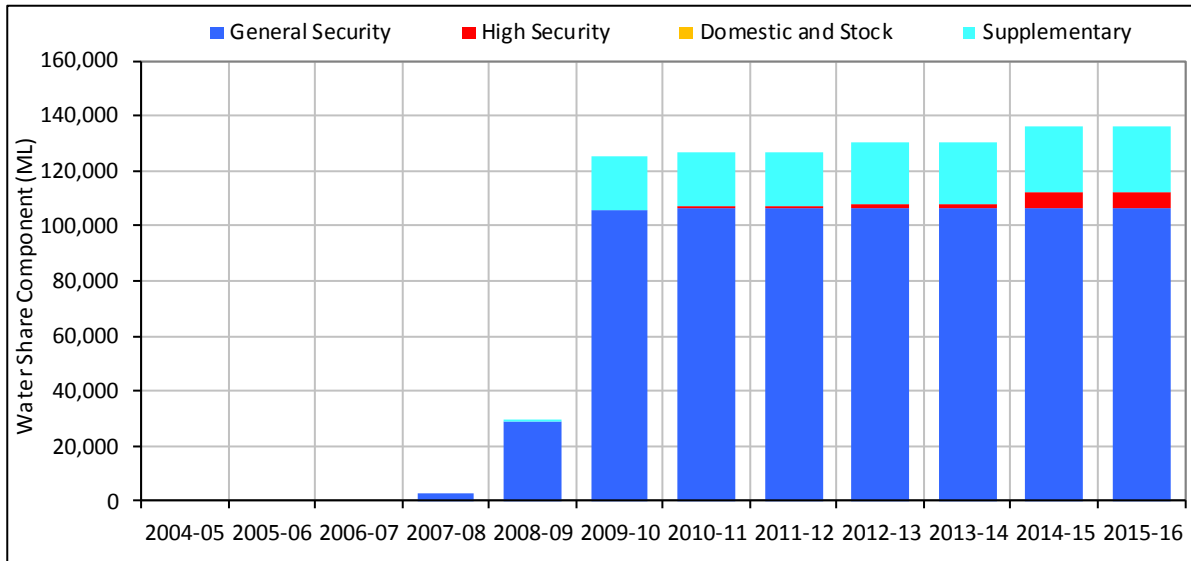
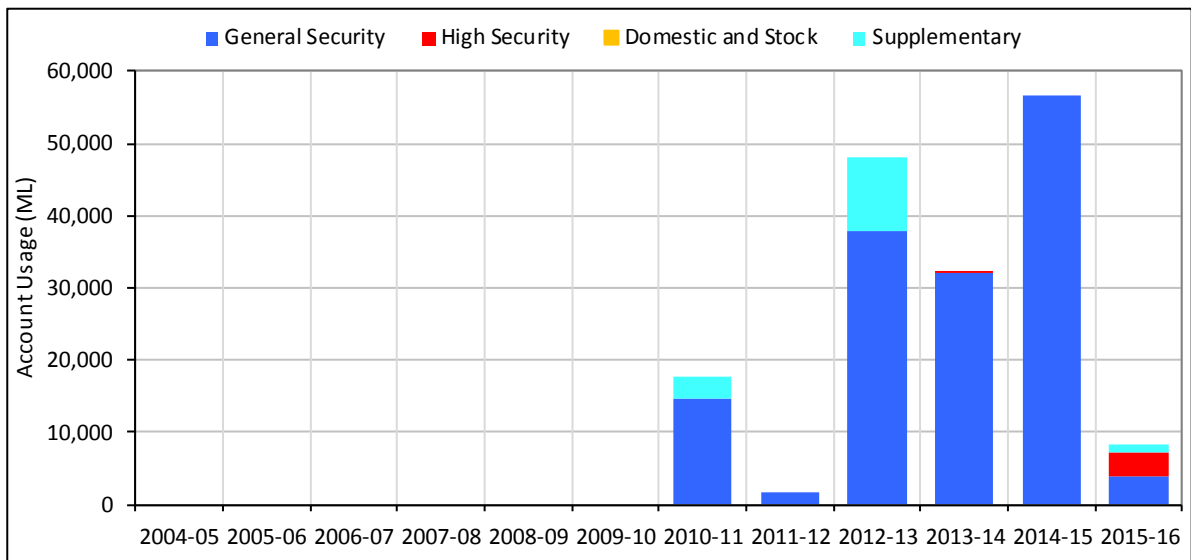


Figure 22: Held environmental account usage in the Gwydir



## Water Accounting Statements

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## Significant water accounting policies

The water accounting statements in this GPWAR have been prepared using an accrual basis of accounting. All figures are in megalitres (ML).

The 'Statement of Physical Flows' has been excluded for this GPWAR as all transactions have been presented in the statements 'Water Assets and Liabilities' and 'Changes in Water Assets and Water Liabilities'. A 'Physical Flow Diagram' that represents the physical movements of water has been included in order to provide a clearer depiction of those accounting processes associated with physical flow movement.

For general information on how to interpret the DPI Water, water accounting statements refer to the Guide to General Purpose Water Accounting Reports available for download from the DPI Water website.

## Quantification of data

### Data accuracy

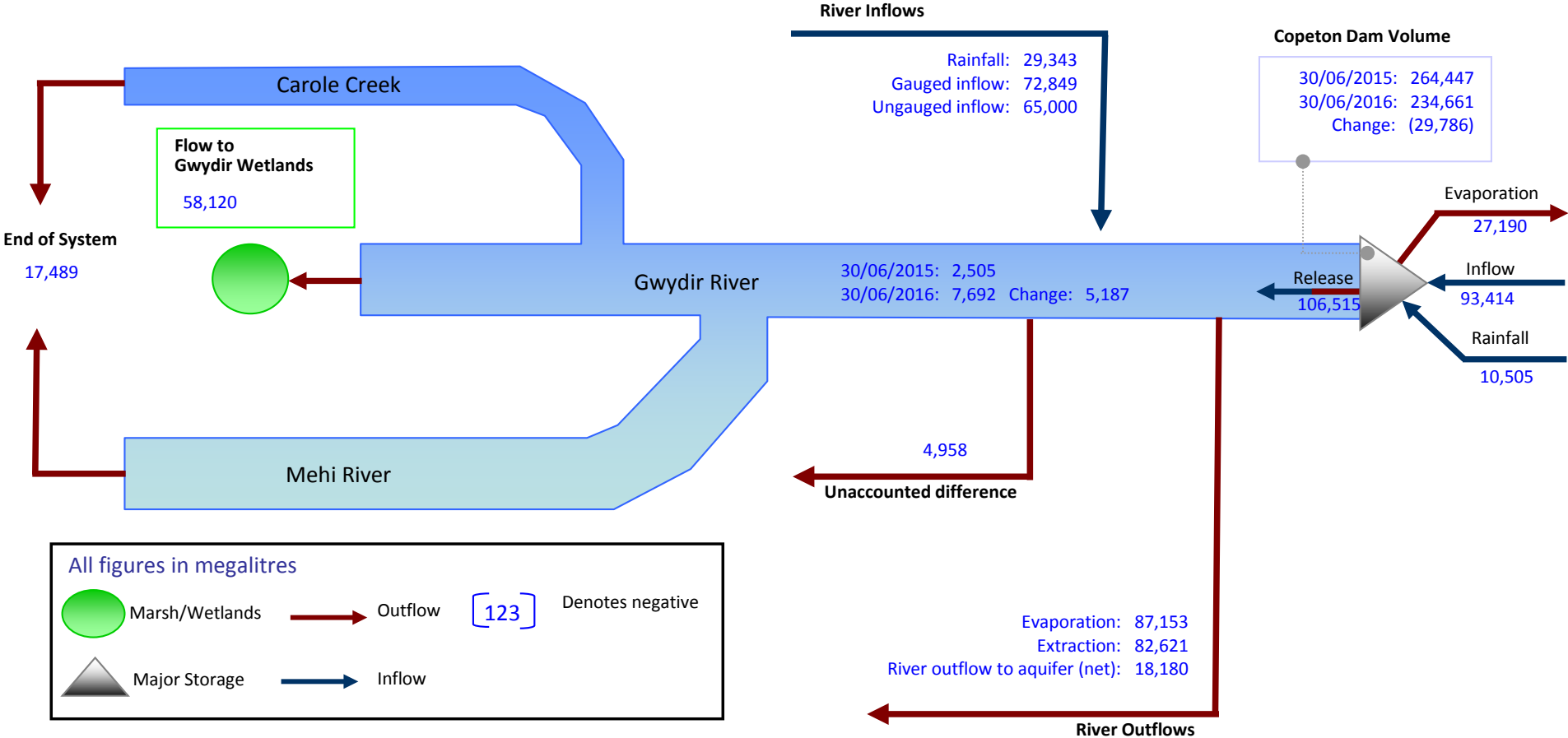
It is important to recognise that the data used to account for water movement and management in the reporting entity has been obtained from a variety of sources and systems. The data ranges from observed values where a high accuracy would be anticipated through to modelled results and estimates where accuracy can be highly variable depending on a range of factors. To address the inconsistencies in accuracy and prevent misuse of the data in the accounts, all figures in the water accounting statements will be accompanied by an assessment of accuracy (Table 4).

**Table 4: Water account data accuracy estimates key**

| Accuracy        | Description |
|-----------------|-------------|
| A1 <sup>9</sup> | +/- 0%      |
| A               | +/- 10%     |
| B               | +/- 25%     |
| C               | +/- 50%     |
| D               | +/- 100%    |

<sup>9</sup> Non-physical administration items, such as available water determinations, trading and carryover volumes are assumed to have no inherent error for the purposes of this report. Items are reported as extracted from the DPI Water corporate database.

2015-16 Gwydir physical flows mass balance diagram



## Gwydir catchment

## Statement of Water Assets and Water Liabilities



For the year ended 30 June 2016

## SURFACE WATER ASSETS

| 1.Surface water storage                         | Accuracy | Notes | 30 June 2016    | 30 June 2015     |
|---|----------|-------|-----------------|------------------|
| Copeton Dam                                     | A        | 7     | 234,661         | 264,447          |
| River   | B        | 8     | 7,692           | 2,505            |
| <b>Total surface water storage (Asws)</b>       |          |       | <b>242,353</b>  | <b>266,952</b>   |
| <i>Change in Physical Surface Water Storage</i> |          |       | <b>(24,599)</b> | <b>(194,775)</b> |

## SURFACE WATER LIABILITIES

| 2.Allocation Account Balance                   | Accuracy | Notes | 30 June 2016   | 30 June 2015     |
|--|----------|-------|----------------|------------------|
| Domestic and Stock                             | A1       | 1     | (33)           | 0                |
| High Security (HS)                             | A1       | 1     | (15)           | 0                |
| Local Water Utility                            | A1       | 1     | (30)           | (8)              |
| General Security                               | A1       | 1     | 37,031         | 41,688           |
| <b>Total allocation account balance (Lsws)</b> |          |       | <b>36,953</b>  | <b>41,680</b>    |
| <i>Change in allocation account balance</i>    |          |       | <b>(4,727)</b> | <b>(128,307)</b> |

| 3. Environmental Contingency Allowance (ECA) Balance | Accuracy | Notes | 30 June 2016   | 30 June 2015    |
|--|----------|-------|----------------|-----------------|
| ECA  | A1       | 6     | 56,020         | 58,370          |
| <b>Total ECA Balance (ECA)</b>                       |          |       | <b>56,020</b>  | <b>58,370</b>   |
| <i>Change in ECA balance</i>                         |          |       | <b>(2,350)</b> | <b>(29,876)</b> |

|   |                 |                 |
|---|-----------------|-----------------|
| <b>Net Surface Water Assets (Asws – Lsws – ECA)</b> | <b>149,380</b>  | <b>166,902</b>  |
| <i>Change in net surface water assets</i>           | <b>(17,522)</b> | <b>(36,592)</b> |



## Gwydir catchment



## Changes in Water Assets and Water Liabilities

For the year ended 30 June 2016 (1 of 2)

## 1. CHANGES IN SURFACE WATER STORAGE (PHYSICAL WATER BALANCE)

| Surface water storage increases                          | Accuracy | Notes | 2015-2016       | 2014-2015        |
|--|----------|-------|-----------------|------------------|
| Copeton Dam  |          |       |                 |                  |
| Inflow   | A        | 9     | 93,414          | 76,144           |
| Rainfall   | B        | 10    | 10,505          | 15,661           |
| River  |          |       |                 |                  |
| Rainfall   | C        | 11    | 29,343          | 39,312           |
| Inflow from Copeton Releases                             | A        | 14    | 106,515         | 260,962          |
| Tributary Inflow   |          |       |                 |                  |
| Gauged Tributaries                                       | A        | 12    | 72,849          | 53,063           |
| Ungauged Runoff Estimate                                 | C        | 13    | 65,000          | 52,000           |
| <b>Total surface water storage increases (Isws)</b>      |          |       | <b>377,626</b>  | <b>497,142</b>   |
| Surface water storage decreases                          | Accuracy | Notes | 2015-2016       | 2014-2015        |
| Copeton  |          |       |                 |                  |
| Storage Release  | A        | 14    | 106,515         | 260,962          |
| Evaporation  | B        | 10    | 27,190          | 27,548           |
| River  |          |       |                 |                  |
| Evaporation  | C        | 11    | 87,153          | 108,105          |
| End Of System Flow                                       |          | 15    |                 |                  |
| Other  | A        |       | 13,572          | 54,782           |
| Replenishment  | A        |       | 3,917           | 5,733            |
| Flow to Wetlands   |          | 15    |                 |                  |
| Other  | A        |       | 58,120          | 106,594          |
| Replenishment  | A        |       | 0               | 0                |
| Net River outflow to Aquifer                             | D        | 20    | 18,180          | 19,930           |
| Extractions  |          |       |                 |                  |
| Basic Rights Extractions                                 | C        | 17    | 6,000           | 6,000            |
| Other River Extractions                                  | A        | 16    | 76,621          | 96,562           |
| <b>Total surface water storage decreases (Dsws)</b>      |          |       | <b>397,268</b>  | <b>686,216</b>   |
| <b>Unaccounted Volume (Balancing Item) (Usws)</b>        |          |       | <b>4,958</b>    | <b>5,701</b>     |
| <i>Net surface water storage inflow (Isws-Dsws-Usws)</i> |          |       | <b>(24,599)</b> | <b>(194,775)</b> |

## 2. CHANGES IN ALLOCATION ACCOUNTS

| Allocation account increases                    | Accuracy | Notes | 2015-2016      | 2014-2015     |
|---|----------|-------|----------------|---------------|
| Available Water Determinations                  | A1       | 2     |                |               |
| Domestic and Stock                              |          |       | 2,758          | 2,744         |
| General Security                                |          |       | 26,913         | 0             |
| High Security                                   |          |       | 20,200         | 16,067        |
| High Security (Research)                        |          |       | 60             | 60            |
| Local Water Utility                             |          |       | 3,836          | 3,836         |
| Internal Trade - Buyers                         | A1       | 4     | 24,024         | 51,236        |
| Supplementary Demand                            | A        | 18    | 29,227         | 5,399         |
| <b>Total allocation account increases (Iaa)</b> |          |       | <b>107,018</b> | <b>79,342</b> |

## Gwydir catchment

## Changes in Water Assets and Water Liabilities

For the year ended 30 June 2016 (2 of 2)



| Allocation account decreases                               | Accuracy | Notes | 2015-2016      | 2014-2015        |
|--|----------|-------|----------------|------------------|
| Account usage  | A        | 3     |                |                  |
| Domestic and Stock   |          |       | 1,297          | 1,341            |
| General Security   |          |       | 40,426         | 136,942          |
| High Security  |          |       | 11,245         | 7,230            |
| Local Water Utility  |          |       | 2,826          | 2,287            |
| Supplementary  |          |       | 29,227         | 5,399            |
| Account Forfeiture   | A1       | 1     |                |                  |
| Domestic and Stock   |          |       | 1,493          | 1,397            |
| General Security   |          |       | 0              | 0                |
| High Security  |          |       | 12             | 15               |
| High Security (Research)                                   |          |       | 60             | 60               |
| Local Water Utility  |          |       | 1,013          | 1,537            |
| Over Order   | A1       | 21    |                |                  |
| Domestic and Stock   |          |       | 1              | 6                |
| General Security   |          |       | 121            | 149              |
| High Security  |          |       | 1              | 50               |
| Internal Trade - Sellers                                   | A1       | 4     | 24,024         | 51,236           |
| Account Balance Adjustment                                 | A1       | 22    | 0              | 0                |
| <b>Total allocation account decreases (Daa)</b>            |          |       | <b>111,745</b> | <b>207,649</b>   |
| <i>Net allocation account balance increase (Iaa – Daa)</i> |          |       | <b>(4,727)</b> | <b>(128,307)</b> |

## 3. CHANGE IN ENVIRONMENTAL CONTINGENCY ALLOWANCE (ECA)

| ECA account increases  | Accuracy | Notes | 2015-2016       | 2014-2015       |
|--|----------|-------|-----------------|-----------------|
| Account Increase due to General Security AWD                                 | A1       | 6     | 2,400           | 0               |
| Account Balance – Adjustment (ECA Increase)                                  |          |       | 0               | 19              |
| <b>Total ECA increase (Ieca)</b>   |          |       | <b>2,400</b>    | <b>19</b>       |
| ECA account decreases  | Accuracy | Notes | 2015-2016       | 2014-2015       |
| Account usage  | A        | 6     | 4,750           | 29,895          |
| Account Balance – Adjustment (ECA Decrease)                                  |          |       | 0               | 0               |
| <b>Total ECA decrease (Deca)</b>   |          |       | <b>4,750</b>    | <b>29,895</b>   |
| <i>Net environmental contingency allowance increase (Ieca – Deca)</i>        |          |       | <b>(2,350)</b>  | <b>(29,876)</b> |
| <b>Change in net surface water assets (Isws–Dsws–Usws–Iaa+Daa–Ieca+Deca)</b> |          |       | <b>(17,522)</b> | <b>(36,592)</b> |

## Note Disclosures

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## Reconciliation and future prospect descriptions

| Reconciliation of change in net water asset to net change in physical water storage | 2015-16         | 2014-15          |
|---|-----------------|------------------|
|   | ML              | ML               |
| <b>CHANGE IN NET SURFACE WATER ASSETS</b>   | <b>(17,522)</b> | <b>(30,913)</b>  |
| <b>Non-physical adjustments</b>   |                 |                  |
| Net Change in Allocation Accounts   | <b>(4,727)</b>  | <b>(128,307)</b> |
| Net Change in Claims to Water: ECA  | <b>(2,350)</b>  | <b>(35,555)</b>  |
| <b>NET CHANGE IN PHYSICAL SURFACE WATER STORAGE</b>                                 | <b>(24,599)</b> | <b>(194,775)</b> |

| Reconciliation of closing water storage to total surface water assets | 30 June 2016   | 30 June 2015 |
|---|----------------|--------------|
|   | ML             | ML           |
| <b>CLOSING WATER STORAGE</b>  |                |              |
| Surface Water Storage   | <b>242,353</b> | 266,952      |
| Additional Surface Water Assets                                       | <b>N/A</b>     | N/A          |
| <b>TOTAL SURFACE WATER ASSETS</b>                                     | <b>242,353</b> | 266,952      |

**Notes:**

All figures can be derived from or found directly in the Water Accounting Statements of the General Purpose Water Accounting Report.

## Water assets available to settle water liabilities and future commitments within 12 months of reporting date

Availability of final datasets for reporting in the GPWAR which include field staff finalising meter readings inhibit the ability to publish the account in a timeframe to render a 12 month forecast from the reporting date useful to users of this report.

In lieu of this information below provides links to information sources for the latest water availability information for the Gwydir Regulated River Water Source. Carryovers and available water determinations at the time of reporting are also presented along with probability information pertaining to the reliability of the Murrumbidgee system.

### Latest Water Availability

Information of the latest water availability including

- Water allocation statements, water allocations summaries and 2016-17 available water determinations are located at

[www.water.nsw.gov.au/water-management/water-availability](http://www.water.nsw.gov.au/water-management/water-availability)

A subscription service is also available to receive the latest updates.

## NSW Water Availability


DPI Water is responsible for surface and groundwater management including planning to ensure water security for NSW. Based on [Water Sharing Plans](#), DPI Water ensures the available surface and groundwater resources are shared equitably, and that water entitlements and allocations are secure and tradeable.

The volume of water licensed users can access is known as an Available Water Determination (or water allocation). Allocations vary from year to year based on an individual entitlement. This is dependent on a range of factors including [dam storage levels](#), river flows and catchment conditions.

### Key information

- [Water Allocation Statements](#): a summary of a water allocation, current conditions, outlook and supplementary water availability
- [Water allocation summary](#): current water allocations for major regulated rivers
- [Available Water Determinations](#): current orders as required under the *Water Management Act 2000*
- [Water availability outlook and forecasts](#): an indication on future water availability under different inflow scenarios
- [How water is allocated](#): how water is credited and the process behind assessing water availability

### Water Allocation Statements



Receive water availability updates via email

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### Significant events since 2015-16

Following widespread rainfall events moderate flooding occurred in the Gwydir River with a maximum river height of 6.958 metres registered at Yarraman Bridge on 17 September 2016. Following this period Copeton Dam was replenished to approximately 58 per cent of full supply volume (November 2016) and was holding 46 per cent of full capacity as of May 2017.

The Water Sharing Plan for the Gwydir Regulated River Water Source was replaced on 1 July 2016.

### System reliability

The latest long-term planning model (IQQM) reflecting a water sharing plan management scenario in the Gwydir provides indicative system reliability information for the commencement and closure of a watering season<sup>10</sup>.

In any given year, the simulation indicates high security entitlements are likely to have full allocation 100 per cent of the time.

At the commencement of the water year, the simulation indicates that General Security licence holders receive an equivalent allocation of 100 per cent or greater 28% of the time (Figure 29). Availabilities significantly increase throughout the water year when usages have commenced and the storage is supplemented from new inflow. By the end of the water year, the simulation results indicate a water availability of 100 per cent or greater, 46 per cent of the time (Figure 30).

Figure 23: Start of water year simulated availability for General Security access licences

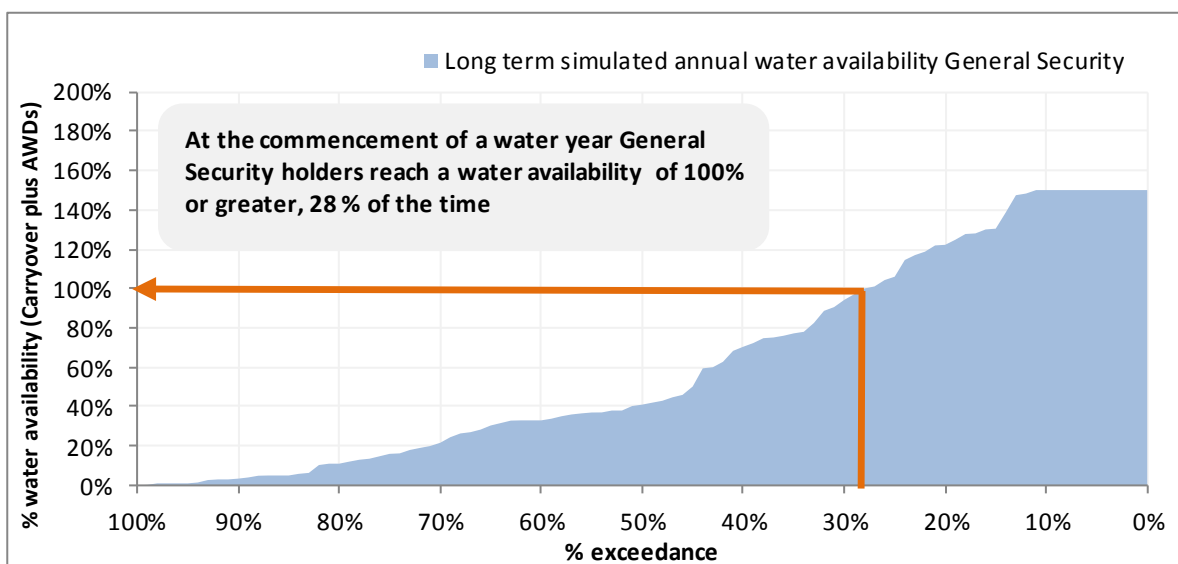
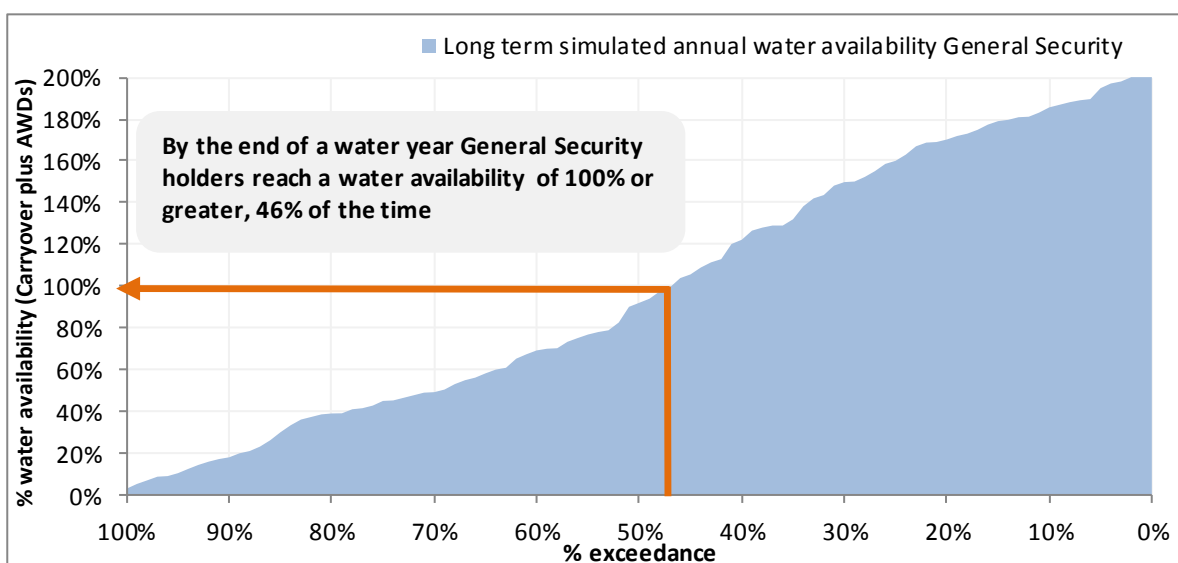


Figure 24: End of water year simulated availability for General Security access licences



<sup>10</sup> Modelled data simulated as July to June water year. Simulation period 1 June 1892 to 30 June 2016

## Gwydir Carryovers and available water determinations 2016-17 (as of May 2017)

| Date   | Individual Announcement             | Share Component | Allocation Volume (ML) | Cumulative Volume (ML) | Allocation Volume (%) | Cumulative Volume (%) | Balance Available (ML) | Balance Not Available (ML) | Balance Total (ML) | Balance Available (%) | Balance Total (%) |
|--|-------------------------------------|-----------------|------------------------|------------------------|-----------------------|-----------------------|------------------------|----------------------------|--------------------|-----------------------|-------------------|
| <b>DOMESTIC AND STOCK</b>                        |                                     |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-16   | Opening                             | 2,506           |                        |                        |                       |                       | (33)                   | 0                          | (33)               | (1.3)%                | (1.3)%            |
| 1-Jul-16   | AWD 100.0 %                         | 2,506           | 2,506                  | 2,506                  | 100.0%                | 100.0%                | 2,473                  | 0                          | 2,473              | 98.7%                 | 98.7%             |
| <b>DOMESTIC AND STOCK[DOMESTIC]</b>              |                                     |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-16   | Opening                             | 88              |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-16   | AWD 100.0 %                         | 88              | 88                     | 88                     | 100.0%                | 100.0%                | 88                     | 0                          | 88                 | 100.0%                | 100.0%            |
| <b>DOMESTIC AND STOCK[STOCK]</b>                 |                                     |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-16   | Opening                             | 230             |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-16   | AWD 100.0 %                         | 230             | 230                    | 230                    | 100.0%                | 100.0%                | 230                    | 0                          | 230                | 100.0%                | 100.0%            |
| <b>LOCAL WATER UTILITY</b>                       |                                     |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-16   | Opening                             | 3,836           |                        |                        |                       |                       | (30)                   | 0                          | (30)               | (0.8)%                | (0.8)%            |
| 1-Jul-16   | AWD 100.0 %                         | 3,836           | 3,836                  | 3,836                  | 100.0%                | 100.0%                | 3,806                  | 0                          | 3,806              | 99.2%                 | 99.2%             |
| <b>REGULATED RIVER (GENERAL SECURITY)</b>        |                                     |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-16   | Opening                             | 509,665         |                        |                        |                       |                       | 37,031                 | 0                          | 37,031             | 7.3%                  | 7.3%              |
| 1-Jul-16   | AWD 0.0 ML per share                | 509,665         | 0                      | 0                      | 0.0%                  | 0.0%                  | 37,031                 | 0                          | 37,031             | 7.3%                  | 7.3%              |
| 5-Aug-16   | AWD 0.0219 ML per share             | 509,665         | 11,160                 | 11,160                 | 2.2%                  | 2.2%                  | 48,191                 | 0                          | 48,191             | 9.5%                  | 9.5%              |
| 6-Sep-16   | AWD 0.1851 ML per share             | 509,665         | 94,324                 | 105,484                | 18.5%                 | 20.7%                 | 142,515                | 0                          | 142,515            | 28.0%                 | 28.0%             |
| 19-Sep-16  | AWD 0.1181 ML per share             | 509,665         | 60,180                 | 165,664                | 11.8%                 | 32.5%                 | 202,695                | 0                          | 202,695            | 39.8%                 | 39.8%             |
| 6-Oct-16   | AWD 0.2893 ML per share             | 509,665         | 147,394                | 313,058                | 28.9%                 | 61.4%                 | 350,089                | 0                          | 350,089            | 68.7%                 | 68.7%             |
| 7-Nov-16   | AWD 0.0757 ML per share             | 509,665         | 38,546                 | 351,604                | 7.6%                  | 69.0%                 | 388,635                | 0                          | 388,635            | 76.3%                 | 76.3%             |
| 5-Dec-16   | AWD 0.0342 ML per share             | 509,665         | 17,415                 | 369,019                | 3.4%                  | 72.4%                 | 406,050                | 0                          | 406,050            | 79.7%                 | 79.7%             |
| 7-Feb-17   | AWD 0.0044 ML per share             | 509,665         | 2,243                  | 371,262                | 0.4%                  | 72.8%                 | 408,293                | 0                          | 408,293            | 80.1%                 | 80.1%             |
| 6-Apr-17   | AWD 0.0192 ML per share             | 509,665         | 9,783                  | 381,045                | 1.9%                  | 74.8%                 | 418,076                | 0                          | 418,076            | 82.0%                 | 82.0%             |
| 8-May-17   | AWD 0.0305 ML per share             | 509,665         | 15,535                 | 396,580                | 3.0%                  | 77.8%                 | 433,611                | 0                          | 433,611            | 85.1%                 | 85.1%             |
| <b>REGULATED RIVER (HIGH SECURITY)</b>           |                                     |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-16   | Opening                             | 20,200          |                        |                        |                       |                       | (15)                   | 0                          | (15)               | (0.1)%                | (0.1)%            |
| 1-Jul-16   | AWD 1.0 ML per share                | 20,200          | 20,200                 | 20,200                 | 100.0%                | 100.0%                | 20,185                 | 0                          | 20,185             | 99.9%                 | 99.9%             |
| <b>REGULATED RIVER (HIGH SECURITY)[RESEARCH]</b> |                                     |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-16   | Opening                             | 60              |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-16   | AWD 100.0 %                         | 60              | 60                     | 60                     | 100.0%                | 100.0%                | 60                     | 0                          | 60                 | 100.0%                | 100.0%            |
| <b>SUPPLEMENTARY WATER</b>                       |                                     |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-16   | Opening                             | 181,398         |                        |                        |                       |                       | (9)                    | 0                          | (9)                | 0.0%                  | 0.0%              |
| 1-Jul-16   | AWD 1.25 ML per share <sup>11</sup> | 181,398         | 226,749                | 226,749                | 125.0%                | 125.0%                | 226,739                | 0                          | 226,739            | 125.0%                | 125.0%            |

<sup>11</sup> A new provision introduced in the 2016 water sharing plan allows for an available water determination of 1.25 megalitres per share for supplementary water holders in the first 3 years of operation, subject to a range of conditions being met

## Note 1 – Allocation accounts

This note is reference for the volume held in the allocation accounts at the time of reporting and is also relevant for the various processes that occur to either increase or decrease an allocation account throughout the water year.

The volume of water that is in the licence allocation accounts at the time of reporting is a net balance for the relevant licence category. It represents that volume of water that can be carried forward to the next water year as dictated by the carryover rules in place for that year or required under the water sharing plan.

A negative number for the carryover figure indicates that more usage has occurred than has been allocated to the account, and the deficit must be carried forward to the next season.

Water that is in the accounts at the end of a water year but is not permitted to be carried over is forfeited and has been represented as a decrease in water liability.

The accounting presented is relevant to licence category and is therefore inclusive of licences held by environmental holders (these are also detailed separately in Note 5).

### Data type

Derived from measured data

### Policy

Water Sharing Plan for the Gwydir Regulated River Water Source 2002

Available on the DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

### Data accuracy

A1 – Nil inaccuracy +/- 0%

### Providing agency

DPI Water

### Data source

WaterNSW / DPI Water – Water Accounting System (joint ownership)

### Methodology

The carryover volume of water in the allocation account for each licence category is determined once all transactions and end of year forfeit rules have been applied. Below is list of typical transactions that can apply to an allocation account:

- Available Water Determination (AWD) (detailed in note 2)
- allocation account usage (detailed in note 3)
- over order debits
- forfeiture due to:
  - no carryover being permitted (end of year forfeit)
  - allocation account limits
- licence conversion
- trade of allocation water between accounts (detailed in note 4)
- carryover rules



**Additional information**

The tables on the following page provide a balanced summary of the water allocation accounts for each category of access licence. Below is a description of each of the table components. All figures are in megalitres.

**Table 5: Explanatory information for allocation account summary**

| Heading                             |                     | Description   |
|-------------------------------------|---------------------|---|
| Share                               |                     | This is the total volume of entitlement in the specific licence category.   |
| Opening balance                     |                     | The volume of water that has been carried forward from previous years allocation account.   |
| AWD – Available water determination |                     | The total annual volume of water added to the allocation account as a result of allocation assessments. This figure includes additional AWD made as a result of a storage spill reset as defined in the water sharing plan.   |
| Licences                            | New                 | Increase in account water as a result of issuing a new licence.   |
|                                     | Cancelled           | Decrease in account water as a result of a licence cancellation where account balance has not been traded to another licence.   |
| Assignments                         | In                  | Increase in account water as a result of temporary trade in.  |
|                                     | Out                 | Decrease in account water as a result of temporary trade out.   |
| Account usage                       |                     | Volume of water that is extracted or diverted from the river and is accountable against the access licence allocation   |
| Over order debit                    |                     | Volume of water ordered that exceeded the recorded usage for the corresponding periods. In licence categories where water order debiting applies any orders in excess of usage are accountable against the licence.   |
| Forfeits                            | During year         | Account water forfeited throughout the year as a result of the accounting rules specified in the water sharing plan. Forfeited water may occur due to account limits being reached, conversions between licence categories and various types of other licence dealings. |
|                                     | End of year forfeit | Account water that is forfeited at the end of the water year as a result of carryover rules that restrict the carry forward volume.   |
| End of year balance                 | Available           | Account balance that is available to be taken at the conclusion of the water year.  |
|                                     | Not available       | That part of the remaining account balance that is not available to be taken at the conclusion of the water year. This is water in accounts that is in excess of the annual take limit.   |
| Carry forward                       |                     | This represents the account water that is permitted to be carried forward into the next water year as determined by the carryover rules.  |

Table 6: Allocation account balance summary 2015-16

| Category                      | Share   | Opening balance | AWD              | Licences |           | Assignments |        | Account usage | Over order debit | Forfeit During Year | End of year balance |               | End of year forfeit | Carry forward |
|-------------------------------|---------|-----------------|------------------|----------|-----------|-------------|--------|---------------|------------------|---------------------|---------------------|---------------|---------------------|---------------|
|                               |         |                 |                  | New      | Cancelled | In          | Out    |               |                  |                     | Available           | Not Available |                     |               |
| Domestic and Stock            | 2,506   | 0               | 2,506            | 0        | 0         | 0           | 0      | 1,192         | 1                | 0                   | 1,312               | 0             | 1,346               | (33)          |
| Domestic and Stock [Domestic] | 88      | 0               | 22 <sup>12</sup> | 0        | 0         | 0           | 0      | 0             | 0                | 0                   | 22                  | 0             | 22                  | 0             |
| Domestic and Stock [Stock]    | 230     | 0               | 230              | 0        | 0         | 0           | 0      | 105           | 0                | 0                   | 125                 | 0             | 125                 | 0             |
| Local Water Utility           | 3,836   | (8)             | 3,836            | 0        | 0         | 0           | 20     | 2,826         | 0                | 0                   | 983                 | 0             | 1,013               | (30)          |
| General Security              | 509,665 | 41,688          | 26,913           | 0        | 0         | 24,024      | 15,047 | 40,426        | 121              | 0                   | 37,031              | 0             | 0                   | 37,031        |
| High Security                 | 20,200  | 0               | 20,200           | 0        | 0         | 0           | 8,957  | 11,245        | 1                | 0                   | (3)                 | 0             | 12                  | (15)          |
| High Security (Research)      | 60      | 0               | 60               | 0        | 0         | 0           | 0      | 0             | 0                | 0                   | 60                  | 0             | 60                  | 0             |
| Supplementary Water           | 181,398 | 0               | 181,398          | 0        | 0         | 15,470      | 15,470 | 29,227        |                  | 0                   | 152,170             | 0             | 152,180             | (9)           |

<sup>12</sup> A pro-rata (on date of issue) available water determination was issue for new entitlement in this category

## Note 2 – Available water determination (AWD) (allocation announcement)

This is the process by which the regulated surface water asset available for use within the regulated system is determined and shared. The process calculates the volume of water that is to be added to an individual's licence allocation account. Announcements of allocations are made on a seasonal basis - usually corresponding with the financial year and are updated on a regular basis or following significant inflow events. Under the *Water Management Act 2000* the announcements are termed available water determinations.

### Data type

Derived from measured data.

### Policy

*Water Management Act 2000* (NSW).

- Chapter 3 – Part 2 Access Licences.
  - Clause 59 – Available Water Determinations.

Water Sharing Plan for the Gwydir Regulated River Water Source 2002.

- Part 8 – Limits to the availability of water
  - Division 1 - Long-term extraction limit
  - Division 2 – Available water determinations.

Available on the DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

### Data accuracy

A1 – Nil inaccuracy +/- 0%

### Providing agency

DPI Water

### Methodology

In the Gwydir Regulated Water Source AWD's are calculated based on a concept of continuous accounting which assesses the resource (water) contained in the headwater storages, periodically updating projections and distributing the stored resource available. All projections are for two (2) years from the date of the assessment. It is important to note that under continuous accounting the AWD's are based on the actual volume of water in storage at the time of the resource assessment and does not account for sequences of future inflows.

Each assessment process firstly involves the assessment of the effective storage, being the available storage volume after storage losses are accounted for. This is to account for the fact that storage losses cannot be controlled by a management rule and, therefore, must be provided for first. Following this existing commitments are taken into account and then any uncommitted water is first committed to essential supplies, then added to the delivery loss account to targeting a volume equivalent to a maximum of 30 per cent of the deliverable general security and then to the ECA account. Any remaining uncommitted water is then shared in proportion to the amount of entitlement in the remaining resource categories.

The essential supplies mentioned above consist of items such as stock and domestic requirements, Local Water Utilities (e.g. town water supplies, industrial use), High Security (permanent plantings e.g. orchards, vineyards), end of system flow requirement resulting from the system operation and minimum storage releases.

The volume of water distributed to licence categories is expressed as either a volume per share or as a percentage of share component depending on the category of licence. The following table details each licence category and how it is announced.

**Table 7: Access licence category announcement type**

| Licence category                 | AWD priority                |
|----------------------------------|-----------------------------|
| General Security                 | Volume per share            |
| High Security                    | Volume per share            |
| Domestic and Stock <sup>13</sup> | Per cent of share component |
| Local Water Utility              | Per cent of share component |

It should be noted that the AWD for supplementary licence accounts is a separate process and is not dependent on water asset available. It is made once at the start of the year and unless there is a management change due to the growth in use strategy it is maintained at the maximum value prescribed in the plan generally 1 megalitre per share (equivalent to 100 per cent of entitlement). Therefore, it is not considered to create a liability on the system and is only considered in terms of an extraction that reduces the water asset.

### Additional information

Table 9 provides the allocation summary report for 2015-16. Table 8 provides a description for each component presented in the summary.

**Table 8: Allocation summary report notes**

| Heading                       | Description  |
|-------------------------------|--|
| Date                          | Date that Available Water Determination was announced and water was credited to accounts.  |
| Opening (ML)                  | Remaining allocation account balances at the conclusion of the previous season that is allowed to be carried forward to this season. |
| Individual Announcement       | Actual Available Water Determination announcement made to each licence category.   |
| Share Component (entitlement) | Sum of the licensed volume of water within the licence category on the announcement date.  |
| Allocation Volume (ML)        | Volume of water credited to accounts within a licence category as a result of the announcement made.                                 |
| Cumulative Volume (ML)        | Cumulative total of the announced volumes for the water year and licence category.   |
| Allocation Volume (%)         | This is the announced volume expressed as a percentage of the share applicable on the particular date.                               |
| Cumulative Volume (%)         | This is the cumulative volume expressed as a percentage of the entitlement applicable on the particular date.                        |
| Balance Available (ML)        | Sum of water in allocation accounts that has been made available to be taken during the season.                                      |
| Balance Not Available (ML)    | Water allocated that is not accessible at this point in time.  |
| Balance Total (ML)            | Sum of the total volume of account water in accounts.  |
| Balance Available (%)         | Balance available expressed as a percentage of the share component.  |
| Balance Total (%)             | Total account balance expressed as a percentage of the share component.  |

<sup>13</sup> Domestic and Stock is further broken down into three sub categories: Domestic and Stock, Domestic and Stock (Domestic) and Domestic and Stock (Stock). For the purposes of this report and the general purpose water account they were all treated as Domestic and Stock.

Table 9: Allocation announcements for Gwydir regulated river water source 2015-16

| Date   | Individual Announcement | Share Component | Allocation Volume (ML) | Cumulative Volume (ML) | Allocation Volume (%) | Cumulative Volume (%) | Balance Available (ML) | Balance Not Available (ML) | Balance Total (ML) | Balance Available (%) | Balance Total (%) |
|--|-------------------------|-----------------|------------------------|------------------------|-----------------------|-----------------------|------------------------|----------------------------|--------------------|-----------------------|-------------------|
| <b>DOMESTIC AND STOCK</b>                        |                         |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-15   | Opening                 | 2,506           |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-15   | AWD 100.0 %             | 2,506           | 2,506                  | 2,506                  | 100.0%                | 100.0%                | 2,506                  | 0                          | 2,506              | 100.0%                | 100.0%            |
| <b>DOMESTIC AND STOCK[DOMESTIC]</b>              |                         |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-15   | Opening                 | 8               |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-15   | AWD 100.0 %             | 8               | 8                      | 8                      | 100.0%                | 100.0%                | 8                      | 0                          | 8                  | 100.0%                | 100.0%            |
| <b>DOMESTIC AND STOCK[STOCK]</b>                 |                         |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-15   | Opening                 | 230             |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-15   | AWD 100.0 %             | 230             | 230                    | 230                    | 100.0%                | 100.0%                | 230                    | 0                          | 230                | 100.0%                | 100.0%            |
| <b>LOCAL WATER UTILITY</b>                       |                         |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-15   | Opening                 | 3,836           |                        |                        |                       |                       | (8)                    | 0                          | (8)                | (0.2)%                | (0.2)%            |
| 1-Jul-15   | AWD 100.0 %             | 3,836           | 3,836                  | 3,836                  | 100.0%                | 100.0%                | 3,828                  | 0                          | 3,828              | 99.8%                 | 99.8%             |
| <b>REGULATED RIVER (GENERAL SECURITY)</b>        |                         |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-15   | Opening                 | 509,665         |                        |                        |                       |                       | 41,688                 | 0                          | 41,688             | 8.2%                  | 8.2%              |
| 1-Jul-15   | AWD 0.0 ML per Share    | 509,665         | 0                      | 0                      | 0.0%                  | 0.0%                  | 41,688                 | 0                          | 41,688             | 8.2%                  | 8.2%              |
| 5-Aug-15   | AWD 0.0075 ML per Share | 509,665         | 3,823                  | 3,823                  | 0.8%                  | 0.8%                  | 45,511                 | 0                          | 45,511             | 8.9%                  | 8.9%              |
| 4-Sep-15   | AWD 0.0414 ML per Share | 509,665         | 21,095                 | 24,918                 | 4.1%                  | 4.9%                  | 66,606                 | 0                          | 66,606             | 13.1%                 | 13.1%             |
| 8-Oct-15   | AWD 0.0039 ML per Share | 511,609         | 1,995                  | 26,913                 | 0.4%                  | 5.3%                  | 68,601                 | 0                          | 68,601             | 13.4%                 | 13.4%             |
| <b>REGULATED RIVER (HIGH SECURITY)</b>           |                         |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-15   | Opening                 | 20,200          |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-15   | AWD 1.0 ML per Share    | 20,200          | 20,200                 | 20,200                 | 100.0%                | 100.0%                | 20,200                 | 0                          | 20,200             | 100.0%                | 100.0%            |
| <b>REGULATED RIVER (HIGH SECURITY)[RESEARCH]</b> |                         |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-15   | Opening                 | 60              |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-15   | AWD 100.0 %             | 60              | 60                     | 60                     | 100.0%                | 100.0%                | 60                     | 0                          | 60                 | 100.0%                | 100.0%            |
| <b>SUPPLEMENTARY WATER</b>                       |                         |                 |                        |                        |                       |                       |                        |                            |                    |                       |                   |
| 1-Jul-15   | Opening                 | 181,398         |                        |                        |                       |                       | 0                      | 0                          | 0                  | 0.0%                  | 0.0%              |
| 1-Jul-15   | AWD 1.0 ML per Share    | 181,398         | 181,398                | 181,398                | 100.0%                | 100.0%                | 181,398                | 0                          | 181,398            | 100.0%                | 100.0%            |

### Note 3 – Allocation account usage

This is the volume of water that is extracted, diverted or measured as usage and is accountable against an access licence. This figure excludes that water accounted as over order debit which is accounted for separately (see note 21).

**Data type**

Measured/administration data

**Policy**

Not applicable

**Data accuracy**

A – Estimated in the range +/- 10%

**Providing agency**

DPI Water

**Data source**

WaterNSW / DPI Water – Water Accounting System (Joint ownership of system).

**Methodology**

Usage information is determined by either on-farm meters that measure extraction, gauges on diversion works or orders/releases when the volume cannot be effectively metered, such as an environmental watering event.

Meter readings are collected for individual licence holders at intervals during the year and converted via a calibration factor to a volume of water extracted. Water diverted from the river is measured by recording the height at either the gauge or weir with the volume diverted being derived by passing these heights through a rating table. However, with multiple categories of access licences being extracted through the same pumps additional information and methodologies are required to separate use under the various licence categories. Below is a description of these:

- Based on periods of announcement – during periods of supplementary water announcements extractions can be debited against the supplementary water licences
- Usage is based on water orders – users place orders for water against an access licence and usages are debited against accounts in proportion to the orders placed.
- Licence category apportionment – if no water orders are available water extracted is apportioned against categories of access licence in order of priority as set out in the table below. The prioritising is based on the nature of and rules around each of the licence categories.

The following table provides the order in which extractions are apportioned to access licence categories starting at priority 1. This is a generic list where not all categories will necessarily appear in this GPWAR. There are also various sub categories of licence associated with some of the categories.

**Table 10: Licence category metered usage apportionment table**

| Priority | Surface water                    |
|----------|----------------------------------|
| 1        | Supplementary                    |
| 2        | Uncontrolled Flow                |
| 3        | Domestic and Stock               |
| 4        | Regulated River High Security    |
| 5        | Regulated River General Security |
| 6        | Conveyance                       |
| 7        | Local Water Utility              |
| 8        | Major Water Utility              |

**Table 11: Account usage summary 2015-16**

| Licence category              | Account usage (ML) |
|-------------------------------|--------------------|
| Domestic and Stock            | 1,192              |
| Domestic and Stock [Domestic] | 0                  |
| Domestic and Stock [Stock]    | 105                |
| Local Water Utility           | 2,826              |
| General Security              | 40,426             |
| High Security                 | 11,245             |
| High Security (Research)      | 0                  |
| Supplementary                 | 29,227             |
| <b>Total Account Usage</b>    | <b>85,021</b>      |

## Note 4 – Internal trading (allocation assignments)

This represents the temporary trading (allocation assignments) of water between allocation accounts within the Gwydir Regulated River water source.

### Data type

Administration

### Policy

Water Sharing Plan for the Gwydir Regulated River Water Source 2002.

- Part 10 Access licence dealing rules
  - Clause 50 rules relating to constraints within a water source
  - Available on the DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)
  - *Water Act 1912*

### Data accuracy

A1 – Nil inaccuracy +/- 0%

### Providing agency

DPI Water

### Data source

WaterNSW / DPI Water – Water Accounting System (joint ownership of system).

### Methodology

Trading is permitted between certain categories of access licences and between certain water sources. This is detailed in the water sharing plan or stipulated under the licence holder's conditions.

The net internal trade for each licence category is zero for a water year. As such, trades occur as both a water liability decrease (sellers of water) and a water liability increase (buyers of water).

### Additional information

The table below shows the internal trading figures between licence categories. All figures represent a volume in megalitres.

Table 12: 2015-16 Gwydir allocation assignments summary

| Allocation assignments |                     | Buyer            |               |               |               |
|------------------------|---------------------|------------------|---------------|---------------|---------------|
|                        |                     | General Security | High Security | Supplementary | Total         |
| Seller                 | Local Water Utility | 20               |               |               | 20            |
|                        | General Security    | 15,047           |               |               | 15,047        |
|                        | High Security       | 8,957            |               |               | 8,957         |
|                        | Supplementary       |                  |               | 15,470        | 15,470        |
|                        | <b>Total</b>        | <b>24,024</b>    |               | <b>15,470</b> | <b>39,494</b> |



## Note 5 – Held environmental water

This represents that environmental water that is held as part of a licensed volumetric entitlement. These licences are either purchased on the market by environmental agencies or issued as a result of water savings achieved through investment by those relevant agencies.

These licences are held within the same licence categories as all other water access licences hence are subject to the same operating rules. Therefore they are subject to the following key rules:

- Available Water Determinations (AWD) for their share of the entitlement to be added to accounts
- Carryover rules hence the forfeiting of unused water that cannot be carried over
- Provide water orders prior to use.

These licences are used to provide environmental benefit and outcomes to the catchment by either providing water to, or supplementing water requirements of, a specific environmental events or incidents.

Measured

### Policy

*Water Management Act 2000*

- Dealings with access licences (Division 4)
    - 71G Assignment of water allocations between access licences
- Water Sharing Plan for the Gwydir Regulated River Water Source 2002.

Available on the DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

### Data accuracy

A – Estimated in the range +/- 10%

### Providing agency

DPI Water

### Data source

WaterNSW / DPI Water – Water Accounting System (Joint ownership of System).

Available Water Determination Register - DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

### Methodology

The water held for the environment represents a volume of water in corresponding allocation accounts. This allocation account represents the sum of the remaining volume of held environmental water at the conclusion of the water year once all transactions and forfeit rules have been applied to the accounts. These environmental balances are at the licence category level and represent the water that can be carried forward for use in the next year. Below is list of typical transactions that can apply to an environmental allocation account:

- AWD (including pro rata of AWD for new licences)
- Licensed extractions
- Forfeiture due to:
  - Carryover rules
  - Account spillage as a result of AWD
  - Licence conversions
  - Excess orders (where water order debiting is in place)
- Licence conversion

- Trade of allocation water between accounts

In addition the trade and purchase of environmental water is tracked to capture the movement of environmental entitlement both in number of entitlements, and volume.

#### Additional information

Table 14 provides a summary of held environmental water for 2015-16. Explanations of the components within this table are given in Table 13.

**Table 13: Explanatory information for environmental account summary**

| Heading                             |               | Description  |
|-------------------------------------|---------------|--|
| No. Licences                        |               | This is the number of environmental licences held.   |
| Category                            |               | Licence category issued under the water sharing plan   |
| Share                               |               | This is the total volume of entitlement in the specific licence category.  |
| Opening balance                     |               | The volume of water that has been carried forward from previous years allocation account.  |
| AWD - Available water determination |               | The total annual volume of water added to the allocation account as a result of allocation assessments.                                  |
| Assignments                         | In            | Increase in account water as a result of Temporary Trade in.   |
|                                     | Out           | Decrease in account water as a result of Temporary Trade out.  |
| Account usage                       |               | Volume of water that is extracted or diverted or used and is accountable against the licence.  |
| End of year balance                 | Available     | Account balance that is available to be taken at the conclusion of the water year.   |
|                                     | Not available | Account balance that is currently not available for use (e.g. restricted due to drought conditions or annual use limit restrictions)     |
| End of Year Forfeit                 |               | Account water that is forfeited at the end of the water year as a result of carryover rules that restrict the carry forward volume.      |
| Carry Forward                       |               | This represents the account water that is permitted to be carried forward into the next water year as determined by the carryover rules. |

**Table 14: Gwydir environmental regulated river account summary 2015-16<sup>14</sup>**

| Category         | Share   | Opening Balance | AWD    | Assignments |       | Account usage | End of Year Balance |               | End of Year Forfeit | Carry Forward |
|------------------|---------|-----------------|--------|-------------|-------|---------------|---------------------|---------------|---------------------|---------------|
|                  |         |                 |        | In          | Out   |               | Available           | Not Available |                     |               |
| General Security | 106,617 | 24,770          | 5,629  | 7,907       | 5,880 | 3,950         | 28,476              | 0             | 0                   | 28,476        |
| High Security    | 5,757   | 0               | 5,757  | 0           | 2,607 | 3,150         | 0                   | 0             | 0                   | 0             |
| Supplementary    | 23,591  | 0               | 23,591 | 0           | 0     | 1,300         | 22,291              | 0             | 22,291              | 0             |

**Table 15: Annual change summary for Gwydir regulated river environmental licences**

| Category         | Share 30 June 2015 | Share 30 June 2016 | Share Difference | No. Licences 30 June 2015 | No. Licences 30 June 2016 | No. Licence Difference |
|------------------|--------------------|--------------------|------------------|---------------------------|---------------------------|------------------------|
| General Security | 106,617            | 106,617            | 0                | 8                         | 8                         | 0                      |
| High Security    | 5,757              | 5,757              | 0                | 4                         | 4                         | 0                      |
| Supplementary    | 23,591             | 23,591             | 0                | 4                         | 4                         | 0                      |

**Table 16: Environmental allocation assignment summary 2015-16<sup>15</sup>**

| Allocation assignments by environmental licences |                  | Buyer            |                  |              |
|--|------------------|------------------|------------------|--------------|
|  |                  | Enviro           | Non- Enviro      | Total        |
| Seller   |                  | General Security | General Security |              |
| Enviro   | General Security | 5,400            | 480              | <b>5,880</b> |
|  | High Security    | 2,607            |                  | <b>2,607</b> |
|  | Supplementary    |                  |                  | <b>0</b>     |
| <b>Total</b>                                     |                  | <b>8,007</b>     | <b>480</b>       | <b>8,487</b> |

<sup>14</sup> The account balance summary includes only those licences where the registered holder is either state or federal government agencies and the licence is wholly managed for environmental benefit.

<sup>15</sup> The environmental allocation assignment summary is modified to obtain actual movement between the environmental and consumptive pools alternating the intended purpose of use for that traded allocation. Transfers to non-environmental holders for the purposes of delivering environmental water are therefore considered as enviro to enviro in this report.

## Note 6 – Environmental provisions

There a number of planned environmental provisions allowed for within the regulated Gwydir water source, implemented under the water sharing plan, with the aim of enhancing environmental benefits.

**A minimum flow requirement through to the Gwydir Wetlands:** The flow aims to maintain wetland health by maintaining a minimum flow into the Gwydir Wetlands of up to 500 megalitres per day.

**An Environmental Contingency Allowance (ECA):** Water is put aside in Copeton storage that can be called upon to achieve environmental benefits such as supporting bird breeding events, supporting native fish colonies and maintaining general river ecosystem health. The amount of water that may be credited to the ECA account is determined based on the available water determinations for General Security licence holders, up to a maximum of 90,000 megalitres. Utilisation of the ECA is managed by the New South Wales Office of Environment and Heritage.

**Long-term extraction limit:** By limiting long-term average extractions to an estimated 392,000 megalitres per year this plan ensures that approximately 66 per cent of the long-term average annual flow in the water source (estimated to be 1,141,000 megalitres per year) will be preserved and will contribute to the maintenance of basic ecosystem health.

**Supplementary access restrictions:** During periods of supplementary flow water made available for consumptive use is restricted to a maximum volume of 50 per cent of the water in excess of requirements with the remaining 50 per cent being reserved for environmental benefit. For more detail on supplementary water announcements and extractions refer to note 18.

### Data type

Measured

### Policy

Water Sharing Plan for the Gwydir Regulated River Water Source 2002.

- Part 3 Environmental Water Provisions
  - Clause 15 Planned Environmental Water

Available on the DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

### Data accuracy

A1 – Nil inaccuracy +/- 0%

### Providing agency

DPI Water

### Data source

WaterNSW / DPI Water – Water Accounting System (Joint ownership of System).

WaterNSW annual compliance report (internal document)

### Methodology

The minimum flow required to pass to the Gwydir Wetlands is calculated by assessing the total volume of water entering the Gwydir River from the Horton River, Myall Creek and Hall's Creek and any water spilling or being pre-release from Copeton Dam assess against the Yarraman gauge on the Gwydir. The volume assessed up to a maximum of 500 megalitres per day is required to be passed through to Gwydir wetlands being split 50/50 between Gingham and Lower Gwydir. It is however acknowledged that at times when other system requirements are minimal natural attenuation of flows may mean that the required minimum

flows are not achieved. The system operational requirements are indicated in Figure 25 by the total orders at Copeton Dam.

#### Additional information

All minimum flow targets were considered met throughout 2015-16. While there were 4 days in total that were 25 per cent below the target flow (a performance indicator set by DPI Water). This did not exceed the accepted operational limit of 10 days per month or 7 consecutive days and all shortfalls were made up with additional volumes in the month that they occurred.

During 2015-16 there were six periods of supplementary access announced. Operationally the maximum volume extracted from an event as a percentage of total available flow was 55 per cent exceeding the targeted 50 per cent stipulated in the water sharing plan however the total volume protected (all events) for the environment was 31,372 megalitres (50.22 per cent of available supplementary water).

Annual accounting information for the ECA is presented in Table 17.

Table 17: Summary of ECA account balance<sup>16</sup>

| Water Year | Water Credited | Usage  | Balance |
|------------|----------------|--------|---------|
| 2009-10    | 0              | 0      | 17,305  |
| 2010-11    | 37,287         | 5,000  | 49,610  |
| 2011-12    | 56,890         | 16,500 | 90,000  |
| 2012-13    | 2,320          | 3,074  | 89,246  |
| 2013-14    | 89,246         | 1,000  | 88,246  |
| 2014-15    | 88,246         | 29,895 | 58,370  |
| 2015-16    | 2,400          | 4,750  | 56,020  |

<sup>16</sup> The ECA balance is held to 4 significant figures only

Figure 25: Plot of minimum flow targets at Yarraman 2015-16

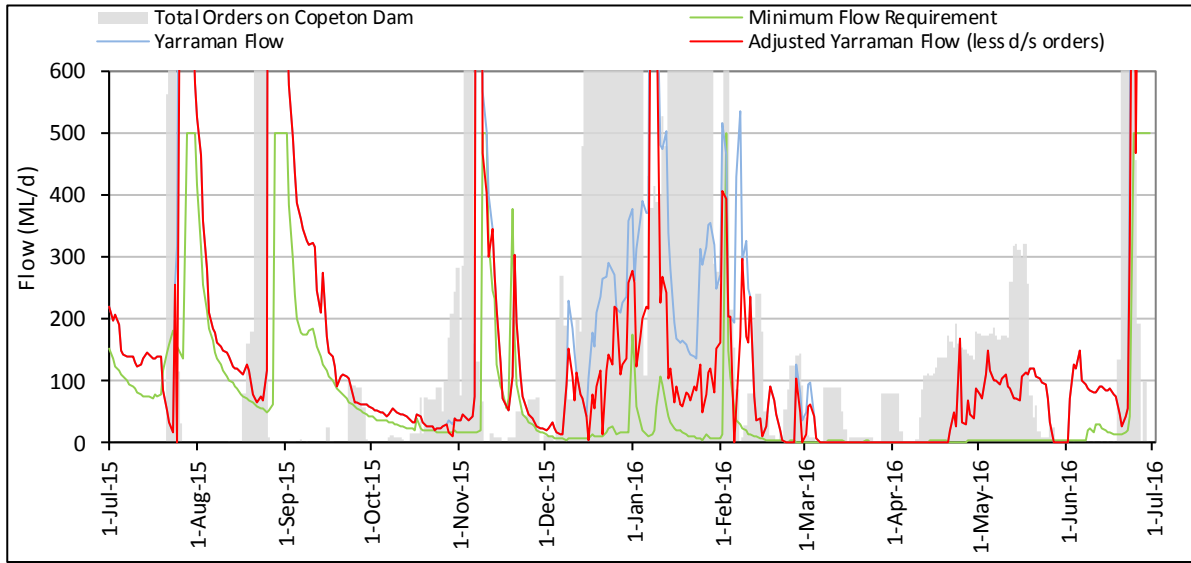
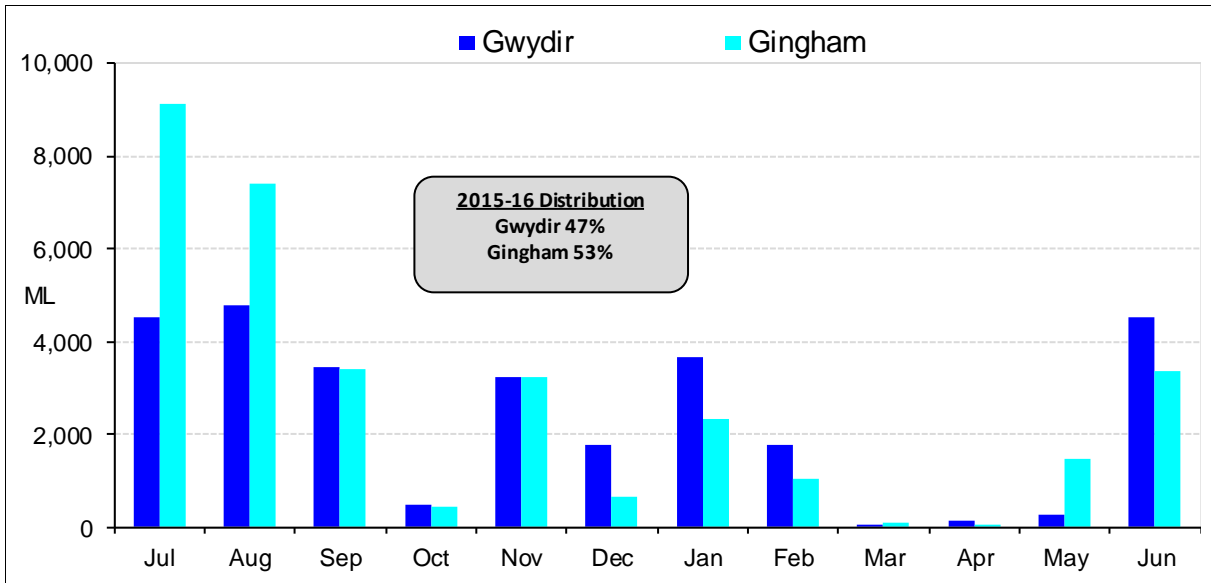


Figure 26: Distribution of minimum flow requirements to Gwydir wetlands 2015-16



## Note 7 – Surface water storage

This is the actual volume of water stored in the individual surface water storages at the date of reporting. The volumes provided represent the total volume of water in the storage, including dead storage which is the volume of water which can't be accessed under normal operating conditions e.g. volume below low level outlet. It is assumed that the dead storage can be accessed if required via alternative access methods e.g. syphons.

### Data type

Derived from measured data

### Policy

Not applicable

### Data accuracy

A – Estimated in the range +/- 10%

### Providing agency

DPI Water

### Data source

DPI Water – HYDSTRA

### Methodology

Storage volumes are calculated by processing a gauged storage elevation through a rating table that converts it to a volume.

### Additional information

Table 18: Capacity and dead storage summary table

| Name        | Capacity (ML) | Dead storage (ML) |
|-------------|---------------|-------------------|
| Copeton Dam | 1,361,720     | 18,490            |

## Note 8 – River channel storage

The volume of water stored in the river channel on the day of reporting.

### Policy

Not applicable

### Data type

Derived from measured data

### Data accuracy

B – Estimated in the range +/- 25%

### Providing agency

DPI Water

### Data sources

DPI Water: HYDSTRA, CAIRO

### Methodology

For each river section S(n):

$$V = Q \times T$$

The river channel storage will be equal to the sum of all river section volumes.

$$\text{River channel storage} = \sum S(n) V$$

Table 19: Summary of river channel storage calculation components

| Symbol | Variable  | Data source | Unit |
|--------|---|-------------|------|
| Q      | Average flow in the river section. Calculated by averaging the daily flows at the upstream and downstream river gauges. | HYDSTRA     | ML/d |
| V      | Volume in each river section.   | Calculated  | ML   |
| T      | Average travel time for a parcel of water to travel through the river section.  | CAIRO       | days |

Assumptions and approximations:

- Travel times are estimated to the nearest day.
- Daily flow change between gauging sites assumed to be linear.



## Note 9 – Storage inflow – Copeton

Storage inflow refers to the volume of water flowing into the major headwater storage, Copeton Dam

**Policy**

Not applicable

**Data type**

Derived from measured data

**Data accuracy**

A – Estimated in the range +/- 10%

**Providing agency**

DPI Water

**Data sources**

DPI Water: HYDSTRA, SILO (Queensland government climatic information)

**Methodology**

In most of the major storages in NSW there is no direct measurement of inflows. However, it is possible to calculate inflows by using a mass balance approach (based on balancing the change in storage volume) where inflow is the only unknown. This is referred to a backcalculation of inflows.

The backcalculation figures were derived using a one day time step with the inflow calculated according to the equation below. The daily inflows are then summed to provide an annual inflow figure.

$$\sum_{i=1}^n I_i = \Delta S_i + O_i + Se_i + \frac{(E_i - R_i) * A_i}{100}$$

Table 20: Components for backcalculation of inflow

| Symbol | Variable   | Unit   |
|--------|--|--------|
| I      | Inflow   | ML/day |
| ΔS     | Change in storage volume   | ML     |
| O      | Outflow  | ML/day |
| Se     | Seepage  | ML/day |
| R      | Rainfall   | mm/day |
| E      | Evaporation (Mortons shallow lake estimation, SILO)              | mm/day |
| A      | Surface area - derived from height to surface areas lookup curve | ha     |

Assumptions and approximations:

- Constant storage specific pan evaporation factors are applied (one annual factor).
- Seepage was assumed to be zero

## Note 10 – Storage evaporation and storage rainfall

This refers to the volume of water effective on Copeton Dam that is either lost as a result of evaporation, or gained as a result of rainfall.

**Data type**

Derived from measured data

**Policy**

Not applicable

**Data accuracy**

B – Estimated in the range +/- 25%

**Providing agency**

DPI Water

**Data source**

DPI Water – HYDSTRA, SILO (Queensland government climatic information)

**Methodology**

Daily rainfall and mortons shallow lake evaporation data (accessed via SILO) are applied to storage surface area time-series from HYDSTRA to achieve a volume in megalitres which is then aggregated to an annual figure. The rainfall and evaporation data utilised is equivalent to the data used in the storage inflow backcalculation (note 12)

**Rainfall:**

$$\sum_{i=1}^n V_i = \frac{R_i \times A_i}{100}$$

**Evaporation:**

$$\sum_{i=1}^n V_i = \frac{E_i \times A_i}{100}$$

Table 21: Components for storage evaporation and rainfall

| Symbol | Variable   | Unit    |
|--------|--|---------|
| V      | Volume   | ML/year |
| R      | Rainfall   | mm/day  |
| A      | Surface area - derived from height to surface areas lookup curve | Ha      |
| E      | Evaporation (Mortons shallow lake estimation, SILO)              | mm/day  |

## Note 11 – River evaporation and river rainfall

This refers to the volume of water effective on the accounted river reach that is either lost as a result of evaporation, or gained as a result of rainfall.

**Data type**

Derived from measured data

**Policy**

Not applicable

**Data accuracy**

C – Estimated in the range +/- 50%

**Providing agency**

DPI Water

**Data source**

DPI Water: HYDSTRA, ARCGIS

QLD Department of Natural Resources: SILO

**Methodology**

The volume applied for evaporation and rainfall on the regulated river is achieved by first calculating a daily time-series of river area. This is achieved by breaking the river up into reaches and utilising the cross sections recorded at river gauging locations to determine the average width of the river with a given daily flow. River length is then determined between two gauging locations using ARCGIS and as such an area for each reach can be defined.

$$\text{Area (m}^2\text{)} = \text{Average W (m)} \times \text{L (m)}$$

Where W is the daily width determined from the gauging cross sections and L is the length as determined through ARCGIS analysis.

With daily area determined, various climate stations are then selected based on their proximity to each river reach. Rainfall and evaporation data is then extracted from SILO and applied to the area time-series to achieve a volume in megalitres which is then aggregated to an annual figure.

**Rainfall:**

$$\sum_{i=1}^n V_i = \frac{R_i \times A_i}{10^6}$$

**Evaporation:**

$$\sum_{i=1}^n V_i = \frac{ETO_i \times K_c \times A_i}{10^6}$$

Table 22: Components for storage evaporation and rainfall

| Symbol | Variable   | Unit           |
|--------|--|----------------|
| V      | Volume   | ML/year        |
| R      | Rainfall   | mm/day         |
| A      | Surface area - derived from height to surface areas lookup curve | m <sup>2</sup> |
| ETO    | reference evapotranspiration from SILO                           | mm/day         |
| Kc     | Crop coefficient for open water (1.05)                           | -              |

## Note 12 – Gauged tributary inflow

The inflow into the regulated river that occurs downstream of the headwater storages that is measured at known gauging stations.

### Policy

Not applicable

### Data type

Measured data

### Data accuracy

A – Estimated in the range +/- 10%

### Providing agency

DPI Water

### Data sources

DPI Water: HYDSTRA

### Methodology

The flows are obtained by measuring river heights at gauging stations along the river, and then passing these heights through a rating table that converts them to a daily flow volume.

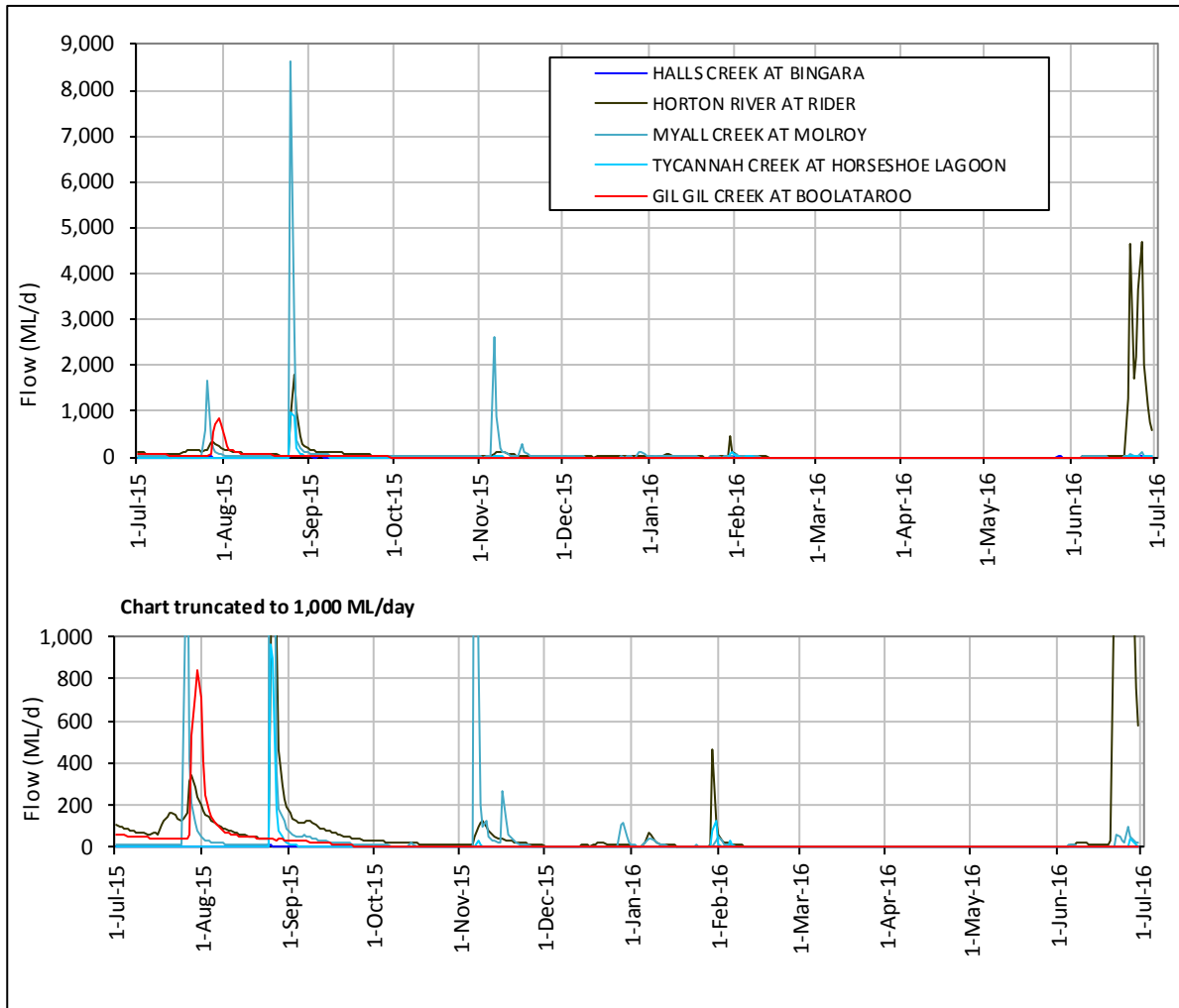
### Additional information

The total gauged inflow for 2015-16 is the sum of the inflows for the gauged tributaries defined in the table below. Plots of the daily gauged tributary inflows follow.

Table 23: Summary of gauged tributary inflow 2015-16 (annual volume in megalitres)

| Station Code               | Station Name                | Volume (ML)   |
|----------------------------|-----------------------------|---------------|
| 418025                     | Halls Creek at Bingara      | 885           |
| 418015                     | Horton River at Rider       | 39,059        |
| 418017                     | Myall Creek at Molroy       | 23,131        |
| 418032                     | Tycannah Creek              | 2,819         |
| 416054                     | Gil Gil Creek at Boolataroo | 6,955         |
| <b>Total gauged inflow</b> |                             | <b>72,849</b> |

Figure 27: Gauged tributary Inflow



## Note 13 – Ungauged runoff estimate

The inflow into the river that occurs downstream of the headwater storages that is not measured.

### Policy

Not applicable

### Data type

Estimated

### Data accuracy

C – Estimated in the range +/- 50%

### Providing agency

DPI Water

### Data sources

DPI Water, HYDSTRA

### Methodology

To derive an estimate a simple mass balance approach was adopted whereby known inflows and outflows were combined with an assumed loss factor. No estimate was made for the areas below the Pallamallawa on the Gwydir River (assumed negligible with the exception of heavy storm events).

$$UI = EoS - SR - GI + E + LE$$

Where:

UI = Ungauged Inflow Estimate

EoS = Gauged Flow at the point in the system where no further inflow is estimated downstream for the purposes of this ungauged calculation (Pallamallawa).

$SR_k$  = Copeton Storage release

GI = Gauged inflows (Copeton to Pallamallawa)

E = Extractions (Copeton to Pallamallawa)

LE = Estimated losses. This was assumed to be 10% of the measured (gauged flow plus storage releases) entering the system.

Table 24: Summary of Gwydir ungauged inflow estimates

| Catchment | Total volume estimated (ML) |
|-----------|-----------------------------|
| 2013-14   | 49,000                      |
| 2014-15   | 52,000                      |
| 2015-16   | 65,000                      |

## Note 14 – Dam releases, river inflow from dam releases

The volume of water released from Copeton Dam. In the accounting process this release is represented as both a decrease in asset (of the dam) and an equal increase in asset (of the river).

### Policy

Not applicable

### Data type

Measured data

### Data accuracy

A – Estimated in the range +/- 10%

### Providing agency

DPI Water

### Data sources

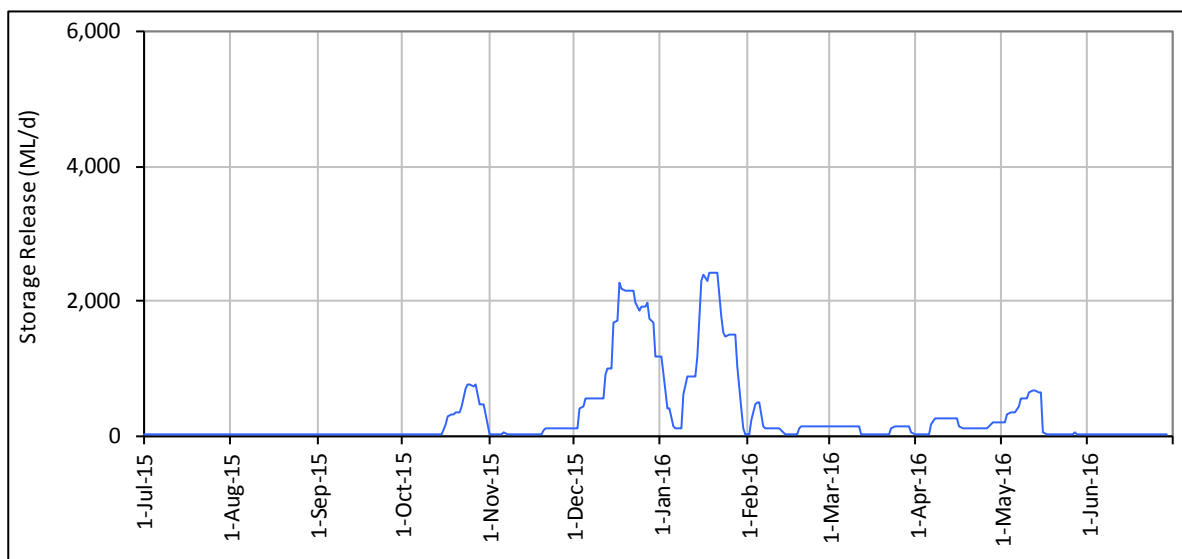
DPI Water: HYDSTRA

### Methodology

The flows are obtained by measuring river heights at a gauging station downstream of the dam wall, and then passing these heights through a rating table that converts them to a daily flow volume. The releases have been represented in the Statement of Changes in Water Assets and Water Liabilities as both a decrease in water asset (water leaving the dam) and an equal volume of increase in water asset (water released increasing the volume of the river).

### Additional information

Figure 28: Copeton Dam releases 2015-16



## Note 15 – End of system flow / flow to wetlands /replenishments

This refers to flow that leaves the entity and does not return to the entity. The flow has been separated into delivered replenishment flows that are delivered as a requirement of the water sharing plan and other end of system flows. The *flow to wetlands* line item (effectively an end of system flow for accounting purposes) is an estimate of the total amount of water that entered the Gwydir wetlands.

Under the conditions of the water sharing plan water must be put aside in Copeton dam to deliver, as required, replenishment flows up to 21,000 megalitres broken down into 5 specific areas as detailed below:

- 6,000 megalitres per year to the Gingham Watercourse - this is no longer required due to the completion of the lower Gingham Domestic Water Supply Scheme in April 2011.
- 4,000 megalitres per water year to the lower Gwydir system - this is no longer required due to the completion of the lower Gingham Domestic Water Supply Scheme in June 2013.
- up to 6,000 megalitres per water year to Mallowa Creek,
- up to 4,000 megalitres per water year to Thalaba Creek, and
- up to 1,000 megalitres per water year to Ballin Boora Creek.

### Data type

Derived from measured data

### Policy

Water Sharing Plan for the Gwydir Regulated River Water Source 2002.

- Part 12 System operation rules
  - Clause 59 Replenishment flows

Available on the DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

### Data accuracy

A – Estimated in the range +/- 10%

### Providing agency

DPI Water

### Data source

DPI Water – HYDSTRA, WaterNSW annual compliance report (internal document)

### Methodology

End of system flows are derived by the summation of flows at gauging site/s measuring the volume of water that leaves the accounting extent (Figure 1). Replenishments flows are obtained from the annual WaterNSW compliance reports.

Flows to the Gwydir wetlands are estimated by summing flows leaving Tyreel weir (which is passed to both to the lower Gwydir River and Gingham watercourse), and then subtracting any non-environmental usage from these reaches below Tyreel weir. The remaining volume is assumed to be the amount that was supplied to the Gwydir wetlands.



**Table 25: Calculation of Gwydir flow to wetlands 2015-16**

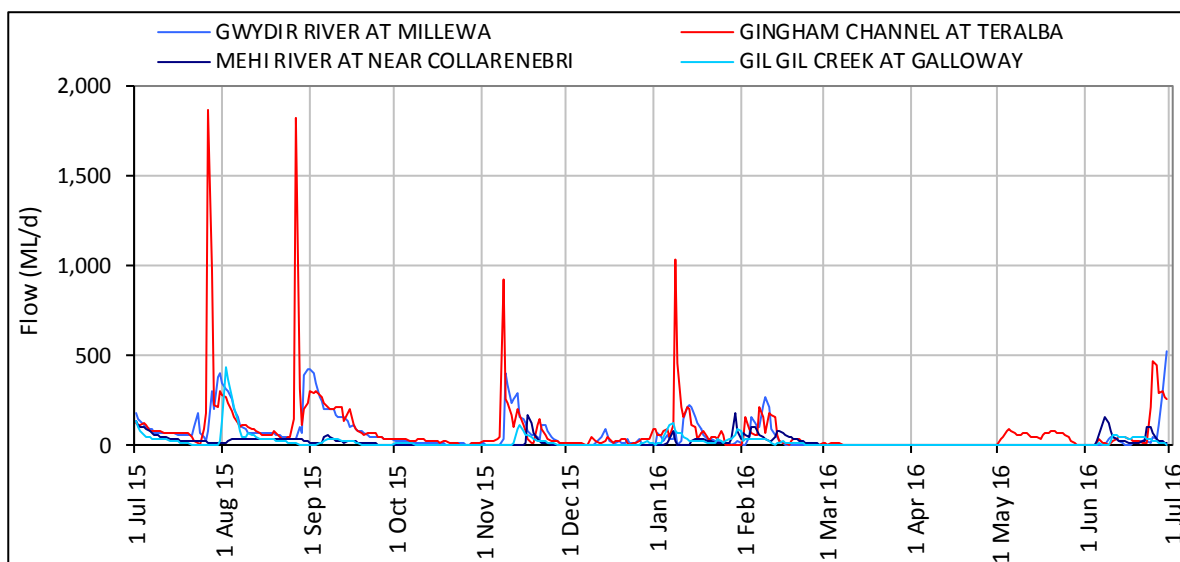
| Component  | Volume (ML)   |
|--|---------------|
| Gingham watercourse diversion from Tyreel Weir               | 34,845        |
| Consumptive usage from Gingham watercourse below Tyreel Weir | (4,944)       |
| Gwydir River release from Tyreel Weir                        | 38,560        |
| Consumptive usage from Gwydir River below Tyreel Weir        | (10,341)      |
| <b>Total volume estimate to the Gwydir wetlands</b>          | <b>58,120</b> |
| Replenishment component of flow to wetlands                  | 0             |

**Table 26: End of system flow summary 2015-16**

| Station                         | Volume (ML)   | Accounting component         |
|---------------------------------|---------------|------------------------------|
| Mehi River near Collarenebri    | 6,657         | End of system: other         |
| Gil Gil Creek at Galloway       | 6,915         | End of system: other         |
| Replenishment outflows          | 3,917         | End of system: replenishment |
| <b>Total end of system flow</b> | <b>17,489</b> |                              |

**Additional Information**

**Figure 29: Gwydir flow leaving 2015-16**



## Note 16 – Extractions from river

This is the actual volume of water directly pumped or diverted from the regulated river by licence holders.

Occasionally (generally in the case of environmental water) volumes are ordered against a licence account for in-stream benefits or to pass through end of system target points. As such the volume reported to be physically extracted from the accounted river extent will not always be equal to the amount of water debited against accounts for usage, which has been described in Note 3. The figure stated for extractions from river excludes basic rights extractions, which is reported as a separate line item and detailed in Note 17.

### Data type

Measured data

### Policy

Not applicable

### Data accuracy

A – Estimated in the range +/- 10%

### Providing agency

DPI Water

### Data source

WaterNSW / DPI Water – Water Accounting System (Joint ownership of system).

DPI Water – Water Ordering and Usage database

### Methodology

For the purposes of this GPWAR extraction from the river is considered to be the total volume metered and debited to the allocation accounts minus any licenced account water that can be identified as being used within the system, or ordered to be passed through the system. These volumes are generally associated with environmental water orders and have already been accounted for separately in other line items.

### Additional information

Table 27: Reconciliation of physical extraction to account usage

| Component                                     | Volume (ML) |
|---|-------------|
| Licenced extractions from River <sup>17</sup> | 76,621      |
| plus  |             |
| Licenced flow leaving System <sup>18</sup>    | 8,400       |
| plus  |             |
| In stream licenced usage <sup>19</sup>        | 0           |
| equals  |             |
| Total allocation account usage <sup>20</sup>  | 85,021      |

<sup>17</sup> Direct licenced extractions from the river excluding basic rights usage estimate

<sup>18</sup> Licenced water ordered to leave the accounted Gwydir extent for environmental benefits

<sup>19</sup> Water ordered and used within the accounted system for environmental benefit (not extracted from the river)

<sup>20</sup> The total amount of water accounted for usage against the allocation accounts

## Note 17 – Basic rights extractions

This is the non-licensed right to extract water to meet basic requirements for household purposes (non-commercial uses in and around the house and garden) and for watering of stock. It is available for anyone who has access to river frontage on their property.

This water cannot be used for irrigating crops or garden produce that will be sold or bartered, for washing down machinery sheds or for intensive livestock operations.

In times of limited supply, there may be restrictions on taking water for domestic and stock use.

**Data Type**

Estimated

**Policy**

Water Sharing Plan for the Gwydir Regulated River Water Source 2002

- Part 4 Basic Landholder Rights
  - Clause 18 Domestic and stock rights

Available on the DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

**Data accuracy**

C – Estimated in the range +/- 50%

**Providing agency**

DPI Water

**Data source**

Water Sharing Plan for the Gwydir Regulated River Water Source 2002

**Methodology**

The estimation of domestic and stock rights uses a series of estimates for water usage, stocking rates, population and property shape based on local knowledge to calculate riparian (stock and domestic) requirements in megalitres per year. The annual extraction for Domestic and Stock rights in the water accounts is assumed to be the estimated figure stated in the Water Sharing Plan for the Gwydir Regulated River Water Source (6,000 megalitres)

## Note 18 – Supplementary extractions

This is the volume of water extracted or diverted under supplementary access licences during announced periods of supplementary water. Supplementary flow events are announced periodically during the season when high flow events occur with the period of extraction and volume of water to be extracted determined based on the rules as set out in the water sharing plans. It is important to note that supplementary access licences differ from other categories of access licence in that the volume of water in the account refers to an annual upper limit for extractions and its provision is totally reliant on the occurrence of high flow events.

### Data type

Measured data

### Policy

Water Sharing Plan for the Gwydir Regulated River Water Source 2002

Part 8 Limits to the availability of water

Division 2 - Available water determinations

- Clause 39 Available water determinations for supplementary water access licences

Part 9 Rules for managing access licences

Division 3 - Extraction conditions

- Clause 48 Taking of water under supplementary water access licences
- 

Refer to applicable Water Sharing Plan on the DPI Water website at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)

### Data accuracy

Estimated in the range +/- 10%

### Providing agency

DPI Water

### Data source

WaterNSW / DPI Water – Water Accounting System (Joint ownership of system).

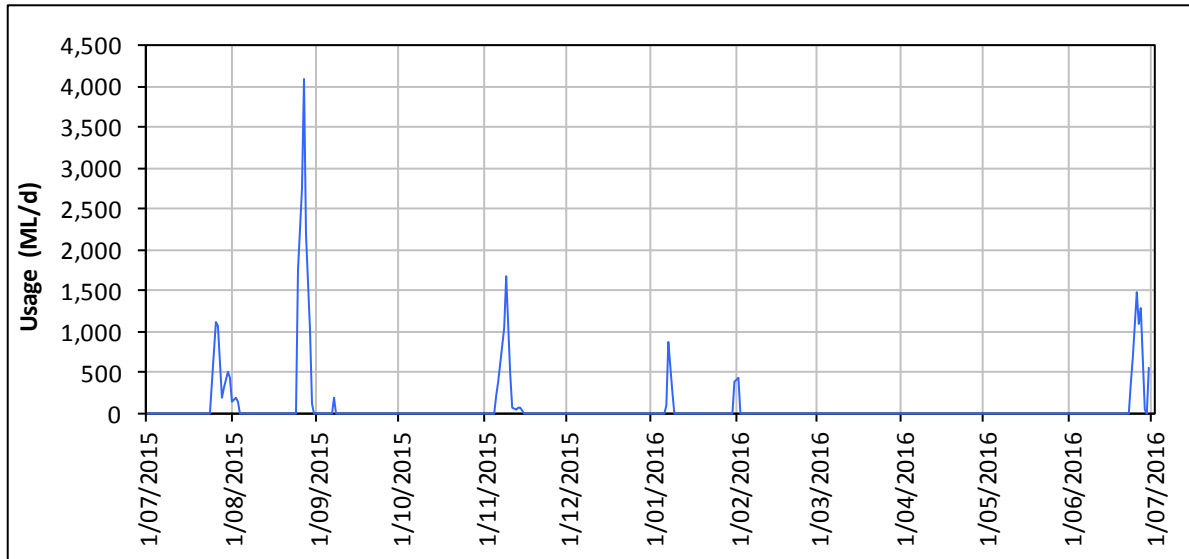
### Methodology

Supplementary water extraction and diversion data is collected by either on farm meters that measure extraction or gauges on diversion works. Meter readings are collected for individual licence holders at intervals during the year and converted via a calibration factor to a volume of water extracted. Water diverted from the river is measured by recording the height at either the gauge or weir with the volume diverted being derived by passing these heights through a rating table. However, with supplementary water being extracted through the same pumps as those extracting water under other categories of access licences additional information is required to separate out supplementary extraction. Basically licence holders provide notification of their intention to pump prior to pumping or diverting water during the declared supplementary event and provide meter readings both at the commencement and conclusion of pumping. This enables the supplementary flow extraction to be assessed independent of other categories of access licences.

The total volume of water that may be made available for extraction under supplementary water access licences in the Gwydir Regulated River Water Source should not exceed 50 per cent of the total supplementary volume available to share (remaining 50 per cent reserved for environmental benefits).

**Additional information**

**Figure 30: Supplementary daily extractions 2015-16**



**Table 28: Gwydir supplementary announcements 2015-16**

|                              |                                   |                   |                 |                    |  |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|--|
| <b>Event Period:</b>         | <b>25-Jul-2015 to 28-Jul-2015</b> |                   |                 |                    |  |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |  |
| Event Limit:                 | 9.50% or 0.0950 ML per Share      |                   |                 |                    |  |
| Announcement Date:           | 25-Jul-15                         |                   |                 |                    |  |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |  |
| Gwydir River                 | Copeton to Bingara                | 25-Jul-15         | 26-Jul-15       | 0                  |  |
| Gwydir River                 | Bingara to Gravesend              | 25-Jul-15         | 26-Jul-15       | 0                  |  |
| Gwydir River                 | Gravesend to Pallamallawa         | 25-Jul-15         | 26-Jul-15       | 28                 |  |
| Gwydir River                 | Pallamallawa to Tareelaroi        | 25-Jul-15         | 26-Jul-15       | 48                 |  |
| Gwydir River                 | Tareelaroi to Boolooroo           | 25-Jul-15         | 28-Jul-15       | 1,246              |  |
| Gwydir River                 | Boolooroo to Yarraman             | 25-Jul-15         | 26-Jul-15       | 0                  |  |
| Gwydir River                 | Yarraman to Tyreel Weir           | 25-Jul-15         | 26-Jul-15       | 159                |  |
| Unnamed Watercourse          | Tyreel to Morcott                 | 26-Jul-15         | 27-Jul-15       | 0                  |  |
| Gwydir River                 | Tyreel/Reg to Morcott             | 26-Jul-15         | 27-Jul-15       | 63                 |  |
| Gwydir River                 | Morcott to Bridgeageen            | 26-Jul-15         | 27-Jul-15       | 569                |  |
| Gwydir River                 | Bridgeageen to Allambi            | 26-Jul-15         | 27-Jul-15       | 398                |  |
| Gwydir River                 | Allambi to Millewa                | 27-Jul-15         | 28-Jul-15       | 272                |  |
| Gwydir River                 | Millewa to Wandoona               | 27-Jul-15         | 28-Jul-15       | 128                |  |
| Gwydir River                 | Lower Gwydir (replenishment)      | 26-Jul-15         | 27-Jul-15       | 0                  |  |
| Gwydir Pool                  | Tyreel Weir to Gwydir Pool        | 25-Jul-15         | 26-Jul-15       | 95                 |  |

|                              |                                   |                   |                 |                    |  |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|--|
| <b>Event Period:</b>         | <b>28-Jul-2015 to 03-Aug-2015</b> |                   |                 |                    |  |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |  |
| Event Limit:                 | 14.00% or 0.1400 ML per Share     |                   |                 |                    |  |
| Announcement Date:           | 28-Jul-15                         |                   |                 |                    |  |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |  |
| Gil Gil Creek                | Gil Gil Junction to Rio Grand     | 28-Jul-15         | 3-Aug-15        | 547                |  |
| Gil Gil Creek                | Rio Grande to Cleveland           | 28-Jul-15         | 3-Aug-15        | 939                |  |

|                              |                                   |                 |                    |     |
|------------------------------|-----------------------------------|-----------------|--------------------|-----|
| <b>Event Period:</b>         | <b>30-Jul-2015 to 01-Aug-2015</b> |                 |                    |     |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                 |                    |     |
| Event Limit:                 | 5.00% or 0.0500 ML per Share      |                 |                    |     |
| Announcement Date:           | 30-Jul-15                         |                 |                    |     |
| <b>Catchment</b>             |                                   |                 |                    |     |
| <b>Section</b>               | <b>Start Date</b>                 | <b>End Date</b> | <b>total Usage</b> |     |
| Carole Creek                 | Garah Bridge to Gil Gil Junction  | 30-Jul-15       | 1-Aug-15           | 316 |

|                              |                                   |                 |                    |       |
|------------------------------|-----------------------------------|-----------------|--------------------|-------|
| <b>Event Period:</b>         | <b>25-Aug-2015 to 27-Aug-2015</b> |                 |                    |       |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                 |                    |       |
| Event Limit:                 | 15.00% or 0.1500 ML per Share     |                 |                    |       |
| Announcement Date:           | 25-Aug-15                         |                 |                    |       |
| <b>Catchment</b>             |                                   |                 |                    |       |
| <b>Section</b>               | <b>Start Date</b>                 | <b>End Date</b> | <b>total Usage</b> |       |
| Gwydir River                 | Copeton to Bingara                | 25-Aug-15       | 27-Aug-15          | 0     |
| Gwydir River                 | Bingara to Gravesend              | 25-Aug-15       | 27-Aug-15          | 0     |
| Gwydir River                 | Gravesend to Pallamallawa         | 25-Aug-15       | 27-Aug-15          | 43    |
| Gwydir River                 | Pallamallawa to Tareelaro         | 25-Aug-15       | 27-Aug-15          | 75    |
| Gwydir River                 | Tareelaro to Boolooroo            | 25-Aug-15       | 27-Aug-15          | 1,656 |
| Gwydir River                 | Boolooroo to Yarraman             | 25-Aug-15       | 27-Aug-15          | 0     |
| Gwydir River                 | Yarraman to Tyreel Weir           | 25-Aug-15       | 27-Aug-15          | 276   |
| Gwydir River                 | Tyreel/Reg to Morcott             | 25-Aug-15       | 27-Aug-15          | 90    |
| Gwydir River                 | Morcott to Bridgeageen            | 25-Aug-15       | 27-Aug-15          | 1,256 |
| Gwydir River                 | Lower Gwydir (replenishment)      | 25-Aug-15       | 27-Aug-15          | 0     |
| Gwydir Pool                  | Tyreel Weir to Gwydir Pool        | 25-Aug-15       | 27-Aug-15          | 148   |

|                              |                                   |                 |                    |     |
|------------------------------|-----------------------------------|-----------------|--------------------|-----|
| <b>Event Period:</b>         | <b>26-Aug-2015 to 28-Aug-2015</b> |                 |                    |     |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                 |                    |     |
| Event Limit:                 | 5.00% or 0.0500 ML per Share      |                 |                    |     |
| Announcement Date:           | 25-Aug-15                         |                 |                    |     |
| <b>Catchment</b>             |                                   |                 |                    |     |
| <b>Section</b>               | <b>Start Date</b>                 | <b>End Date</b> | <b>total Usage</b> |     |
| Gwydir River                 | Bridgeageen to Allambi            | 26-Aug-15       | 27-Aug-15          | 232 |
| Gwydir River                 | Allambi to Millewa                | 26-Aug-15       | 27-Aug-15          | 119 |
| Gwydir River                 | Millewa to Wandoona               | 26-Aug-15       | 27-Aug-15          | 67  |

|                              |                                   |                   |                 |                    |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|
| <b>Event Period:</b>         | <b>25-Aug-2015 to 08-Sep-2015</b> |                   |                 |                    |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |
| Event Limit:                 | 12.00% or 0.1200 ML per Share     |                   |                 |                    |
| Announcement Date:           | 25-Aug-15                         |                   |                 |                    |
| <b>Catchment</b>             |                                   |                   |                 |                    |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |
| Carole Creek                 | Booloroo to Midkin                | 25-Aug-15         | 27-Aug-15       | 1,895              |
| Carole Creek                 | Midkin to Lagoon                  | 26-Aug-15         | 28-Aug-15       | 242                |
| Carole Creek                 | Lagoon Garah Bridge               | 26-Aug-15         | 28-Aug-15       | 365                |
| Carole Creek                 | Garah Bridge to Gil Gil Junction  | 28-Aug-15         | 8-Sep-15        | 1,133              |

|                              |                                   |                   |                 |                    |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|
| <b>Event Period:</b>         | <b>25-Aug-2015 to 30-Aug-2015</b> |                   |                 |                    |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |
| Event Limit:                 | 10.00% or 0.1000 ML per Share     |                   |                 |                    |
| Announcement Date:           | 25-Aug-15                         |                   |                 |                    |
| <b>Catchment</b>             |                                   |                   |                 |                    |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |
| Mehi River                   | Tareelaroi to Moree               | 25-Aug-15         | 27-Aug-15       | 0                  |
| Mehi River                   | Moree to Combadello               | 26-Aug-15         | 27-Aug-15       | 800                |
| Mehi River                   | Combadello to Yamba               | 27-Aug-15         | 29-Aug-15       | 1,415              |
| Mehi River                   | Yamba to Gundare                  | 27-Aug-15         | 30-Aug-15       | 689                |

|                              |                                   |                   |                 |                    |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|
| <b>Event Period:</b>         | <b>25-Aug-2015 to 30-Aug-2015</b> |                   |                 |                    |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |
| Event Limit:                 | 10.00% or 0.1000 ML per Share     |                   |                 |                    |
| Announcement Date:           | 25-Aug-15                         |                   |                 |                    |
| <b>Catchment</b>             |                                   |                   |                 |                    |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |
| Moomin Creek                 | Combadello to Romani              | 27-Aug-15         | 29-Aug-15       | 743                |
| Moomin Creek                 | Romani to Glendello               | 27-Aug-15         | 29-Aug-15       | 108                |
| Moomin Creek                 | Glendello to Chesney              | 28-Aug-15         | 30-Aug-15       | 531                |
| Moomin Creek                 | Chesney to Clarendon              | 28-Aug-15         | 30-Aug-15       | 202                |

|                              |                                   |                   |                 |                    |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|
| <b>Event Period:</b>         | <b>05-Nov-2015 to 14-Nov-2015</b> |                   |                 |                    |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |
| Event Limit:                 | 13.00% or 0.1300 ML per Share     |                   |                 |                    |
| Announcement Date:           | 5-Nov-15                          |                   |                 |                    |
| <b>Catchment</b>             |                                   |                   |                 |                    |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |
| Mehi River                   | Tareelaroi to Moree               | 5-Nov-15          | 9-Nov-15        | 0                  |
| Mehi River                   | Moree to Combadello               | 5-Nov-15          | 9-Nov-15        | 1,132              |
| Mehi River                   | Combadello to Yamba               | 7-Nov-15          | 9-Nov-15        | 1,489              |
| Mehi River                   | Yamba to Gundare                  | 7-Nov-15          | 14-Nov-15       | 2,221              |

|                              |                                   |                 |                    |     |
|------------------------------|-----------------------------------|-----------------|--------------------|-----|
| <b>Event Period:</b>         | <b>06-Jan-2016 to 07-Jan-2016</b> |                 |                    |     |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                 |                    |     |
| Event Limit:                 | 8.00% or 0.0800 ML per Share      |                 |                    |     |
| Announcement Date:           | 6-Jan-16                          |                 |                    |     |
| <b>Catchment</b>             |                                   |                 |                    |     |
| <b>Section</b>               | <b>Start Date</b>                 | <b>End Date</b> | <b>total Usage</b> |     |
| Gwydir River                 | Tyreel/Reg to Morcott             | 6-Jan-16        | 7-Jan-16           | 54  |
| Gwydir River                 | Morcott to Brageen                | 6-Jan-16        | 7-Jan-16           | 459 |

|                              |                                   |                 |                    |     |
|------------------------------|-----------------------------------|-----------------|--------------------|-----|
| <b>Event Period:</b>         | <b>07-Jan-2016 to 09-Jan-2016</b> |                 |                    |     |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                 |                    |     |
| Event Limit:                 | 8.00% or 0.0800 ML per Share      |                 |                    |     |
| Announcement Date:           | 6-Jan-16                          |                 |                    |     |
| <b>Catchment</b>             |                                   |                 |                    |     |
| <b>Section</b>               | <b>Start Date</b>                 | <b>End Date</b> | <b>total Usage</b> |     |
| Unnamed Watercourse          | Tyreel to Morcott                 | 7-Jan-16        | 8-Jan-16           | 0   |
| Gwydir River                 | Brageen to Allambi                | 7-Jan-16        | 8-Jan-16           | 371 |
| Gwydir River                 | Allambi to Millewa                | 7-Jan-16        | 8-Jan-16           | 229 |
| Gwydir River                 | Millewa to Wandoona               | 7-Jan-16        | 8-Jan-16           | 108 |

|                              |                                   |                 |                    |     |
|------------------------------|-----------------------------------|-----------------|--------------------|-----|
| <b>Event Period:</b>         | <b>31-Jan-2016 to 02-Feb-2016</b> |                 |                    |     |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                 |                    |     |
| Event Limit:                 | 10.00% or 0.1000 ML per Share     |                 |                    |     |
| Announcement Date:           | 30-Jan-16                         |                 |                    |     |
| <b>Catchment</b>             |                                   |                 |                    |     |
| <b>Section</b>               | <b>Start Date</b>                 | <b>End Date</b> | <b>total Usage</b> |     |
| Moomin Creek                 | Combadello to Romani              | 31-Jan-16       | 2-Feb-16           | 770 |
| Moomin Creek                 | Romani to Glendello               | 1-Feb-16        | 2-Feb-16           | 35  |

|                              |                                   |                 |                    |     |
|------------------------------|-----------------------------------|-----------------|--------------------|-----|
| <b>Event Period:</b>         | <b>23-Jun-2016 to 30-Jun-2016</b> |                 |                    |     |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                 |                    |     |
| Event Limit:                 | 20.00% or 0.2000 ML per Share     |                 |                    |     |
| Announcement Date:           | 22-Jun-16                         |                 |                    |     |
| <b>Catchment</b>             |                                   |                 |                    |     |
| <b>Section</b>               | <b>Start Date</b>                 | <b>End Date</b> | <b>total Usage</b> |     |
| Gwydir River                 | Booloroo to Yarraman              | 23-Jun-16       | 24-Jun-16          | 0   |
| Gwydir River                 | Yarraman to Tyreel Weir           | 23-Jun-16       | 24-Jun-16          | 368 |
| Tyreel Anabranh              | Tyreel Anabranh                   | 23-Jun-16       | 24-Jun-16          | 0   |
| Gwydir Pool                  | Tyreel Weir to Gwydir Pool        | 23-Jun-16       | 24-Jun-16          | 202 |



|                              |                                   |                   |                 |                    |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|
| <b>Event Period:</b>         | <b>23-Jun-2016 to 27-Jun-2016</b> |                   |                 |                    |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |
| Event Limit:                 | 10.00% or 0.1000 ML per Share     |                   |                 |                    |
| Announcement Date:           | 22-Jun-16                         |                   |                 |                    |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |
| Gwydir River                 | Tyreel/Reg to Morcott             | 23-Jun-16         | 24-Jun-16       | 67                 |
| Gwydir River                 | Morcott to Brageen                | 24-Jun-16         | 25-Jun-16       | 747                |
| Gwydir River                 | Brageen to Allambi                | 25-Jun-16         | 26-Jun-16       | 464                |

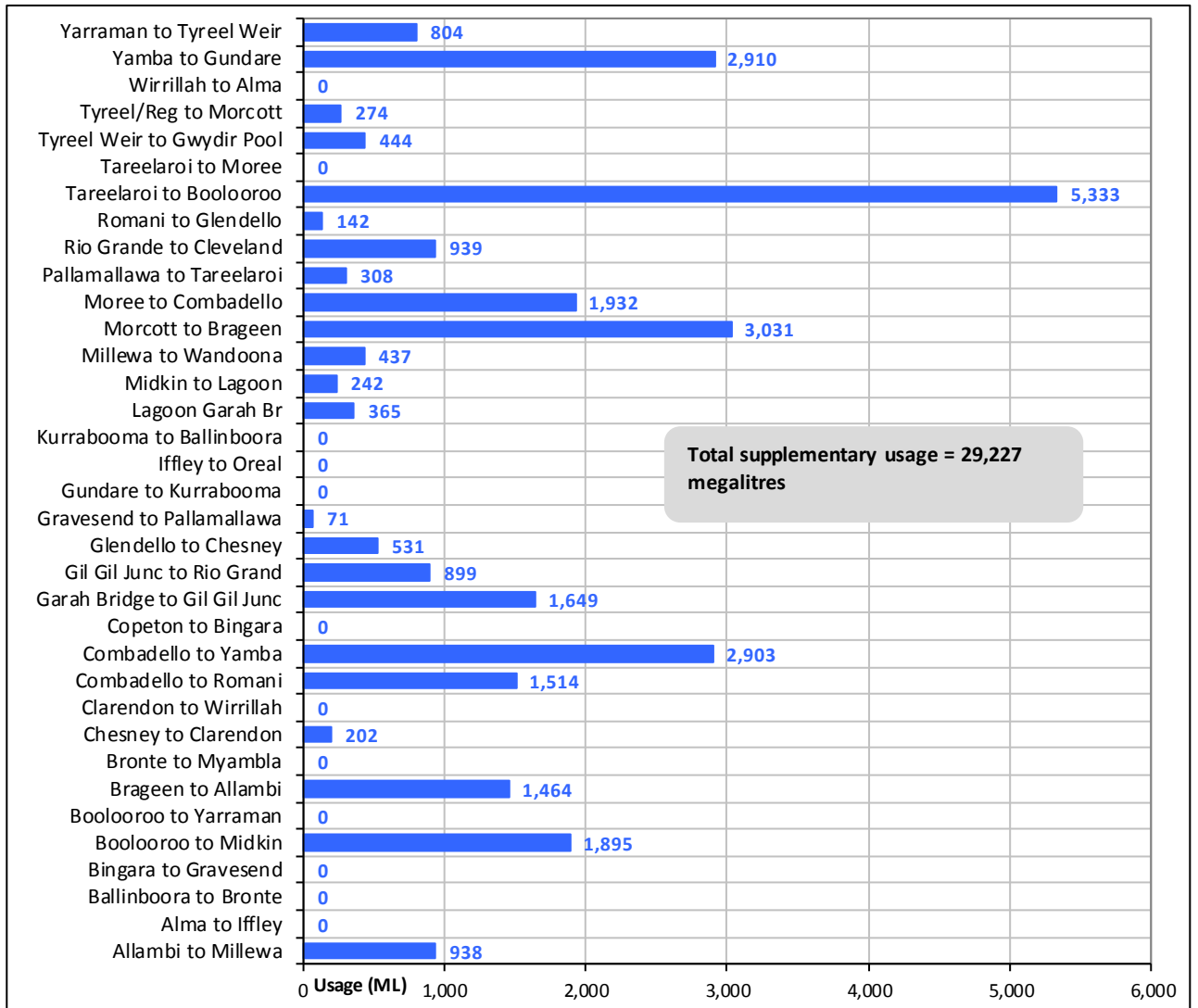
|                              |                                   |                   |                 |                    |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|
| <b>Event Period:</b>         | <b>25-Jun-2016 to 27-Jun-2016</b> |                   |                 |                    |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |
| Event Limit:                 | 20.00% or 0.2000 ML per Share     |                   |                 |                    |
| Announcement Date:           | 25-Jun-16                         |                   |                 |                    |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |
| Gwydir River                 | Copeton to Bingara                | 25-Jun-16         | 27-Jun-16       | 0                  |
| Gwydir River                 | Bingara to Gravesend              | 25-Jun-16         | 27-Jun-16       | 0                  |
| Gwydir River                 | Gravesend to Pallamallawa         | 25-Jun-16         | 27-Jun-16       | 0                  |
| Gwydir River                 | Pallamallawa to Tareelaroi        | 25-Jun-16         | 27-Jun-16       | 185                |
| Gwydir River                 | Tareelaroi to Boolooroo           | 25-Jun-16         | 27-Jun-16       | 2,432              |

|                              |                                   |                   |                 |                    |
|------------------------------|-----------------------------------|-------------------|-----------------|--------------------|
| <b>Event Period:</b>         | <b>27-Jun-2016 to 29-Jun-2016</b> |                   |                 |                    |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                    |
| Event Limit:                 | 10.00% or 0.1000 ML per Share     |                   |                 |                    |
| Announcement Date:           | 25-Jun-16                         |                   |                 |                    |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage</b> |
| Gwydir River                 | Allambi to Millewa                | 27-Jun-16         | 29-Jun-16       | 319                |
| Gwydir River                 | Millewa to Wandoona               | 27-Jun-16         | 29-Jun-16       | 135                |

|                              |                                   |                   |                 |                                 |
|------------------------------|-----------------------------------|-------------------|-----------------|---------------------------------|
| <b>Event Period:</b>         | <b>30-Jun-2016 to 08-Jul-2016</b> |                   |                 |                                 |
| Included Licence Categories: | SUPPLEMENTARY WATER               |                   |                 |                                 |
| Event Limit:                 | 15.00% or 0.1500 ML per Share     |                   |                 |                                 |
| Announcement Date:           | 25-Jun-16                         |                   |                 |                                 |
| <b>Catchment</b>             | <b>Section</b>                    | <b>Start Date</b> | <b>End Date</b> | <b>total Usage<sup>21</sup></b> |
| Carole Creek                 | Garah Bridge to Gil Gil Junction  | 30-Jun-16         | 3-Jul-16        | 853                             |
| Gil Gil Creek                | Gil Gil Junction to Rio Grand     | 30-Jun-16         | 3-Jul-16        | 554                             |
| Gil Gil Creek                | Rio Grande to Cleveland           | 1-Jul-16          | 8-Jul-16        | 1,058                           |

<sup>21</sup> 1,912.5 megalitres of event debited against 2016-17 season

Figure 31: Total supplementary usage by river section 2015-16



## Note 19 – Unaccounted difference

In theory if all the processes of a water balance could be accurately accounted for the unaccounted difference would be zero. In reality due to the large uncertainties in many of the volumes presented in the accounts, the various sources from which the data has been obtained and the fact that not all processes of the water cycle have been accounted, the statements are not balanced at the end of the accounting process. In order to balance the accounts a final balancing entry is required, and this is termed the unaccounted difference. As technology progresses and accuracy improves in the account estimates, it is anticipated that relatively, this figure should reduce in future accounts.

### Data type

Not applicable

### Policy

Not applicable

### Data accuracy

D – Estimated in the range +/- 100%

### Providing agency

Not applicable

### Data source

Not applicable

### Methodology

The unaccounted difference is equal to the amount required to obtain the correct volume in river at the end of the reporting period, after all the known physical inflows and outflows have been accounted. The double-entry accounting process attempted to represent the physical movement of water by creating a river asset. The opening and closing balance of the river volume was estimated according to Note 8.

Surface Water Unaccounted difference

$$UVSW = Rs - Rc + RI - Ro$$

Where:

UVSW = Unaccounted difference for Surface Water

Rs = Opening river volume estimate

Rc = Closing river volume estimate

Ro = Physical outflows from the river (e.g. extractions)

RI = Physical inflows to the river (e.g. runoff, return flows, dam releases)

## Note 20 – River and groundwater interaction

This note refers to water that has been identified as either flowing from the connected alluvium to the accounted river extent (increase in water asset), or alternatively from the accounted river extent to the alluvium aquifer (decrease in water asset).

Information on groundwater aquifer flows other than these processes is located in Appendix A of this document.

**Data type**

Modelled

**Policy**

Not applicable

**Data accuracy**

D – Estimated in the range +/- 100%

**Providing agency**

DPI Water

**Data source**

DPI Water MODFLOW (Data inputs from HYDSTRA, GDS)

**Methodology**

For the lower Gwydir groundwater source the annual budget has been estimated using a DPI Water MODFLOW planning model (see Method A in the document NSW General Purpose Water Accounting Reports - Groundwater Methodologies, available for download from the DPI Water website).

No estimates were made for interactions with the river outside the area covered by the lower Gwydir groundwater source.

**Additional information**

Figure 32: Groundwater methods

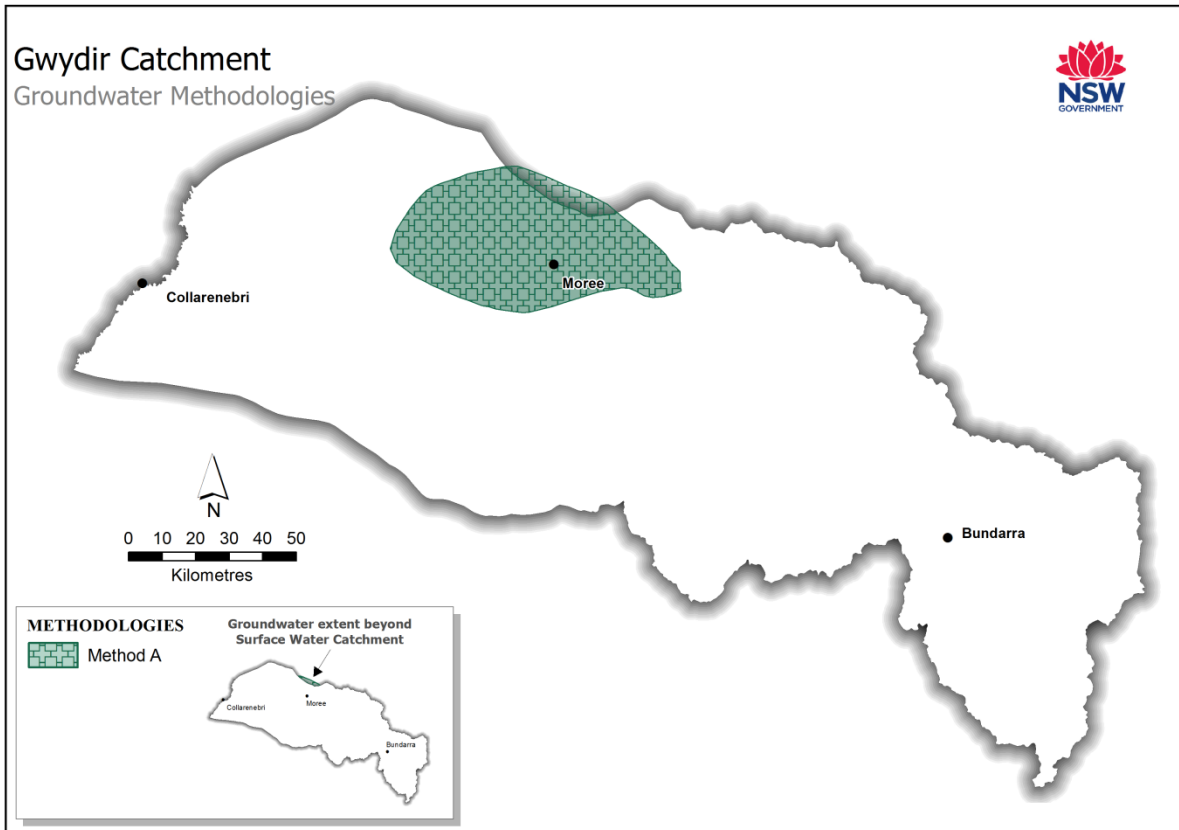
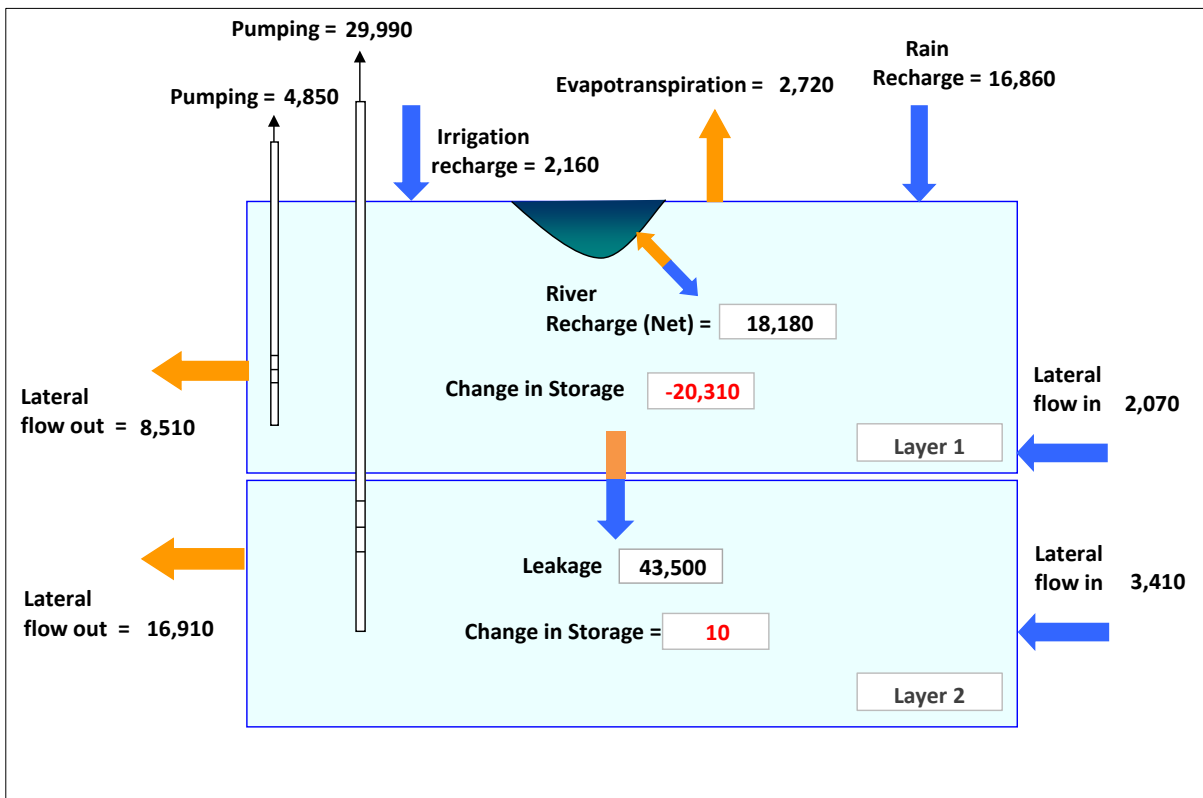


Figure 33: Lower Gwydir Groundwater Source 2015-16 budget



## Note 21 – Water order debiting

Currently in the Gwydir regulated water source the allocation accounts are managed using a water order debiting approach. Accounting under this system defines that the accounts are reduced by the greater of:

- the volume of water extracted and
- the volume of water ordered for extraction against an access licence

Therefore, the volume appearing in statements against the line item water order debiting reflects the amount of water ordered against a category of licence that is in excess of the physical extraction that occurred.

### Data type

Measured/calculated

### Policy

Water Sharing Plan for the Gwydir Regulated River Water Sources 2002

- Part 9 – Rules for managing access licences.
  - Division 2 – Water allocation account management.
    - Clause 43 – Volume taken under access licences.

Available on the DPI Water website at: [www.water.nsw.gov.au](http://www.water.nsw.gov.au).

### Data accuracy

Estimated in the range +/- 10%.

### Providing agency

DPI Water

### Data source

WaterNSW / DPI Water – Water accounting system (joint ownership of system).

### Methodology

Over order debiting is a required component of balancing the allocation accounts detailed in Note 1. The over order debit component is calculated by analysing the recorded extractions against orders for the corresponding measurement period. That is, if metered usage is collected monthly then the corresponding monthly orders are compared and any orders that are in excess the usage are recorded as over order debit.

## Note 22 – Adjusting entry

This is a line item that is used to correct balances in the accounts. The double entry accounting being applied is a continuous process whereby the closing balance of one year is the opening balance for the following year.

Occasionally corrections will be required for a variety of reasons including when an error is identified in prior year reporting, a balance in the previous year has been since adjusted or when a process that had previously been reported is unable to be supplied and the associated asset or liability must be removed to maintain the integrity of the statements.

This is different to the unaccounted difference component which is a physical volume required to achieve mass balance after all the known processes have been accounted.

**Data type**

Calculated

**Accuracy**

A1 – Nil inaccuracy +/- 0 per cent

**Providing agency**

DPI Water

**Data source**

Not applicable

**Methodology**

A journal entry is placed in the comparative year to ensure correct opening balances are achieved in the reporting year. No adjusting entries were required for the 2015-16 statements.

## References

WASB 2012, Australian Water Accounting Standard 1 Preparation and Presentation of General Purpose Water Accounting Reports (AWAS 1), Bureau of Meteorology