

# 2012-13 QUEENSLAND MURRAY-DARLING BASIN WATER REPORT

## 1 Introduction

This report represents the first contribution under the new reporting arrangements and is intended to satisfy reporting requirements under Schedule E and section 71 of the *Water Act 2007 (Cth)*, subject to any transitional arrangements agreed with the Murray-Darling Basin Authority (MDBA).

The report includes:

1. Information on entitlements, estimates of water use (where data is available), water availability, trading, and compliance with transitional Sustainable Diversion Limit (SDL) targets. This is provided in the attached spreadsheet and is similar to data provided in previous Schedule E reporting
2. Information on current policy, regulatory frameworks and water management strategies supporting SDL implementation.

## 2 Water Availability and Stream Flow

### 2.1 Surface water

In comparison to the wet seasons of the previous few years, flow activity was more subdued across all of the catchments of the Queensland section of the Murray–Darling Basin. The storm season in spring and the first half of summer failed to materialise, with streamflow receding to no flow in many catchments. The dry conditions were offset by generally good supply of water coming into the year in both off-stream and major on-stream storages. Major storages were generally at better than 75% capacity with the only exception being Coolmunda Dam in the Macintyre Brook Water Supply Scheme at 60% capacity.

In late January, heavy rainfall on the Great Dividing Range from ex-cyclone Oswald caused moderate to major flooding in the Condamine River from the upper reaches downstream to Cotswold. An additional moderate event occurred in early March in the middle and lower reaches of the Condamine River. These were the only two significant flow events during the year. These two flow events moved downstream into the Balonne River, filling Beardmore Dam, providing water harvesting access through into the lower distributary system and flowing through to New South Wales. Stream flows in the Maranoa River remained virtually at base flow level for the entire year. Flows in the Balonne River provided welcome relief in the St George Water Supply Scheme with Beardmore Dam down to 10% of capacity prior to the flows.

The same pattern was reflected in the Moonie and Border Rivers catchments with moderate to high flows in February 2013 in the Moonie and moderate flow events at Goondiwindi in late January and early March 2013. This resulted in better than average flows in the Moonie and around the long term average for the Border Rivers for the year.

In the western half of the region, one of the driest years since records began was experienced. Runoff was absent in the Warrego catchment and as a result, 2012/13 was the driest year on record at Wyandra and Cunnamulla gauging stations. Almost identical conditions were experienced in the Paroo River, resulting in the driest year on record at the Caiwarro gauging station.

The dry start to the year and late summer to early autumn timing of the flows in the Condamine and Balonne, Moonie and Border rivers meant that storages were depleted from summer irrigation and irrigators were able to take full advantage of flows. A total of 1,420 GL was taken for the year made up of 185 GL from supplemented supply, 715 GL from unsupplemented water harvesting entitlement (587 GL from the Condamine and Balonne), an estimated 438 GL of overland flow (275 GL from the Condamine and Balonne) and the remainder from direct irrigation entitlements.

## 2.2 Groundwater

The recent few years of above average rainfall continue to benefit the more connected groundwater systems with most areas outside the more closely managed Central Condamine and Oakey Creek alluviums able to take up to their nominal entitlement for the year. The Central Condamine and Oakey Creek alluviums continue to operate at around 70% of nominal entitlement with some sub-areas as low as 50%.

Diversions for 2012/13 are estimated at 133 GL of water taken under licensed entitlements and a further 22 GL taken for stock and domestic purposes.

## 3 Water planning and management overview

### 3.1 Surface water

Surface water in the Queensland Murray-Darling Basin is divided into four separate SDL resource units, Warrego-Paroo-Nebine, Condamine-Balonne, Moonie, and Queensland Border Rivers water resource plan areas. The Basin Plan requires local reductions in the Queensland Border Rivers and the Condamine-Balonne water resource plan areas, with a gap of 8 GL and 100 GL respectively identified in the Plan. The Commonwealth's Water for the Future initiatives of Healthy Headwaters (to provide infrastructure related investment) and Buyback continue to target water in these catchments with the in-catchment reduction now nearly met in the Queensland Border Rivers and half of the gap bridged in the Condamine-Balonne.

The following sections describe the management strategies and annual reporting for surface water in terms of the categories of take listed in the Baseline Diversion Limit (BDL) in the Basin Plan.

#### 3.1.1 The take of water from watercourses under an entitlement and by floodplain harvesting

Queensland has transitional water resource plans in place for the management of overland flows and water in watercourses, lakes and springs within all catchments in the Queensland section of the Murray-Darling Basin (QMDB). These water resource plans are taken to have been accredited under the Commonwealth Water Act and are to be replaced by 2019.

Take of water from watercourses is managed through limits stated on entitlements and by water sharing rules in resource operations plans (which implement the provisions of Queensland's water resource plans). The take of overland flow water (including floodplain harvesting) is managed through a combination of regulation of works and limits on entitlements.

The works of the major water users in the QMDB have been metered to improve reliability in monitoring use. Metering of floodplain harvesters in the Lower Balonne was completed in the 2012/13 water year. A combination of estimates and measurement of water use are provided for all watercourse take and significant areas of floodplain harvesting.

Annual permitted take from watercourses under an entitlement is determined using a hydrologic model with permitted take under entitlements held by the Commonwealth Environmental Water Holder excluded from the calculation. Annual permitted take by floodplain harvesting is not able to be modelled with any confidence and so is based on estimated take supported by storage measurement in the Lower Balonne.

Diversions reached 81% of the water permitted to be taken for the Condamine and Balonne catchment, 73% for the Border Rivers, 78% for the Moonie, 38% for the Warrego, 60% for the Paroo and 0% for the Nebine catchment for the 2012/13 water year.

#### 3.1.2 The take of water from watercourses under basic rights

The take of water from a watercourse, lake or spring for basic rights (i.e. stock and domestic purposes) by the owner of the land adjoining the water source is permitted under the *Water Act 2000 (Qld)*. Potential increase in take is limited due to the right to take water being limited to properties with riparian access to water. Water taken from watercourses under basic rights is not

measured and not included in annual estimates of take, nor is this element of take included in the calculation of annual permitted take.

### 3.1.3 The take of water by runoff dams (including take under basic rights)

The take of overland flow water for basic rights by an owner of the land on which the water collects is permitted (within limits) under the Queensland regulatory framework. Any increase in take for basic rights will be related to rural population growth and/or an increase in stock numbers.

Under water resource plan provisions, no increase in overland flow take is permitted for uses other than basic rights, except for certain limited cases such as where capture of overland flow water is necessary to satisfy the requirements of an environmental authority.

Water taken by runoff dams is not measured and not included in annual estimates of take, nor is this category of take included in the calculation of annual permitted take, except in the Granite Belt of the Border Rivers catchment.

### 3.1.4 The take of water by commercial plantations

In Queensland, the take of water by commercial plantations is not regulated under any legislation. There are limited commercial plantations in the Queensland Murray-Darling Basin.

No estimate of take is provided for this category. It is not included in the calculation of annual permitted take.

## 3.2 Groundwater

In the Queensland section of the Murray-Darling Basin, groundwater managed under the Basin Plan includes water in formations above and below the Great Artesian Basin (GAB). Water in aquifers in the GAB is managed separately to those in the Basin Plan and in Queensland they are managed under the Water Resource (Great Artesian Basin) Plan 2006. Management of groundwater under the Basin Plan is now divided into 15 resource units based on groundwater aquifers that underlie various surface water catchments. These units more comprehensively cover the QMDB area and consequently there has been an increase in the reported areas in 2012/13 compared to those reported in previous years.

The current focus for Queensland's groundwater systems in the MDB is to meet the Basin Plan SDL in 2019. There are two key groundwater systems where the SDL is below the BDL, requiring water to be recovered through buyback of entitlements. As a first step toward enabling the buyback of entitlements, trading (relocation) of water licences has been initiated in the Central Condamine Alluvium, and the Federal Government has commenced preliminary proceedings toward recovering water in this area.

In ensuring ongoing sustainable management of the groundwater systems in line with the Basin Plan, various other management tools have been implemented. These include the amendment of Water Sharing Rules for all QMDB groundwater systems to facilitate transition to the BDL, implementation of moratoriums to restrict the growth in the take of groundwater, and amendment of various legislative instruments to facilitate the water recovery program.

### 3.2.1 The take of water from aquifers under an entitlement

It is anticipated that all groundwater systems will be incorporated into a water resource plan prior to the implementation of the Basin Plan in 2019. A planning process is currently underway to include the aquifers under the Warrego, Paroo, Bulloo and Nebine area in the second generation water planning process. The Central Condamine Alluvium (CCA) has a Water Management Plan which is considered to be an Interim Water Resource Plan under the Commonwealth Water Act.

Entitlements to take water from aquifers in the QMDB are in the form of water licences (or water permits) and these include conditions that identify the nominal volume (limit) and the particular aquifer (source).

Access to the nominal volume for any entitlement holder can be limited through section 66 of the *Water Regulation 2002* and/or section 25 of the *Water Act 2000*. These provisions are implemented when the groundwater systems are under stress/decline either longer-term (e.g. the CCA) or seasonally (e.g. tributary catchments).

In many highly developed groundwater systems, the works of entitlement holders have been metered to improve the reliability in monitoring use. In those systems that are unmetered, the nominal volume, adjusted for any limitations, is considered to represent the actual use. This use data is combined with the metered data to provide a picture of the total water use.

Diversion of groundwater in the QMDB in 2012/13 was within BDL (permitted take) as required for all resource units. Additionally, diversion for all resource units was also within the respective SDLs, as will be required from 2019. Diversions in Queensland's four most developed systems ranged from 72% to 82% of SDL. In the key Central Condamine Alluvium (GS64a) this was achieved through continuing to restrict access below licensed volumes; additionally, high levels of access to surface water has meant that demand for groundwater has been historically low.

### 3.2.2 The take of water from aquifers under basic rights

The take of water from an aquifer for stock and domestic purposes by the owner of the land overlying the aquifer is managed under the *Water Act 2000*. Access for these purposes can be limited under the Act as has been enacted (by moratorium) in the Upper Condamine Basalts and the Upper Condamine Alluvium (both Central Condamine and Tributaries) to restrict growth of groundwater use in the expanding peri-urban areas.

Queensland does not require these types of works or take for this purpose to be metered. Accordingly, use volumes have been estimated.

### 3.2.3 Other activities related to groundwater.

The MDBA in conjunction with Queensland has recently engaged in several projects through the Northern Basin Science program to gain a better understanding of various aspects of groundwater systems in the QMDB. The projects commenced in 2012/13 with an expected completion date by early 2014.

These projects have primarily focussed on the more heavily utilised and lesser known groundwater systems to improve collective knowledge and assist in future management directions. Three of the projects have involved the Upper Condamine Alluvium and Upper Condamine Basalts. Improved modelling of the Central Condamine Alluvium will help to inform the longer term sustainable capacity of the system and look at potential changes in the system as Buyback recovers entitlements. Data gathering has also been conducted to gain an understanding of the ability and complexity of incorporating the tributary alluvial systems into the Central Condamine Alluvium model. The tributary systems feed into the CCA and as such, impact on how the CCA operates longer-term.

As mentioned in section 2.2.2, there are various levels of extraction of groundwater for stock and domestic use in the groundwater systems. In the more populated areas of the Upper Condamine (Alluvium and Basalts), there is significant pressure (hence the moratorium) on the resource from peri-urban development. To better understand this use, levels of current extraction and the implications of this use into the future, a project was conducted into the purposes and volumes of extraction for various users with a specific focus on stock and domestic extraction. The outcomes of the report reaffirm the department's extension of the moratorium in June 2012 to incorporate restrictions on the extraction of water in peri-urban areas. The report also allows for an improved understanding of the total quantum of water extracted from these groundwater systems for stock and domestic purposes in reporting under the Basin Plan.

A project was also commenced to look at the current fractured rock (granite) groundwater system surrounding Stanthorpe. This groundwater system is included as part of the Basin Plan under the

Border Rivers and is an undeclared area in Queensland. The extraction of groundwater is not currently managed (partly due to the low system storage capacity and consequential self-limiting nature). However work is underway to look at the risk this may pose to Basin SDL and the possible future management arrangements to match the assessed risk.

Queensland has put forward additional project proposals for 2013/14 to allow for further work to be undertaken on various groundwater systems to improve knowledge and inform future refinement of Basin Plan SDLs.

#### 4 Issues relating to Cap and/or SDL implementation

There are categories of take defined in the BDL for which Queensland is not able to provide estimates of the take of water with any confidence. These include:

- Take from watercourses under basic rights;
- Take from runoff dams;
- Take by commercial plantations.

Queensland acknowledges the work of the Murray-Darling Basin Authority in attempting to make an estimate of use under these categories of take, but given the level of uncertainty involved, doesn't support further use of these estimates in annual reporting.

Management and monitoring of related infrastructure is recommended as an alternative approach. Infrastructure based management strategies are already in place to limit the take of water in those categories where there is a high risk of growth in take compromising diversion limits. For example, water resource plans limit the purposes for which a new runoff dam can be constructed and a moratorium limits new stock and domestic bores in the Upper Condamine. Infrastructure growth in other areas of take will be monitored over time and management strategies only introduced where there is an identified need. This is already occurring, with a risk assessment for the Warrego, Paroo and Nebine carried out in 2012 as part of its ten year review and amendment process. This risk assessment will form part of the information provided to meet accreditation requirements under the Commonwealth Water Act for the Warrego, Paroo, Bulloo and Nebine Water Resource Plan.

Similar risk assessment processes will be carried out in the lead up to 2019 to inform the review and development of the next generation water resource plans for the remaining valleys of the QMDB.

#### 5 Diversions summary

2012/13 Snapshot of Water Diversions in the QMDB

<b>Resource</b>	<b>Diversion 2012/13 (GL)</b>	<b>Permitted (GL)</b>	<b>Diversion 2011/12 (GL)</b>
Surface water	1420	1811	1008
Groundwater	155	218	Not applicable as 2011/12 report limited to only parts of the QMDB