



Department of
Primary Industries
Water

New South Wales Border Rivers Water Resource Plan

Surface Water (SW16)

Status and Issues Paper

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More information

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (April 2017). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent adviser.

Foreword

The NSW Government has agreed to develop water resource plans (WRPs) as part of implementing the Murray-Darling Basin Plan 2012 (the Basin Plan). The New South Wales Border Rivers Water Resource Plan (Surface Water) (SW16) (NSW Border Rivers Water Resource Plan) covers all surface water in the NSW Border Rivers valleys.

The *NSW Water Resource Plan Roadmap 2016–2019* sets out the key timelines, principles and processes that will guide development of the 22 water resource plans (WRPs) that NSW must deliver by 2019. Department of Primary Industries – Water (DPI Water) will issue weekly progress reports and monthly newsletters to show how the Department is tracking against the project timelines in the Roadmap. Both will be available on the DPI Water website at www.water.nsw.gov.au

Water resource plans will align Basin-wide and state-based water resource management in that particular resource plan area. The plans will recognise and build on the state's existing water planning and management. They will include documents that set out the interrelated water management arrangements for each water resource plan area.

Before they can commence, final versions of water resource plans must meet Commonwealth accreditation requirements that ensure they are consistent with the Basin Plan.

This *Status and Issues Paper* summarises the status of water resources and issues that DPI Water will consider when developing the NSW Border Rivers WRP (surface water). DPI Water will consider additional issues raised during submission and consultation periods will be considered during the development process.

As the NSW Border Rivers WRP development process progresses, DPI Water will publish additional technical reports to provide greater detail on many of the matters discussed in this paper.

The NSW Border Rivers WRP will incorporate two existing water sharing plans (WSPs): the *Water Sharing Plan for the Border Rivers Regulated River Water Source 2009* and the surface water aspects of the *Water Sharing Plan for the NSW Border Rivers Unregulated and Alluvial Water Sources 2012*.

A formal review of the *Water Sharing Plan for the Border Rivers Regulated River Water Source 2009* will occur in parallel with the WRP development process, as this plan is due to expire the same year that DPI Water must deliver its WRPs, i.e. in 2019. The Natural Resources Commission (the Commission) will conduct a review of the water sharing plan in accordance with its statutory role under Section 43A of the *Water Management Act 2000*. The scope of this review is outlined in Section 2 of this paper. The water sharing plan will be remade taking account of the findings of this review, in addition to meeting the WRP accreditation requirements.

As the *Water Sharing Plan for the NSW Border Rivers Unregulated and Alluvial Water Sources 2012* is not due to expire until 2022, it will not be formally reviewed at this time. Changes will be restricted to those that are required to meet WRP accreditation requirements, or where a rule is not implementable or had unforeseen consequences. This is in accordance with the NSW Government's principle of giving 10 years of certainty for water sharing plans in their initial period.

Have your say

Stakeholder input is an integral part of the development of the WRP and the WSP.

DPI Water and the Commission invite NSW Border Rivers stakeholders, particularly surface water users, to make submissions on:

- the questions listed in Section 2 to be asked during the Commission's WSP review – responses will assist the Commission in preparing its report to the Minister on the extent that plan provisions have contributed to State priorities for local land services that relate to natural resources management, and opportunities for improvement
- WRP issues for DPI Water to consider in addition to those already listed in Section 3 of this *Status and Issues Paper*, in particular:
 - water sharing arrangements
 - risks to the water resources
 - risks to achieving water quality objectives
 - complying with the Sustainable Diversion Limits
 - managing sharing and take during extreme events
 - providing for consistency with the Long Term Watering Plan

DPI Water and the Commission acknowledge that many stakeholder concerns could fit under both of these areas. Recognising this, submissions may be addressed to either or both of DPI Water and the Commission, and if not specifically addressed to one will be assumed to be addressed to both.

This first round of submissions will help ensure that all issues are on the table when the NSW Border Rivers water resource planning process starts.

Issues raised during the Status and Issues submissions process will be used to develop a full list of issues to be considered during the development of the draft NSW Border Rivers WRP (Surface Water).

All submissions, from brief emails to full technical papers, are welcome and will be given full consideration.

Submissions must be received by Friday 26 May 2017 and may be submitted via email or post:

- **email:** nswborderrivers.sw.wrp@dpi.nsw.gov.au
- **post:** PO Box 463 Inverell NSW 2360

DPI Water will acknowledge all submissions in writing.

Please advise if your submission or your personal details are to be treated as confidential. All submissions will be made public, unless clearly marked confidential, or they contain material that is defamatory, offensive, or in breach of any law.

Non-confidential submissions to the Natural Resources Commission's review will be posted on the Commission's website:

<http://www.nrc.nsw.gov.au/>

DPI Water and the Natural Resources Commission may be required by law to release copies of submissions to third parties. A request for access to a confidential submission will be determined in accordance with the *Government Information (Public Access) Act 2009*.

There will be a further submissions process when the draft NSW Border Rivers WRP (Surface Water) is released. That 40 day submission period will be advertised in *The Land*, local papers and on the DPI Water website.

Documents and supporting material will be available on the DPI Water website at - www.water.nsw.gov.au

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1 Water resource plans

1.1 Principles

Principles set down in the Murray-Darling Basin Plan 2012 (the Basin Plan), together with principles set by NSW Government, will guide the development of WRPs.

Principles guiding the Basin Plan are:

- there will be no adverse impacts on water available to a water access licence holder
- there will be no net reduction in the protection of planned environmental water
- the Commonwealth is responsible for bridging the gap between existing limits and Sustainable Diversion Limit (SDL) water
- the WRP will meet the requirements set out in the Basin Plan

Additionally, NSW requires that WRPs:

- balance social, cultural, economic and environmental needs of the community and catchments
- are cost neutral for NSW licence holders
- minimise change for water sharing plans (WSPs) within their initial ten-year period

1.2 Objectives of the water resource plan

The aim of the Basin Plan aims to provide a healthy working Basin into the future. WRPs are a key part of implementing the Basin Plan. They will address the objectives of the Basin Plan at a regional level.

Objectives include environmental, economic, social and cultural aspects.

For more information regarding the objectives of WRPs, refer to the DPI Water factsheet [Water resource plans – overview](#) on the DPI Water website.

1.3 What the final water resource plan will look like

A WRP will be made up of at least one WSP, a water quality management plan (WQMP), a risk assessment and other supporting documents. DPI Water will adjust the WSP where necessary to meet the requirements of the Basin Plan, and to address areas for improvement identified through consultation and technical studies.

NSW WRPs will meet the minimum requirements of the Commonwealth *Water Act 2007* and Basin Plan. Each WRP must:

- describe all water rights in the plan area
- demonstrate how compliance with the SDL prescribed in the Basin Plan will be assessed and maintained
- include a WQMP
- provide for environmental water
- address risks to water resources identified in a risk assessment
- explain how essential human needs will be met in extreme events
- take account of Aboriginal peoples' water-dependent cultural values and uses

WSPs made under the NSW *Water Management Act 2000* will remain the mechanism for articulating water sharing in NSW. WSPs will be a key component of each WRP.

For more information regarding what WRPs will look like, see the DPI Water factsheet [Water resource plans – developing a water resource plan](#) on the DPI Water website.

1.4 How water resource plans work with other water plans and projects?

At the same time as DPI Water is developing the WRP, there are other important initiatives occurring in parallel. These include: the development of Long-Term Watering Plans (LTWPs), SDL adjustments, the Northern Basin Review, the Healthy Floodplains Project, NSW Prerequisite Policy Measures, NSW Planning Assumptions for surface water resources, NSW Management of Extreme Events, a review of Trading Rules, the development of Regional Strategies and water sharing plan reviews (see Section 2).

For more information regarding these initiatives and how they relate to WRPs, see the DPI Water factsheet [Water resource plans – overview](#) on the DPI Water website.

1.5 The water resource plan development process

DPI Water is developing the WRP according to a robust process that follows the National Water Initiative Policy Guidelines and includes community engagement.

This Status and Issues phase of planning will be followed by a Strategy and Rule Development phase. A draft NSW Border Rivers WRP (Surface Water) will be published and subject to public exhibition. A final NSW Border Rivers WRP (Surface Water) will then be submitted for approval by NSW Minister for Regional Water and the NSW Minister for the Environment, and finally for accreditation by the Commonwealth Minister for Agriculture and Water Resources.

For more information regarding the development process, refer to the DPI Water factsheet [Water resource plans – developing a water resource plan](#) and the [NSW Water Resource Plan Roadmap 2016–2019](#) on the DPI Water website.

1.6 Consultation and stakeholder input

DPI Water will consult in accordance with the *National Water Initiative Policy Guidelines for Water Planning and Management* and the MDBA's *Handbook for Practitioners – Water resource plan requirements* to inform consultation and stakeholder input.

There will be a number of opportunities for public submissions and targeted consultation with stakeholders. Consultation will aim to give stakeholders information and to obtain input on issues and options for improved water resource management.

DPI Water will:

- seek public submissions on issues to be considered
- provide information to stakeholders to help them participate in the planning
- undertake targeted consultation with stakeholders, including Aboriginal communities, prior to drafting the WRP
- seek public submissions on the draft WRP
- undertake further targeted consultation on the draft WRP after public exhibition, if required
- support Aboriginal communities via the DPI Water Aboriginal Water Initiative (AWI) to make submissions on the draft WRP and through ongoing community consultation, as required, after public exhibition

In addition to this consultation, a Stakeholder Advisory Panel (SAP) will be established for this WRP to provide early input on regulated river issues and options. Members include local licence holder representatives, environmental representatives and various agency representatives. The SAP is an advisory panel that will complement other consultation, particularly prior to drafting the WRP.

2 Review of the Water Sharing Plan for the Border Rivers Regulated River Water Source

The Commission's role under Section 43A of the *Water Management Act 2000* is to provide a report to the Minister on:

- the extent that water sharing provisions of the plan have materially contributed towards achievement of the State's priorities for local land services that relate to natural resource management
- whether changes to plan provisions are warranted

In conducting this review, the Commission is to call for and consider public submissions and have regard to any other relevant State-wide and regional government policies or agreements that apply to the catchment management area. This includes intergovernmental agreements, such as the Basin Plan.

Depending on its review findings, the Commission may recommend extension or remake of a WSP. However, in this instance, remake of the *Water Sharing Plan for the Border Rivers Regulated Water Source 2009* is inevitable as DPI Water aims to align the plan with relevant Basin Plan accreditation requirements as part of the WRP development process. The Commission's review will therefore support plan remake, but will focus on specific provisions that can enhance the contribution of this plan to State priorities for local land services, and to improve efficiency and effectiveness.

The Commission is keen to understand how the provisions of the WSP have contributed to State priorities for local land services, specifically the following goals from the Local Land Services State Strategic Plan:

- biosecure, profitable, productive and sustainable primary industries
- resilient, self-reliant and prepared local communities
- healthy, diverse and connected environments

The review seeks to answer eight questions:

1. In what ways have the plan provisions materially contributed to these goals?
2. What changes to plan provisions are warranted to better achieve these goals?
3. How could plan provisions be improved to reduce complexity and cost of implementation?
4. How could plan provisions be improved so that regulatory obligations on businesses are reduced or made easier to understand and implement?
5. How could plan objectives, performance indicators, monitoring and reporting be improved?
6. How could plan provisions better address risks, commensurate with benefits and costs?
7. Is the knowledge on which the plan provisions are based commensurate with the potential level of risk, scale and local importance?
8. Is there significant new information on the underpinning science and assumptions?

The Commission is seeking responses from stakeholders to these questions, particularly questions 1 and 2.

The Commission's report will inform DPI Water's WRP development process.

Queries on this review can be directed to:

Email: nrc@nrc.nsw.gov.au

Phone: 02 9228 4844

3 Status of the NSW Border Rivers surface water resources

This section provides a brief overview of the status of the NSW Border Rivers surface water resources.

3.1 The NSW Border Rivers surface water resource plan area

The NSW Border Rivers WRP (Surface Water) will cover all the surface water resources of the NSW Border Rivers (Figure 1). It will include the regulated river systems, unregulated rivers flowing into the regulated river systems, unregulated effluent creeks flowing out of the regulated river system on the plains, and water captured through farm dams. Groundwater in the area is not included, and is covered by separate water resource plans.

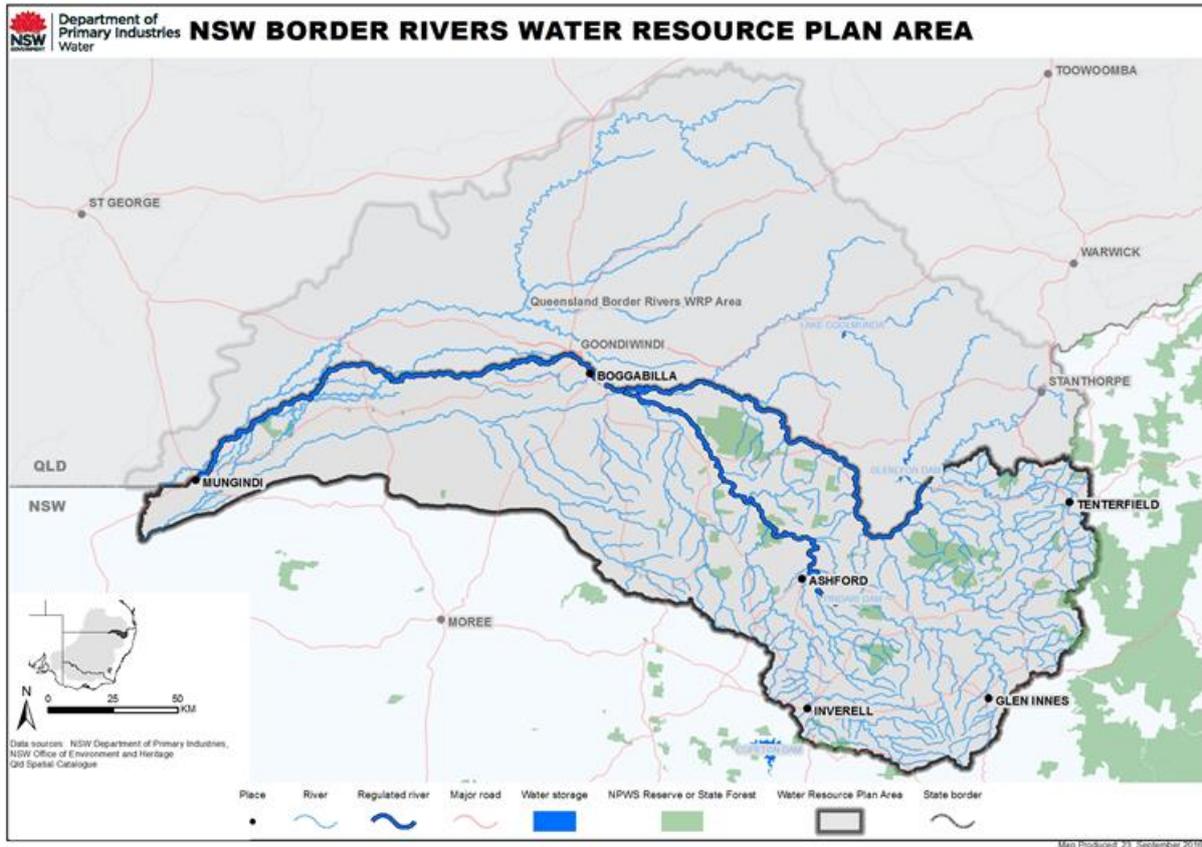


Figure 1: NSW Border Rivers Water Resource Plan Area.

The NSW portion of the Borders Rivers catchment has an area of 24,000 km² (Green et al. 2012). To the east of the NSW Border Rivers catchment lays the Clarence River catchment and to the south is the Gwydir River catchment. The terrain grades from steep to undulating tablelands in the upper catchment, to rolling hills around Ashford and Texas before merging into the extensive floodplains west of Boggabilla.

The catchment supports a population of around 30,000 people and is concentrated in the major centres of Glen Innes, Inverell, and Tenterfield which support around 30,000 people between the three local government areas (ABS 2011). These larger towns in the valley service the rural and industry population. However, residents often travel to larger centres in neighbouring catchments for higher level health, education and business services (MDBA 2016).

Land use in the Border Rivers catchment is dominated by extensive agriculture with approximately 67% of the catchment used for grazing and 18% used for dryland cropping. Grazing occurs right throughout the catchment while dryland cropping occurs predominantly on

the central plains south of Goondiwindi and Boggabilla. The principal crops are winter cereals, summer grain and oilseed.

3.2 Beneficial uses of the water resources

Aboriginal values and uses

The AWI has commenced engagement with the Aboriginal communities in the NSW Border Rivers WRP area. The community's objectives and outcomes for the management of the water resources of the WRP area are founded in a number of traditional owner groups' obligations to the whole river system and associated river communities as an indivisible group. These groups include the Kamilaroi, Kambuwal, Githabul, Bigambul, Kwiambul and Ngarabal. Achieving their objectives requires consideration of values and uses that may extend across multiple WRP areas.

The AWI consultation and engagement process provides opportunities for Aboriginal people's involvement within the WRP process through the collection of social, spiritual and cultural data, including the identification of specific values and uses.

Consultation to date has shown that these Aboriginal communities have a multi-faceted relationship with access to and use of water. This relationship ranges from a spiritual and cultural association, to an economic focus, to location of special places. Communities welcome the engagement and are interested in further discussions to improve opportunities to provide for Aboriginal values and uses.

“... our women (and men) use water for maintaining our hygiene, our health and our wellbeing... it's all connected – this is our physical, practical and spiritual relationship with water.”

Historically the inclusion of issues and information relating to cultural values and uses of water by Aboriginal communities had proven difficult for DPI Water due to a lack of data and an inability to adequately address cultural water requirements. It has been highlighted through the AWI community engagement that this lack of cultural information has been one of the major risks to the long-term sustainability of cultural values, with significant consequences and threats to Aboriginal cultural heritage values and uses. These risks and associated management approaches are included in the DPI Water Risk Assessment Report.

Aboriginal knowledge of the environment can contribute to water management plans. The WRP process will continue to identify opportunities to better address the needs and aspirations of the Aboriginal communities in terms of equitable access to water for social, cultural, spiritual and economic use of water, including the views of Aboriginal peoples with regard to cultural flows.

While consultation makes clear that Aboriginal values and uses across the landscape should be considered in a holistic, connected sense, some important values and uses at specific locations have been identified. Table 1 provides a description of asset types.

Table 1: Water-dependent Aboriginal cultural asset types and their values and uses.

Water-dependent asset type	Description
Waterholes/soaks/ billabongs	Specific waterholes provide refuge for iconic species for Aboriginal people. Waterholes have customary value and traditional use and often represent a connection between groundwater and surface water. Other uses include gathering resources that have an economic value for Aboriginal peoples.
Wetlands	Wetland systems have traditional and customary uses as well as spiritual values. The existence of many scarred trees and a range of traditional resources (vegetation, bird and fish) indicate Aboriginal occupation and use. Some wetland systems may rely on groundwater for maintenance and use. After flood, wetlands were often associated with customary/ceremonial use and had a cultural economic outcome through trade. These areas are used now for cultural renewal practices.
Lagoons/Wetland bowls	Some valleys have a number of flood-dependent lagoons and wetland areas that are sites of annual traditional resource gathering and use. Some of these systems may rely on groundwater for maintenance and use. The areas have traditional and spiritual connection and are also used now for cultural renewal practices.
Transit stops – ephemeral flows	<p>These areas were subject to natural flows to maintain water levels and water quality. Depending on the time of year, fish and other water-dependent resources may be present in the deeper water holes. These deeper holes traditionally provided a refuge to iconic species. There is a level of connectivity between the rivers and creeks and the alluvial groundwater sources.</p> <p>The use of these areas has traditional and historic value, as well as contemporary knowledge sharing. The areas also supported tool creation and occupation for periods of time as evidenced through grinding grooves and provided transit stop opportunities in times of flow and resource abundance.</p> <p>Specific location and times for use of these types of areas are part of the traditional songlines for the traditional owners and are an integral part of Aboriginal culture.</p>
Occupation sites and camp grounds	There are many occupation sites across the catchment landscape and waterscapes that directly rely on both surface and groundwater. These sites are evidenced by hearth sites, tool-making sites, grinding grooves and resource-gathering sites. A number of these sites and camp grounds include the traditional use of water for child birth and continue to be significant to Aboriginal women.
Spiritual sites, areas	There is a great deal of spiritual connection to water across the landscape of the Murray-Darling Basin. This connection is present in many Dreaming and creation stories, artwork and cultural practices including dance and song. The detail of these relationships is mostly guarded by Lore with Aboriginal people; however the connection to water is prevalent and evidenced in the cultural practices of the Aboriginal communities across the basin states.

Communities also raised the issue of recognition that some values and uses have links to environmental assets. It is important to recognise that protecting these assets for environmental purposes may not be sufficient to protect them for cultural purposes and that Aboriginal Communities are best positioned to describe the requirements to protect these assets.

Irrigated agriculture

Approximately 2% of land has been developed for irrigation, mostly in the west of the catchment between Goondiwindi and Mungindi. Cotton accounts for around 85% of all irrigated crops, covering around 40,000 ha of the NSW Border Rivers catchment, and having an economic value of around \$150 million per annum (DWE 2009).

In the Border Rivers region, the production of cotton is the predominant irrigated farming system. During years of high water availability, the region had 100 growers producing an average of approximately 100,000 ha of cotton per year. Cotton production is highly variable due to the impacts of water availability. Other irrigated crops in the Border Rivers region include Lucerne (middle) and fruit and vegetables (upper) (EBC Consortium 2011).

Water for towns and essential human needs

Towns and riparian landholders depend on access to water for essential human needs and to support local commerce.

Towns have a higher priority for access to water than general irrigation licences. WSPs recognise this priority by ensuring that a full share of water is allocated for annual town water supplies except where exceptional drought conditions prevent this.

Surface water local water utility access licences in the NSW Border Rivers have a total share component of 3,896 megalitres (ML)/year - 620 ML/year in the NSW Border Rivers regulated water source is and 3,276 ML/year in the unregulated water sources.

The *Water Management Act 2000* requires WSPs to protect water for basic landholder rights, which are made up of domestic and stock rights, harvestable rights and native title rights. Water taken under a domestic and stock right may be used for normal household purposes and around the house and garden purposes and/or for stock drinking water.

In the NSW Border Rivers Regulated water sources, basic landholder rights for domestic and stock use is estimated to be 8,000 ML/year. Additionally, share components of domestic and stock access licences authorised to extract water totalled 1,001 ML/year. In the NSW Border Rivers unregulated water sources basic landholder rights for domestic and stock right are estimated at approximately 5.19 ML/year. Additionally, share components of domestic and stock access licences authorised to extract water were totalled at 184 ML/year.

Recreational water uses

Pindari Dam is a popular sport and recreation destination north of Inverell near the NSW-Queensland border, offering year-round attractions for water sports and fishing enthusiasts, nature lovers, bushwalkers, campers and picnickers. Pindari Dam operates with Queensland's Glenlyon Dam to meet irrigation, stock and household needs in the Border Rivers valley.

3.3 Key environmental assets and ecosystem functions

The Border Rivers catchment is an ecologically significant area because it includes:

- a diverse range of flora and fauna species, including waterlilies, River Red Gum, River Cooba, Freckled Duck, Weeping Bottlebrush, New England Tree Frog, Purple Spotted Gudgeon and Brolga
- species listed as vulnerable under *the Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), such as Great Egret, Australian Painted Snipe, Murray Cod and Warra Broad-leaved Sally
- river-fed wetlands
- a wetland of national importance (Morella Watercourse/Boobera Lagoon/Pungboulal Lagoon)
- large wetland areas which provide large amounts of organic carbon essential to ecosystem function and which supports a diverse population of waterbirds

- small effluent creeks that support waterbird breeding

The only wetland identified as being nationally significant is the Morella Watercourse/Boobera Lagoon/Pungboulal Lagoon, located on the Macintyre River floodplain. This site is considered one of the most important Aboriginal places in eastern Australia. As one of the few permanent waterbodies in the northern Murray-Darling Basin, the complex provides refuge for wildlife during periods of drought. The rivers and wetlands of the Border Rivers also provide habitat for a range of large and small bodied native fish species many which used to be widespread in the Murray-Darling Basin but now have a patchy distribution. Native fish species found in the Border Rivers include Golden Perch, Murray Cod, Eel-tailed Catfish, Purple Spotted Gudgeon and Unspecked Hardyhead (Wilson and Ellison 2010, Davies et al. 2012).

The Border Rivers (Macintyre, Severn and Dumaresq Rivers) are part of the endangered aquatic ecological community in the natural drainage system of the lowland catchment of the Darling River, listed under the *NSW Fisheries Management Act 1994*.

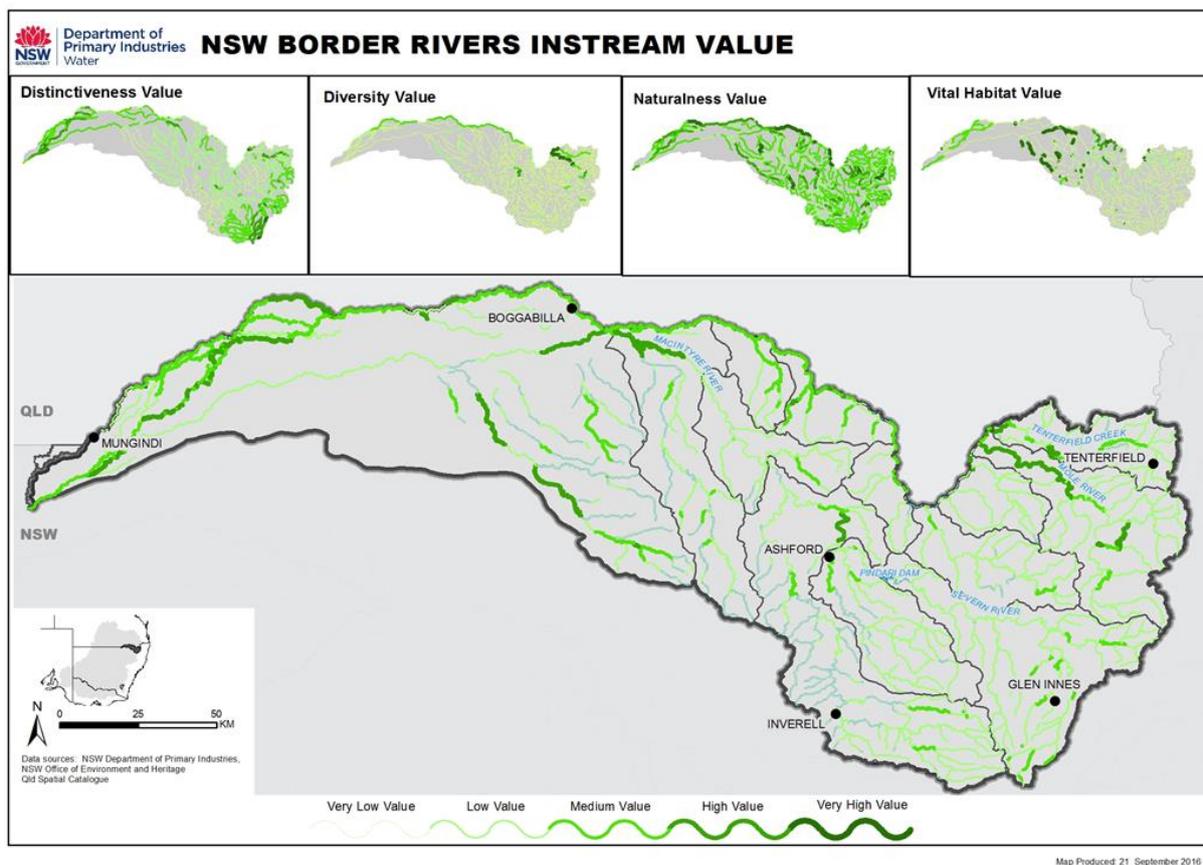


Figure 2: Map of HEVAE assessment outcomes for the NSW Border Rivers Water Resource Plan area.

3.4 Stream flows

Annual rainfall across the Border Rivers catchment decreases along an east-west gradient from over 1,000 mm in the eastern ranges around the Great Dividing Range to around 500 mm in the west at Mungindi. The rainfall is strongly seasonal, with the highest volumes occurring through summer storm activity. Average rainfall significantly increases from October with the summer months all averaging around 100 mm/month. In contrast, the average monthly rainfall between April and September is 40–50 mm. Flows have been recorded in the Macintyre River at Wallangra since 1937. This site is just upstream of the junction with the regulated Severn River and is therefore unaffected by dam releases. Its long period of data provides a useful record of

natural streamflow patterns within the catchment.

The average annual flow at Wallangra is 129,870 ML from a catchment area of 2,020 km². The highest annual flow occurred in 1950 when over 700,000 ML was recorded (Figure 3). The next highest annual flows were in 1956 and 1971 when nearly 450,000 ML were recorded in both years. The lowest flows were recorded in 1980 and 2009 when just 4,000 ML and 10,000 ML were recorded respectively. The longest period of below average flows in the catchment occurred from 1937–1947. Figure 3 shows that periods of very low flows occur on average once a decade, the most recent being the millennium drought. Since 2000, river flows have been lower than average (Green et al. 2011).

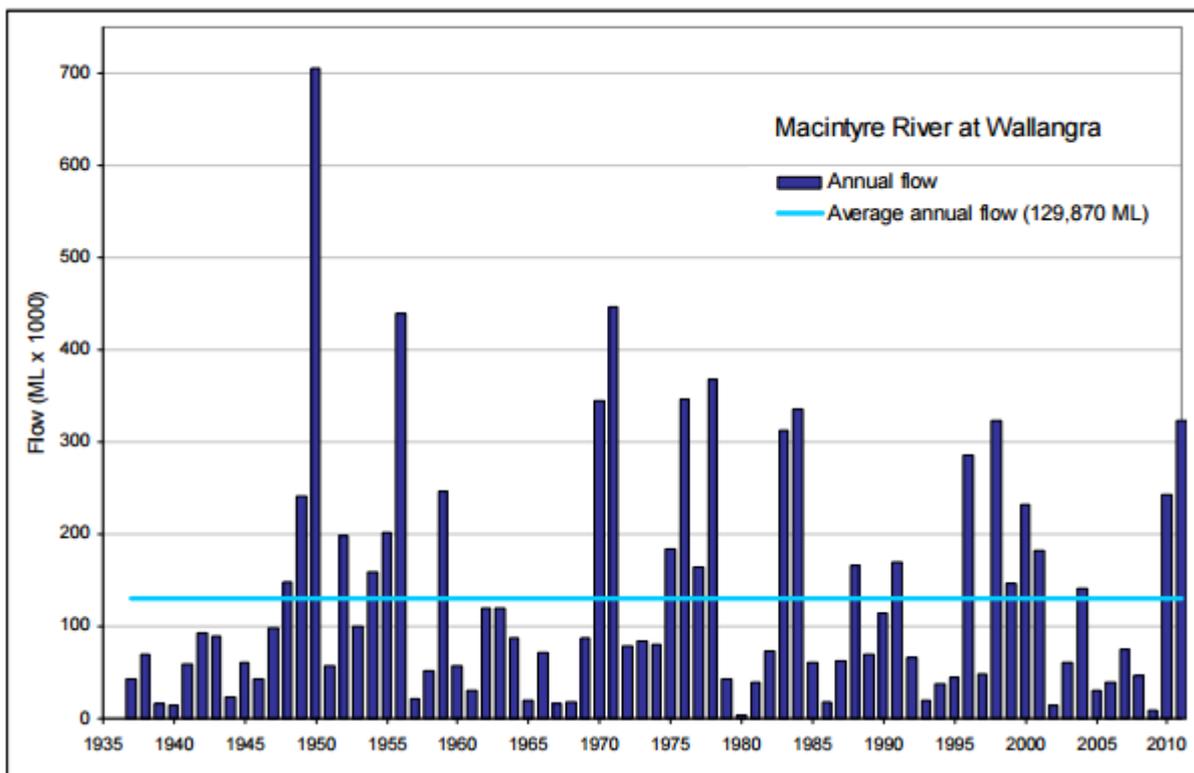


Figure 3: Annual flows in the Macintyre River at Wallangra.

The surface water resources of the NSW Border Rivers have been divided into ‘water sources’ for the purpose of planning and management. The NSW Border Rivers area is managed by two water sharing plans: the *Water Sharing Plan for the NSW Border Rivers Unregulated and Alluvial Water Sources 2012* and the *Water Sharing Plan for the NSW Border Rivers Regulated River Water Source 2009*.

The *Water Sharing Plan for the NSW Border Rivers Regulated River Water Source 2009* commenced on 1 July 2009. The WSP applies to all regulated river sections in the New South Wales Border Rivers Water Management Area. The *Water Sharing Plan for the NSW Border Rivers Unregulated and Alluvial Water Sources 2012* covers 14 surface unregulated water sources, including Tenterfield Creek.

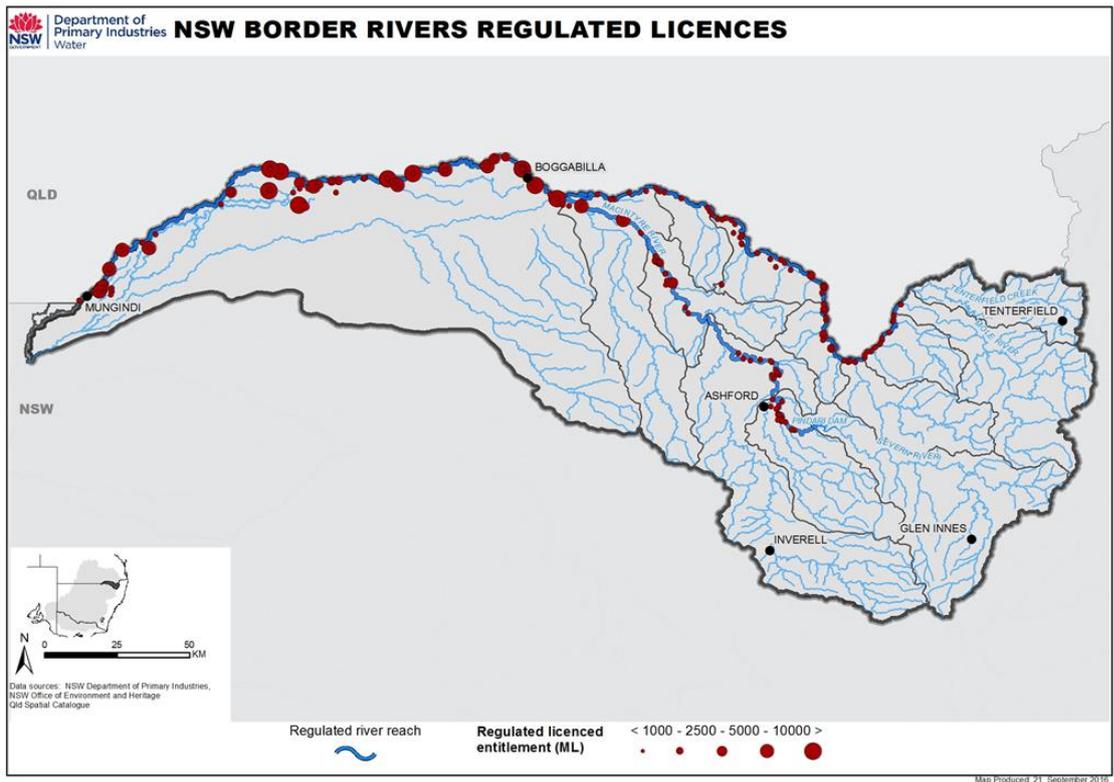


Figure 4: Regulated licensed entitlement in the NSW Border Rivers.

As with the climate, water available for take under water access licences varies substantially from year to year. Figure 4 shows the regulated licensed entitlement and Figure 5 shows the water taken since 2009 from the Border Rivers Regulated River. Figures 6 and 7 show the water taken since the start of the *Water Sharing Plan for the NSW Border Rivers Regulated River Water Source 2009*, including water taken from uncontrolled flows by general security, high security and supplementary licences.

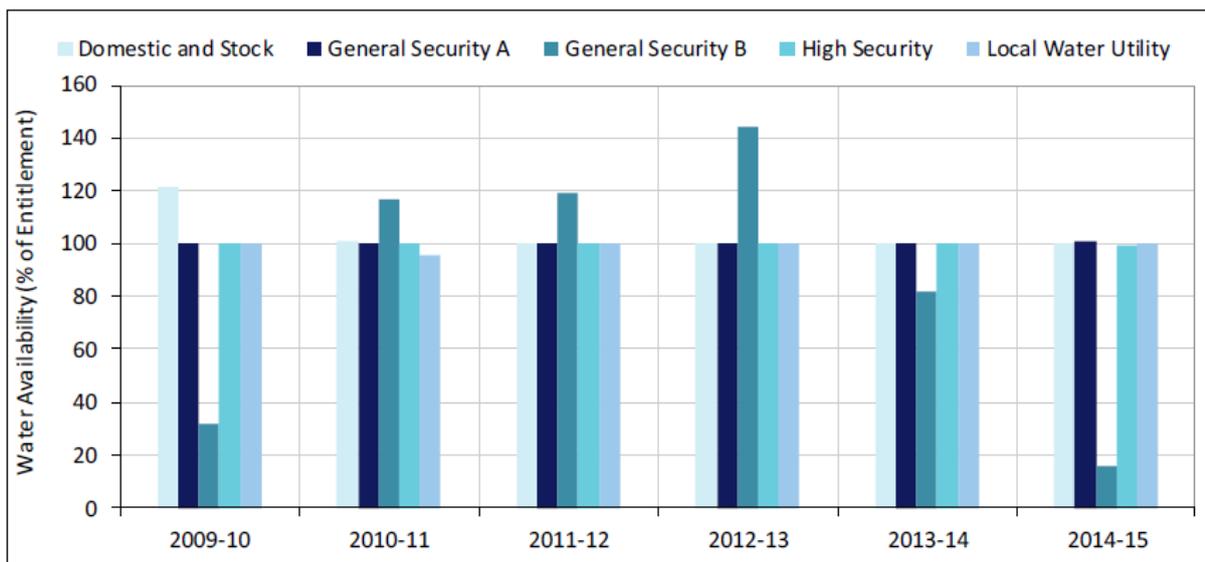


Figure 5: Water available under Border Rivers Regulated River water access licences.

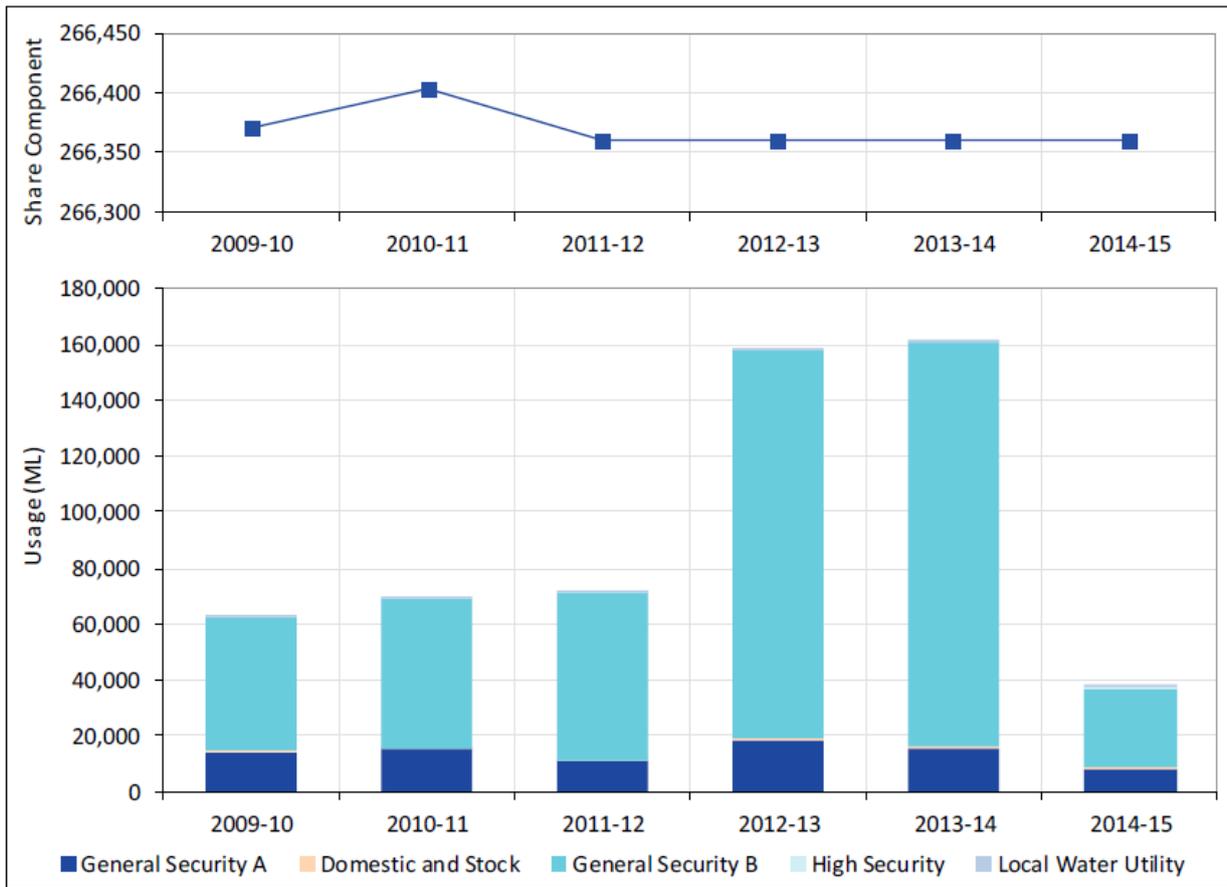


Figure 6: Total usage since commencement of the *Water Sharing Plan for the NSW Border Rivers Regulated River Water Source 2009* against entitlement (excluding supplementary water access licences).

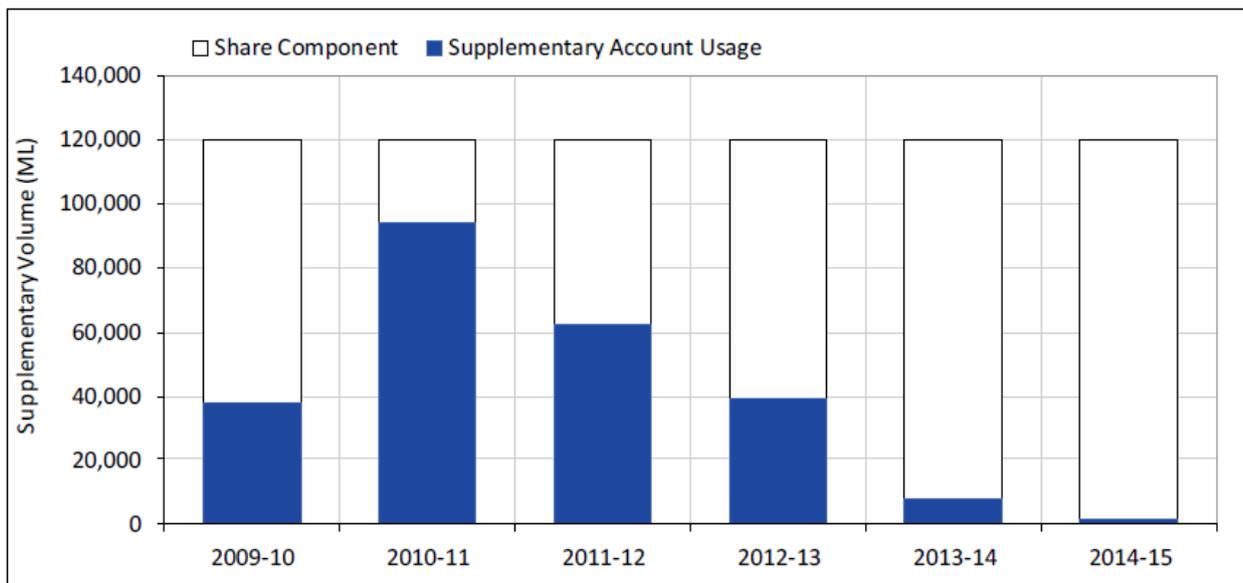


Figure 7: Total supplementary usage since commencement of the *Water Sharing Plan for the NSW Border Rivers Regulated River Water Source 2009* against entitlement.

3.5 Water Quality

The condition of water quality in the NSW Border Rivers WRP area varies from poor to good. Degraded water quality can put stress on a range of aquatic organisms, impact on Aboriginal cultural and spiritual uses of water, increase the cost of drinking water treatment, contribute to public health risks and decrease the suitability of water for irrigation.

The following water quality parameters were considered: dissolved oxygen (DO), pH, salinity, nutrients, sediments and turbidity, algae, temperature, organic carbon and toxicants.

The water quality status map (Figure 8) provides an overview of water quality condition within the NSW Border Rivers WRP area. It shows and assesses monitoring locations in the plan area using a water quality condition index (WaQI). The WaQI is a combined index for nutrients, pH, turbidity and dissolved oxygen. It scores water quality data collected by NSW government against targets listed in the Basin Plan. Thermal pollution, harmful algal blooms, and salinity for irrigation water are also assessed and described in Table 1.

Changes to land use and natural river flows are the main causes of water quality problems within the catchment. Table 2 provides a summary of the status of water quality in the different regions of the plan area. The future water quality management plan will describe the water quality issues in the Border Rivers WRPA including possible management strategies.

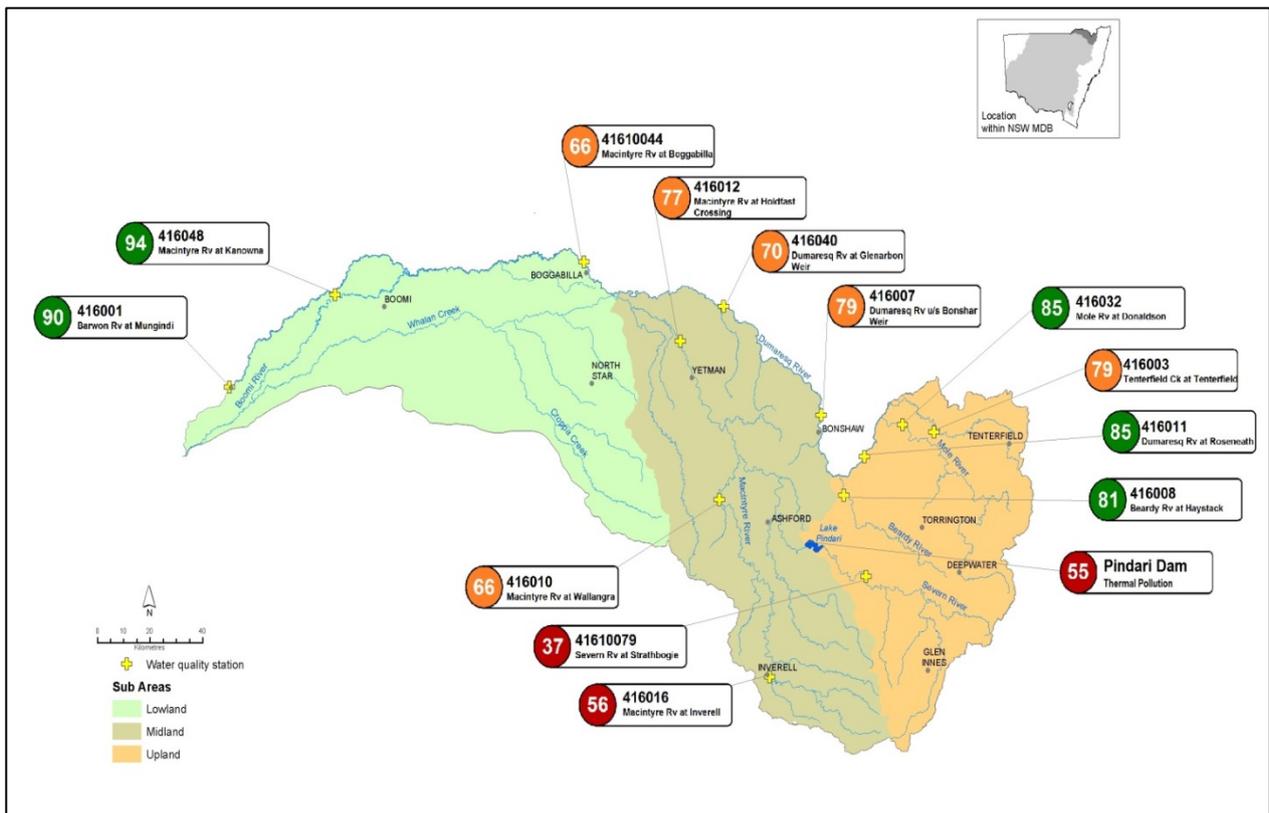


Figure 8: Water quality condition of the Border Rivers Water Resource Plan Area.

WaQI Scores: Blue = Excellent (100-95), Green = Good (94-80), Orange = Fair (79-60), Red = Poor (59-1)

Table 2: Summary of water quality assessment in the Border Rivers Water Resource Plan Area.

	Upland	Midland	Lowland
Dissolved oxygen	Frequently below the lower DO target limit.	Mostly within target range.	Mostly within target range. Unpredictable during low flows.
pH	Generally elevated due to high levels of plant and algal growth.	Mostly within target range.	Mostly within target range.
Salinity	Low	Generally low, with some tributaries having naturally-occurring high readings during low flows (Fraser's Creek, Macintyre River at Wallangra).	Low
Nutrients (nitrogen and phosphorus)	High from the erosion of soils with naturally-occurring high concentrations of nutrients.	High in Macintyre River at Inverell and Wallangra due to erosion of soils with naturally-occurring high concentrations of nutrients, otherwise generally within target ranges.	Mostly within target range.
Suspended sediments and turbidity	Low, but can increase during high flows where there is bank erosion.	Higher in the lower section of the zone. Peak concentrations occur during high flows caused by high levels of erosion from river banks.	High
	Turbidity is elevated due to a number of factors including the widespread conversion of land for cropping, river bank and riparian condition, presence of carp and grazing practices.		
Harmful algal blooms	Rare	Occur in Pindari Dam. Caused by still, clear, warm water and high level of nutrients.	Algal blooms can occur during low flows in Boggabilla Weir and the Macintyre River at Mungindi.
Thermal pollution	Unknown	Occurs in the Severn River up to 100 km below Pindari Dam during high releases. Generally localised effects downstream under normal operation.	Rare

4 Issues to be addressed in water resource plan development

4.1 How issues were identified

This section of the paper describes the water sharing issues that have been identified and which will be considered when developing the WRP. The Basin Plan requires WRPs:

1. comply with the SDL
2. identify opportunities to strengthen protection of Aboriginal values and uses
3. provide for environmental watering
4. manage medium to high risks identified in a risk assessment
5. identify measures to contribute to water quality objectives
6. specify how critical human water needs will be met in extreme events

DPI Water is also consulting with the Aboriginal community regarding water-dependent cultural values, uses and issues.

In addition to this, DPI Water has identified issues through the following:

- a risk assessment for the NSW Border Rivers surface water resources
- an assessment of the status and causes of water quality degradation
- communications from Border Rivers Food and Fibre with information on the *Water Sharing Plan for the NSW Border Rivers Regulated River Water Source 2009*, September 2015
- information received from stakeholders regarding issues addressed to the Minister in 2016

Reports on these technical assessments will be made available separately.

4.2 Supporting Aboriginal values and uses

The AWI has engaged with Traditional Owners and the broader Aboriginal community across several WRP areas and have captured a range of issues identified through this process. Some similarity across WRP areas has been observed at a landscape level - however, each WRP area will likely be characterised by specific issues relevant to the WRP. DPI Water is yet to consult with Traditional Owners within the area to capture specific issues relevant to the plan. This work will be ongoing and further opportunities to inform development of the WRP will be provided at the time of public exhibition and targeted consultation.

WSPs currently provide various forms of protection and benefit for Aboriginal peoples' values and uses, including specific-purpose Aboriginal cultural access licences. However, additional consideration around providing water for Aboriginal peoples' economic purposes and cultural flows is required as part of WRP development. The issues that can most likely be dealt with during the WRP development process are listed below, with additional issues listed in Appendix 2.

Issues identified by Aboriginal communities across the Basin

Issue	Status
Instream works are impacting on the general and natural flow of water within a system.	Potential for the WRP risk assessment to consider.
Water quality is an issue in low flow times and generates significant weed growth. This hampers fishing and cultural renewal activities that use the water source.	Potential for the WRP risk assessment to consider.
Availability of access to water for cultural practice and renewal activities is an issue that impacts the Aboriginal community's ability to plan and carry out cultural renewal events. There is a reliance on natural flows. However, planning around these events is problematic.	Provision for specific-purpose licence however no 'cultural flows'. Potential for WRP risk assessment to consider.

4.3 Improving water sharing

DPI Water will develop plan rules using the best available information and will engage with stakeholders to ensure that water sharing rules are improved and unintended consequences are minimised. The issues below were raised by stakeholders and DPI Water in relation to the WSPs.

Improving plan objectives and performance indicators

DPI Water has recognised the need to better align the objectives and performance indicators to allow the measurement and evaluation of WSP outcomes.

The WSPs will be part of the WRP, so its objectives must be consistent with those of the WRP. Under the Basin Plan, the WRP must address environmental and water quality objectives and identify the objectives of Aboriginal people.

Issue – all water sources	Status
Review objectives and performance indicators in the WSPs to better align the intended outcomes and the strategies.	DPI Water is further improving plan objectives and performance indicators. Appendix 1 includes a draft set of objectives for the NSW Border Rivers WRP. Once finalised, they will replace those in the current WSP.

Reviewing trade rules

Issue	Status
Real-time trading capability is required to facilitate the efficient movement of water to its highest value use within “Event Trading” for supplementary water.	Noted. To be discussed with stakeholders during WRP development.

Improving water supply

Issue – NSW Border Rivers	Status
The 'Interim' North West Unregulated Flow Plan - this policy has been in force since 1992 and needs to be revisited and reviewed as a matter of priority. It is out of date and needs to be brought into the Basin Plan era.	Noted
Review and relax Supplementary Access Thresholds that were raised under the state WSP process. Irrigators suffered significant reductions in opportunity to take their licensed water. Allow a partial reinstatement of historical access opportunities.	Noted. To be considered during WRP development

Improving accounting rules

Several changes have been suggested to improve the accounting rules in the regulated rivers.

Issue	Status
Allow re-crediting of return flows.	Noted. DPI Water will consider this issue at a state-level initially.
Allow high security licence holders to carry over water to provide for greater security	Noted. To be considered by DPI Water in consultation with the SAP.

Cease to pump rules - unregulated

Issue	Status
The “trigger levels” (cease to pump) in unregulated rivers needs to be reviewed	Noted. There will only be limited opportunity to review the access rules for unregulated rivers due to the NSW WRP principle of giving 10 years of certainty for plans in their initial period. Where WSPs have been in place less than 10 years, changes will be restricted to those that are required to meet accreditation requirements, or where a rule is not implementable or had unforeseen consequences.

Reviewing mandatory conditions on licences and approvals

The WSPs includes mandatory conditions that are imposed on water access licences and approvals.

Issue	Status
Review mandatory conditions relating to logbooks and metering requirements as they are impractical to implement.	To be considered by DPI Water initially at a state-wide level.

Improving river operations

Issue	Status
NSW offtake control mechanisms in Callandoon, Newinga and Boomi Creeks are affecting water quality and water losses	Noted. This is a WaterNSW operational issue, and outside the scope of the Water Resource Plan.

4.4 Complying with the Sustainable Diversion Limits (SDL)

The Basin Plan sets a single SDL for all the surface water in the NSW Border Rivers WRP area. The SDL is a long-term average diversion of water that allows changes from year to year, so long as the long-term average is not exceeded. It is divided into a baseline diversion limit (BDL) which equates to the long-term average amount of water that would have been taken during the historical climate condition (1/07/1895 – 30/06/2009) under State water management law as at 30 June 2009, and a ‘reduction’ to achieve a sustainable level of take. The Commonwealth is responsible for achieving the reduction through investment involving willing participants. Hence, complying with the SDL can be achieved without impacting on the reliability of water allocations for licence holders under the rules in the current WSPs.

Rather than being a simple number, the SDL is the amount of water that could be taken under the water rights, rules and level of development pre-Basin Plan, minus environmental water recovery. Under the Basin Plan, NSW is required to determine annual permitted take for all forms of take in the NSW Border Rivers WRP area. This volume is to be determined each year using models or other methods. Hence it can, where appropriate, vary from year to year depending on climate and water availability. This is a similar approach to that which has been used for Murray-Darling Basin Cap management, but different to the NSW long-term extraction limit compliance methodology as specified in existing WSPs.

Issue	Status
Under the Basin Plan, compliance with the SDL is determined each year by summing a running balance of ‘unders’ and ‘overs’ from previous years. If the balance exceeds 20% of the SDL this may be a breach. WSPs have different arrangements for assessing compliance with extraction limits, which may not synchronise with the Basin Plan. The Basin Plan also provides for states to put forward reasonable excuses for SDL non-compliance. Long-Term Diversion Limit Equivalent (LTDLE) factors need to be established for each licence category in order to determine what percentage of each megalitre of water recovered for the environment contributes to bridging the gap between existing limits and the SDL.	These two issues will be addressed as part of the development of a NSW approach to addressing planning assumptions for surface water resources.
Border Rivers end of system flows – Boomi River and Whalan Creek flows are not metered and credited to the EOS flow figures, giving a misleading view of volumes and proportions.	Noted. Will be further explored during water resource planning
Reassessment and recalibration of Cap Credits is required as WSPs were written with a conservative “buffer” built-in. Cap Credits have never been exceeded and substantial Cap Credits have now been accrued in some valleys.	The <i>Water Sharing Plan for the NSW Border Rivers Regulated River Water Source 2009</i> established a long term average annual extraction limit (LTAAEL) which supersedes the MDBA cap limit from 1995. The LTAAEL is a lesser volume than the Cap. As such, the notion of “Cap Credits” no longer valid. Under the NSW Border Rivers WRP, the LTAAEL will be replaced by the SDL.

4.5 Environmental watering

Since 2009, the NSW and Commonwealth governments have invested to obtain water access licences that can be used for environmental watering ('held environmental water'). The Long Term Watering Plan (LTWP) currently being prepared by the NSW Office of Environment and Heritage (OEH) will guide management of both planned and held environmental water in future.

The Basin Plan requires the WRP to provide for environmental watering to occur consistent with the LTWP. However, the way the environmental water is used, and any changes to management to facilitate its use, can affect water availability for other water users. For example, it could result in changes to water conveyance losses that impact on water available to licence holders.

Issue	Status
Changes to the way environmental water will be managed and used can affect water availability for licence holders.	OEH will propose environmental watering management objectives and rules in the LTWP. DPI Water will assess the impact of these using the river system model.
How environmental water can be used is constrained by the current legislative and policy framework in NSW.	A state-wide approach, documented in the NSW Prerequisite Policy Measures Implementation Plan, is in the process of being finalised. This implementation plan will provide direction for any policy and legislative changes that NSW will make to improve environmental watering.
The effectiveness of planned environmental water should be assessed before additional provisions are made.	DPI Water is developing an improved monitoring and evaluation framework to evaluate the effectiveness of planned environmental water and other water sharing arrangements. The Commonwealth Environmental Water Holder and the NSW Office of Environment are responsible for managing and evaluating the effectiveness of held environmental water.

4.6 Managing risks

DPI Water has prepared a risk assessment, as required by the Basin Plan. The water resource plan must describe strategies to address medium to high risks where this can be done. These strategies will be appropriate for the nature of the risk and the confidence in the information used to assess the risks. Water availability risks are described in this subsection. Risks relating to water quality are included in section 3.7, 'Improving water quality'.

Risk of insufficient water for the environment

This assessment considers the risk to ecological values arising from the take of water and regulation of flows.

For the unregulated rivers in the NSW Border Rivers WRP area, there is significant uncertainty in the information used for this assessment. DPI Water has made assumptions about the use of water by licence holders because of the current lack of actual water take information on these rivers. It is likely that actual water take is less than the assumed amount/volume.

Issue	Status
There are medium to high risks to ecological values on the regulated river system arising from the take of water and regulation of flows.	Noted. The mitigation of risks associated with higher or less frequent flows may be addressed through the LTWP developed by OEH.
There are possible medium to high risks to ecological values on a number of unregulated river water sources arising from the take of water. More information on water usage in unregulated water sources is needed to	Trade rules prevent risks being made worse by limiting trade into these areas. The current unregulated river water sharing plan is due for review in 2022. Better information on unregulated

confirm whether this is the case.

water source water usage and instream values will be available by that time.

Risks to water availability caused by increase in number of farm dams

There is some capacity for increases in farm dams in the catchment under the harvestable right. The risk assessment considers the best available estimate of likely growth rate in farm dams, and estimates the likely impact of this on water availability for ecological values and water for consumptive use.

The assessment shows there is no significant risk at the valley scale, but a medium risk to ecological values at a local scale in Tenterfield Creek at Clifton and Mole Creek at Donaldson. There is significant uncertainty in the information used for this assessment. While the assumed growth rate for farm dams is likely to be a reasonable estimate at a large scale, it may not be so at a local scale.

Issue	Status
There are possible medium risks to ecological values in two areas arising from future growth in farm dams.	Subject to funding, DPI Water will monitor to determine if increases in farm dams actually occur in these areas.

Risks to water availability arising from climate change

The risk assessment considers risks associated with changes to water availability under dry, median, and wet climate change scenarios. The assessment considers impacts on environmental assets (Morella Watercourse, Boobera Lagoon and Pungboulal Lagoon complex), general security and high security licence holders.

Issue	Status
Climate change poses low risk to medium security entitlement in the NSW Border Rivers regulated river water source irrespective of the scenario modelled. The rainfall and runoff reductions under the median and dry climate change scenarios produce a medium risk to general security entitlement as well as the Morella Watercourse, Boobera Lagoon and Pungboulal Lagoon complex.	Current WSPs already provide water trading and carryover of water allocations to help water licence holders cope with changing climate. Given the long-term nature of climate change trends and the uncertainty about which scenario will actually occur, the situation should be monitored and reassessed when the WRP is next reviewed. Risk to the Morella Watercourse, Boobera Lagoon and Pungboulal Lagoon complex may be addressed in the LTWP prepared by OEH.

4.7 Improving water quality

The Basin Plan requires the WRP to specify measures to contribute to the achievement of water quality objectives. It also requires the plan to describe strategies to manage risks arising from water quality degradation, or explain why a risk cannot be addressed by the WRP.

Section 2.5 describes the status of water quality in the Border Rivers WRP area. Changes to land use and natural river flows are the main causes of water quality problems within the catchment. The risk assessment identifies where water quality degradation is a risk to values and uses of water.

Issue	Status
There are locations where turbidity, nutrients, pH and dissolved oxygen results are outside of target ranges (see section). Of these, the risks to ecological values are medium to low. Poor water quality at these locations also impacts on Aboriginal people's health and wellbeing and their cultural and spiritual values as described in Section 3.2.	Co-operative natural resource management between community and government can mitigate some of these risks and reduce water quality degradation. DPI Water will work with partner agencies to identify those actions and suggest priority actions Flow management can be of benefit in reducing some water quality risks. DPI Water will identify and assess improvements and changes to flow management as part of development of the WRP.
Cold water from Pindari Dam is a medium risk to	Pindari Dam is a high priority dam for investigation (feasibility,

ecological values. The impact of thermal pollution on the Severn River has the potential to extend up to 100 km downstream of the dam during high volume releases.	design and cost of mitigation) in Stage 2 of the NSW Cold Water Pollution Strategy. Thermal pollution can be managed by use of multi-level offtakes in Pindari Dam.
There is a low risk to water-dependent ecosystems from salinity in the Border Rivers. There is uncertainty in this assessment, as it did not address the timing of higher salinity levels compared to the timing of the take of water for irrigation.	NSW is party to the Basin Salinity Management Strategy 2030. Under this Strategy the NSW Government is monitoring salinity and, where needed, identifying and implementing measures for salinity management.
Harmful algal blooms occur in some years in Pindari Dam, Boggabilla Weir and Macintyre River at Mungindi during warmer months. Harmful algal blooms are caused by still, clear, warm water and a high level of nutrients.	NSW currently manages the risk of human exposure to blue-green algal blooms through a coordinated regional approach with the Regional Algal Coordination Committees. Land and flow management may be of benefit in reducing harmful algal bloom risks. DPI Water will identify and assess possibilities as part of development of the water quality management plan.

4.8 Managing in extreme events

The Basin Plan requires the WRP to describe how critical water needs will be met in extreme events. Extreme events in this context include severe droughts and water quality events that could put at risk the supply of water for both human consumption requirements and non-human consumption requirements. Failure to provide for these would cause prohibitively high social, economic and/or national water security costs.

Issue	Status
Severe droughts are possible, and unanticipated water quality events or system failures could occur. The current WSPs are unlikely to meet the requirements of the Basin Plan during extreme events.	Councils responsible for town water supply commonly have drought management plans that include how water will be supplied in extreme events. These include measures such as backup supplies from groundwater, and plans for emergency infrastructure if needed. DPI Water will assess whether further measures are warranted as part of developing the Regional Water Strategy. A state-wide approach for the management of extreme events is being developed by DPI Water for consultation.
Review water sharing arrangements during extreme drought.	A WRP is required to provide detail on how the water resources will be managed during an extreme dry period. DPI Water is currently developing a policy which will inform the WRP on this matter.

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Appendices

Appendix 1: Draft objectives and strategies

Following from the evaluation of a number of WSPs, DPI Water is improving the logic framework of water plans to make objectives more relevant, and to clarify the relationship between objectives, strategies and performance indicators. This will help to properly frame the review of strategies and rules so that the impact on all objectives can be considered. It will also lead to the development of improved performance indicators, leading to more meaningful and efficient monitoring, reporting and evaluation of the plan after it is implemented.

Table 3 shows draft objectives with related strategies for the water resource plan. They will be refined as the plan is being developed, including harmonising with objectives being developed in parallel for the NSW Border Rivers Long-Term Water Management Plan. They are presented here as a guide.

Table 3: Draft objectives for the WRP with related strategies.

BROAD OBJECTIVES	TARGETED OBJECTIVES	PROPOSED STRATEGIES
ENVIRONMENTAL		
Maintain or enhance the ecological condition of this water source and its dependent ecosystems (instream, riparian and floodplain) over the long-term	Maintain or improve population structure of native fish in medium and high value unregulated water sources	<ul style="list-style-type: none"> • Protect low flows and/or pools • Maintain a diversion limit • Restrict trading into water sources
	Maintain or improve population structure of native fish in the regulated NSW Border Rivers	<ul style="list-style-type: none"> • Protect a proportion of medium to high flows • Maintain an environmental water allowance and provision for held environmental water, and facilitate their effective use • Maintain diversion limits
	Maintain or improve the transport of carbon and other nutrients through the NSW Border Rivers regulated river systems	<ul style="list-style-type: none"> • Protect a proportion of medium to high flows • Protect a portion of tributary inflows • Maintain an environmental water allowance (EWA) and provision for held environmental water, and facilitate their effective use • Maintain diversion limits
	Maintain or improve the connectivity and dispersal potential of fauna within unregulated water sources and between unregulated and regulated water sources	<ul style="list-style-type: none"> • Protect low flows and/or pools • Protect a proportion of medium to high flows • Protect a portion of tributary inflows • Maintain diversion limits
	Maintain or improve the quantity, diversity and water quality conditions of low-flow refugia habitats	<ul style="list-style-type: none"> • Protect low flows and/or pools • Maintain the water quality allowance and facilitate its effective use

For wetlands and other water-dependent ecosystems, maintain quality of water sufficient to protect and restore the ecosystems

- Identify and encourage cost-effective measures to address identified medium and high risks to ecosystems related to water quality degradation, and to contribute to achieving the defined targets where they are not being met
- Consider effect on water quality in any proposed changes to water management for other purposes
- Maintain the water quality allowance and facilitate its effective use

ECONOMIC

Maximise the economic benefits derived from the use of irrigated water and from dependent industries supporting regional communities

Maintain or improve water access opportunities in low risk unregulated river systems so they meet enterprise requirements

- Provide clearly defined water sharing rules and arrangements
- Provide flexible water trading rules
- Provide flexible account management rules
- Ensure changes to water management for other purposes do not have third party impacts on licence water rights that are not able to be negated or offset

Maintain or improve water access opportunities in the regulated river systems

- Provide clearly defined water sharing rules and arrangements.
- Provide flexible water trading rules
- Provide flexible account management rules
- Ensure changes to water management for other purposes do not have third party impacts on licence water rights that are not able to be negated or offset

Maintain or improve water quality to minimise crop yield loss or soil degradation when used in accordance with best irrigation and crop management practices

- Implement the Basin Salinity Management Strategy 2030
- Maintain the water quality allowance and facilitate its effective use

Maximise the economic benefits derived from water-dependent commercial and industrial enterprises

Ensure sufficient water is available to local water utilities in the regulated river system

- Provide for growth in local water utility entitlement
- Ensure sufficient water is set aside in storage to provide supply
- Ensure priority is given to maintaining town water supply needs

SOCIAL and CULTURAL

Ensure adequate water supply to support critical human needs and basic landholder rights

Ensure sufficient water available to local water utilities in the NSW Border Rivers regulated and unregulated river systems

- Provide for growth in local water utility licences where necessary
- Ensure sufficient water is set aside in storages to provide supply
- Ensure priority is given to maintaining town water supply needs

Maintain access to water for domestic and stock rights

- Provide for growth in domestic and stock requirements where necessary
- Ensure sufficient water is set aside in storages to provide supply in the NSW Border Rivers regulated rivers and some unregulated water sources
- Give priority to domestic and stock

		water right needs
	Minimise water quality risks from raw water taken for treatment for human consumption including the risk of the odour of drinking water being offensive to consumers, and maintain the palatability rating of the water	<ul style="list-style-type: none"> • Continue to implement Drinking Water Management Systems as required by water suppliers operating licences.
Maintain or improve Aboriginal values, uses and assets which support and strengthen community	Maintain access for Native Title Rights	<ul style="list-style-type: none"> • Provide for growth in Native Title Rights • Ensure sufficient water is set aside in storage to provide supply in the regulated rivers • Give priority to maintaining Native Title Rights water needs
	Improve opportunities for Aboriginal communities to access water	<ul style="list-style-type: none"> • Provide access licences for Aboriginal cultural use • Provide flexible water trading rules • Provide flexible account management rules
	Maintain or improve water quality for Aboriginal communities' values and uses	<ul style="list-style-type: none"> • Explore options to manage when developing Water Quality Management Plan
Maintain or improve fishing, swimming and other recreational uses of water	Minimise the risk to recreational water users from water quality issues caused by potentially toxic blue green algae	<ul style="list-style-type: none"> • Implement regional algal contingency plans • Identify and encourage cost-effective measures to minimise algal blooms • Maintain the water quality allowance and facilitate its effective use
	Maintain or improve population of fish in unregulated water sources	<ul style="list-style-type: none"> • Protect low and/or pools • Maintain a diversion limit
	Maintain or improve population of fish in the regulated NSW Border Rivers	<ul style="list-style-type: none"> • Protect a proportion of medium to high flows • Maintain an environmental water allowance and provision for held environmental water, and facilitate their effective use • Maintain an end-of-system flow • Maintain a diversion limit • Protect a portion of tributary inflows

Table 4 provides a summary of objectives identified through broader Aboriginal community engagement. This list of objectives will be further assessed based on submissions received for this *Status and Issues Paper*.

Table 4: Objectives identified by Aboriginal peoples through consultation.

Objective 1	To identify opportunities to better address the needs and aspirations of Aboriginal communities in terms of equitable access to water for social, cultural, spiritual and economic purposes.
Objective 2	To ensure that Aboriginal communities' issues and concerns have been carefully considered with appropriate provisions that ensure the long-term sustainability of their cultural values and uses.
Objective 3	To support the removal of barriers that constrain and limit equitable access to water for Aboriginal communities, by reviewing policy gaps and legislation.
Objective 4	To ensure Aboriginal communities are appropriately consulted and informed of issues affecting their ability to participate in the decision-making process.
Objective 5	To identify and address water quality issues that are impacting on the Aboriginal values and uses across the WRP area. These impacts include the cultural connections to iconic species (fish, vegetation and birds), as well as the instream use of water for swimming, drinking and maternal use.
Objective 6	To address and identify the impacts on the spiritually-significant cultural values. Management of water quantity as well as water quality to inform the protection of these values and uses.

Appendix 2: Additional issues identified by Aboriginal communities

Issue	Status
<p>The term 'Cultural Flows' is identified by all Basins' Aboriginal Nations as an essential entitlement. Although cultural flows are often viewed as being similar to environmental flows, they provide social, spiritual, cultural and economic benefits that can't be satisfied by environmental flows or specific-purpose Aboriginal cultural water licences. Cultural and economic flows need to be considered as an entitlement within the WSP and WRP.</p>	<p>No provisions for cultural flow entitlement in the WSP.</p>
<p>Aboriginal Community Development Licences - The current Aboriginal Community Development water licence provisions are not equitable in general for Aboriginal people across NSW. There are no real opportunities for Aboriginal people to access water for economic use within the surface or groundwater sources within the Basin. There needs to be real opportunities that deliver real benefits for Aboriginal people that allow Aboriginal people to become involved in the water market, and create employment opportunities for Aboriginal people.</p>	<p>These licences may only be issued in coastal river systems, subject to the relevant WSP providing for applications to be made.</p>
<p>Constraints in the uptake of water licences - Aboriginal people do not have the capacity to access the water in terms of water infrastructure and cost of water licensing. This has made it impossible for Aboriginal communities to take up water licensing opportunities. In terms of funding to purchase water licences and water infrastructure - mostly all Aboriginal land councils and individuals have land that they wish to develop, but find it impossible to purchase water licences due to lack of funds. The creation of the water market has added to these difficulties. Aboriginal communities are seeking support in terms of waiving the cost of water licences and looking at additional opportunities for 'excess' water.</p>	<p>Aboriginal communities/individuals have no or limited capacity or the funding to enter into the water market.</p>
<p>Critical human water needs - Aboriginal remote communities have no access to basic drinking water. Many communities in the Basin have issues with accessing water for basic human needs to maintain health, hygiene and wellbeing. The current state of water quality in many systems does not provide water of reasonable health standard for a number of reasons including fertilizer and sediment run-off, various forms of pollution, bank erosion and riparian zone clearing.</p>	<p>Current water quality across the WRP area is not sufficient for human consumption direct from the surface water source.</p>
<p>Water quality issues are impacting the general health of the river and connected groundwater systems. This includes the health and reproduction of cultural food resources (e.g. fish are covered in sore spots). Water quality is also significantly important to spiritual and ceremonial sites and the general health of the river and aquifer systems.</p>	<p>Limited data for the WRP processes to address water quality considerations regarding Aboriginal values and uses.</p>