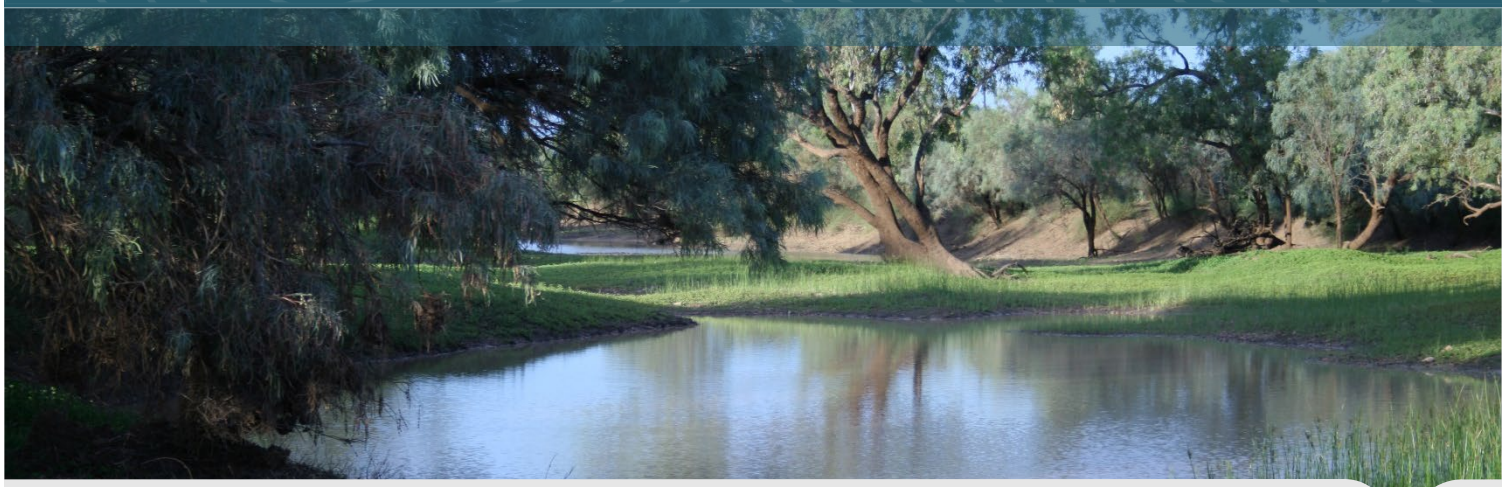
Queensland Government

Department of Regional Development, Manufacturing and Water



# Water Plan (Cooper Creek) 2011

## Minister's Performance Assessment Report

**August 2024**

rdmw.qld.gov.au

**Acknowledgement of Traditional Owners**

We respectfully acknowledge the Aboriginal and Torres Strait Islander peoples as the Traditional Owners and Custodians of this Country – the lands and seas on which we meet, live, learn, work and play. We acknowledge those of the past, the Ancestors whose strength has nurtured this land and its people, and we recognise their connection to land, sea, and community. We pay our respects to them, their culture and to their Elders past, present and emerging.

This publication has been compiled by Water Planning and Science, Water Resource Management, Department of Regional Development, Manufacturing and Water. Cover photo is Cooper Creek looking upstream.

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# Minister’s foreword

I am pleased to publish the performance report for the Water Plan (Cooper Creek) 2011, (the Cooper Creek water plan) and summarise the findings of the assessments undertaken from the previous report released in 2019.

Performance reports are an important part of the water planning process in Queensland for each of the state’s 23 water plans. The current Cooper Creek water plan is scheduled to expire on 1 September 2031. The process for developing water plans is underpinned by the best available science through hydrologic, climate change, social, economic, cultural, and environmental assessments, and extensive community consultation.

This report confirms that the implementation of the Cooper Creek water plan continues to be effective in advancing sustainable management of water resources in the water plan area. No adverse impacts on water entitlement holders or natural ecosystems in the water plan area are expected from continuing with the current water plan until it expires on 1 September 2031.

In the meantime, my department will continue to implement the Cooper Creek water plan. Ongoing monitoring will continue to enable new, emerging, or existing risks that are increasing in threat level, to be identified to ensure the water plan continues to effectively allocate the water resources in the water plan area.

Residents in the Cooper Creek water plan area can be assured that water resources in the region are being managed responsibly and sustainably. I encourage anyone with an interest in the management of water resources in the water plan area to read this report.

**Hon. Mr Glenn Butcher MP**
Minister for Regional Development and Manufacturing
Minister for Water

# Executive summary

Under section 49 of the *Water Act 2000* (the Water Act), a Minister must prepare a report on each water plan at least every five years to assess its effectiveness and its implementation, in accordance with the requirements stated under section 22(4) of the Water Regulation 2016 (the Regulation).

This report provides an assessment of the performance of the Water Plan (Cooper Creek) 2011 (Cooper Creek water plan), which is scheduled to expire on 1 September 2031. A summary of the assessment is provided in Table 1: Summary of the performance assessment of the Water Plan (Cooper Creek) 2011.

The assessment shows that the Cooper Creek water plan remains fit for purpose and continues to advance the sustainable management of water resources in the water plan area. It also shows that the implementation of the water plan has been effective in achieving most of the water plan's outcomes.

A risk assessment was undertaken to identify the issues that threaten the ability of the Cooper Creek water plan to achieve its intended outcomes. Of the 14 outcomes that were assessed, 13 outcomes were deemed to be low risk and one (relating to cultural values of the First Nations peoples) was not able to be assessed due to insufficient information (Appendix A). Opportunities and emerging matters for future consideration relate to:

- the need to modernise water plan outcomes in accordance with the latest Water Act requirements, contemporary water planning policies and emerging issues
- consideration of climate change impacts on water availability in the water plan area
- the need to incorporate best-available science and information, including hydrological modelling and a better understanding of water requirements for key environmental assets
- the need to better understand the cultural water values of First Nations people, including their economic and spiritual aspirations and associated water needs
- the need to review water availability and Unallocated Water volumes across the water plan area to accommodate growing demands for additional water to support economic growth, town water supplies, and the cultural aspirations of First Nations people
- the need to better understand groundwater resources, particularly connectivity to surface water, as well as groundwater-dependent ecosystems.

The learnings gained from implementing the existing plan will be used to improve water management arrangements under the replacement Cooper Creek water plan, as part of an adaptive management cycle based on revised future water needs, improved science knowledge and targeted stakeholder consultation.

**Table 1: Summary of the performance assessment of the Water Plan (Cooper Creek) 2011.**

| | | | | | |
|---|---|---|---|---|---|
| | Completed | | On track | | Some issues |
| | Some major issues | | Not achieved | | Insufficient information available |

| Matters to be addressed | Comment | Section of the report | Status |
|---|---|---|---|
| Effectiveness of the water plan in advancing the sustainable management of Queensland's water resources | Overall, this assessment indicates that the Cooper Creek water plan is achieving the purposes of the Water Act. | Section 3 | On track |
| Effectiveness of the implementation of the water plan in achieving the water plan outcomes | A risk assessment found that most of the water plan outcomes have been achieved. Of the 14 outcomes, 13 were assessed as low risk of not being achieved and one (related to making water available to First Nations communities to achieve their economic and social aspirations and supporting their water-related cultural values) was not able to be assessed due to insufficient information. | Section 4 | On track |
| Summary of water usage and entitlements including those taken or interfered with under statutory authorisations | No issues are identified as water use and demand is low in the water plan area. | Section 5 | On track |
| Summary of research and monitoring findings | Ecological monitoring was undertaken within the water plan area over the life of the plan through the Lake Eyre Basin Rivers Assessment (LEBRA) program. Knowledge gaps associated with the impact of climate change, future groundwater use and availability, and increased knowledge of hydrology, water quality and ecological processes have been identified. Filling these knowledge gaps would provide greater confidence in the assessment of plan ecological outcomes. | Section 6 | On track |
| Summary of identified risks to plan outcomes | Of the 14 outcomes, 13 were assessed as low risk, and 1 outcome (making water available to First Nations Communities to achieve their economic and social aspirations and support their water-related cultural values) could not be fully assessed. Limited information is available on cultural water values of First Nations peoples in the water plan area, as well as their economic and spiritual aspirations and the associated water needs.<br>Engagement with First Nations peoples to fill the identified knowledge gaps will be undertaken as part of the review and replacement of the Cooper Creek water plan by 2031. | Section 11 | On track |
| Summary of amendments to the water plan since its commencement | Several minor amendments have been made to the water plan since its commencement. | Section 10 | On track |
| Summary of non-compliances under a water entitlement or other authorisation in the water plan area | Over the past five years, there was one non-compliance incident.<br>Appendix E provides details on the number and type of non-compliance and incidents and the type and the outcome of departmental investigations and compliance response that occurred over the 2018/19 – 2022/23 reporting period. | Section 13 | On track |
| Overall status and recommendation for the water plan | While overall risks to water users and the environment remain low, the assessment has identified some opportunities and emerging matters to consider. | Section 14 | On track |

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# 1. Purpose of the report

The Water Act (s49) requires the Minister to prepare reports for each water plan, to ensure their implementation and effectiveness is regularly assessed as part of an adaptive management/water planning cycle. This cycle involves plan development, implementation, monitoring, reporting, and reviewing. Section 22(4) of the Regulation requires these reports to be prepared at least every five years and address the following matters:

- Whether or not the water plan is advancing the sustainable management of Queensland's water resources.
- An assessment of the effectiveness of the implementation in achieving the water plan's outcomes.
- Information on water use and authorisations in the water plan area, including water entitlements and water taken or interfered with under statutory authorisations.
- A summary of the findings of research and monitoring for the water plan.
- Any identified risks to achieving the water plan's outcomes.
- What amendments, if any, have been made to the water plan since its commencement.
- Any non-compliance under a water entitlement or other authorisation in the water plan area.

This report is prepared to assess the performance of the Cooper Creek water plan and its implementation to meet the above statutory requirements, with an emphasis on progress since the previous Minister's report in 2019. It also identifies the potential drivers for change and emerging matters and pressures that should be considered, as part of the water plan review process.

A risk assessment was conducted in February 2024 to underpin this report. The risk assessment was consistent with the ISO 31000:2018 Risk Management Guideline. This approach ensures a consistent, repeatable, and defensible consideration of risks and that outcomes of the assessment are documented for future reference. The details and outcomes of the risk assessment are provided in section 11 and Attachment A of this report.

# 2. Water plan area

The water plan area covers approximately 243,500 square kilometres (see Figure 1), and includes the Thomson River, Barcoo River, and Cooper Creek subcatchments. The water plan area is part of the iconic Channel Country Rivers and contributes to the Lake Eyre Basin, which covers approximately 1.2 million square kilometres. The Lake Eyre Basin extends to areas of Queensland, South Australia, New South Wales and the Northern Territory, and the region holds immense cultural, social, natural, and economic significance.

The water plan area includes parts of seven local government areas: the Longreach, Barcaldine and Blackall-Tambo Regional Councils, the Flinders, Barcoo, Quilpie, and Bulloo Shire Councils.

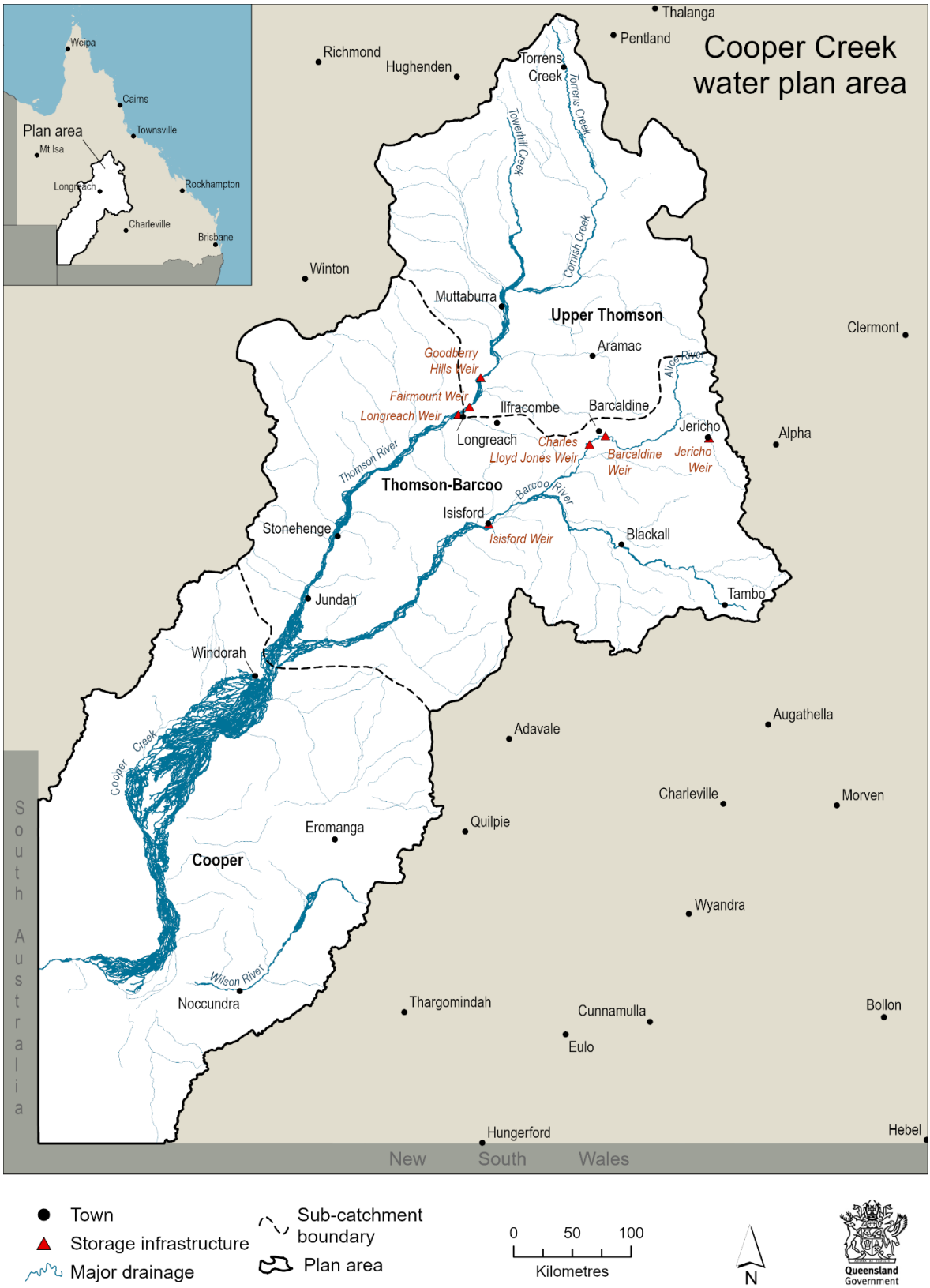
The regional hydrology is characterised by the natural flow of water through its streams, channels, and floodplains, and not modified by large instream structures. Water resources in the water plan area primarily serve the needs of the local communities for drinking water and grazing, with limited application in irrigated agriculture due to the unpredictable rainfall patterns and extended dry spells.

Within the water plan area, a complex system of channels, waterholes, wetlands, expansive floodplains, and intermittent shallow lakes define the landscape. The Cooper Creek water plan manages surface water, underground water that is hydraulically linked to surface water, and overland flow water. Underground water that is considered Great Artesian Basin water, is managed under the Water Plan (Great Artesian Basin and Other Regional Aquifers) 2017.

The Cooper Creek water plan aligns with the principles outlined in the Lake Eyre Basin Intergovernmental Agreement (Lake Eyre Basin IGA). The Lake Eyre Basin IGA was established in

2000 and is endorsed by the governments of Australia, Queensland, South Australia, and the Northern Territory. These states are obligated to develop and implement policies and strategies that mitigate potential adverse impacts across their shared borders and foster economic progress within this unique and environmentally sensitive region. The current Cooper Creek water plan is consistent with the Lake Eyre Basin IGA.

**Figure 1:** **Cooper Creek water plan area**



# 3. How the water plan advances the sustainable management of Queensland's water resources

The Cooper Creek water plan manages unsupplemented surface water, underground water that is hydraulically connected to surface water, and overland flow water. The water plan is implemented through the Cooper Creek Resource Operations Plan (ROP). Underground water and springs connected to the Great Artesian Basin is managed under a separate water plan – the Water Plan (Great Artesian Basin and Other Regional Aquifers) 2017.

It advances the sustainable management of Queensland's water resources by establishing a framework for the allocation and management of water resources in the water plan area for the economic, physical, and social well-being of the people of Queensland. In particular, the Cooper Creek water plan provides outcomes and strategies to advance the sustainable management of ecosystems, water quality, water-dependent ecological processes and biological diversity associated with watercourses, lakes, springs, aquifers, and other natural water systems.

Table 2 provides a summary of Cooper Creek water plan's framework and how it advances sustainable management of water. For a more detailed summary of the linkages between Cooper Creek water plan outcomes, strategies and rules see Appendix A.

**Table 2: The water plan's framework for advancing the sustainable management of water**

| Water plan framework | How is this achieved? | Comment |
|---|---|---|
| **Ecologically sustainable development** | The Cooper Creek water plan includes ecological outcomes to ensure ecologically sustainable development in the water plan area. These outcomes seek to maintain the ecological integrity of in-stream, riparian, wetland, and floodplain ecosystems, maintain connectivity between waterholes, maintain variability and seasonality of flows and minimise the impact on pool and waterhole habitats of drawdown due to water extractions. | The Cooper Creek water plan was developed based on a long-term hydrologic model to better understand patterns of water use and availability for both consumptive and non-consumptive purposes. |
| **Allocation and use of water resources for economic, physical, and social wellbeing of the people of Queensland** | The Cooper Creek water plan provides a framework for taking water under the water entitlements, which balances the interests of all water users in the water plan area. It also provides a framework for making unallocated water (UAW) from general, Indigenous, strategic, and town and community water reserves available, as well as a water trading framework for permanent and temporary trades. The trading rules and the process for making unallocated water available for use are stated in the ROP.<br>Water in the water plan area can also be accessed without a water entitlement for cultural, stock, and domestic purposes and prescribed activities, subject to limitations outlined in the Cooper Creek water plan, the Water Act, or the Water Regulation. | The Cooper Creek water plan's defined volumes of UAW for future development provide certainty for water users to promote economic development while also supporting population and industry growth as well as aesthetic, recreational and cultural values. |

| Water plan framework | How is this achieved? | Comment |
|---|---|---|
| **Sustain the health of ecosystems** | The Cooper Creek water plan contains general and specific ecological outcomes for catchments in the water plan area. These outcomes aim to support the ongoing protection of ecological assets and their habitats.<br>It also aims to manage water in a way consistent with relevant national and international obligations and agreements, such as the Lake Eyre Basin IGA. | Targeted research and monitoring data helped to inform the current assessment (see section 6.1 for details).<br>Furthermore, the risk assessment identified that the ecological outcomes were achieved in the reporting period. |
| **Recognise the interests of First Nations peoples** | The Cooper Creek water plan contains an outcome to support water-related cultural values in the water plan area, including the values of the traditional owners of the water plan area.<br>The Cooper Creek water plan provides Indigenous reserves of UAW to help First Nations communities achieve their economic and social aspirations.<br>The Water Act allows First Nations peoples to take or interfere with water for traditional activities or cultural purposes without an entitlement. | The risk assessment identified knowledge gaps in assessing effectiveness of the Cooper Creek water plan's framework in recognising the interests of First Nations peoples in the water plan area (Appendix A).<br>The water plan expires in 2031 and must be replaced prior to expiry. A broad range of First Nations groups will be invited to have input in the water plan review process to identify cultural values and develop meaningful outcomes and strategies.<br>The department is developing a First Nations water strategy from 2024 and has established a First Nations engagement team. These will assist the department gain an improved understanding of their values and aspirations and the linkages of these to water management for the next water plan. |
| **Enable water resources to be obtained through fair, transparent, and orderly processes** | Water in the water plan area can be obtained through trading of water entitlements or through access to the UAW reserved for specific purposes.<br>The Cooper Creek water plan identifies volumes of UAW available across the water plan area and establishes a framework for dealing with UAW. Fair and transparent processes for the release of UAW have been established under the protocol and the Regulation.<br>The Cooper Creek water plan provides a permanent water trading framework as well as a seasonal water assignment trading framework, as outlined in the ROP. | The water trading and UAW frameworks were developed in consultation with all interested parties and aim to balance their water needs and interests. |
| **Build confidence regarding availability, security and value of water entitlements and authorisations** | The Cooper Creek water plan states outcomes which aim to provide, protect, and improve access to available water resources. It also provides for the continued use of existing water entitlements and other authorisations to take or interfere with water.<br>The Cooper Creek water plan strategies provide certainty and security for current water users while also ensuring water is available to support towns, communities, agricultural and industrial growth. | The water plan prevents decisions (excluding water permits or the release of the UAW reserve) regarding the allocation or management of water that would increase the average volume of water available to be taken. This strategy provides protection for existing water entitlements. |
| **Promote efficient use of water through water** | The Cooper Creek water plan and ROP provide for water licences to be relocated permanently or to be transferred seasonally | General community education about water saving practices has helped promote efficient water use. |

| Water plan framework | How is this achieved? | Comment |
|---|---|---|
| **markets, allocation, risk assessments and community education** | within certain zones. This allows users to trade water entitlements without selling land, enables users to increase water supplies and improve reliability, and provides new industries to acquire water without jeopardising the environment or affecting other water users.<br>Water use efficiency of proposals is one of the considerations when granting water entitlements from UAW reserves. When the state releases UAW, a price is set, encouraging the recognition of water as a valuable resource, and promoting its highest value and efficient use. | Self-regulation due to factors outside of the Cooper Creek water plan control (i.e., rainfall, power costs, different crop requirements) also helps to encourage efficient use of water. |
| **Facilitate community involvement in planning for the management and allocation of water** | Community involvement is ensured through consultation and engagement processes in developing and finalising the Cooper Creek water plan and the ROP in line with the requirements of the Water Act. | The Cooper Creek water plan and the protocol were developed in consultation with key stakeholders and all other interested parties. Further community consultation will be undertaken to inform the plan review prior to its expiry and to underpin the development of the new plan. |

# 4. Assessment of the effectiveness of the implementation of the water plan in achieving its outcomes

Since the commencement of the Cooper Creek water plan in 2011, the department has monitored its implementation to ensure the outcomes are being achieved. Appendix A provides a comprehensive risk assessment of the effectiveness of the implementation of the Cooper Creek water plan in achieving its outcomes since 2019.

Overall, the risk assessment shows that implementation has been effective in achieving the Cooper Creek water plan's outcomes. Of the 14 outcomes assessed, one could not be fully assessed due to knowledge gaps, and the rest were ranked as low risk (Appendix A).

The risk that isn't fully able to be assessed relates to supporting water-related cultural values, including the values of traditional owners of the water plan area. This outcome is partly met through:

- the provision of unallocated water (UAW) reserves
- environmental provisions, where key ecosystems protected by the Cooper Creek water plan are likely to overlap with cultural values
- provisions in the Water Act which allow First Nations peoples to take or interfere with water for traditional activities or cultural purposes without an entitlement.

The department is developing a First Nations water strategy and has established a First Nations engagement team. Engagement with First Nations peoples will be undertaken as part of the Cooper Creek water plan review. This will aim to fill the knowledge gaps including, to improve understanding and recognition of the cultural values, aspirations and uses of water and associated water requirements.

The department monitors the implementation of each water plan to ensure it achieves its outcomes. The Cooper Creek water plans and strategies were implemented through:

- a framework for the release of UAW to support economic development opportunities for irrigated agriculture and other commercial enterprises in each catchment
- the amendment of water licences to state daily and annual volumetric limits for taking water
- continued implementation of temporary and permanent water trading framework provisions
- management of overland flow development.

# 5. Information on water use and authorisations in the water plan area

Water users in the water plan area have access to water taken under a water entitlement or under a statutory authorisation through the Water Act (e.g. low risk uses such as prescribed activities or stock and domestic use). Unallocated water is reserved and can be made available for future use with consideration to protecting existing entitlements and the environment.

## 5.1 Water entitlements

Water entitlements in the Cooper Creek water plan area include 56 water licences to take unsupplemented surface water with a total volume of 17,884.7ML.

Appendix B-1 provides data on the number of specific entitlements and the values of water allocated under these entitlements.

## 5.2 Water use

This area is not located within a metered entitlement area as prescribed by the Water Regulation 2016 schedule 11. Therefore, water licences are not metered and water use data is not available for this water plan area.

## 5.3 Water trading

There are two water markets currently in the plan area. Permanent water trading and temporary water trading are provided in the water plan area through the ROP.

1. Seasonal water assignment market (temporary trades) - seasonal assignment of water licences associated with surface water licences.
2. Relocatable water licence market (permanent trades) - transferring of water licences from one parcel of land to another associated with surface water licences.

The establishment of these water markets provides certainty for the water users and creates a more secure business environment. Trading water entitlements can stimulate better decision-making about usage and requirements. Over time, this promotes efficiency and can make businesses more profitable.

The overall benefits of trading water:

- helps water users see the value of their water as a secure asset
- encourages water-use efficiency by saving water to enable entitlement holders to sell or seasonally assign spare water
- enables business owners to sell their water without selling their land

- enables users to increase water supplies and improve the reliability of current water supply, and to switch to an alternative use of the water that may generate higher returns
- enables new industries to acquire water without jeopardising the environment or affecting other water users.

Over the last five water years, there has been no water trading within the water plan area.

## 5.4 Entitlements granted from the unallocated water (UAW) reserve

The Cooper Creek water plan provides for 2,200ML of UAW held in general, Indigenous, strategic (for a project of state or regional significance), and town and community water reserves to meet demands for additional water across the water plan area. No unallocated water has been released in the water plan area over the 2019-2024 reporting period. The details of each UAW reserve are shown in Table 3.

Interested parties can register their interest in UAW at any time. For information on unallocated water in your area, contact your local water management office or email UAW.North@rdmw.qld.gov.au.

**Table 3: Total amounts of unallocated water currently held in a reserve**

| Reserve name | Area | Volume available for release (ML) | Volume granted (ML) |
|---|---|---|---|
| General | Water plan area | 200 | 0 |
| Indigenous | Water plan area | 200 | 0 |
| Strategic | Water plan area | 1,300 | 0 |
| Town and Community Water | Water plan area | 500 | 0 |

## 5.5 Water taken or interfered with under statutory authorisations

The Water Act (sections 93 to 103) authorises water to be taken or interfered with without an entitlement for certain purposes such as stock or domestic take and other low-risk activities. The volume of water taken under statutory authorisations (basic rights) is not required to be measured. This makes an accurate quantitative assessment difficult. However, by identifying broad trends in consumptive water use behaviour as well as relevant water flow patterns, it is possible to infer whether these trends pose any risks to existing water users' rights or the environment.

Appendix C provides an assessment of the risk to water users and the environment from the use of water under statutory authorisations. The assessment indicates that there is no identified increase in take due to statutory authorisations in the Cooper Creek water plan area.

# 6. Research and monitoring findings for the water plan

The water planning framework is supported by water monitoring activities, including water quantity and quality of surface freshwater and underground water systems across Queensland. Together with targeted ecological monitoring for water plans, this information is vital for continued improvement of water planning.

The Environmental Flows Assessment Program (EFAP) undertakes ecological monitoring to assess the effectiveness of each water plan in achieving its stated ecological outcomes. Ecological assets with critical links to flow that represent water plans ecological outcomes, and the various aspects of the flow regime, are selected as indicators of the broader ecosystem for monitoring. Information collected by EFAP is used by the Department of Environment, Science and Innovation (DESI) to assess the effectiveness of the water plan in achieving ecological outcomes, using a risk assessment approach (Marshall and McGregor 2006).

The department operates approximately 400 stream gauging stations across Queensland, eight of which are in the water plan area (see Appendix F). Streamflow measurements are an integral part of producing volumetric data at gauging stations, and measurements are taken throughout a full range of low and high flow conditions to enable derivation of accurate streamflow volumes.

Water monitoring data can be accessed at https://water-monitoring.information.qld.gov.au.

## 6.1 Summary of ecological monitoring

To inform this minister's report, the department has conducted a review of all relevant government and external ecological research and monitoring since the previous Cooper Creek water plan performance assessment was undertaken in 2019. Projects assessed in the current review include: the Lake Eyre Basin Rivers Assessment (LEBRA), a long-term monitoring project designed to assess the condition of watercourses and catchments across the Lake Eyre Basin; Queensland Wetlands Program; Geological and bioregional assessments; Q-Catchments Program; as well as a significant amount of peer reviewed scientific literature. Information on a range of species and ecosystem functions was collated, including significant wetlands, refugial waterholes, migratory fish, turtles, crayfish, waterbirds, hydrological connectivity, riverine habitats, water quality and water dependent vegetation communities. Gaps in knowledge for future monitoring have been identified through a qualitative risk assessment and this literature review process. Overall, riverine ecosystems and biodiversity in the water plan area remains in relatively 'good' condition.

A complete summary of the reviewed ecological research and monitoring with associated recommendations is presented in the Summary of Environmental Monitoring (RDMW 2024). A summary of relevant information from monitoring is also provided against each ecological outcome in Appendix A.

## 6.2 Summary of water monitoring

The department manages, operates, and maintains eight stream gauging stations in the water plan area. Streamflow measurements are an integral part of producing volumetric data at gauging stations, and measurements are taken throughout a full range of low and high flow conditions to enable derivation of accurate streamflow volumes. Water monitoring data can be accessed online at the water monitoring portal.

The Cooper Creek water plan only applies to groundwater where it is hydraulically linked to surface water. There is no monitoring of groundwater aquifers undertaken as part of the Cooper Creek water plan as the surface monitoring network is considered sufficient.

# 7. Social and economic assessment

The Cooper Creek water plan supports growth in population and industries and aims to maintain flows that support water-related economic values. The water plan area has a small regional population. Urban centres include the towns of Longreach, Barcaldine, Jericho, Blackall, and Windorah. According to information on the Queensland Government's 'The Long Paddock' (Drought Declarations | LongPaddock | Queensland Government), the plan area recently emerged from a long period of drought (ten years up until early 2023).

Data from the 2021 census was sourced from the Australian Bureau of Statistics (ABS) and Queensland Governments Statisticians Office to assess if there were any significant changes in population rate or industry as this could indicate a change in water demand. The Local Government Area spatial extents of Barcaldine, Barcoo, Blackall-Tambo, Bullo, Flinders, Longreach, and Quilpie were used as they provided a statistical representation of the water plan area. It is important to note that Local Government Area boundaries are not consistent with the Cooper Creek water plan boundaries and overlaps exist, however this socio-economic assessment is still expected to reflect the socio-economic status of the water plan area.

## 7.1 Population trends

The estimated population of the water plan area as of June 2022 was approximately 11,416 people with around 7.8% of the population identifying as Aboriginal or Torres Strait Islander. Over the past five years, the population remained steady, experiencing a growth rate of 0.1% over the five-year reporting period. The population of the water plan area is projected to decline by 0.9% over the next 25 years.

## 7.2 Economic profile

The top three industries for employment in the water plan area are agriculture, forestry, and fishing (26.2%), public administration and safety (12.3%) and health care and social assistance (10.2%). The catchment primarily supports the grazing industry however, resource industries such as gas and oil in the Cooper and Eromanga Basins are increasing.

## 7.3 Land use

No recent land use statistics were available for this report. The most recent statistical period from the ABS is 1999–2016. Over this period dryland agriculture and plantation production in the water plan area increased.

Between 1999 and 2016, land use for conservation and natural environments experienced an increase of 28.45%. As of 2022, protected areas such as parks, forests and reserves totalled 8,312.1km$^2$.

# 8. Cultural values assessment

The Cooper Creek water plan includes a framework for the maintenance of water-related cultural values and supporting the economic and spiritual aspirations of First Nations peoples. There was insufficient information to assess the effectiveness of the Cooper Creek water plan's implementation in achieving the relevant outcomes under section 11(d).

A cultural values assessment and engagement with First Nations peoples will be undertaken by the department in the future to improve the understanding of cultural values, aspirations and water uses by First Nations peoples when the water plan is reviewed and replaced.

# 9. Climate change assessment

The Queensland Government is committed to incorporating the best available science on climate change into water planning activities. The department aims to build a shared understanding with the community of the risk that climate change may pose to future availability of water resources, helping water users and businesses better manage the risk from an increasingly variable and extreme climate. This section outlines climate change trends in the water plan area over the reporting period (2018–2023) and provides an outlook of the anticipated future climate change patterns (climate change projections).

## 9.1 Recent climate variation in the water plan area

The climate events of most concern to water planners are those that reduce the availability and reliability of water supplies, including the occurrence of prolonged dry periods (droughts). The key climate variables are rainfall, temperature, and evaporation, and their daily, monthly, seasonal, and annual timescale variability.

Figures 2, 3 and 4 detail the average daily temperature, annual potential evapotranspiration, and annual rainfall for the Cooper Creek catchment. There has been a significant increase in the average daily temperature over the life of the Cooper Creek water plan. Conversely, Figure 3 indicates there has been a slight decrease in the annual potential evapotranspiration in the water plan area. There has been no discernible change in annual rainfall over the life of the Cooper Creek water plan.

**Figure 2:** **Cooper Creek catchment average daily temperature**

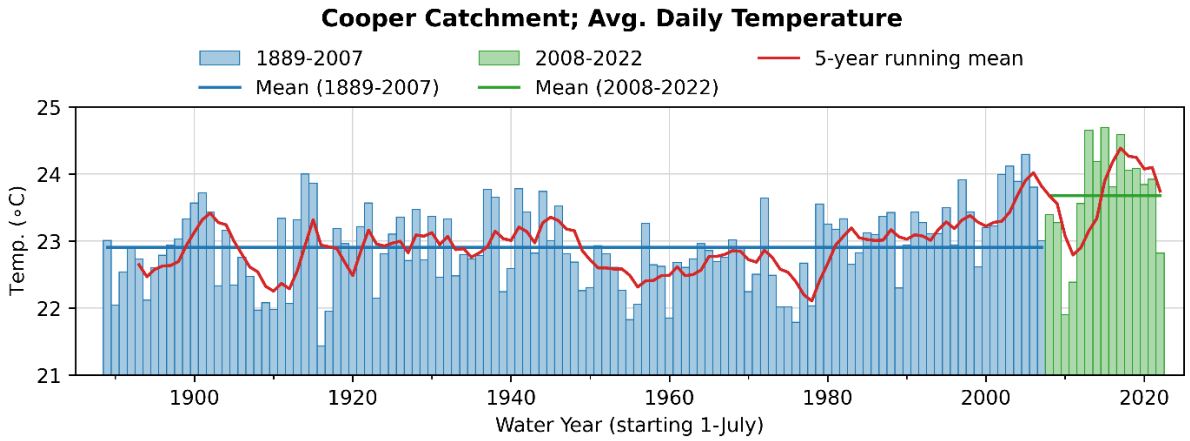



**Figure 3:** **Cooper Creek catchment annual potential evapotranspiration**

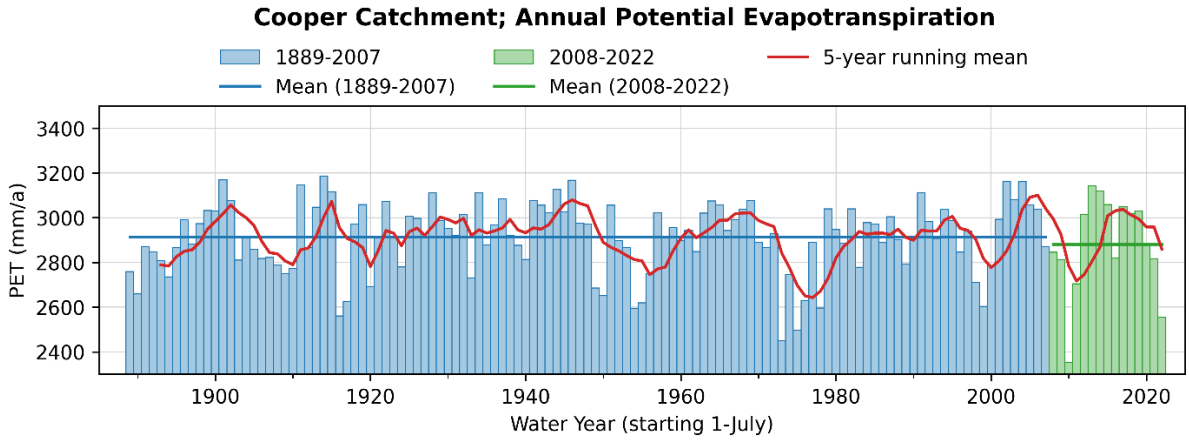
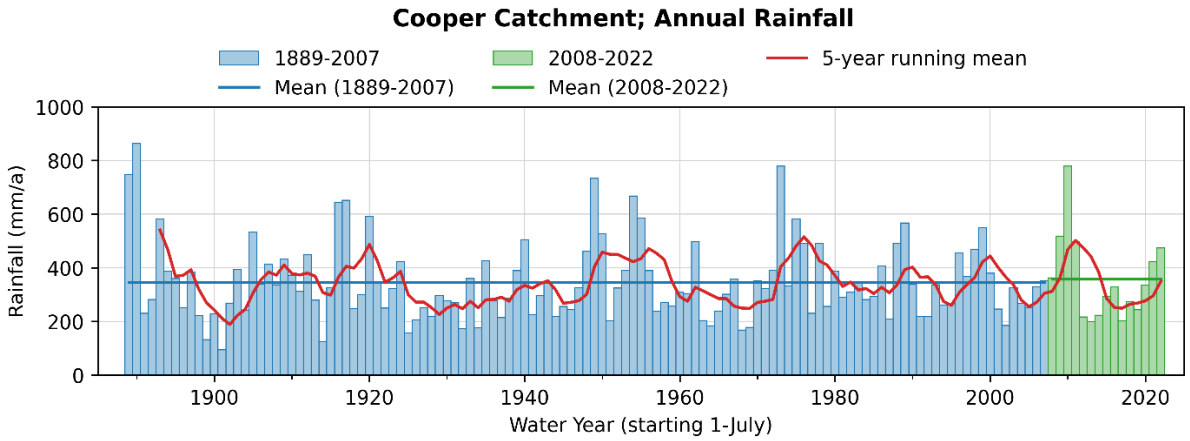


**Figure 4:** **Cooper Creek catchment annual rainfall**




# 9.2 Climate change projections for the water plan area

## 9.2.1 Overview of assessment approach

An assessment of the climate change projections for the water plan area was undertaken to inform this report (Vitkovsky, 2023). Global Circulation Models (GCMs) were used in the assessment to predict climate variables such as average daily temperatures, annual potential evapotranspiration, and annual rainfall. The GCMs were sourced from the Coupled Model Intercomparison Project, phase 5 of the Intergovernmental Panel on Climate Change (IPCC), Assessment Report 5 (WCRP, 2022). The GCMs consider a trajectory of greenhouse gas (GHG) emissions using numerous scenarios. Emission scenarios chosen for this assessment are Representative Concentration Pathway (RCP) 4.5 and RCP 8.5.

RCP 4.5 represents a future scenario where action is taken to reduce GHG emissions (for example, by way of technologies and strategies) resulting in a peak of emissions around 2040 and then followed by a decline. It is described by IPCC as an “intermediate” scenario.

RCP 8.5 represents a future scenario where emissions continue to rise throughout the 21st century. It is considered as a “worst case” climate change scenario.

It is important to note that climate models are predictive models that simulate possible future outcomes. As such, these models are not perfect replicas of reality, but “what if” representations of real-life situations. All models have some degree of scientific uncertainty.

## 9.2.2 Overview of projected changes

Prior to considering possible future climate change events, it is useful to review historical climate data to understand what has occurred climatically in the past, especially since the Cooper Creek water plan was first implemented. A time of-emergence analysis is used on climate variables (e.g., air temperature, sea level, rainfall) to help identify the time when climate change may have caused local conditions to deviate from past conditions. The time-of-emergence analysis identifies when the signal of the variable appears above background “noise”, thereby reflecting the onset of change (Walker *et al.*, 2022). The results of the time-of-emergence analyses undertaken for the water plan area indicate that a temperature increase emerged in the mid-2000s, as identified by the Signal-to-Noise Ratio (Figure 5). The orange shading represents the time the signal emerged by one standard deviation and the red bar represents the signal emergence by two standard deviations. There was no emergence for annual evapotranspiration (Figure 6) or annual rainfall (Figure 7).

**Figure 5:** **Cooper Creek catchment; average daily temperature**

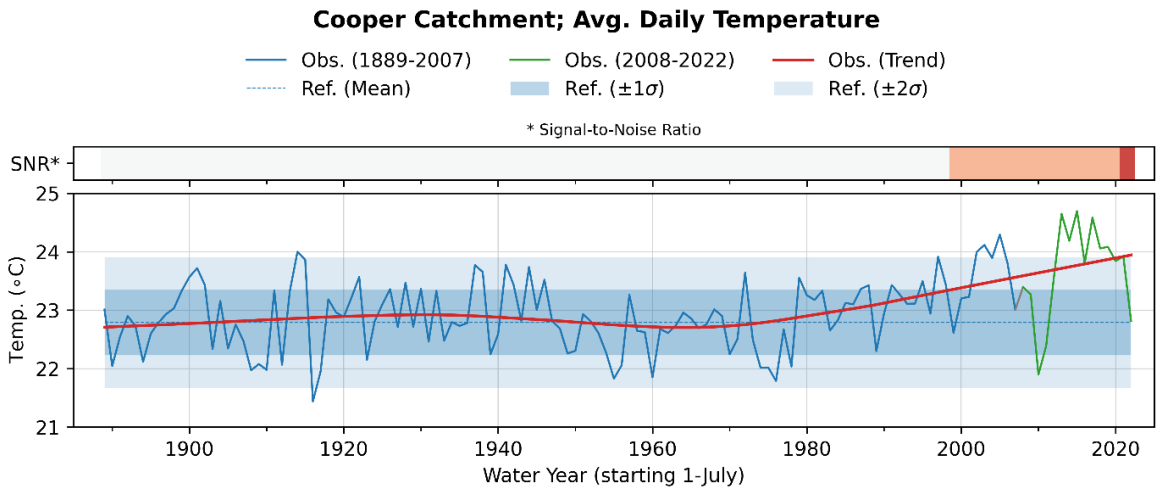



**Figure 6:** **Cooper Creek Catchment; potential evapotranspiration**

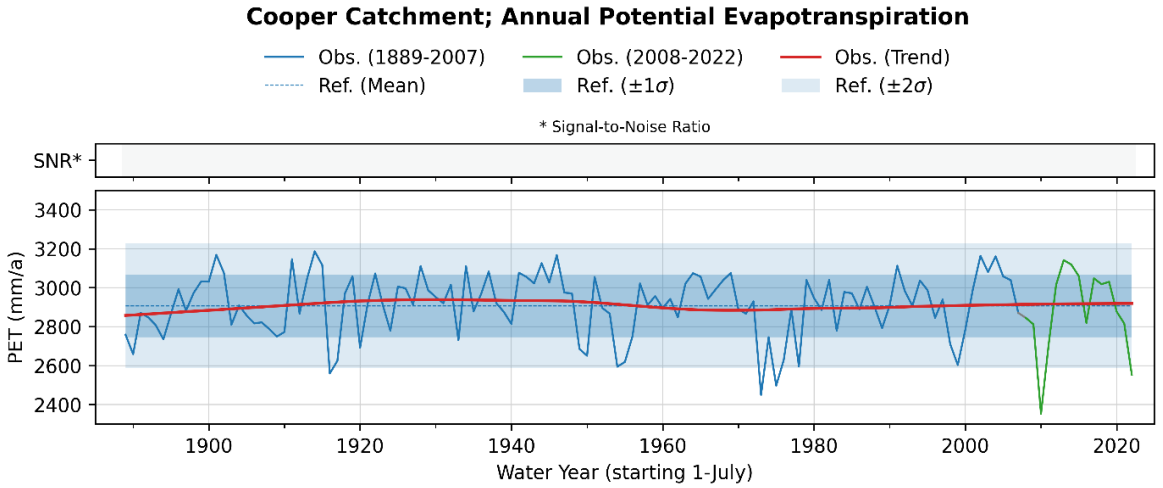
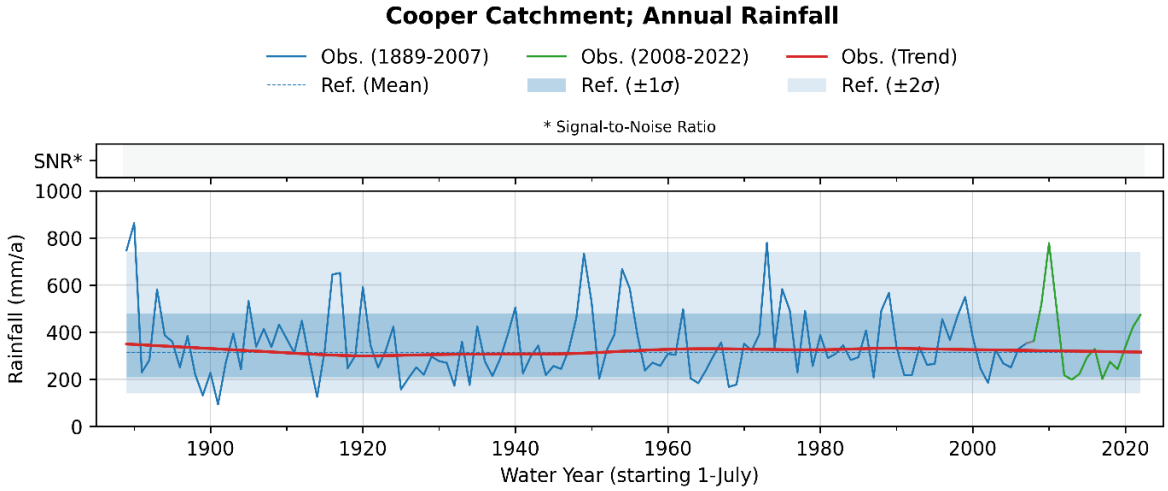



**Figure 7:** **Cooper Creek Catchment; annual rainfall**




Climate projections at the catchment scale using GCMs are presented below. The temperature projections show an increase with the scenarios diverging around 2030, meaning that some temperature rise is now inevitable (Figure 8). There is also an associated increase in potential evapotranspiration across the catchment (Figure 9). There is little to no trend in annual rainfall amongst a large amount of uncertainty (Figure 10). The recent observed climate falls within the

projections, with the projected rainfall displaying a large degree of uncertainty which is typical for Queensland.

**Figure 8:** **Observed and projected Cooper Creek Catchment average annual climate: average daily temperature**

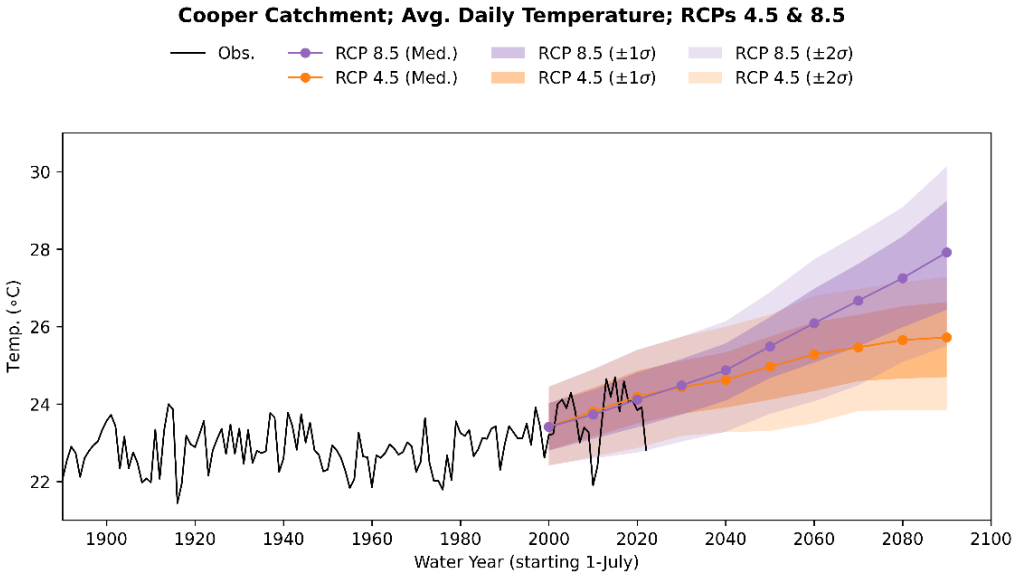



**Figure 9:** **Observed and projected Cooper Creek Catchment average annual climate: average daily temperature**

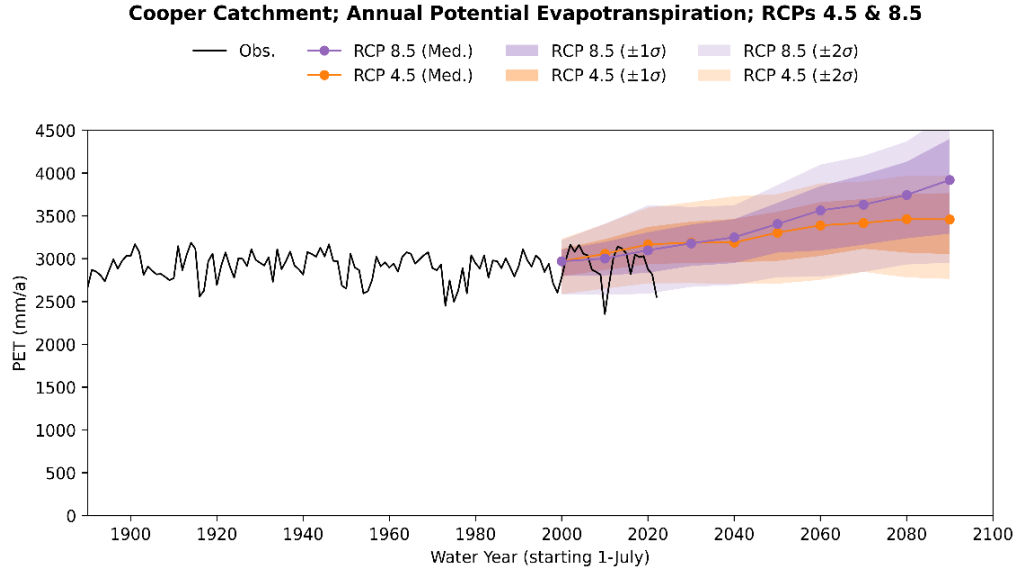
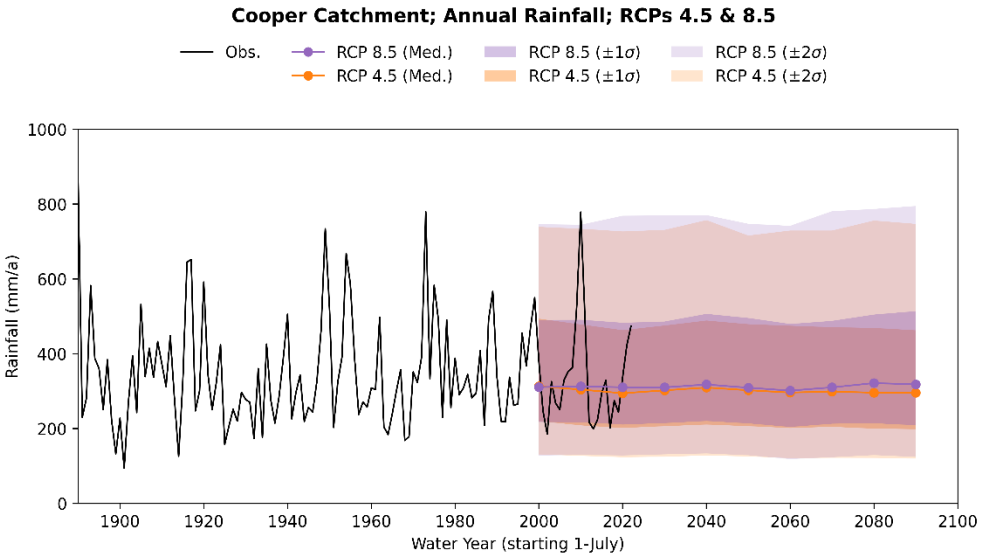


**Figure 10:** **Observed and projected Cooper Creek Catchment average annual climate: annual rainfall**




Projections were also undertaken to investigate seasonal changes in climate variables. The temperature and potential evapotranspiration projections broadly show increases for all months. The monthly rainfall has more variability, but it is trending towards a reasonable decrease in dry season months for both projections and increases in the summer months. For the Cooper Creek water plan area, the changes will result in little change in annual rainfall totals but will affect the generation of streamflow from the catchment. It should be noted that the Cooper Creek catchment has historically low rainfall to begin with.

There is evidence that climate change is occurring in the water plan area. The average catchment temperature shows robust increases, whereas both the evapotranspiration and rainfall do not show significant changes.

Finally, climate change analysis is an evolving field with new understandings, models and syntheses published regularly. The information presented in this brief represent the best understanding at the time and are subject to change as new science becomes available.

# 10. Water plan amendments and previous reports

Several amendments have been made to the Cooper Creek water plan since it commenced, including consequential amendments to reflect administrative changes relating to the Water Act.

The milestones since the Cooper Creek water plan commenced are detailed in Appendix D.

# 11. Identification of potential risks to the water plan's outcomes

In February 2024, a risk assessment was undertaken to identify potential risks to the Cooper Creek water plan outcomes that could emerge within the lifetime of the water plan. An analysis of changes in the water plan area over and beyond the life of the Cooper Creek water plan was used to identify future water demands, potential risks and emerging matters. Data and expert opinion were used to rank the likelihood and consequence of risk from a standardised list of threats, and the risk level and rationale for this ranking were documented (see Appendix A). Under this assessment framework, the

level of risk, along with other factors, such as a water plan's ability to achieve its outcomes were considered in proposing appropriate actions to mitigate the risks.

Of the 14 outcomes assessed, one[1] could not be fully assessed due to limited information available and the rest were ranked as low risk (Appendix A).

The one outcome which could not be fully assessed related to supporting water-related cultural values in the water plan area, including the values of the traditional owners of the water plan area. This outcome is partly met through:

- unallocated water reserves
- environmental flow provisions, where key ecosystems protected by the water plan area are likely to overlap with cultural values
- provisions in the Water Act that allow First Nations people to take or interfere with water for traditional activities or cultural purposes without an entitlement.

A risk level was unable to be assigned to this outcome as there is insufficient information available on First Nations people's cultural values and uses of water in the water plan area. Engagement with First Nations peoples will be undertaken as part of the next plan review and replacement. This will aim to fill the identified knowledge gaps by improving understanding and recognition of the cultural values, aspirations and uses of water and associated water requirements.

# 12. Opportunities and emerging matters

The risk assessment underpinning this report identified knowledge gaps that could be addressed through further research and/or monitoring to inform future assessments and decision-making. It also identified matters potentially emerging over or beyond the lifetime of the current Cooper Creek water plan that should be considered under the water plan's framework. These include:

- the need to modernise water plan outcomes to accordance with the latest Water Act requirements, contemporary water planning policies and emerging issues
- consideration of climate change impacts on water availability in the water plan area
- the need to review water availability and unallocated water volumes across the water planning area to accommodate growing demands for additional water to support economic growth, town water supplies, and the cultural aspirations of First Nations people
- the need to consider improved drought resilience measures for town water supplies, urban and industrial water uses
- the need to incorporate best-available science and information, including the latest hydrological modelling and a better understanding of water requirements for key environmental assets
- the need to better understand the cultural water values of First Nations people, including their economic and spiritual aspirations and associated water needs
- the need to better understand groundwater resources, particularly connectivity to surface water, as well as groundwater-dependent ecosystems.

It is proposed that these matters be monitored over the remaining life of the plan and be considered as part of the next plan review process. The learnings gained from implementing the existing Cooper Creek water plan to date will be used to make improvements to the new water plan as part of an adaptive management cycle based on revised future water needs, enhanced scientific information, and targeted stakeholder engagement.

[1] The outcome under s11(d) to support water-related cultural values in the plan area, including the values of the traditional owners of the plan area.

# 13. Any non-compliance under a water entitlement or other authorisation in the water plan area

Over the past five years, there was one incident reported that related to water take non-compliance in the water plan area. The incident was dealt with by issuing a compliance notice and required a licence amendment (Appendix E).

The department uses a range of methods to monitor for compliance against entitlements including field and desktop audits, metering, and third-party notification. These activities support public confidence in how water is managed and protect the rights of all entitlement holders and the broader community.

To ensure our water resources are managed fairly and responsibly, the department has developed a Regulatory Strategy Water Resource Management 2022-24 (rdmw.qld.gov.au) that establishes our regulatory approach for the delivery of our regulatory functions and activities. The strategy explains the principles underlying our regulatory approach, the tools we utilise and our compliance and enforcement pathway. The objectives and principles set out in the Regulatory Strategy sets the foundation for our annual compliance planning.

The department's Water Resource Management Annual Compliance Plan (rdmw.qld.gov.au) identifies activities that support department's compliance approach, including compliance outcomes, performance measures, focus areas, activities, targets and measures. The compliance plan supports the department to take a risk-based, transparent, and consistent approach to how we regulate Queensland's water resources.

In addition, the work being done under the Rural Water Futures | Department of Regional Development, Manufacturing and Water (rdmw.qld.gov.au) will support improved compliance outcomes. Further information on the Rural Water Futures program and its initiatives can be found on the department's website.

# 14. Way forward

This assessment shows that the water plan continues to be fit for purpose and there are no high risks to the achievement of the outcomes within its scheduled lifetime. The water plan is therefore expected to continue to be effective in advancing the sustainable management of water resources and minimising the adverse impacts on the existing water entitlement holders and natural ecosystems in the plan area until its expiry date in 2031. The emerging matters identified in the report may however impact the water plan's continued effectiveness in the future. These will be assessed at the next scheduled 5 yearly performance report and at this point are best addressed as part of the water plan review and replacement due by 2031.

The identified risks and emerging issues in the preceding sections highlight the need for enhanced engagement with First Nations peoples to fill the identified knowledge gaps related to cultural water values and their economic and spiritual aspirations and associated water needs.

The Cooper Creek water plan is set to expire on 1 September 2031. The department will continue to implement and monitor the Cooper Creek water plan until it undergoes review and is replaced by a new water plan. The insights acquired through water plan implementation will be used to enhance the new Cooper Creek water plan within an adaptive management framework, considering revised future water need, increased scientific knowledge, and targeted stakeholder engagement.

# 15. References

Australian Bureau of Statistics (ABS), 2023. Population: Census, Australian Government, Canberra. Accessed 11 December 2023. Available at: https://www.abs.gov.au/census/find-censusdata/search-by-area

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Vitkovsky J., 2022, Climate Change Brief – Cooper Creek WP – December 2023, accessed December 2023

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WCRP, 2022. World Climate Research Programme accessed December 2023. https://www.wcrp-climate.org/wgcm-cmip

# Appendix A Assessment of water plan outcomes

**Table A.1: Risk assessment for general outcomes in the Cooper Creek water plan**

| Plan outcome | Plan strategies that provide for outcomes | Resource Operations Plan (ROP) rules that provide for outcomes | Qualitative risk ranking and assessment of outcomes |
|---|---|---|---|
| **17 (1) The general water plan outcomes for this plan are:** | | | |
| a) to manage water in a way consistent with relevant national and international obligations and agreements, particularly the Lake Eyre Basin Intergovernmental Agreement; | Limited volumes of unallocated water are to be made available in the Cooper Creek water plan. This requires assessment against ecological values, low flows and connectivity between waterholes and allows for imposition of flow conditions to protect low flows and other ecologically significant flow. The Cooper Creek water plan also restricts the development of instream storages in primary watercourses. | The ROP provides for the implementation of operational and management rules associated with protected waterholes and protected watercourses. The ROP also states a limitation on the total water available for allocation. | **LOW risk**<br>This outcome is being achieved. |
| b) to manage hydraulically linked groundwater and surface water as a single resource; | The Cooper Creek water plan declares underground water that is hydraulically linked to water in a watercourse, lake or spring is declared to be water in the watercourse and manages take in the same manner. | The ROP specifies a process for granting water licences from the unallocated water reserves for all linked water sources. | **LOW risk**<br>This outcome is being achieved. |
| c) to manage water in a way that minimises impact on the duration, magnitude, frequency and seasonality of natural flow regimes; | The Cooper Creek water plan provides only a limited volume of unallocated water to be made available; requires assessment against low flows and connectivity between waterholes; allows for imposition of flow conditions to protect low flows and other ecologically significant flow; and restricts development of instream storages in primary watercourses. | The ROP provides for the implementation of operational and management rules associated with protected waterholes and protected watercourses. The ROP also provides for managing all linked water sources (watercourse water, underground water that is hydraulically linked to watercourse water, and overland flow water). | **LOW risk**<br>This outcome is being achieved. |
| d) to support water-related cultural values in the plan area, including the values of the traditional owners of the plan area; | The water plan provides for restriction of drawdowns in waterholes and for connectivity between waterholes. | The ROP provides for the implementation of operation and management rules associated with protected waterholes and protected watercourses. The ROP also provides a process for First Nations peoples to access | **UNABLE TO BE ASSESSED**<br>This outcome is being partially achieved. However, there is insufficient information on the cultural |

| Plan outcome | Plan strategies that provide for outcomes | Resource Operations Plan (ROP) rules that provide for outcomes | Qualitative risk ranking and assessment of outcomes |
|---|---|---|---|
| | The Cooper Creek water plan sets aside an Indigenous unallocated water reserve to help local Aboriginal people to achieve their economic and social aspirations.<br>The Cooper Creek water plan requires consideration of the cultural values of First Nations peoples when implementing a process to release unallocated water. | unallocated water for economic and social aspirations. | values of First Nations peoples to properly assess this outcome. |
| e) to account for the modelled impacts of climate change on water availability, including the effects of increased duration of low flow periods and no flow periods, and the effect of increased evaporation rates from waterholes. | The Cooper Creek water plan provides only a limited volume of unallocated water to be made available; requires assessment against low flows and connectivity between waterholes; allows for imposition of flow conditions to protect low flows and other ecologically significant flow; and restricts development of instream storages in primary watercourses. | The ROP provides for the implementation of operational and management rules associated with protected waterholes and protected watercourses. The ROP also provides for managing all linked water sources (watercourse water, hydraulically-linked underground water and overland flow water) and states a limitation on the total water available for allocation. | **LOW risk**<br>This outcome is being achieved. |

**Table A.2: Risk assessment for ecological outcomes in the Cooper Creek water plan**

| Ecological outcomes for water in the water plan area. Plan outcome (per Part 3 of plan) | Plan strategies that provide for outcomes | Resource operations plan (ROP) management rules that provide for outcome | Ecological assets | Summary of monitoring and assessment | Qualitative risk ranking and preliminary assessment of outcome |
|---|---|---|---|---|---|
| **12) Ecological outcomes for water in the water plan area—Each of the following is an ecological outcome for water in the water plan area—** | | | | | |
| (a) to the extent possible, to maintain the ecological integrity and natural function of in-stream, riparian, wetland and floodplain ecosystems by minimising changes to natural flow regimes, both in the plan area and downstream of the plan area in the South | The Cooper Creek water plan rules provide:<br>• Specifies volume of unallocated water reserves<br>• Regulates the take of overland flow water. | The water management ROP rules provide:<br>• For the purchase of water for environmental purposes;<br>• For the implementation of operational and | • Wetlands listed on the Directory of Important Wetlands in Australia.<br>• Waterholes as refugia (including protected watercourses, waterholes, and lakes). | Surface water development in the water plan area is limited, with threats to the naturally dynamic flow regime considered mostly localised in nature.<br>Riverine ecosystems and biodiversity in the water plan area remain in good overall condition, with ecological function and integrity maintained by near natural flow regimes. | LOW risk<br>The outcome is being achieved. |

| Ecological outcomes for water in the water plan area. Plan outcome (per Part 3 of plan) | Plan strategies that provide for outcomes | Resource operations plan (ROP) management rules that provide for outcome | Ecological assets | Summary of monitoring and assessment | Qualitative risk ranking and preliminary assessment of outcome |
|---|---|---|---|---|---|
| Australian part of the Cooper Creek catchment; | • Regulates interference with water in a watercourse, lake, or spring.<br>• Regulates water licenses for the take of water from a watercourse, lake, or spring | management rules associated with protected waterholes and protected watercourses;<br>• Criteria to be considered before granting unallocated water;<br>• For the amendment of existing water licences to clarify conditions and maximum take. | • Longitudinal connectivity.<br>• Native fish (includes endangered species, NC Act 1992 and EPBC Act 1999).<br>• Migratory fish species.<br>• Turtles, Crayfish, Waterbirds.<br>• Riverine habitat.<br>• River forming processes<br>• Water quality<br>• Floodplain wetland, floodplain vegetation and riparian vegetation. | | |
| (b) to maintain lateral and longitudinal connectivity between waterholes by minimising the impacts on flow patterns resulting from new authorisations granted for the plan area; | | | | Monitoring confirms lateral and longitudinal connectivity between waterholes is currently being maintained.<br>Ongoing monitoring is required to keep a watching brief on emerging threats such as increased localised take from waterholes. | LOW risk<br>The outcome is being achieved. |
| (c) to maintain the variability and seasonality of water flow patterns, including the frequency and duration of high flows, no flows and low flows, by minimising the impacts of water extractions due to new authorisations granted for the plan area; | | | | The surface water flow patterns of the water plan area remain in near natural condition.<br>The potential for future increases in localised take should be monitored, as these could lead to cumulative impacts on the natural flow regime across the water plan area, particularly under future climate change scenarios. | LOW risk<br>The outcome is being achieved. |
| (d) to minimise the impact on pool and waterhole habitats of drawdown due to water extractions allowed under new authorisations granted for the plan area. | | | | The distribution and persistence of natural waterhole habitats across the water plan area have been quantified and remains in relatively good condition.<br>Future climate change should be considered when assessing new authorisations in the water plan area. | LOW risk<br>The outcome is being achieved. |

**Table A.3: Risk assessment for social and/or economic outcomes in the Cooper Creek water plan**

| Plan outcome | Plan strategies that provide for outcomes | Resource operations plan (ROP) management rules that provide for outcome | Qualitative risk ranking and assessment of outcomes |
|---|---|---|---|
| **13 Each of the following is a social and/or economic outcome for water in the water plan area —** | | | |
| (a) to make water available to sustain current levels of, and to support growth in, economic activity in the plan area; | Cooper Creek water plan provides for a limited volume of unallocated water to be made available and provides for a ROP to establish transfer rules, seasonal water assignments and relocation zones. | The ROP provides:<br>• a process for accessing the unallocated water reserves<br>• for transfer of water licences in the Longreach Waterhole relocation zone<br>• for transfer of inactive irrigation licences in the Cooper Zone to upstream zones<br>• for seasonal water assignment within the Longreach Waterhole relocation zone. | LOW risk<br>This outcome is being achieved. |
| (b) to make water available for urban and industrial uses in the plan area; | The Cooper Creek water plan provides a volume of unallocated water to be made available for town water supply purposes and general non-irrigation purposes.<br>The Cooper Creek water plan provides for the ROP to establish transfer rules, seasonal water assignments and relocation zones. | The ROP provides:<br>• a process for accessing the unallocated water reserves<br>• for transfer of water licences in the Longreach Waterhole relocation zone<br>• for transfer of inactive irrigation licences in the Cooper Zone to upstream zones<br>• for seasonal water assignment within the Longreach Waterhole relocation zone. | LOW risk<br>This outcome is being achieved. |
| (c) to provide for the continued use of all existing surface water entitlements and other authorisations in the plan area, including water for stock or domestic purposes; | The Cooper Creek water plan provides for the continuation of existing authorities and existing overland flow works. | The ROP provides for:<br>• the specification of nominal entitlements on area-based water licences<br>• granting and amending licences to take overland flow. | LOW risk<br>This outcome is being achieved. |
| (d) to protect existing entitlements from the effects of new authorisations; | The Cooper Creek water plan provides only a limited volume of unallocated water to be made available; requires assessment against existing entitlements, low flows and connectivity between waterholes; allows for imposition of | The ROP provides for:<br>• a process for accessing unallocated water subject to criteria<br>• operational and management rules associated with protected waterholes and protected watercourses. | LOW risk<br>This outcome is being achieved. |

| Plan outcome | Plan strategies that provide for outcomes | Resource operations plan (ROP) management rules that provide for outcome | Qualitative risk ranking and assessment of outcomes |
|---|---|---|---|
| | flow conditions to protect low flows and other ecologically significant flow; and restricts development of instream storages in primary watercourses.<br>The Cooper Creek water plan also limits the purposes for which unallocated water can be used. | | |
| (e) to make water available for projects of State or regional significance in the plan area. | The ROP provides a process for accessing unallocated water including for a project of State or regional significance. | The ROP provides a process for:<br>• accessing the unallocated water from the strategic reserve. | LOW risk<br>This outcome is being achieved. |

# Appendix B Water entitlements and use

## B-1 Water entitlements

**Table B.4: Summary of all water allocation licences in the Cooper Creek water plan area**

| Water classification | Volume based water licences | |
|---|---|---|
| | Total number | Total nominal entitlement (ML) |
| Surface water | 56 | 17,884.7 |

**Table B.5: Summary of all water licences to take water per purpose type**

| | Domestic | Stock | Irrigation | Town water supply | Water harvesting | Construction |
|---|---|---|---|---|---|---|
| **Number of water licences** | 17 | 2 | 23 | 9 | 2 | 3 |
| **Volume of water (ML)** | 863.3 | 30.0 | 12,639.4 | 3,689.0 | 633.0 | 30.0 |

## B-2 Unallocated water

**Table B.6: Unallocated water reserves in the Cooper Creek water plan area**

| Reserve name | Purpose | Initial reserve (ML) | Remaining reserve (ML) |
|---|---|---|---|
| General | For non-irrigation purposes | 200 | 200 |
| Indigenous | For non-irrigation purposes | 200 | 200 |
| Strategic | For a project of State or regional significance | 1,300 | 1,300 |
| Town and community water | For a community purpose or to a local government for town water supply purposes | 500 | 500 |

# Appendix C Water taken or interfered with under statutory authorisations

**Table C.7: Information on water authorisations that may not be limited by a water planning instrument in the Cooper Creek water plan area**

| Form of take | Catchment information sources |
|---|---|
| S.93 General authorisations to take water (e.g., firefighting, watering travelling stock) | **No major change in water taken under this general authorisation.**<br>These activities deal with very low quantities of water, which present a low risk to the Cooper Creek water plan outcomes. The department is not aware of an increase in water take for these purposes. |
| S.94 General authorisations to interfere with overland flow water or interfere by impoundment for structures used for collecting monitoring data | **No major change in interference under this general authorisation.**<br>There was no significant increase in works taking overland flow in the water plan area.<br>There are no new departmental gauging stations that interfere with water from a watercourse, lake, or spring by impounding for the purpose of collecting monitoring data. |
| S.95 First Nations parties | **No impacts identified under this authority.**<br>These activities deal with very low quantities of water, which present a low risk to the Cooper Creek water plan outcomes. The department is not aware of an increase in water take or interference for traditional activities or cultural purposes. |
| S.96 Landowners may take water for stock or domestic purposes | **No impacts identified under this general authorisation.**<br>An owner of land adjoining a watercourse, lake or spring may take water from the watercourse, lake, or spring for stock or domestic purposes. There have been no noted increases in the take of water for these purposes. |
| S.97 Environmental authorities to take or interfere with overland flow | **No identified change in water taken under this general authorisation.**<br>Notification for the construction of overland flow storages to satisfy an environmental authority or a development permit for carrying out an environmental relevant activity is required under the Sustainable Planning Regulation 2009 and the Water Regulation 2016. |
| S.98 Resource activities that interfere with the flow of water by diversion of a watercourse | **No identified change in interference with watercourses under this general authorisation.**<br>The impacts of interference by diversion are assessed through the *Environmental Protection Act 1994* requirements. |
| S.99 Constructing authorities and water service providers | **No identified change in water taken under this general authorisation.**<br>Limited volumes of water are required for road and rail construction and maintenance, and public amenities. There is no significant increase in infrastructure and or amenities within the water plan area. |
| S.101 Authorisation that may be altered or limited by water planning instrument or regulation. | **No identified change in water taken under this general authorisation.**<br>s101(1)(a) Prescribed activities: Prescribed activities that would be most utilised are washing down equipment, plant or vehicles, filling spray units to apply herbicides or pesticides. The Cooper Creek water plan has set a limit of 10 ML for prescribed activities.<br><br>s101(1)(b) Take of overland flow: For stock or domestic purposes, for another purpose, other than irrigation, if the works for taking the overland flow water have a capacity of not more than 10ML. For under a water license granted from unallocated water; for prescribed activities; to comply with an environmental authority; to comply with a development permit for an environmentally relevant activity; or for contaminated |

| Form of take | Catchment information sources |
|---|---|
| | agricultural runoff. Notification for the construction of overland flow storages is required under the Water Regulation 2016.<br><br>s101(1)(c) Take of underground water: Cooper Creek water plan only regulates underground water that is hydraulically linked to a watercourse lake or spring, except where the spring is connected to water to which the Water Plan (Great Artesian Basin and Other Regional Aquifers) 2017 applies.<br><br>s101(1)(d) Take of water from a dam, not on a watercourse: Existing overland flow works, or reconfigured overland flow works that do not increase the average annual volume of water taken compared to the existing works. Landowners using these works can continue to take overland flow if they have provided notice in the approved form, however the volume of water taken cannot be increased.<br><br>s101(3) Take of contaminated agricultural run-off: The Cooper Creek water plan allows the take of contaminated agricultural runoff in overland flow in the water plan area. |
| S.102 Authorisations under water plans or regulation | **No identified change in water taken under this general authorisation.**<br>The Cooper Creek water plan provides for entitlements to take overland flow water for stock and domestic purposes, and for any purpose, other than irrigation, up to 10ML. |
| S.103 Authorisations to take water for stock or domestic purposes may be limited | **No identified change in water taken under this general authorisation.**<br>The Cooper Creek water plan does not provide any additional rules for managing how water for stock or domestic purposes is managed. |

# Appendix D Water plan amendments and milestones

**Table D.8: Summary of Cooper Creek water planning milestones**

| Effective date | Milestone |
|---|---|
| December 2000 | The Water Resource (Cooper Creek) Plan 2000 (and explanatory notes) commenced in December 2000. It applied to surface water, groundwater that is hydraulically linked to surface water and overland flow water. |
| November 2011 | The Cooper Creek water plan (and explanatory notes) commenced in November 2011 and applied to surface water, groundwater that is hydraulically linked to surface water and overland flow water. The water plan identified Indigenous, town water supply and community, general and strategic reserves to provide for future water requirements. The Cooper Creek water plan allowed continued use of all water entitlements and improved certainty of supply for water entitlement holders. The Cooper Creek water plan also provided the framework for water for essential supplies and natural ecosystems as well as recognising cultural values important to traditional owners. |
| September 2013 | The *Land, Water and Other Legislation Amendment Act 2013* amended the Cooper Creek water plan to update a section number cross reference with the Water Act. |
| November 2013 | The Cooper Creek Resource Operations Plan (ROP) was released in November 2013, with a consultation report and explanatory notes. The ROP amended water licences to align with the strategies in the Cooper Creek water plan and stated a process for the release of unallocated water, dealing with licence applications and overland flow. |
| June 2014 | The Cooper Creek water plan was amended by the *Water Resource Plans Amendment Plan (No. 1) 2014*, which:<br>removed unnecessary prescriptions while retaining policy intent and standardised, simplified and enhanced the transparency of selected provisions.<br>removed redundant provisions and removed duplication with the Water Act and the Water Regulation.<br>moved the monitoring and reporting requirements into the ROP.<br>changed the Minister's reporting period on the Cooper Creek water plan to five years. |
| December 2016 | The Cooper Creek water plan was amended by the *Water Resource Plans Amendment Plan (No. 1) 2014* to be consistent with the wording of the amended Water Act. This included the establishment of the new water planning framework, which transitioned the existing water plan documents and took effect in December 2016. The ROP will be recast as a water management protocol in the future. |
| September 2017 | The commencement of the Water Plan (Great Artesian Basin and Other Regional Aquifers) 2017 required the amendment to reflect the correct plan that artesian water and subartesian water connected to artesian water is managed under. |
| September 2031 | The Cooper Creek water plan is due to expire. |

# Appendix E Overview of non-compliance by entitlement holders

**Table E.9: Summary of non-compliance incidents in the Cooper Creek water plan area in 2018/19–2022/23 water years**

| Type of alleged non-compliances | Number of alleged non-compliances | Outcome |
|---|---|---|
| **Contravene conditions of a licence to interference** | 1 | One compliance notice was issued, requiring a licence amendment. |

# Appendix F Departmental gauging stations

**Table F.10: List of current DRDMW gauging stations in the Cooper Creek water plan area.**

| Catchment | Gauging station number | Gauging station |
|---|---|---|
| Upper Thomson | 003204A | Cornish Creek at Bowen Downs |
| Thomson-Barcoo | 003205A | Darr River at Darr |
| Thomson-Barcoo | 003202A | Thomson River at Longreach |
| Thomson-Barcoo | 003302A | Alice River at Barcaldine |
| Thomson-Barcoo | 003303A | Barcoo River at Blackall |
| Thomson-Barcoo | 003203A | Thomson River at Stonehenge |
| Thomson-Barcoo | 003301B | Barcoo River at Retreat |
| Cooper | 003103A | Cooper Creek at Nappa Merrie |

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