



Managing water in the Fitzroy River Catchment

Discussion paper for stakeholder consultation

November 2020

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Government foreword

The Fitzroy River has unique environmental and cultural values of national and international importance that make the river and the surrounding Fitzroy Valley one of the most extraordinary assets in the State. The past and present strong Aboriginal cultural traditions and connection to Country, amazing landscapes and enduring pastoral industry are some of the many characteristics that make this catchment so important and attractive to visit, invest and live in.

At the same time, the Fitzroy Valley faces a number of distinct challenges in developing and driving new and diversified economic opportunities for residents and communities. The residents and land holders in the Fitzroy River Catchment have aspirations regarding land use and economic development for their Country, and there is support for a range of economic activity which lie in both celebrating the unique environmental and cultural values of the catchment and in development of existing and potentially new industries. However, there is a desire to understand any potential impact on the natural environment and culturally significant sites, and to ensure any potential impacts are appropriately managed.

The McGowan Government recognises the need to both to protect the river and its dependent values and support pathways for people to pursue economic development opportunities across the Fitzroy River Catchment.

An important part of protecting both the heritage and environmental values, like the endangered sawfish, is to maintain the natural flow regime of the river. This is why we have given a clear direction that the Fitzroy River and its tributaries will not be dammed.

We are in a unique position to plan rather than react in the Fitzroy River Catchment. By listening to the local community, using our best science and the lessons learned from other jurisdictions we can be very clear about the expectations and requirements of any developments to ensure they do not impact the natural values of the river, are sustainable and deliver benefits for the whole community.



Hon. Dave Kelly,
MLA, Minister for Water



Hon. Stephen Dawson,
MLC, Minister for
Environment



Hon. Alannah MacTiernan,
MLC, Minister for Regional
Development; Agriculture
and Food; Ports; Minister
Assisting the Minister for
State Development,
Jobs and Trade



Hon. Ben Wyatt,
MLA, Treasurer;
Minister for Finance;
Aboriginal Affairs;
Lands

Have your say

Purpose of this paper

This paper discusses the options and approaches being considered by the Government of Western Australia to protect the Fitzroy River and manage the use of water to support sustainable economic development in the catchment. It has been developed by talking to people who live, work and interact with the Fitzroy River and are committed to its future. No final decisions have been made in relation to any option or approach taken in this paper.

Consultation

The paper forms the basis for another series of face-to-face discussions with traditional owner groups and other stakeholders in the Fitzroy Catchment. The Department of Water and Environmental Regulation and the Department of Primary Industries and Regional Development will be seeking opportunities to meet with stakeholders to discuss the approaches presented in the paper and receive feedback. Written submissions are also invited on the paper until 31 May 2021 to allow opportunity for formal comments to be made.

How to make your submission

The consultation period for this paper is open until **5pm (WST) on Monday 31 May 2021**.

You can provide your feedback and comments in several ways:

- at a meeting or information session
- online via the Department of Water and Environmental Regulation's Consultation Hub at consult.dwer.wa.gov.au/
- by sending your written comments by email to fitzroywaterdiscussionpaper@dwer.wa.gov.au or by post to:

Branch Manager
Water Allocation Planning
Locked Bag 10
Joondalup DC WA 6919

If you need more information or would like to meet with us or arrange a group information session during the consultation period, please email fitzroycommitments@dpird.wa.gov.au.

Introduction

The State Government is working collaboratively to deliver a suite of election commitments to:

- create the Fitzroy River National Park which will extend the Geikie Gorge National Park along the Fitzroy River to the north and along the Margaret River
- develop a management plan for the Fitzroy River to ensure the health of the river and provide a basis for sustainable economic development
- not allow the Fitzroy River or its tributaries to be dammed.

This work includes developing a water allocation plan for the Fitzroy area.

Planning for the sustainable management of water resources is building on years of community planning, new and improving science by both the State and the Australian Governments (see Appendix: Further reading) and consultation with traditional owners and stakeholders.

This work has provided a basis for discussions that Government has been having over the past two years with traditional owners and stakeholders about the election commitments, opportunities for sustainable economic development and protecting the river.

From this consultation, we have gathered a range of views about the future of the catchment, its economic development and the management of water resources. The feedback and perspectives received so far are reflected in this paper.

Your feedback on the options and approaches outlined will help guide and inform the development of new policies that deliver on the State Government's election commitments, including a water allocation plan and Fitzroy River management plan.

Proposed management approaches for discussion and feedback

Outlined in this paper are seven key topics relating to managing water and development in the Fitzroy River Catchment that have been identified as needing further discussion with stakeholders. The topics outline the key issues, what people have said so far during consultation, important considerations, proposed management approaches and examples for discussion and feedback.

1 Adaptive management approach to protect the health of the Fitzroy River

Ensuring the Fitzroy River Catchment's water resources are managed and developed in a sustainable manner will be an ongoing and adaptive process and involve government, traditional owners and other stakeholders working together to protect the catchment's unique ecological, cultural, economic and social values.

Key issues to address

An adaptive management approach will be integral to ensuring that the catchment's water resources are allocated and managed in a way that protects the area's significant cultural and environmental values. We need to consider the key components of an adaptive approach, including:

- a long-term governance model that allows community collaboration and participation in setting the direction of water allocation and management policies
- requirements for careful and targeted monitoring to make sure development is not adversely affecting values
- a process for regular review and evaluation of our management approach.

What people have said already

- At the Fitzroy Crossing stakeholder-led forum in August 2019, people agreed that effective monitoring and compliance was critical to protecting the Fitzroy River and the environment.
- There is a desire from all people to be involved in the long-term management of the Fitzroy River.
- There has been positive feedback on previous catchment management groups like the Fitzroy Catchment Action Management (FitzCAM) group, and how important it is for people to have a forum to talk and work together.

Things to consider

- Ongoing feedback from the community is an important part of adaptive management and transparency. There are several ways this is done across the State, ranging from annual reports to the community, to advisory committees.
- The Department of Water and Environmental Regulation has comprehensive surface water monitoring in place for the Fitzroy River and a network of groundwater monitoring bores.

- Data collected, together with information collected by water licensees, will help to evaluate how the river and aquifers respond to water development both at individual development sites and cumulatively across the catchment.
- Water users are required to meter abstraction and undertake water and environmental monitoring. Regular compliance and enforcement activity are undertaken to ensure licensees comply with licence conditions.
- Water allocation plans are evaluated annually and reviewed every seven to 10 years to ensure the catchment's water resource management objectives are being met.

Approach for discussion and feedback

1. Establish a Fitzroy advisory group

The State Government is committed to establishing a Fitzroy advisory group. How the group is established, its term of reference and membership will be developed after further consultation.

2. Monitoring of water resources, environmental and cultural values will be required

A detailed monitoring program will be designed to closely monitor water, important environment indicators and cultural values in consultation with the community. We will also investigate opportunities for traditional owners to be involved in monitoring activities.

3. Future investigations and work will be identified

The water allocation plan will outline the State Government's support for future investigations that help build our shared knowledge and understanding of the Fitzroy River.

2 Not allowing the Fitzroy River or its tributaries to be dammed

The 'no dam policy' is a critical part of the State Government's commitment to protecting the river and its national heritage values. This policy is based on a long history of community consultation.

Key issues to address

Aside from building dams on the river, there are a several other ways that water from the Fitzroy Catchment could be allocated to support economic development. We need to decide what alternatives might be sustainable and acceptable so that landowners and potential investors can make business decisions.

What people have said already

- Most people understand and support the State Government's opposition to on-stream dams on the Fitzroy River or its tributaries to protect the natural flows of the river.
- There is strong support for the sustainable and culturally appropriate take of groundwater.
- There are people that oppose taking surface water from the river other than for existing uses.
- Others have indicated support for harvesting water provided it is stored away from the river and controls are in place to protect the river's national heritage values.

Things to consider

- There are a several possible options for surface water harvesting that don't involve dam structures on the river or its tributaries.
- The options presented later in this paper are based on modelling and environmental studies being undertaken by the Department of Water and Environmental Regulation.
- There are many challenges to doing business in northern Australia, and providing opportunities to access water from the river is one enabler that can help improve business flexibility and adaptability, and drive business development and long-term investment into the local economy.

Approach for discussion and feedback

4. Infrastructure that spans the width of the Fitzroy River and its tributaries will not be allowed

New dams, weirs, barrages and other infrastructure that spans the width of the waterway would have a significant impact on the flow of the river and will not be supported.

5. Off-stream water storage infrastructure may be supported

An off-stream dam storing water harvested from a waterway and/or capturing some rainfall run-off, drainage or overland flood waters could be allowed provided it meets all regulatory requirements for protecting cultural and environmental values.

3 Taking groundwater

Groundwater has the potential to be a reliable and efficient source of water to support development where available in the Fitzroy Catchment. Several aquifers are present, some of which show strong prospects for development. These aquifers are predominantly located in the western half of the catchment and require local assessment to prove abstraction potential and viability.

Key issues to address

While there are prospective groundwater aquifers present in the catchment, several of these play a particularly important role in supporting significant cultural and environmental values (including the Fitzroy River). Our allocation approach seeks to protect these value as well as provide opportunity for use of groundwater.

What people have said already

- People are supportive of abstracting groundwater where the risks to the Fitzroy River are low.
- The importance of the Alluvial Aquifer in supporting river pools and wetlands during the dry season is recognised, and there is support for restricting abstraction from this resource.
- People, especially Bunuba traditional owners, have identified how important the Devonian Reef Aquifer is for supporting cultural, geological, heritage and aesthetic values, many of which are included in the National Heritage listing.

Things to consider

- Several groundwater aquifers, including the Alluvial, Devonian Reef and Grant Poole, are hydraulically connected to the Fitzroy River at different locations along the river. This means that abstracting water from particular aquifers in certain areas may impact flows in the Fitzroy River.
- The Grant Poole is the most prospective regional aquifer if abstraction is located away from areas connected to the Fitzroy River and other groundwater-dependent cultural and environmental values. In some areas the Grant Pool aquifer is located at significant depth; however, hydraulic pressure (depth to water) may be favourable (see figures 1 and 2).
- Other groundwater resources including the Wallal, Erskine, Liveringa and Fractured Rock aquifers may offer some smaller localised opportunities for sustainable abstraction.
- The Alluvial Aquifer (river sands) plays a critical role in supporting river pools, wetlands, springs and vegetation during the dry season and drought periods. Abstracting water from this aquifer is considered very high risk to the these values

and the Fitzroy River. It is also unlikely that the aquifer would be a suitable water resource for development because of limitations in local water quality and quantity.

- The Devonian Reef Aquifer supports a particularly high number of significant cultural, environmental, geological and heritage values many of which are protected under the West Kimberley National Heritage Place listing. The aquifer's unique hydrogeology makes it difficult to assess the impacts of abstraction and so taking water from it is considered very high risk to these values.
- Taking small volumes of groundwater for stock-watering and domestic purposes will continue to be allowed across the catchment.

Approach for discussion and feedback

6. Up to 108.5 GL/year of groundwater could be available for allocation

Up to a total of 108.5 GL/year could be released for allocation, a portion of which could be available through a Fitzroy Aboriginal Water Reserve (see Topic 5). The volume available in other less prospective groundwater resources would be determined by a local assessment of sustainability.

7. Restrict abstraction from the Alluvial Aquifer

Abstraction would be limited to small-scale use for community and domestic purposes and stock watering.

8. Restrict abstraction from the Devonian Reef Aquifer

New development in this resource will not generally be permitted.

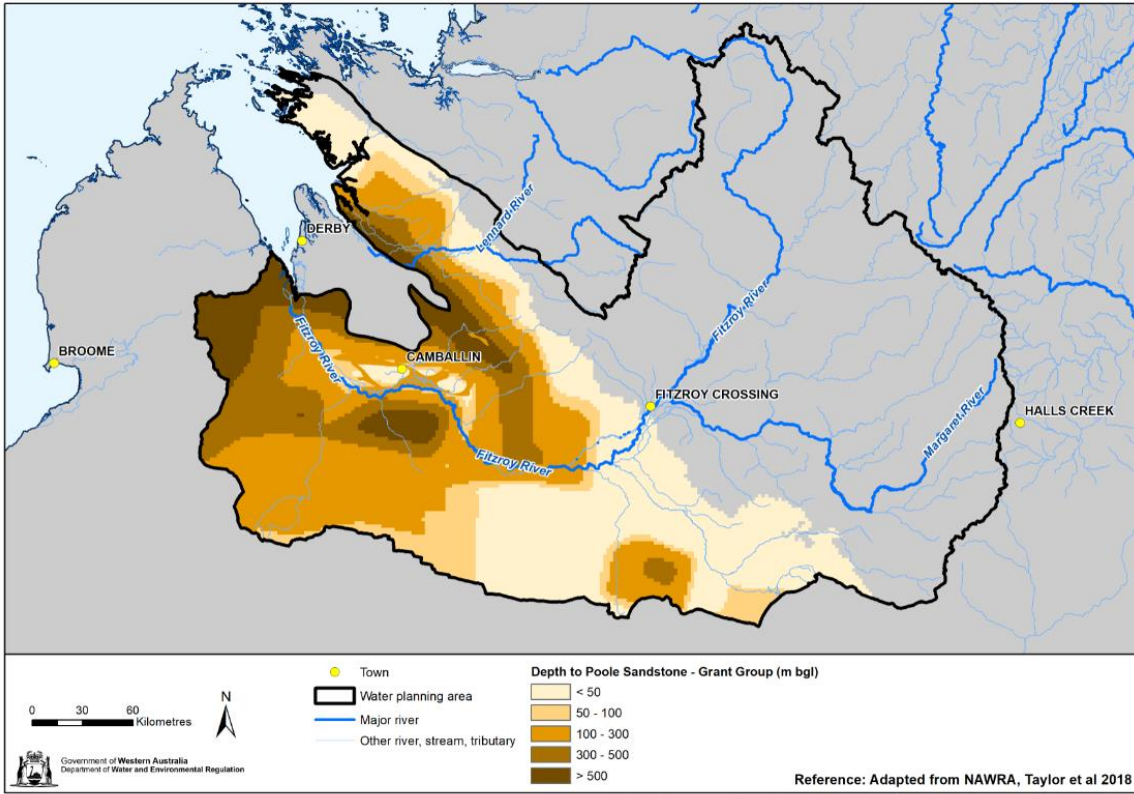


Figure 1 Depth (in meters below ground level) to the top of the Grant Poole Aquifer

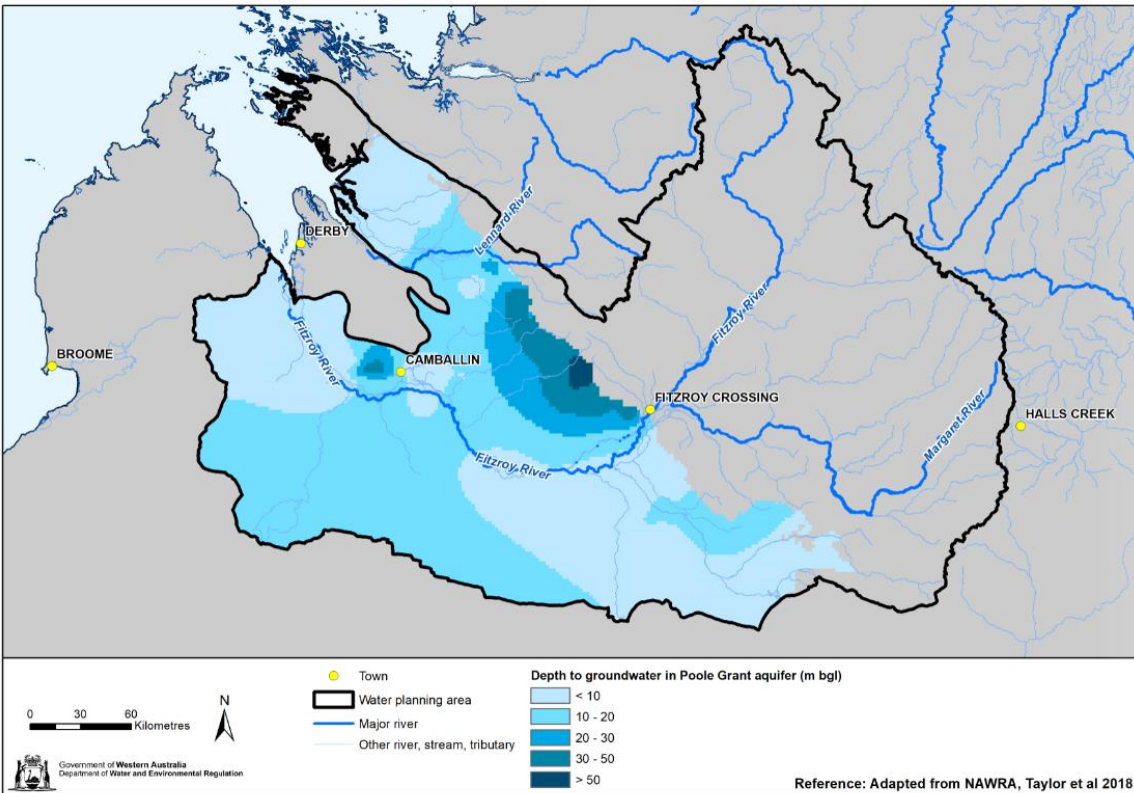


Figure 2 Depth (in meters below ground level) to water in the Grant Poole Aquifer (interpolated hydraulic head)

4 Taking surface water from the Fitzroy River

The Fitzroy River and its tributaries, together with their floodplains, are recognised under the West Kimberley National Heritage Place listing as having outstanding Aboriginal heritage and cultural value. This means the river's heritage and cultural values should be protected when government makes decisions about development.

Key issues to address

There is interest in a range of economic activities that may bring positive economic and social outcomes for the local community. Many of these activities need reliable access to water. Given the importance of the river to people in the catchment, we need to take a cautious approach to questions of whether or how people could take water from the river.

What people have said already

- People have different views about taking surface water from the Fitzroy River; however, all recognise the importance of protecting the river.
- There are those, including some traditional owners, who believe all Fitzroy River flows are already fully utilised supporting environmental and cultural values.
- There are people who wish to take significant volumes of water from the river for large-scale economic activity.
- Others have indicated cautious support provided volumes are small and national heritage values are protected.

Things to consider

- There are areas in the catchment with limited or no access to prospective groundwater resources.
- Allowing some water use from flows in the Fitzroy Valley could, subject to satisfying regulatory requirements, provide opportunities to grow and build resilience in existing industries and enable other emerging industries to utilise the river.
- Sustainable arrangements for the take of surface water could allow both consumptive and non-consumptive uses of the river to co-exist.
- Allowing the development of large-scale projects in a relatively undeveloped catchment with significant environmental and cultural values like the Fitzroy River is high risk and unlikely to be supported by many groups in the community.

Projects that start small and grow in size and scope over time may be supported by the community as they can be better monitored and managed.

- Taking a staged approach may also help manage some of the significant risks and challenges of doing business in northern Australia.
- Taking small volumes of surface water for cultural and domestic purposes and stock-watering already occurs and is proposed to continue across the catchment.

Approach for discussion and feedback

9. Stage the allocation of surface water resources

Surface water could, if made available for licensing, be licenced in stages, up to an allocation limit. For example, if the allocation limit was 300 GL/year, 190 GL/year could be released for allocation, including 100 GL/year in a general access pool and conditional access to 90 GL/year in a Fitzroy Aboriginal Water Reserve (See Topic 5). The remaining water (110 GL) would be reserved and released in the future to the general access pool if there is demand and monitoring demonstrates that it is sustainable and will not impact river values. See Figure 3.

This approach protects the river while allowing people the opportunity to sustainably access a small proportion of the river's flow to develop new or expand existing enterprises. Allowing controlled access to some surface water increases the diversity and flexibility of economic opportunities across the catchment generally.

10. Individual projects could be required to stage water development

Up to 20 GL/year could be available from the general access pool for projects to stage development. Water will not be reserved for additional stages and speculative water applications will not be approved. Water to support additional project stages may be allocated once water use reaches 75 per cent and monitoring shows environmental and cultural values have not been, and will not be, adversely impacted. See Figure 4.

Water from the Fitzroy Aboriginal Water Reserve could be allocated in addition to water from the general access pool. This would encourage people to investigate opportunities for partnerships with traditional owners.

This approach allows careful monitoring for potential cumulative impacts as use increases, and time to respond and adapt our management if required.

11. Rules could control when surface water harvesting could occur

Strict rules controlling when and how water harvesting could occur could include:

- no water harvesting during the dry season
- no water harvesting in poor wet seasons
- allow the first flush of the river and pools to reconnect after the dry season before water harvesting can start
- ensure the river remains connected during wet season harvesting periods
- no water harvesting during late wet season.

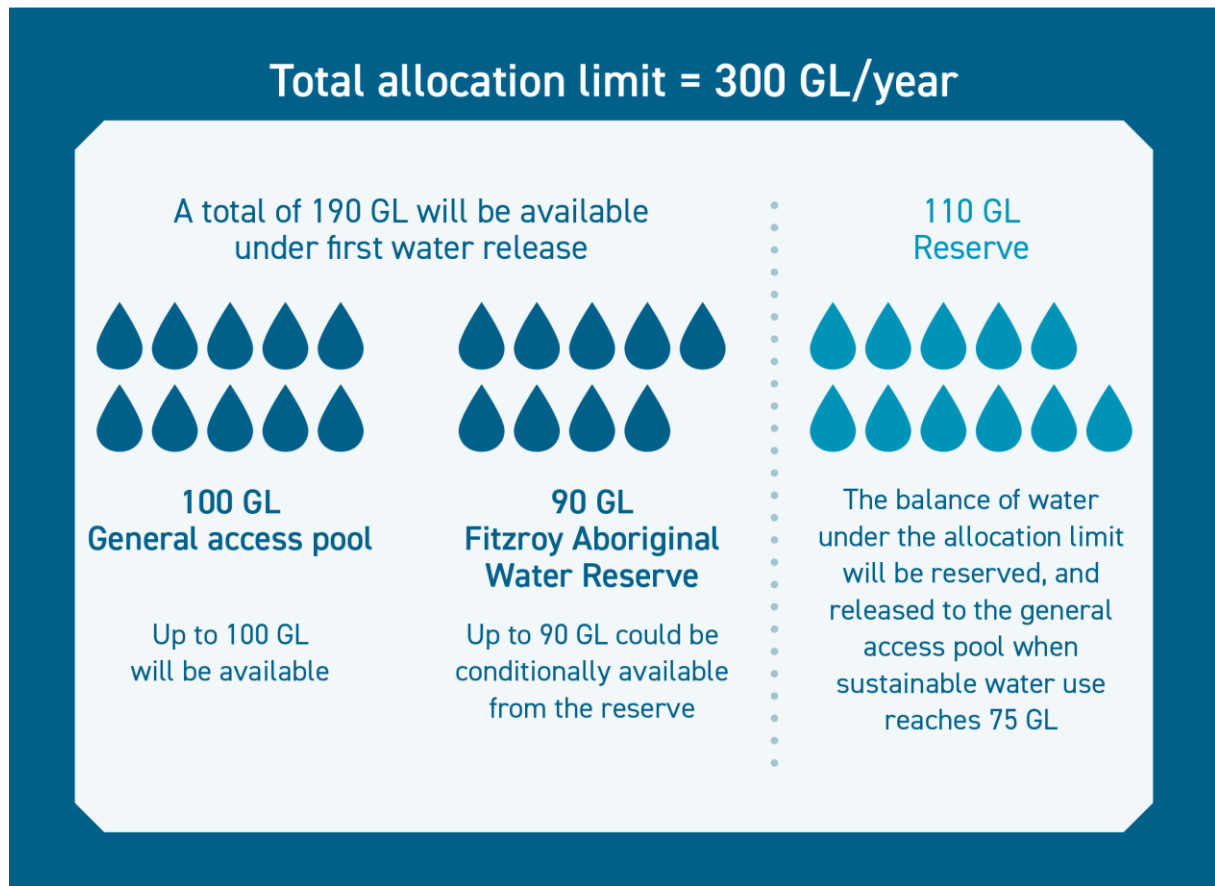


Figure 3 Surface water would be made available for allocation in a staged release framework.

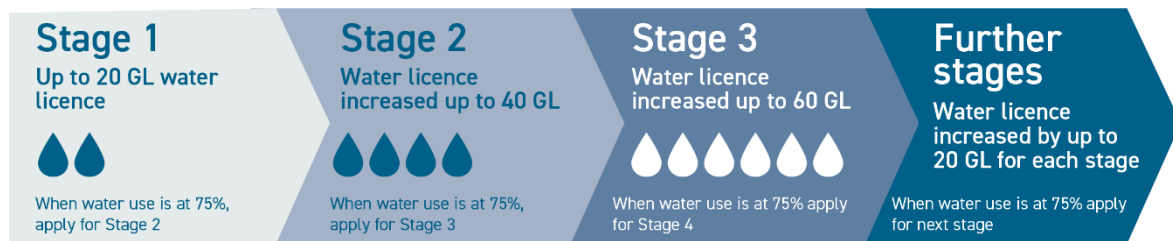


Figure 4 Staging of individual surface water development projects and water licence entitlements.

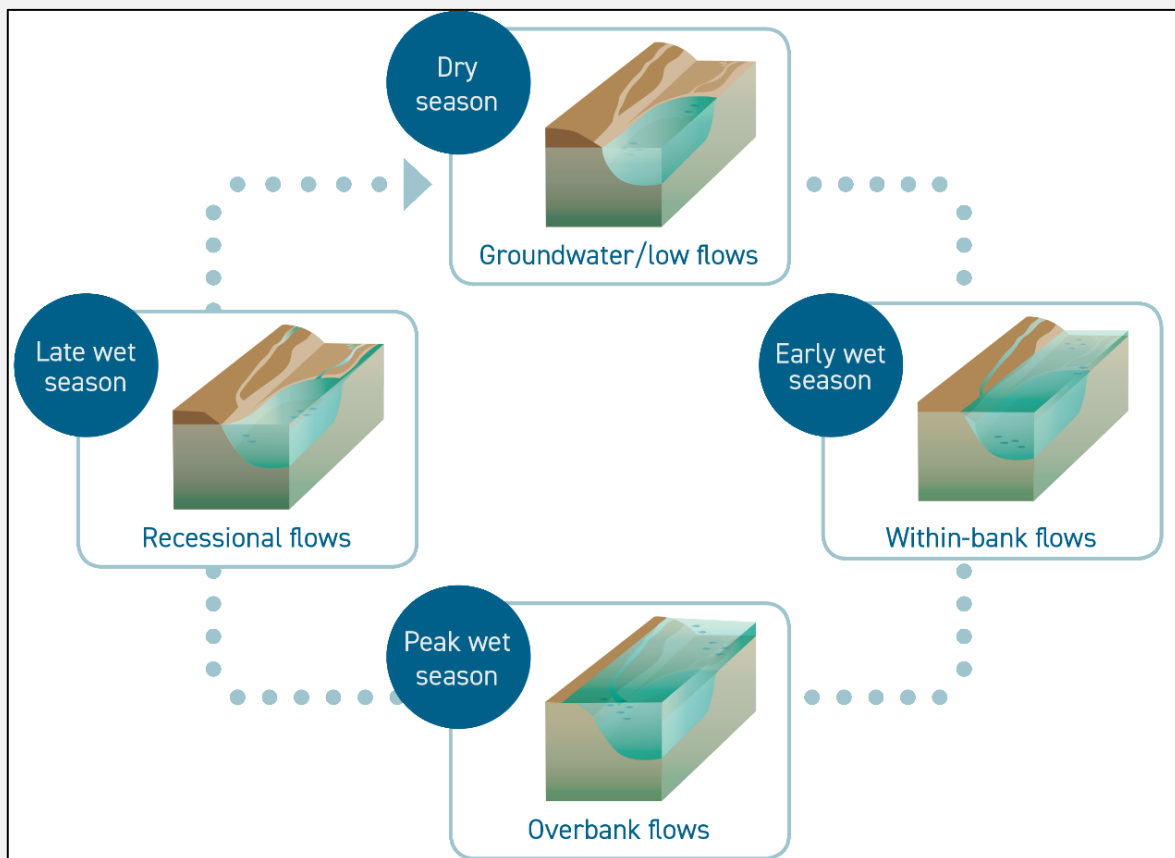
Information box: Assessing sustainable surface water allocation

Flows in the Fitzroy River vary in timing, quantity and quality throughout the year as the season changes. These flows all play an important role in supporting environmental and cultural values in the river itself, along the riparian zone and on the floodplain.

The Department of Water and Environmental Regulation has used the best available science from our investigations and others including CSIRO, NESP and Murdoch University to understand how animals and plants rely on these different river flows.

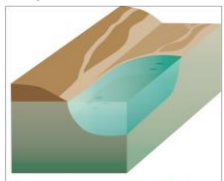
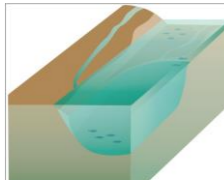
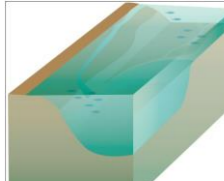
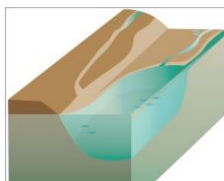
Using this information, the department assesses how harvesting water from the river could affect water flows and a range of habitats and species, using the example of a take of up to 300 GL/year. Table 1 provides a summary of an approach that could be used.

Understanding how harvesting surface water from the river could impact cultural values is part of ongoing consultation with traditional owners.



Flows in the Fitzroy River vary in timing, quantity and quality throughout the year as the season changes.

Table 1 Possible management approach and rules for an example take of up to 300 GL/year from the Fitzroy River

River flows	River protection rules	Results of rules being in place and predicted changes to river flows, selected habitats and species
<p>Dry season</p>  <p>Groundwater/low flows</p>	<p>No water harvesting during the dry season.</p> <p>Abstraction from Alluvial and Devonian Reef aquifers limited.</p>	<ul style="list-style-type: none"> All river flows protected during the dry season. During the dry season, all river pools and habitats for sawfish, barramundi, river sharks, fresh and saltwater crocodiles would be protected from water harvesting. Dry season pools supported by groundwater from the Alluvial and Devonian Reef aquifers would be protected.
<p>Early wet season</p>  <p>Within-bank flows</p>	<p>Allow the first flush (1500 GL/year) to flow down the river before water harvesting can commence.</p> <p>Ensure the river remains connected during wet season water harvesting periods (minimum daily flow requirement of 3 GL/day at Camballin Barrage).</p>	<ul style="list-style-type: none"> Protecting the early wet season flows that flush and clean the river country would ensure: <ul style="list-style-type: none"> river pools reconnect and allow fish to move along the river important nutrients are delivered into King Sound the Alluvial Aquifer is recharged. A minimum daily flow requirement would ensure river pools along the lower part of the river fill after the dry season and stay full during water harvesting periods. These pools are important habitats for sawfish, barramundi and other large species of fish. A minimum daily flow requirement would also maintain connectivity along the lower part of the river and support shallower river areas between pools that are important for small fish species and sawfish foraging.
<p>Peak wet season</p>  <p>Overbank flows</p>	<p>Up to 300 GL/year allocation limit caps the amount of water that can be harvested annually during this period.</p> <p>The typical wet season harvest period will be from January to early April.</p>	<ul style="list-style-type: none"> Restricting take to the wet season harvest period would result in <ul style="list-style-type: none"> less than 3% change in extent and duration of floodplain inundation less than 1% change in extent and duration of inundation of flood runner channels less than 2% change in extent of inundation of riparian vegetation and habitat of dependent fauna including the Purple-crowned Fairy-wren less than 1% change in extent of off-channel wetland inundation. For nationally important wetlands like the Le Lievre Swamp System there would be less than a 0.5% change in extent of flooding inundation, as well as no change at Geikie Gorge. No change to areas of inundation and recharge near Fitzroy Crossing town water supply bores. No change in the occurrence of successful sawfish recruitment events identified by Murdoch University. High river flow events into King Sound which are important for productivity and freshwater inputs to seagrass, mangrove and salt flat communities would be maintained. Fish passage over Camballin Barrage reduced by only one day on average. If fully allocated, an allocation limit of 300 GL/year would on average reduce total annual flow by less than 5% (would vary between 0 and 10% depending on the annual flow).
<p>Late wet season</p>  <p>Recessional flows</p>	<p>No water harvesting during the late wet season (after 15 April).</p>	<ul style="list-style-type: none"> A 'switch off' date for water harvesting would protect late wet season flows, which are important for upstream migration of cherabin and to allow other fish, including sawfish, to move back into the main channel before the dry season.
<p>Other</p>	<p>No water harvesting is allowed in poor wet seasons (driest 10% of the year).</p>	<ul style="list-style-type: none"> All river flows would be protected in the driest 10% of the year.

5 Providing opportunities for Aboriginal economic development

The State Government is committed to empowering Aboriginal Western Australians to achieve real change and better outcomes in their lives. Traditional owners in the Fitzroy River Catchment have clear aspirations regarding land use and economic development for their Country and access to water can help realise some of these business opportunities, improve prosperity, create jobs and help achieve financial security and independence for Aboriginal communities.

Key issues to address

If the use of groundwater and/or surface water is supported, ensuring there is access to that water to develop economic enterprises on their native title lands when they are ready to do so will give traditional owners more choices to develop new or expand existing businesses and enter into partnerships and agreements with others. If water is not set aside now, there is a risk that access to water in the future may be limited.

What people have said already

- People living in the catchment want to provide a brighter future for young indigenous people, including more locally based job, training and development opportunities.
- Traditional owners want recognition of their customary responsibilities and interests in water resources and a greater say in how water is used.
- Many traditional owners are worried about missing out on any water allocations and are interested in water reserves as a way of securing access for when they are ready to apply for a licence.
- Traditional owners are very clear that water which supports cultural values should be protected and left in the system.

Things to consider

- It is widely accepted that Aboriginal people need time to plan, build capacity and infrastructure required to access water for economic purposes (Australian Government 2017). This is the case in the Fitzroy area, where many groups have only had their native title rights recognised relatively recently.
- Setting aside any water for local Aboriginal people to use for economic purposes is in addition to water that is left in the natural system to support in-situ Indigenous cultural values, activities and traditions.
- Aboriginal people hold native title over most of the catchment and around 30 per cent of the pastoral leases.

- Water is reserved for the economic use of Aboriginal people in several other parts of Australia, including the Northern Territory which sets aside up to 30 per cent of water available for allocation in a reserve.
- Under the *Rights in Water and Irrigation Act 1914* (RiWI Act) a water licence is required to take and use water, including from a water reserve.
- Under the RiWI Act, the ownership and control of water is vested with the Government of Western Australia. In creating a water reserve or issuing a water licence, ownership of water remains with the Government of Western Australia.
- Traditional owners would also be able to apply for water licences beyond any Aboriginal Water Reserve (after the reserve is fully utilised).

Approach for discussion and feedback

12. Establish a Fitzroy Aboriginal Water Reserve for native title holders to use for economic development on their native title lands when they are ready to do so

For example, 30% of groundwater (up to 32 GL/year) and surface water (up to 90 GL/year) could be set aside in a strategic reserve. The reserve would be shared between traditional owners who hold determined native title rights under the *Native Title Act 1993* in the catchment and areas where the prospective aquifers are accessible.

Traditional owners and government will need to work out more detailed rules for managing the reserve before it can be accessed.

13. A water licence would be required to access the Fitzroy Aboriginal Water Reserve

To access the Fitzroy Aboriginal Water Reserve, traditional owners would have to apply for a water licence like any other user. All water licensing policies and regulations would apply to accessing water from the reserve including undertaking water investigations to demonstrate the water is available at a particular location and that environmental and cultural values will not be adversely impacted.

The reserve could be used by traditional owners themselves or working in partnership with others.

6 Regulatory requirements for protecting cultural and environmental values

The Fitzroy River Catchment has outstanding Aboriginal, historic, aesthetic, cultural and natural heritage values. There are many existing State and Australian Government legislative protections already in place to protect these areas. These include the need to apply for a water licence.

Key issues to address

Given the high level of legislative and regulatory requirements in place across the Fitzroy Catchment, ensuring that the regulatory process is clear, robust and aligned across government will be important so people have confidence that significant values are being protected and businesses can make investment decisions.

Thorough consultation with traditional owners is expected in the Fitzroy Catchment because individual developments may impact local cultural and environmental values listed under the West Kimberley National Heritage Place (see p.25 and Figure 9, below) and state heritage legislation.

What people have said already

- All people share a desire to protect the Fitzroy River, but differ on the best way this could be done.
- Some people have suggested that a buffer zone prohibiting development on the floodplain is needed to protect the river and its values, while others point out this would exclude many areas with development potential.
- The August 2019 stakeholder-led forum showed a spirit of co-operation and a desire to improve relationships between Aboriginal and other people and pursue partnerships in the catchment.
- The communique identified key principles for doing business emphasising sincere and good faith engagement between proponents and traditional owners, compliance with regulatory requirements and conditions, protection of the environment and certainty of processes and timelines.

Things to consider

- Development proponents must comply with all regulatory requirements including those under the *Native Title Act 1993 (Cth)*. Significant proposals will likely require referral to the Australian Government and the Western Australian Environmental Protection Authority (EPA) because of the area's outstanding national heritage, cultural and environmental values.

- A water licence is required to take water in the catchment. Comprehensive water investigations are required to support an application for a water licence and show that the proposed take and use of water will be ecologically sustainable and environmentally acceptable.
- Some areas with significant cultural and environmental values are already identified and protected under existing legislation (Figure 5) and additional areas may be identified during the water licensing assessment and other regulatory approval processes.
- The *Engage early* (Australian Government 2016) and *Ask first* (Australian Heritage Commission 2002) guidelines outlines best practice for engagement with traditional owners and will facilitate effective and enduring relationships.
- The boundaries for the new Fitzroy National Park are currently under development by Department of Biodiversity, Conservation and Attractions and are anticipated to extend the Geikie Gorge National Park along the Fitzroy River to the north and along the Margaret River. Abstraction of groundwater and harvesting of surface water is generally not compatible with the management objectives for national parks and other conservation areas.

Approach for discussion and feedback

14. Best practice engagement with traditional owners will be required as part of the regulatory approvals processes

Proponents will be required to engage with traditional owners, in line with best practice guidelines, to identify and assess potential impacts of development on cultural values.

15. Development should avoid areas with environmental and cultural values including those already listed under existing legislation.

Development proponents should design projects that avoid where possible and protect areas with significant heritage, cultural and environmental values.

16. Water licensing requirements will be aligned with requirements of other Commonwealth and State environmental and heritage regulatory approvals.

In recognition of the many existing assessment processes in place, the water allocation plan and water licensing requirements will be designed to minimise duplication and complement the requirements of other agencies.

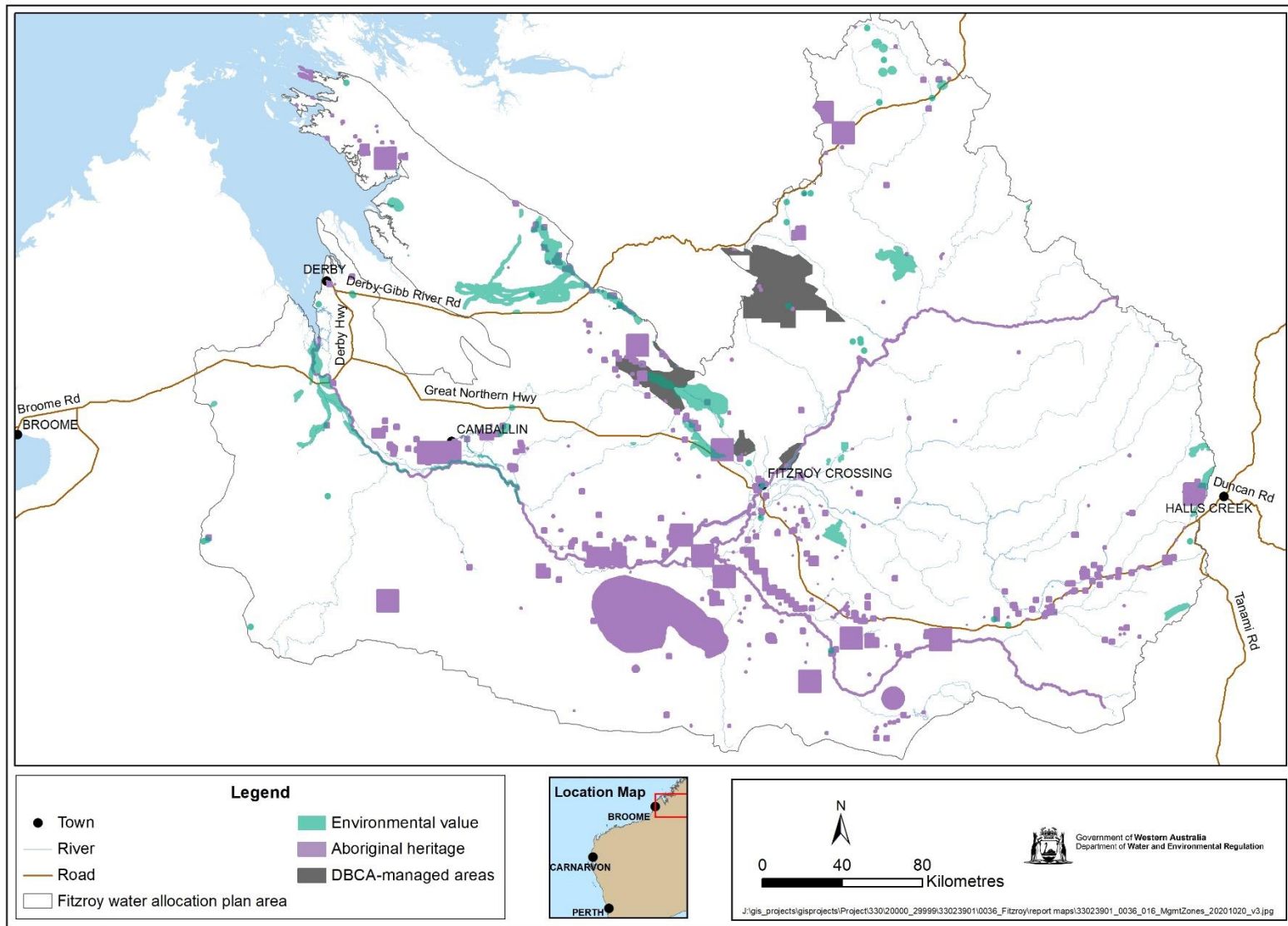


Figure 5 Existing areas where environmental and cultural values have been identified under current legislation and policy.

7 Options for consideration

This paper has outlined a range of approaches for managing water in the Fitzroy Catchment, including the potential prospects and opportunities for taking surface water from the Fitzroy River and groundwater from regional aquifers.

Broadly, there are two options: the first based on groundwater, and the second based on a combination of groundwater and surface water. The information provided in this paper should be used when considering the merits of these options.

Option 1: 108.5 GL of water

Under this example, only groundwater would be available for use and development. No additional surface water would be allocated from the Fitzroy River and its tributaries beyond existing licensed use and use for domestic and stock purposes.

A total allocation limit of 108.5 GL (including a Fitzroy Aboriginal Water Reserve) could be set for Grant Poole and Wallal aquifers and taking water from the Alluvial and Devonian Reef aquifers would be restricted. Additional groundwater from localised aquifers may be available following a local assessment.

Option 2: 408.5 GL of water

Under this example, both groundwater and surface water would be available for use and development.

An allocation limit of up to 300 GL could be set for surface water, with 100 GL initially released for general licensing and 90 GL released in a Fitzroy Aboriginal Water Reserve. Strict water licensing rules about when, where and how water can be taken to protect the river, floodplains, wetlands and estuary would apply.

As in Option 1, a total allocation limit of 108.5 GL would be set for groundwater and use of the Alluvial and Devonian Reef aquifers would be restricted.

Appendix: Frequently asked questions

What is a water allocation plan and a water licence?

Water allocation plans are developed across many areas of Western Australia where water resources are used by communities for public water supply, farming, industry, stock water and domestic purposes.

Water allocation plans and individual water licences work together to ensure that developments that use water are sustainable and protect the important values that rely on water. A water allocation plan sets the policy to be applied when assessing, issuing and then managing a water licence. Water allocation plans also ensure that everyone knows what the licensing rules are and how adaptive management will be applied. Figure 6 below shows how the Department of Water and Environmental Regulation uses water allocation plans and water licenses to answer key water resource management questions.

The Fitzroy water allocation plan will limit how much water can be used in total (to address concerns about cumulative impacts), as well as set the rules for when water can be taken (e.g., only in higher-flow years) and determining where water can be taken (e.g., away from important cultural and environmental values).

The plan won't determine who gets the water. Water is only allocated to individuals or organisations through the water licensing process under the *Rights in Water and Irrigation Act 1914*.

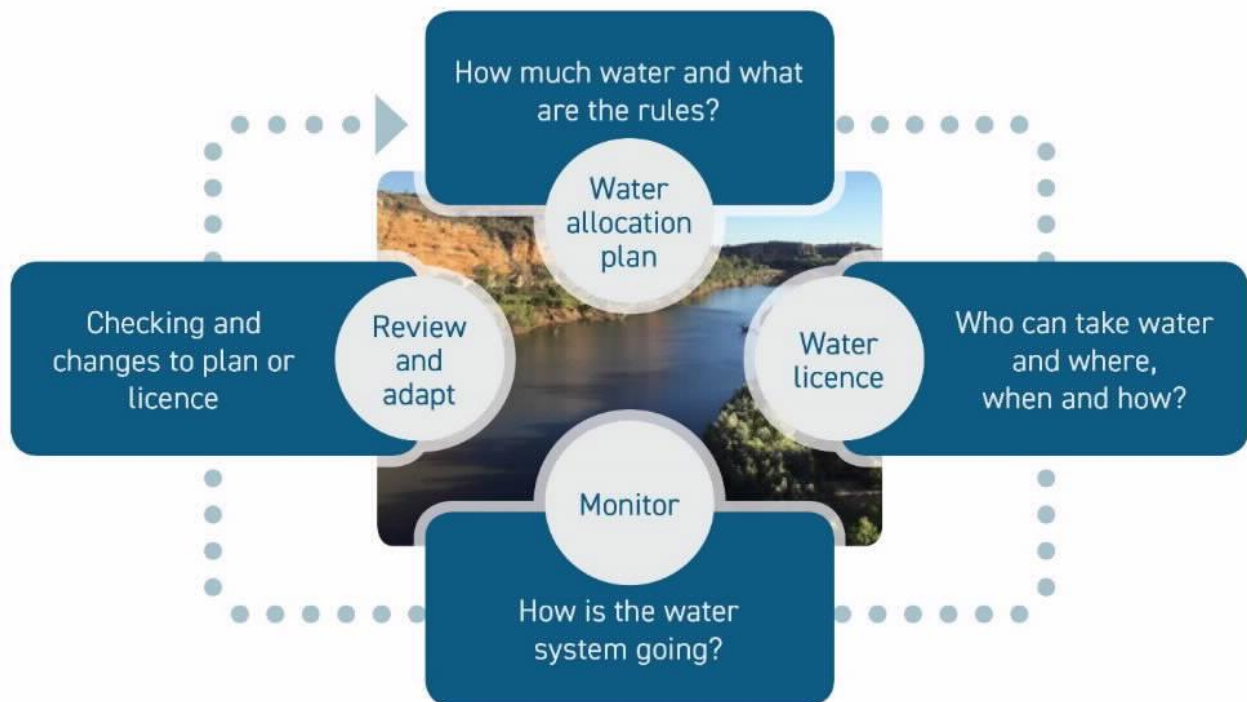


Figure 6 The Department of Water and Environmental Regulation manages water through an integrated process including water allocation planning, licensing and monitoring.

Has climate and climate change been considered in water planning for the Fitzroy River Catchment?

Climate change is affecting rainfall across Western Australia although these changes vary depending on location. While the south-west of the State is getting drier, rainfall in the Fitzroy River Catchment has generally increased since the 1960s (Figure 7). However, there have still been extended periods of limited rainfall in the Fitzroy catchment, which are important to water resource management decisions and considering the reliability of water supply. These patterns are reflected in streamflow data (Figure 8).

Future global climate projections are uncertain and show that rainfall in the Fitzroy Catchment could either increase or decrease depending on the model used. Given the lack of a clear trend for the future climate, we have used long-term climate data in our water modelling and planning. This approach means we take into account the full range of natural variability that has already occurred and may occur again.

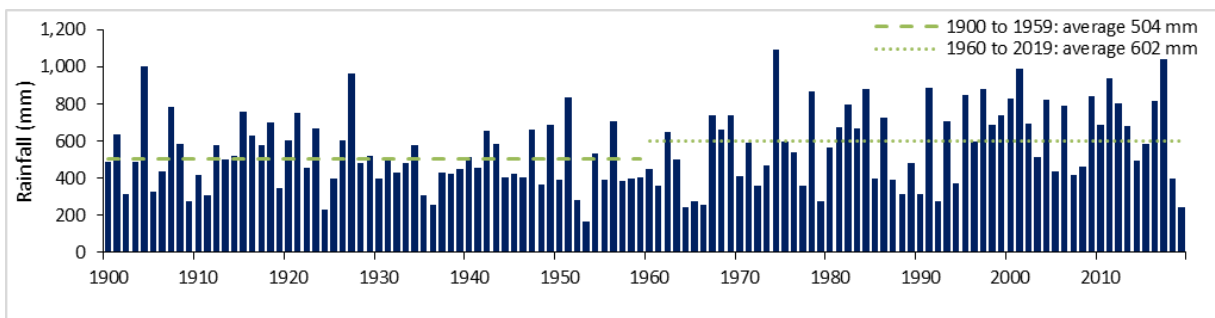


Figure 7 Annual rainfall at Fitzroy Crossing between 1900 and 2019

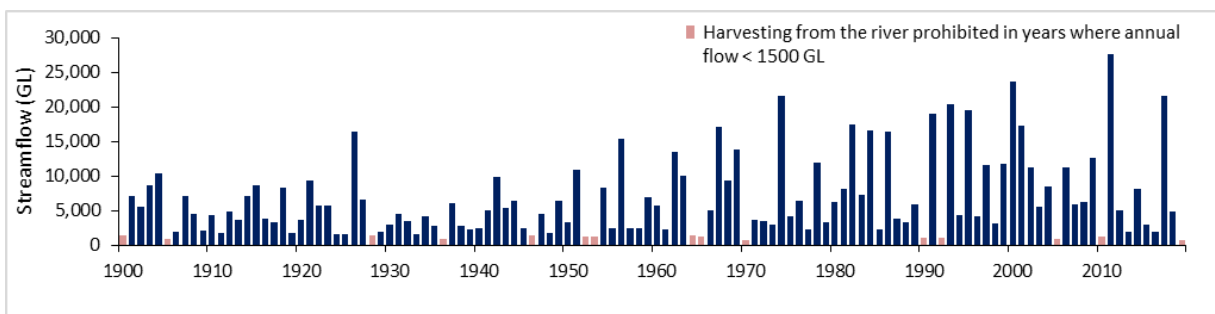


Figure 8 Modelled annual streamflow at Fitzroy Barrage between 1900 and 2019

Why not the CSIRO 1700 GL option?

In 2018 the CSIRO completed a water resource assessment for the Fitzroy River Catchment as part of the Australian Government’s program for enhancing sustainable development in northern Australia.

The assessment found that while it was physically possible to harvest 1700 GL/year of water from the Fitzroy River, the trade-offs could include a wide range of impacts to ecological and cultural values. It also identified that decisions on the future of the catchment would require resolution of a diverse range of people’s views, values and interests.

The Department of Water and Environmental Regulation considered the rules CSIRO used to develop the 1700 GL/year option and found this could result in significant

changes to important parts of the river’s flow, and extended dry and drought periods. After considering these results and talking with people, this volume would not be acceptable or sustainable and would significantly impact the national heritage values of the river.

For more information about the CSIRO’s water resource assessment for the Fitzroy Catchment see csiro.au.

How does the Fitzroy River Catchment compare with the Murray-Darling Basin?

During the State Government’s consultation with stakeholders, there were many comparisons made with the Murray-Darling Basin. Although it’s understandable that these sorts of comparisons are made, we need to be cautious comparing river systems that differ in climate, catchment size, flows, level of development and administrative complexity (Table 2).

The State Government’s water allocation policies have been designed to address many of the concerns raised regarding managing water in the Murray-Darling Basin. This includes not allowing the Fitzroy River to be dammed, staging development and only allowing a small proportion of annual flow to be harvested under strict flow rules.

Table 2 Comparisons between the Fitzroy River and the Murray-Darling Basin

	Murray-Darling Basin	Fitzroy River Catchment
Catchment area	1,060,000 km ²	94,000 km ²
Long-term average annual flow	32,553 GL	6,600 GL
Maximum amount of water that can be allocated (allocation limit)	10,945 GL/year	Option 1: 0 GL/year surface water Option 2: 300 GL/year surface water
Percentage of long-term average annual flow that can be harvested	34%	Option 1: 0% Option 2: 4.5%
Level of modification of the river system	Very highly modified Around 240 in-stream dams (Kingsford et al. 2017)	Minimally modified No dams One existing in-stream structure (Camballin Barrage)
Number of state jurisdictions involved in administration	4 (QLD, NSW, VIC and SA)	1 (WA)

What is the West Kimberley National Heritage Place listing?

The West Kimberley National Heritage Place (Figure 9) was included in the National Heritage List on 31 August 2011 in recognition of the area’s outstanding Aboriginal, historic, aesthetic, cultural and natural heritage values.

National heritage listing means the place’s heritage values must be appropriately considered when government makes decisions about development, including issuing water licenses.

More information about the West Kimberley National Heritage Place is available at environment.gov.au.

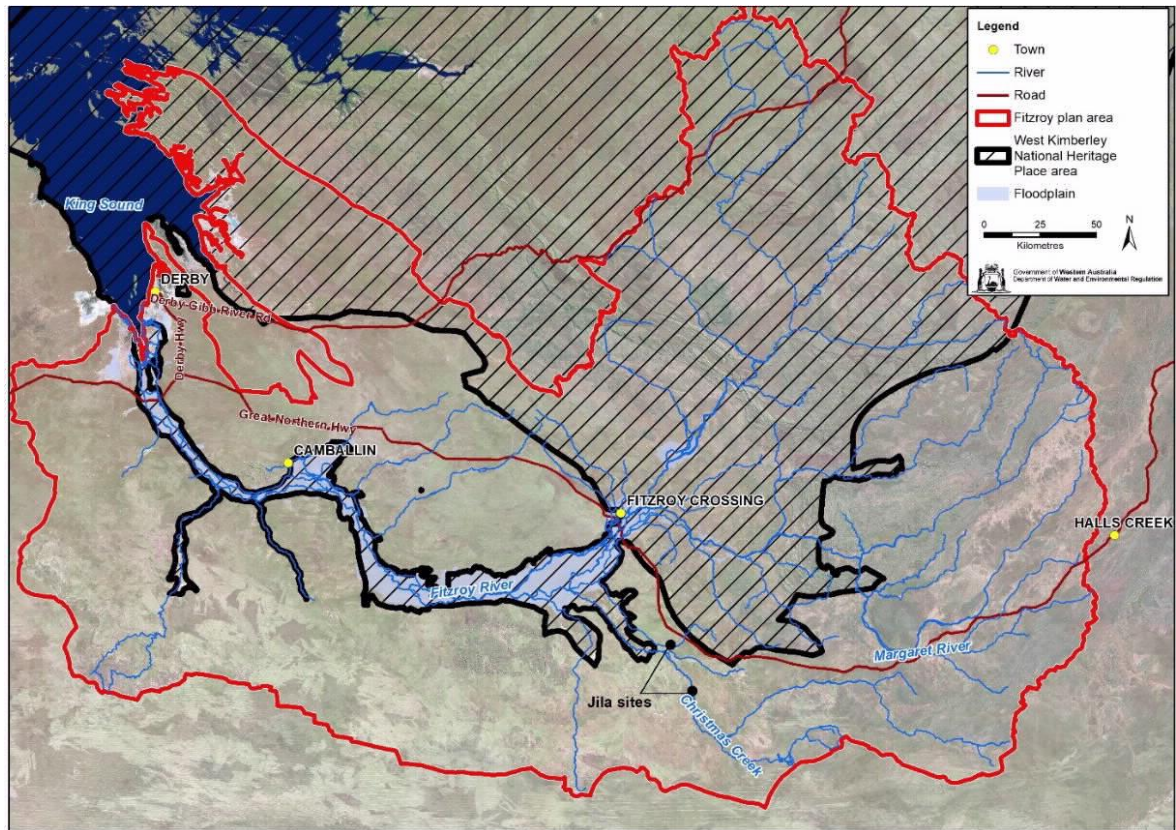


Figure 9 The West Kimberley National Heritage Place, Fitzroy River Catchment and water planning area for the Fitzroy water allocation plan.

What is a gigalitre of water?

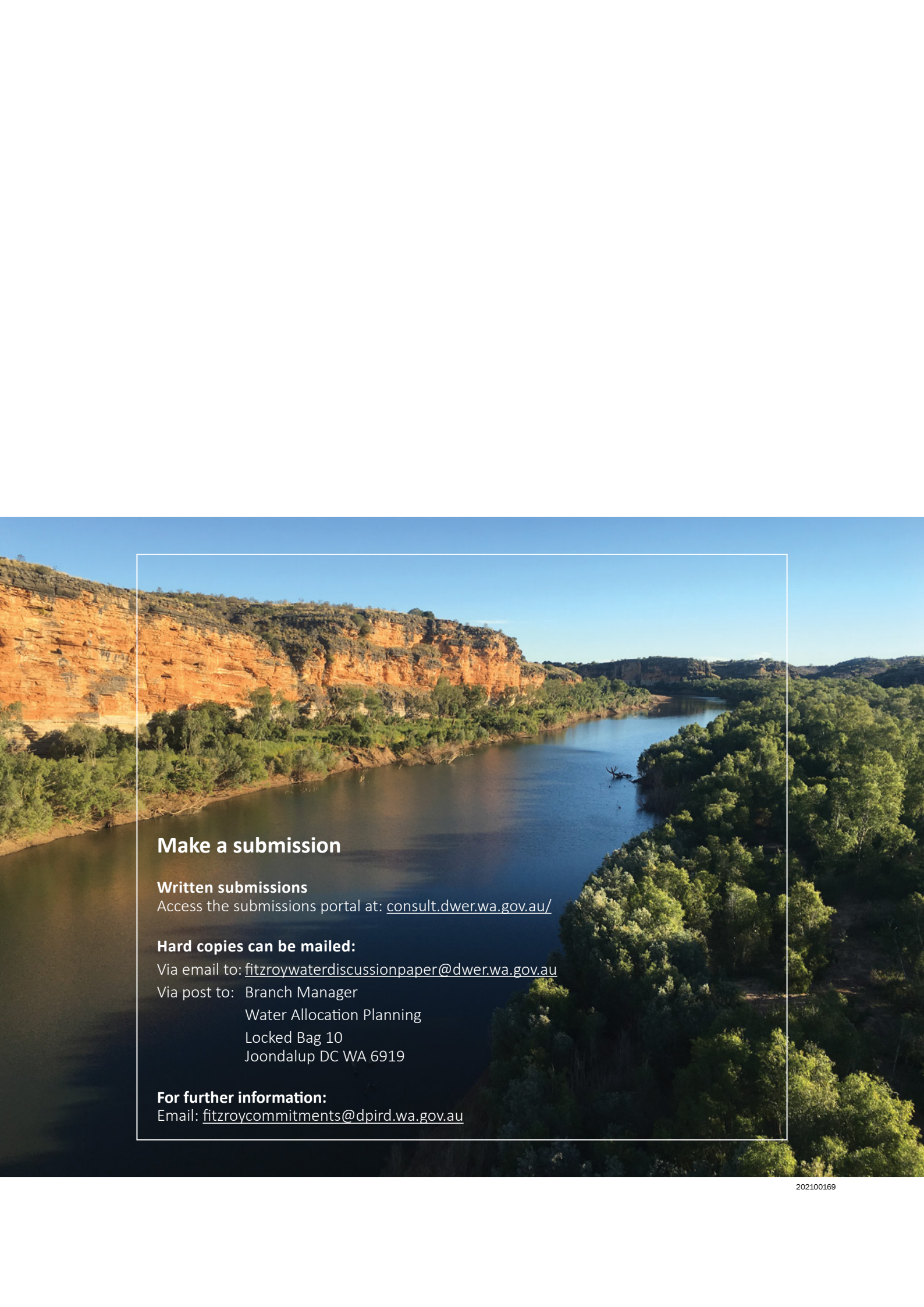
A gigalitre of water is one thousand (1000) megalitres, which is also one billion (1,000,000,000) litres.

For comparison, the Ord River Dam (Lake Argyle) has a storage capacity of over ten thousand (10,000) gigalitres.

One gigalitre of water is equivalent to the amount of water it would take to fill the Optus Stadium.

Appendix: Further reading

- Australian Government 2016, *Engage early: Guidance for proponents on best practice Indigenous engagement for environmental assessments under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*, Australian Government, Canberra.
- Australian Government 2017, *Engaging Indigenous peoples in water planning and management*. Available at: agriculture.gov.au/water/policy/nwi/indigenous-engagement
- Australian Heritage Commission 2002, *Ask first: A guide to respecting Indigenous heritage places and values*, Australian Heritage Commission, Canberra.
- CENRM 2010, *Fitzroy River Catchment management plan*, prepared for Rangelands NRM by Centre of Excellence in Natural Resource Managements, The University of Western Australia, Perth.
- Department of Water 2015, *Selection of future climate projections for Western Australia*, Water Science Technical Series, report no. 72, Department of Water, Perth.
- Douglas, MM, Jackson, S, Canham, C, Laborde S, Beesley L, Kennard, MJ, Pusey, BJ, Loomes, R & Setterfield, S 2019, 'Conceptualising hydro-socio-ecological relationships to enable more integrated and inclusive water allocation planning', *One Earth* 1, pp. 359-371.
- Kingsford, R, Bino, G & Porter, J 2017, 'Continental impacts of water development on waterbirds, contrasting two Australian river basins: Global implications for sustainable water use', *Global Climate Change*, vol. 23, no. 11. Available at: onlinelibrary.wiley.com/doi/abs/10.1111/gcb.13743
- Petheram, C, Bruce, C, Chilcott, C & Watson, I (eds) 2018, *Water resource assessment for the Fitzroy Catchment. A report to the Australian Government from the CSIRO Northern Australia Water Resource Assessment, as part of the National Water Infrastructure Development Fund: Water Resource Assessments*, CSIRO, Australia.



Make a submission

Written submissions

Access the submissions portal at: consult.dwer.wa.gov.au/

Hard copies can be mailed:

Via email to: fitzroywaterdiscussionpaper@dwer.wa.gov.au

Via post to: Branch Manager

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